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Southwestern
Region

Terrestrial Ecosystem Survey of the Kaibab National Forest

Coconino County and Part of Yavapai County, Arizona

This manual uses "Scientific Names" as opposed to "Common Names" found in NRCS AZ629 Soil Survey. Definitions for scientific nomenclature can be found in soil science academic publications. – Janet Travis, USDA-FS Soil Scientist/GIS

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Fieldwork for this soil survey was completed in the period of 1979 through 1986. Soil names and descriptions were approved in September 1989. Unless otherwise indicated, statements in the publication refer to conditions in the survey area in 1989.

Maps in this survey may be copied without permission, but any enlargement of these maps could cause misunderstanding of the detail of mapping and result in erroneous interpretations. Enlarged maps do not show small areas of contrasting soils that could have been shown at a larger mapping scale.

Cover: View of DeMotte Park, Kaibab National Forest.

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Foreword

This Terrestrial Ecosystem Survey contains information that should be used in land planning and management programs on the Kaibab National Forest. It contains predictions and limitations of soil and vegetation behavior for selected land uses. This survey also highlights hazards or capabilities inherent in the soil and the impact of selected uses on the environment.

This survey is designed for use by various functions. Planners, Foresters, Range Conservationists, Recreation Specialists, Engineers, and Watershed Specialists, as well as professionals or laypersons can use it to evaluate the potential of the landscape within the Forest.

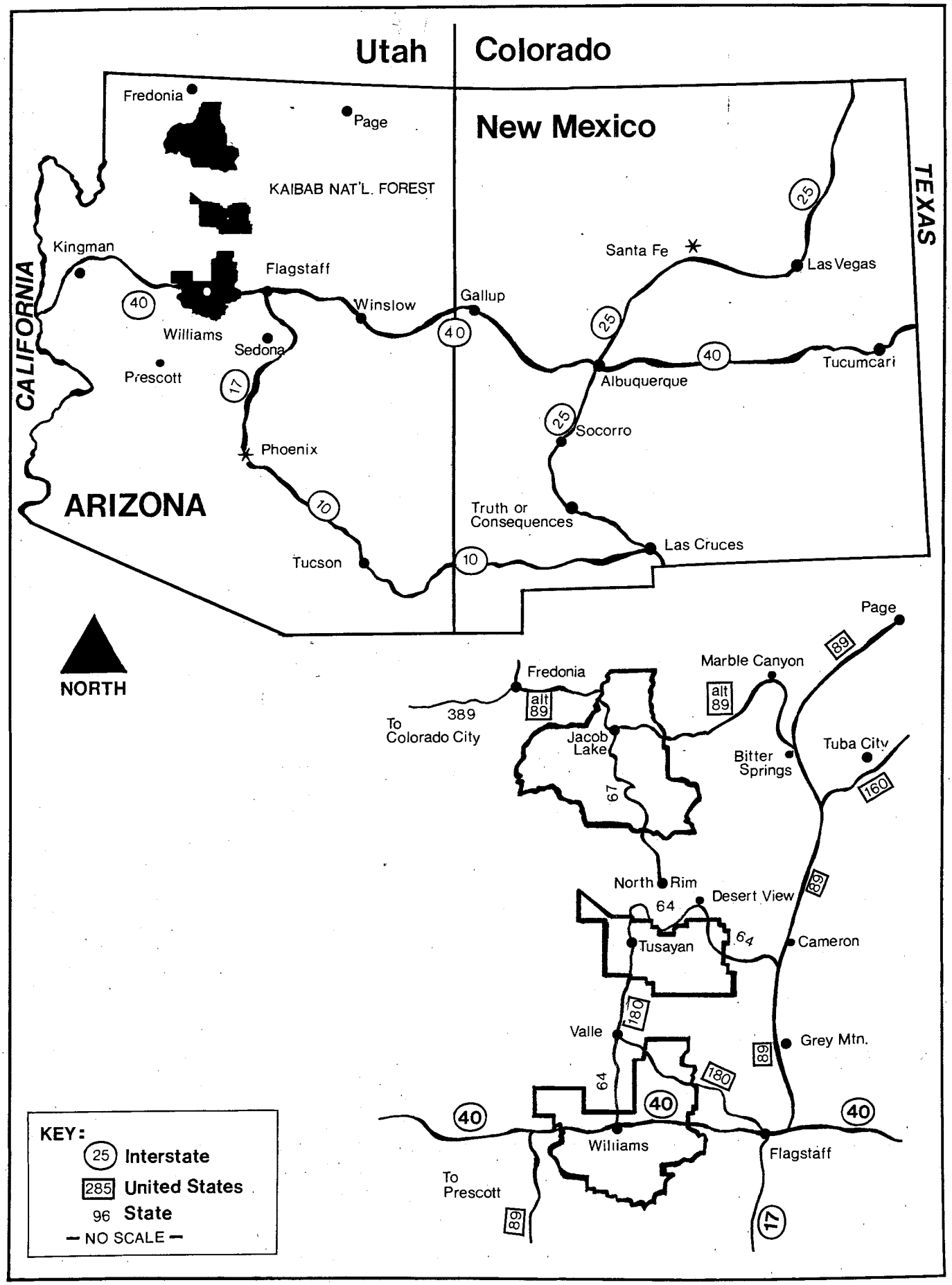
Many differences in ecosystem properties can occur, even within short distances. Some soils are too shallow or rocky for selected uses, or too unstable for foundations, unsurfaced roads, or fill material. Some soils lend themselves better to reforestation or revegetation efforts than others. This survey report can point out ecosystems that may best fit the desired and, as such, should be used as a basis for many resource planning efforts.

Many other ecosystem properties that affect land use are described in this report. The location of each ecosystem or map unit is shown on the 1:24000 scale maps. Each soil in the survey area is described and information on specific uses is given. Additional help in using or applying this information is available from the Soil Scientist.

Some Map Units were broken out after the 1991 Manuscript was printed. These are included at the end.
J Travis, NKRD

Contents

KAIBAB NATIONAL FOREST



iv Location of the Kaibab National Forest, Coconino County and part of Yavapai County Area, Arizona.

Terrestrial Ecosystems Survey of the Kaibab National Forest

By David G. Brewer, Rodney K. Jorgensen, Lewis P. Munk,
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The Kaibab National Forest is located within Coconino and Yavapai Counties, Arizona (see figure 1). The survey area encompasses approximately 1,534,443 acres (602,981 hectares) within the total Forest boundaries.

The purpose of a Terrestrial Ecosystem Survey is to map and evaluate the terrestrial ecosystems in the survey area. It can be used to evaluate and adjust land uses to the limitations and potentials of natural resources and the environment. It is also useful for determining areas in which more detailed information is needed.

CLIMATE

The survey area occurs within the Northcentral climatological division of Arizona. The climate is highly variable as a consequence of the uneven topography and the wide range in elevation. The elevation ranges from a low of 950 meters in Kanab Creek to 3000 meters on Bill Williams Mountain. The climate varies from cold steppe at the lower elevations to boreal at the higher elevations. The information presented in this section is based upon climatic station data. Ranges given may exceed at either elevation extremes.

Average annual precipitation ranges from 24 to 80 centimeters. Precipitation distribution is bimodal. The wettest season extends from July through October; a second wet season extends from December through March. In the southern portion of the area, less than 50 percent of the annual precipitation occurs during the low-sun half year period of 01 October to 31 March. In the northern portion more than 50 percent occurs during the same period. Mean annual total snowfall ranges from 60 to over 170 centimeters. However, at the lower elevations snow cover does not persist.

Average annual temperatures range from 13 degrees Celsius at the lower elevations to about 1 degree at the higher elevations. For the month of January, mean minimum temperatures range from -12 to -7 degrees Celsius; mean maximum temperatures range from 0 to 10 degrees Celsius. For the month of July, mean minimum temperatures range from 7 to 11 degrees Celsius; mean maximum temperatures range from 21 to 44 degrees Celsius. The average date

of the last spring killing freeze ranges from April 1 through July 1. The average date for the first fall killing freeze ranges from September 10 to November 1. Thus the freeze-free period ranges from approximately 150 days at the lowest elevatons to less than 50 days at the highest elevations.

How the Survey Was Made

Mapping was done on 1:24000 and 1:30000 aerial photographs. The information was transferred to a 1:24000 orthophoto base map which is included as part of this report.

Mapping units were delineated by steroscopic examination of aerial photographs. The basis of delineations were differences in topography, geology and vegetation. Field documentation was made to identify map unit components and to verify accuracy of the delineations.

How to Use This Report

1. Locate your area of interest on the "index to Map Sheets" (the last page of this publication).

2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map.

4. List the Map unit symbols that are in your area of interest.

5. Turn to "Acreage, Proportionate Extent and Index to Map Units' which lists the names of each map unit and the page where that map unit is described and interpreted.

6. Refer to specific pages for information pertaining to a map unit and its associated interpretations.

7. Use the report in the field and in the office. Add your own comments and observations about how the various map units perform under identified management practices.

Use and Management of the Terrestrial Ecosystem

Information in this section of the report presents important properties pertaining to the nature and behavioral characteristics of the terrestrial ecosystem. It is the basis for making interpretations.

Information can be used for generating additional interpretations. Absence of entry (e.g., ---) indicates that: (1) Information was not available, (2) Not estimated, or (3) Not a concern. The interpretations presented are limited to those currently receiving the most use. Information is presented as an ecological unit. This facilitates evaluation of impacts on the whole unit.

The form entitled "Map Unit Description, Properties and Selected Interpretations" is divided into six sections. These sections are as follows:

1.0 - This section lists information pertaining to the survey area, map symbol, name, and setting. The setting consists of a narrative description of the map unit. The map unit description in this section, along with the maps, can be used to determine the suitability and potential of a terrestrial ecosystem for specific uses. It also can be used to plan the management needed for those uses. Each map unit on the maps represents an area on the landscape and consists of one or more terrestrial ecosystems for which the unit is named.

Four kinds of map units are shown on the maps: consociations, complexes, associations, and undifferentiated groups.

A consociation is a map unit consisting of a single terrestrial ecosystem. An example is Typic Eutroboralfs, HSC, 5, 0, fine, mixed: Pipo/Quga, 15 to 40 percent slopes.

A complex is a map unit consisting of two or more terrestrial ecosystems so intermingled or so small that they cannot be shown separately on the maps at a scale of 1:24,000. Each area of a complex contains some of each of the two or more dominant terrestrial ecosystem, and the pattern and relative proportions are about the same in all areas. The name of a terrestrial ecosystem complex consists of the names of the dominant terrestrial ecosystems. An example is Typic Eutroboralfs, HSC, 5, 0, fine, mixed - Lithic Eutroboralfs, HSC, 5, 0, clayey, mixed: Pipo/Quga, 15 to 40 percent slopes.

An association is a map unit consisting of two or more terrestrial ecosystems that occur as areas large enough to be shown individually on the maps but are shown as one unit because use and management does not justify separation. There is a degree of uniformity in pattern and relative extent of the dominate terrestrial ecosystems, but they can differ greatly one from another. The name of an association consists of the names of the dominant terrestrial ecosystems. An example is Typic Eutroboralfs, LSC, 5, 0, fine, mixed-Lithic Eutroboralfs, LSC, 5, 0, clayey mixed: Pipo/Quga, association, 15 to 40 percent slopes.

An undifferentiated group is a map unit consisting of two or more terrestrial ecosystems that are not consistently associated geographically. They are included in the same map unit because use and

management are the same or very similar for common uses. These units are often highly variable in properties. An example is Eutroboralfs and Dystrochrepts, LSC, 5 and 6, frigid: Pipo/Quga, 40 to 120 percent slopes.

Miscellaneous areas can occur as a component in any of the various kinds of map units. Examples are riverwash and rock outcrop.

2.0 - This section contains information by map unit components, characteristics and composition.

Terrestrial ecosystems are recognized by the interaction of three major components. These components are soil, climate, and vegetation. Some land areas have little or no soil material and support little or no vegetation. Examples are granite rock outcrop, riverwash, etc. Taxa for soil and vegetation are listed in the appropriate column. Miscellaneous areas are also listed in this column. Subsections of Section 2.0, such as 2.1 through 2.4, refer to the dominant or named components that comprise the majority of the mapping unit. Subsections 2.5 and 2.6 are soil inclusions that infrequently occur in the mapping unit in an unpredictable pattern. Climate is indicated as a generalized class. Information listed for phase serves as a functional grouping created for a specific purpose. Designated soil phases reflect differences in soil or environmental features that are significant to use and management.

Climatic class locates the terrestrial ecosystem in one of four major climatic areas. These climatic classes are based on the following criteria:

Six month season with greater than one-half of the annual precipitation	Winter	Soil Temp.Regime (Forest-Pipo)
HSM-High sun (HS) 01 April to 30 Sept.	Mild(M)	Mesic
HSC-High sun (HS) 01 April to 30 Sept.	Cold(C)	Frigid
LSM-low sun (LS) 01 Oct. to 31 Mar.	Mild(M)	Mesic
LSC-low sun (LS) 01 Oct. to 31 Mar.	Cold(C)	Frigid

The vegetation classification system is based upon the lands potential for vegetation development. The potential or climax vegetation is assumed to reflect climatic factors at the broadest classification level. Lower levels of the system are influenced by local factors of climate, soil, animals, fire, and other environmental influences. The system is hierarchical, consisting of five levels or ranks of generalization.

Climax class provides the best evaluation of properties controlling the terrestrial ecosystem. All terrestrial ecosystems must meet a threshold for climatic limits. Deviation from climatic climax is attributed to properties grouped within the following climax classes:

1. Edaphic
2. Topographic
3. Fire
4. Zootic

Often the controlling factor for a particular terrestrial ecosystem is a combination of properties. An example is topo-edaphic. An explanation of the controlling factors is given where appropriate.

Abbreviations

MAP	cm	- mean annual precipitation - centimeters
ME	m	- mean elevation - meters
MAST	deg.C	- mean annual soil temperature - degrees Celsius.
MSST	deg.C	- mean summer soil temperature - degrees Celsius.
Comp.	%	- Map unit composition - percent

3.0 - This section contains additional information relevant to management of the terrestrial ecosystem component. Unique natural features are also listed in this section.

4.0 - Map unit composition is an indication of map unit purity. It is expressed as a percentage, by area, of the map unit.

Sheet/rill erosion is the estimated rate of annual soil loss as predicted by the Universal Soil Loss Equation (USLE). Since litter can occur over rock fragments the total value for all surface components can exceed 100 percent of an area. Soil loss rates are useful as an index thus are not considered as absolute values. Soil losses are predicted for the four following categories:

1. Potential is the rate of soil loss that would occur under conditions of complete removal of the vegetation and the litter portion of groundcover (maximum rate).

2. Tolerance is the maximum rate of soil loss that can occur while sustaining inherent site productivity (Threshold rate).

3. Current is the rate of soil loss occurring under existing conditions of groundcover (Existing rate).

4. Natural is the rate of soil loss that would occur under conditions associated with a climax category (minimum rate).

A value for vegetative ground cover is listed for each soil loss rate. Vegetative ground cover includes vegetation and litter.

Current surface components are represented by the following four major fractions:

Rock fragments (> 2 mm)
Vegetation (Basal area)
Litter (> 2.54 cm)
Soil (Bare soil)

5.0 - This section contains interpretations for selected uses.

Explanation of the categories for interpretation follows.

Herbaceous/woody plant growth is an estimate in pounds per acre of the total annual yield (air-dry/normal year) of all plants from the soil surface to a height of 4 1/2 feet.

Forage is an estimate in pounds per acre of the annual yield (air-dry/normal year) of herbaceous/woody plants that may provide food for grazing animals. The zone of estimation is the same as for herbaceous/woody.

Forage maximum is an estimate in pounds per acre of the annual yield (air-dry/normal year) of forage assuming the removal of undesirable plants. This figure is used in evaluating projects where undesirable plants (juniper, etc.) are to be removed and forage production maximized.

The potential productivity of marketable or common trees on a terrestrial ecosystem is expressed as site index. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands.

The potential productivity of fuelwood is expressed as cords per acre.

Revegetation potential refers to the probable success and ease in establishment of native grasses. This rating is influenced by climate, kinds of soils, and terrain. The initial stratification by soil climax yields limitations that are not normally economical to mitigate. The rating system is for use with a rangeland drill, broadcast seeder (hand held) and aerial seeding with no consideration for site preparation (removal of trees, etc.).

A low or moderate rating alerts the land manager to potential problems for successful revegetation of an area. Soils associated with a "high" rating offer the best opportunity for success. Separation of the most limiting soil
climates leaves a wide range of soil climates to deal with. It is assumed that

adaptable species will be seeded, thus there were no further attempt to differentiate potential by soil climate. The udic/frigid combination offers the optimum soil climate for establishment of vegetation.

Reforestation potential refers to the probable success (survival) and ease in establishment of trees (hand and machine planting). This rating is influenced by climate, kinds of soils and terrain. The initial stratification by soil climate separates climatic limitations from remaining variables.

The term "topsoil" has several meanings, but as used here, the term describes soil material used to cover an area so as to improve soil conditions for establishment and maintenance of adapted vegetation. Generally, the organic rich upper part of the soil is most desirable; however, material excavated from deeper layers is also used. In this rating, the upper 100 cm of soil material is evaluated for its use as topsoil.

Roadfill suitabilities pertain to the use of soils in the construction of roadfill. Roadfill consists of soil material that is excavated from its original position and used in road embankments elsewhere.

Wildlife habitat classes are a subjective correlation between the importance of a terrestrial ecosystem for selected wildlife species.

Timber harvest limitations are limits to be considered when evaluating the impact of timber harvest with regard to maintenance of soil productivity. Limits relate to year round or seasonal, use of equipment, as the result of climate, soil characteristics, and landform.

A moderate or severe rating directs the land manager to areas that require mitigation in order to avoid impairment of soil productivity. Logging systems can be employed that will adequately overcome many limitations. Seasons of logging can often be used to mitigate soil moisture problems (dry season or frozen/snow cover). Restrictions on slopes over 40 percent can be mitigated by a system of cable logging.

Cutbank stability (slumps) limits are for exposures of vertical cuts. A rating for cutbank stability provides the land manager with information useful in the selection of road location and consequent use. An important assumption is that the rating is associated with the most limiting condition.

Unsurfaced road limitations pertain to the use of soils in place for roads. These roads are of low design and minimum construction cost (e.g., haul roads, etc.).

A moderate or severe rating alerts the land manager to problems in construction and maintenance of this category of roads. The majority are temporary, therefore, will receive a minimum of maintenance. Use of this information will allow for consideration of alternate routes avoiding mitigating problems and/or severe damage to the soil resource.

Trail limitations pertains to the use of soils in the construction of trails.

Campground limitations pertains to the use of soils in the construction and maintenance of developed campgrounds. There will be significant localized impact on soil during and after construction.

Wheeled off-road vehicle (ORV) limitations are limits on the use of this type of recreational activity.

Erosion hazard is predicted on the basis of relative susceptibility to erosion upon removal of vegetation and litter. Three classes are used.

Mass wasting is a general term for a variety of processes by which large masses of earth material are moved by gravity, either slowly or quickly from one place to another. This rating provides the land manager with information dealing with inherent stability.

Windthrow hazard is based on the probability of trees being up-rooted by the wind as a result of insufficient depth and strength of the soil to give adequate root anchorage.

Plant competition is based on the probability of the invasion or growth of undesirable plant species when openings are made in the woodland or forest canopy.

6.0 - Vegetation is described in this report as coverage. Each species is assigned an average cover value representing the mean coverage of the model vegetation associated with the mapping unit component. Model vegetation is a synthetic description of vegetation representing the center of its sample variability. The sample variability for a particular vegetation type includes the range of coverage values for each species. The coverage values are therefore abstract generalities about vegetation potential over the mapping unit.

Vegetation reported as canopy coverage is a criterion of the relative dominance of each species, of potential productivity, of the influence of plants on precipitation interception and soil temperatures, and of the value of vegetation to animals. Coverage is applicable to all terrestrial ecosystems because of the importance of sunlight coming from above. Use of coverage for comparison on a common basis for all plants from small forbs to trees is also of advantage since different-sized plots that must be used for different-size plants have no influence upon the data. Evaluations precise enough for research or inventory purposes usually do not require lengthy field time.

Terrestrial Ecosystem Survey
Mapping Unit Legend
Kaibab National Forest
2-22-91 (rev. 5-2-95)

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
3	Fluventic Ustochrepts, --- fine-loamy, mixed, mesic	deep --- vfsl ---	HSC 4	Atca2/Agsm/ Pied	Topo- edaphic- zootic	0-5%			
4	Aridic Ustochrepts, --- loamy-skeletal, carb. mesic	--- gr fsl ---	LSC 3 +1	Artr2/Bogr2 Stco4	Edaphic	0-15% Complex	at back		
	Aridic Ustochrepts, --- fine-loamy, carbonatic mesic	--- gr fsl ---	LSC 3 +1	Artr2/Bogr2 Stco4	Edaphic				
5	Pachic Udic Argibor., --- fine-loamy, mixed ---	deep --- loam ---	LSC 6	Popr/Feov/ Bran	Topo- edaphic- zootic	0-5% Complex			
	Pachic Udic Argibor., --- loamy-skeletal,mixed ---	deep --- loam ---	LSC 6	Popr/Feov/ Bran	Topo- edaphic- zootic				
6	Pachic Argiborolls, --- fine,montmorillonitic ---	deep --- cl s.p. drained	LSC 5	Popr/Fear2	Topo- edaphic- zootic	0-5%			
7	Cumulic Haplustolls, --- fine-loamy, mixed, mesic	deep --- vfsl ---	HSC 4	Agsm/Pied	Topo- edaphic- zootic	0-5%			
9	Cumulic Haploborolls, --- fine-loamy, mixed ---	deep --- loam ---	LSC 5	Popr/Agsm/ Pipos	Topo- edaphic- zootic	0-5% Complex			
	Cumulic Haploborolls, --- loamy-skeletal,mixed ---	deep --- loam ---	LSC 5	Popr/Agsm/ Pipos	Topo- edaphic- zootic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
10	Typic Argiborolls, --- fine,montmorillonitic ---	deep --- loam ---	LSC 5 0	Pipos/Quga	Edaphic	0-5%			
11	Cumulic Haploborolls, --- fine-loamy, mixed ---	deep --- vfsl ---	LSC 5	Popr/Mumo	Topo- edaphic- zootic	0-5%			
15	Typic Torrifluvents, --- sandy-skeletal, mixed (calcareous), mesic	deep gr lfs ---	LSC 2	Pofr2	Topo- edaphic	0-15% Complex			
	Typic Torrifluvents, --- coarse-loamy, mixed (calcareous), mesic	deep --- fsl ---	LSC 2	Pofr2	Topo- edaphic				
	Riverwash	---	---	---	---				
17	Cumulic Haplustolls, --- fine-loamy, mixed, mesic	deep --- loam ---	LSC 4 0	Artr2/Bogr2/ Pied	Topo- edaphic- zootic	0-5%			
20	Vertic Haplaquolls, --- very fine, mont., frigid	deep --- clay occ. flooded	LSC 5	CARE/ELEO/ Pola4/Alge	Topo- edaphic- zootic	0-5%			
23	Fluventic Ustochrepts, --- fine-loamy, mixed, mesic	deep --- vfsl ---	LSC 4	Artr2/Bogr2/ Pied	Topo- edaphic- zootic	0-5% Complex			
	Fluventic Ustochrepts, --- loamy-skeletal,mixed, mesic	deep --- loam ---	LSC 4	Artr2/Bogr2/ Pied	Topo- edaphic- zootic				
32	Fluventic Ustochrepts, --- fine-loamy, mixed, mesic	deep --- fsl ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	0-15% Complex			
	Fluventic Ustochrepts, --- loamy-skeletal,mixed, mesic	mod. deep --- fsl ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
35	Argic Cryaquolls, --- fine-loamy, mixed ---	deep --- loam ---	LSC 7 -1	CAREX/ JUNCUS	Topo- edaphic- zootic	0-15% Assoc.			
	Argiaquic Cryoborolls, --- loamy-skeletal, mixed ---	deep --- loam ---	LSC 7 -1	CAREX/Popr/ Deca5	Topo- edaphic- zootic				
36	Pachic Argiustolls, --- fine, mixed, mesic	deep gr cl ---	HSC 4	Chna2/Agsm/ Pied	Topo- edaphic- zootic	0-5%			
37	Aquic Haploborolls, --- loamy-skeletal,mixed ---	deep gr vfsl	LSC 5	Popr/CAREX/ Fear2	Topo- edaphic- zootic	0-5%			
41	Typic Argiustolls, --- clayey-skeletal,mont., mesic	deep --- cl ---	HSC 4 0	Agsm/Pied	Edaphic	0-15%			
150	Rock Outcrop	---	---	---	---	0-15% Complex			
	Lithic Torriorthents, --- coarse-loamy, mixed (calcareous), mesic	--- --- fsl ---	LSC 2 +1	Cora/Hija	Edaphic				
151	Typic Torriorthents, --- loamy-skeletal,mixed (calcareous), mesic	deep grv fsl ---	LSC 2 +1	Cora/Hija	Edaphic	0-40% Complex			
	Rock Outcrop	---	---	---	---				
153	Rock Outcrop	---	---	---	---	40-120% Complex			
	Lithic Torriorthents, --- coarse-loamy, mixed (calcareous), mesic	--- --- fsl ---	LSC 2 +1	Cora/Hija	Edaphic				

A 11

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
154	Typic Ustorthents, --- loamy-skeletal,mixed (calcareous),mesic	--- grx fsl ---	LSC 3 +1	Artr2/Bogr2	Edaphic	40-120% Complex			
	Rock Outcrop	---	---	---	---				
156	Udic Haploborolls --- --- ---	mod. deep cobbly loam ---	LSC 6	Quga/Rone	Topo- edaphic- fire	40-80% Complex			
	Dystric Eutrochrepts --- --- ---	mod. deep gravelly sandy loam ---	LSC 6	Quga/Rone	Topo- edaphic- fire				
	Rock Outcrop	---	---	---	---				
162	Typic Haplustalfs, --- fine,montmorillonitic, mesic	--- --- fsl ---	HSC 4 0	Pied/Jumo	Edaphic	0-15%			
165	Typic Haplustalfs, --- clayey-skeletal,mont., mesic	mod. deep flv scl ---	HSC 4 0	Pied/Jumo	Edaphic	0-15% Complex			
	Lithic Haplustalfs, --- clayey-skeletal,mont., mesic	--- flv scl ---	HSC 4 0	Pied/Jumo	Edaphic				
166	Typic Haplustalfs, --- clayey-skeletal,mont., mesic	mod. deep flv fsl ---	HSC 4 0	Pied/Jumo	Edaphic	15-40% Complex			
	Lithic Haplustalfs, --- clayey-skeletal,mont., mesic	--- flv fsl ---	HSC 4 0	Pied/Jumo	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
167	Typic Haplustalfs, --- --- mesic	mod. deep flv fsl ---	HSC 4 0	Pied/Jumo	Edaphic	40-80% Complex			
	Lithic Haplustalfs, --- --- mesic	--- flv fsl ---	HSC 4 0	Pied/Jumo	Edaphic				
172	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- gr fsl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	0-15%			
217	Aridic Haplustalfs, --- fine, montmorillonitic mesic	--- --- loam eroded	LSC 3 +1	Artr2/Bogr2	Edaphic	0-30% Complex			at back
	Lithic Haplustalfs, --- clayey-skeletal, mont. mesic	--- grv sl eroded	LSC 3 +1	Artr2/Bogr2	Edaphic				
250	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- gr fsl ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	0-15%			
251	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv fsl ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	15-40% Complex			
	Rock Outcrop	---	---	---	---				
252	Lithic Ustochrepts, calcareous, --- mesic	--- grv fsl ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	40-80% Complex			
	Typic Ustochrepts, calcareous, --- mesic	mod. deep grv fsl ---	LSC 4 0	Pied/Juos Artr2/Stco4	Edaphic				
	Rock Outcrop	---	---	---	---				
255	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- gr vfsl ---	HSC 4 0	Atca2/Stco4/ Bogr2/Pied	Edaphic	0-15%			

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
257	Typic Haplustalfs, --- fine,loamy, mixed, mesic	deep --- lvfs ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	0-15%			
260	Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- grv vfsl ---	LSC 4 +1	Pied/Quga/ Artr2/Stco4	Edaphic	0-15% Complex			
	Typic Ustochrepts, --- loamy-skeletal, carb., mesic	mod. deep gr vfsl ---	LSC 4 +1	Pied/Quga/ Artr2/Stco4	Edaphic				
261	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv fsl ---	LSC 4 +1	Pied/Quga/ Artr2/Stco4	Edaphic	15-40% Complex			
	Rock Outcrop	---	---	---	---				
263	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	0-15% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic				
264	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	---- grv loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	15-40% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep grv loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic				
	Rock Outcrop	---	---	---	---				

Map Sym.	Map Unit Name Soil Taxonomic	 Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
265	Lithic Eutroboralfs, --- loamy-skeletal,mixed ---	--- cb vfsl ---	LSC 5 0	Pipos/Quga	Edaphic	0-15%			
266	Lithic Eutroboralfs, --- loamy-skeletal,mixed ---	--- st loam ---	LSC 5 0	Pipos/Quga	Edaphic	15-40% Complex			
	Rock Outcrop	---	---	---	---				
271	Lithic Ustochrepts, --- --- frigid	---	LSC 5	Pipos	Edaphic	40-80% Complex			
	Udic Ustochrepts, --- --- frigid	---	LSC 5	Pipos	Edaphic				
	Rock Outcrop	---	---	---	---				
272	Typic Haplustalfs, --- clayey-skeletal,mont., mesic	--- gr loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	0-15% Complex			
	Typic Haplustalfs, --- fine,montmorillontic, mesic	--- gr loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic				
273	Typic Haplustalfs, --- clayey-skeletal,mont., mesic	--- grv loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	15-40% Complex			
	Typic Haplustalfs, --- fine,montmorillontic, mesic	--- grv loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
274	Typic Ustochrepts, calcareous, --- mesic	mod. deep grv fsl ---	LSC 4	Pied/Juos/ Artr2/Stco4	Edaphic	40-120% Undiff. Group			
	Lithic Ustochrepts, calcareous, --- mesic	--- grv fsl ---	LSC 4	Pied/Juos/ Artr2/Stco4	Edaphic				
	Typic Haplustalfs, --- --- mesic	mod. deep gr fsl ---	LSC 4	Pied/Juos/ Artr2	Edaphic				
	Rock Outcrop	---	---	---	---				
275	Lithic Ustochrepts, --- loamy-skeletal,mixed, frigid	--- cb vfsl ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	0-15%			
276	Lithic Haploborolls, --- loamy-skeletal,mixed ---	--- cbv loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	0-15% Complex			
	Rock Outcrop	---	---	---	---				
277	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv vfsl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	0-15% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr vfsl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic				
279	Typic Ustochrepts, --- loamy-skeletal,mixed, mesic	mod. deep gr fsl ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic- zootic	0-15% Complex			at back
	Typic Haplustalfs, --- fine,montmorillonitic, mesic	mod. deep gr loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic- zootic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
281	Typic Ustochrepts, --- loamy-skeletal,mixed, mesic	mod. deep gr fsl ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	0-15% Complex			
	Typic Haplustalfs, --- fine,montmorillonitic, mesic	mod. deep gr loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic				
282	Typic Eutroboralfs, --- fine-loamy, mixed ---	deep --- lvfs ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	0-15%			
283	Typic Eutroboralfs, --- fine,montmorillonitic ---	--- gr vfsl ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	0-15% Complex			
	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep gr vfsl ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic				
284	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep grv vfsl ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	15-40% Complex			
	Typic Eutroboralfs, --- fine,montmorillonitic ---	--- gr vfsl ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic				
287	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- cb vfsl ---	HSC 4 +1	Pied/Jumo/ Quga/Stco4	Edaphic	0-15% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr vfsl ---	HSC 4 +1	Pied/Jumo/ Quga/Stco4	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
288	Typic Haplustalfs,	mod. deep	HSC	Pied/Jumo	Edaphic	0-15%			
	---	gr	4			Complex			
	fine,montmorillonitic,	vfsl	0						
	mesic	---							
	Typic Haplustalfs,	mod. deep	HSC	Pied/Jumo	Edaphic				
	---	grv	4						
	clayey-skeletal,mont.,	vfsl	0						
	mesic	---							
290	Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	0-15%			
	---	gr	5			Complex			
	fine,montmorillonitic	vfsl	0						
	---	---							
	Typic Eutroboralfs,	mod. deep	LSC	Pipos/Quga	Edaphic				
	---	gr	5						
	clayey-skeletal,mont.	vfsl	0						
	---	---							
291	Typic Eutroboralfs,	mod. deep	LSC	Pipos/Quga	Edaphic	15-40%			
	---	gr	5			Complex			
	clayey-skeletal,mont.	vfsl	0						
	---	---							
	Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic				
	---	gr	5						
	fine, montmorillonitic	vfsl	0						
	---	---							
293	Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	0-15%			
	---	---	5			Complex			
	clayey-skeletal,mont.	loam	0						
	---	---							
	Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic				
	---	---	5						
	fine, montmorillonitic	loam	0						
	---	---							
294	Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	15-40%			
	---	---	5			Complex			
	clayey-skeletal,mont.	loam	0						
	---	---							
	Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic				
	---	---	5						
	fine,montmorillonitic	loam	0						
	---	---							

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
295	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv sl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	15-40% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep grv sl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic				
	Rock Outcrop	---	---	---	---				
296	Lithic Ustochrepts, calcareous, --- mesic	--- grv sl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	40-80% Complex			
	Typic Ustochrepts, calcareous, --- mesic	mod. deep grv sl ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic				
	Rock Outcrop	---	---	---	---				
297	Mollic Eutroboralfs, --- fine,montmorillonitic ---	--- gr loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	0-15% Complex			
	Mollic Eutroboralfs, --- clayey-skeletal,mont. ---	--- grv loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic				
298	Mollic Eutroboralfs, --- clayey-skeletal,mont. ---	--- gr loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	15-40% Complex			
	Mollic Eutroboralfs, --- fine,montmorillonitic ---	--- gr loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic				
299	Typic Haploborolls --- --- ---	mod. deep gr loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	40-120% Complex			
	Lithic Argiborolls --- --- ---	--- gr loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
300	Udic Ustochrepts, --- loamy-skeletal,mixed, frigid	--- grv sl ---	LSC 5 0	Pipos/Quga	Edaphic	15-40%			
302	Typic Dystrochrepts, --- loamy-skeletal,mixed, frigid	--- grv sl ---	LSC 6 0	Abco/Psmeg/ Pipos/Quga	Edaphic	15-40%			
303	Dystric Cryochrepts, --- --- ---	mod. deep cbv sandy loam ---	LSC 7	Pien	Edaphic	40-80%			
304	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep grv loam ---	LSC 5 0	Pipos/Quga	Edaphic	0-15%			
305	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep cb cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	0-15%			
310	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep cbv cl ---	LSC 5 0	Pipos/Quga	Edaphic	15-40%			
311	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep cbv cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	15-40%			
312	Eutric Glossoboralfs --- --- ---	mod. deep cbv loam ---	LSC 6	Psmeg	Edaphic	40-80% Complex			
	Lithic Glossoboralfs --- --- ---	--- cbv loam ---	LSC 6	Psmeg	Edaphic				
	Rock Outcrop	---	---	---	---				

20 A

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
320	Lithic Ustorthents,	---	LSC	Pipos	Edaphic	40-80%			
	---	grv	5			Complex			
	---	sl							
	frigid	---							
	Udic Ustochrepts,	mod. deep	LSC	Pipos	Edaphic				
	---	grv	5						
	---	sl							
	frigid	---							
322	Typic Dystrochrepts,	mod. deep	LSC	Psmeg	Edaphic	40-80%			
	---	grv	6			Complex			
	---	sl							
	frigid	---							
	Lithic Udorthents,	---	LSC	Psmeg	Edaphic				
	---	grv	6						
	---	sl							
	frigid	---							
324	Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	0-15%			
	---	grv	5			Complex			
	clayey-skeletal,mont.	loam	0						
	---	---							
	Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic				
	---	gr	5						
	fine,montmorillonitic	loam	0						
	---	---							
325	Udic Ustochrepts,	deep	LSC	Pipos/Quga	Edaphic	0-15%			
	---	gr	5						
	loamy-skeletal,mixed,	loam	0						
	frigid	---							
326	Udic Ustochrepts,	deep	HSC	Pipos/Pied/	Edaphic	0-15%			
	---	gr	5	Quga					
	loamy-skeletal,mixed,	loam	-1						
	frigid	---							
401	Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	0-15%			
	---	gr	5						
	fine,montmorillonitic	cl	0						
	---	---							
402	Mollic Eutroboralfs,	mod. deep	LSC	Pipos/Quga	Edaphic	15-40%			
	---	v.cind	5			Complex			
	fine, mixed	loam	0						
	---	---							
	Lithic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic				
	---	v.cind	5						
	clayey-skeletal,mixed	loam	0						
	---	---							

Map Sym.	Map Unit Name Soil Taxonomic	 Phase	 Climate Class	 Vegetation Taxonomic	 Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
405	Mollic Eutroboralfs, --- fine,montmorillonitic ---	--- grv cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	0-15%			
406	Mollic Eutroboralfs, --- fine,mixed ---	mod. deep v.cind loam ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	15-40% Complex			
	Lithic Eutroboralfs, --- clayey-skeletal,mixed ---	--- v.cind loam ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic				
407	Typic Vitrandepts, --- cindery, frigid	mod. deep v.cind loam ---	LSC 5 0	Pipos/Quga	Edaphic	15-40% Complex			
	Lithic Vitrandepts, --- cindery, frigid	--- v.cind loam ---	LSC 5 0	Pipos/Quga	Edaphic				
431	Mollic Eutroboralfs --- --- ---	mod. deep v. cind loam ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	40-120% Complex			
	Lithic Eutroboralfs --- --- ---	--- v. cind loam ---	HSC 5 -1	Pipos/Pied/ Quga		Edaphic			
440	Mollic Vitrandepts, --- cindery, frigid	--- v.cind loam ---	LSC 5 0	Fear2/Mumo	Edaphic- fire	15-40%			
476	Typic Haplustalfs, --- --- mesic	mod. deep v. cind loam ---	HSC 4 0	Pied/Jumo	Edaphic	40-80% Complex			
	Lithic Haplustalfs, --- --- mesic	--- v. cind loam ---	HSC 4 0	Pied/Jumo	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
495	Typic Haplustalfs, --- fine,montmorillonitic, mesic	--- grv cl ---	HSC 4 0	Pied/Jumo	Edaphic	0-15%			
496	Typic Haplustalfs, --- fine, mixed, mesic	--- v.cind loam ---	HSC 4 0	Pied/Jumo	Edaphic	15-40% Complex			
	Lithic Haplustalfs, --- clayey-skeletal,mixed, mesic	--- v.cind loam ---	HSC 4 0	Pied/Jumo	Edaphic				
507	Vertic Argiborolls, --- fine,montmorillonitic ---	deep grv cl ---	HSC 5 -1	Chna2/Fear2/ Bogr2	Edaphic- zootic	0-15% Complex			
	Vertic Argiborolls, --- clayey-skeletal,mont. ---	mod. deep cbv cl ---	HSC 5 -1	Chna2/Fear2/ Bogr2	Edaphic- zootic				
513	Typic Argiborolls, --- clayey-skeletal,mont. ---	mod. deep cb cl ---	LSC 5 0	Fear2/Mumo	Edaphic- fire	0-15% Complex			
	Pachic Argiborolls, --- fine,montmorillontic ---	deep --- loam ---	LSC 5 0	Fear2/Mumo	Edaphic- fire				
514	Vertic Argiustolls, --- fine,montmorillonitic, mesic	deep grv cl ---	HSC 4 0	Chna2/Hija/ Pied	Edaphic- zootic	0-15% Complex			
	Vertic Argiustolls, --- clayey-skeletal,mont., mesic	mod. deep cbv cl ---	HSC 4 0	Chna2/Hija/ Pied	Edaphic- zootic				
518	Lithic Argiborolls, --- clayey-skeletal,mont. ---	--- cbv cl ---	LSC 5 0	Fear2/Mumo	Edaphic- fire	0-15% Complex			
	Typic Argiborolls, --- fine,montmorillonitic ---	mod. deep cbv cl ---	LSC 5 0	Fear2/Mumo	Edaphic- fire				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
519	Lithic Eutroboralfs, --- clayey-skeletal,mont. ---	--- cbv cl ---	LSC 5 0	Pipos/Quga	Edaphic	0-15% Complex			
	Lithic Argiborolls, --- fine,montmorillonitic ---	--- cbv cl ---	LSC 5 0	Pipos/Quga	Edaphic				
523	Lithic Argiustolls, --- --- mesic	--- cbv loam ---	LSM 4 +1	Pied/Jude2/ Qutu2/Arpu5	Topo- edaphic	15-80% Complex			
	Typic Argiustolls, --- --- mesic	mod. deep cbv loam ---	LSM 4 +1	Pied/Jude2/ Qutu2/Arpu5	Topo- edaphic				
	Rock Outcrop	---	---	---	---				
525	Typic Argiborolls, --- clayey-skeletal,mont. ---	mod. deep cbv loam ---	LSC 5 0	Pipos/Quga	Edaphic	15-40% Complex			
	Typic Argiborolls, --- fine,montmorillonitic ---	mod. deep cbv loam ---	LSC 5 0	Pipos/Quga	Edaphic				
	Rock Outcrop	---	---	---	---				
537	Mollic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep cbv cl ---	LSC 5 0	Pipos/Quga	Edaphic	0-15% Complex			
	Typic Argiborolls, --- fine,montmorillonitic ---	--- cb cl ---	LSC 5 0	Pipos/Quga	Edaphic				
539	Typic Argiborolls --- --- ---	mod. deep cbv loam ---	LSC 5	Pipos/Quga	Edaphic	40-120% Complex			
	Rock Outcrop	---	---	---	---				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
540	Typic Eutrochrepts,	mod. deep	LSM	Psmeg/Pipos/	Topo-	40-120%			
	---	stony	6	Jude2/Qutu2	edaphic	Assoc.			
	---	vfsl	-1						
	frigid	---							
	Udic Haploborolls	mod. deep	LSM	Psmeg/Pipos/	Topo-				
	---	stony	6	Jude2/Qutu2	edaphic				
	---	vfsl	-1						
	---	---							
	Rock Outcrop	---	---	---	---				
541	Typic Ustorthents,	mod. deep	LSM	Pied/Jude2/	Topo-	40-120%			
	---	stony	4	Qutu2/Arpu5	edaphic	Assoc.			
	---	vfs	+1						
	mesic	---							
	Lithic Ustorthents,	---	LSM	Pied/Jude2/	Topo-				
	---	stv	4	Qutu2/Arpu5	edaphic				
	---	vfs	+1						
	mesic	---							
	Rock Outcrop	---	---	---	---				
542	Vertic Argiustolls,	---	HSC	Chna2/Bogr2/	Topo-	0-15%			
	---	gr	4	Pied	edaphic-	Complex			
	fine,montmorillonitic,	clay loam	0		zootic				
	mesic	---							
	Udic Chromusterts,	deep	HSC	Chna2/Bogr2/	Topo-				
	---	---	4	Pied	edaphic-				
	fine,montmorillonitic,	clay	0		zootic				
	mesic	---							
543	Vertic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	0-15%			
	---	grv	4			Complex			
	fine,montmorillonitic,	cl	0						
	mesic	---							
	Vertic Argiustolls,	mod. deep	HSC	Pied/Jumo	Edaphic				
	---	grv	4						
	fine,montmorillonitic,	cl	0						
	mesic	---							

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
563	Mollic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep cbv cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	0-15% Complex			
	Typic Argiborolls, --- fine,montmorillonitic ---	--- cb cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic				
564	Typic Argiborolls, --- clayey-skeletal,mont. ---	mod. deep cbv cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	15-40% Complex			
	Typic Argiborolls, --- fine,montmorillonitic ---	mod. deep cb cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic				
	Rock Outcrop	---	---	---	---				
565	Lithic Argiborolls, --- clayey-skeletal,mont. ---	--- cbv cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic	0-15% Complex			
	Lithic Argiborolls, --- fine,montmorillonitic ---	--- cbv cl ---	HSC 5 -1	Pipos/Pied/ Quga	Edaphic				
586	Typic Argiustolls, --- fine,montmorillonitic, mesic	--- grv cl ---	HSC 4 0	Pied/Jumo	Edaphic	0-15% Complex			
	Typic Argiustolls, --- clayey-skeletal,mont., mesic	mod. deep cbv cl ---	HSC 4 0	Pied/Jumo	Edaphic				
587	Lithic Argiustolls, --- clayey-skeletal,mont., mesic	--- cbv cl ---	HSC 4 0	Pied/Jumo	Edaphic	0-15% Complex			
	Vertic Argiustolls, --- clayey-skeletal,mont., mesic	mod. deep cbv cl ---	HSC 4 0	Pied/Jumo	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
589	Typic Argiustolls, --- clayey-skeletal,mont., mesic	mod. deep cbv cl ---	HSC 4 0	Pied/Jumo	Edaphic	15-40% Complex			
	Typic Argiustolls, --- fine,montmorillonitic, mesic	mod. deep cbv cl ---	HSC 4 0	Pied/Jumo	Edaphic				
	Rock Outcrop	---	---	---	---				
591	Petro. Calciustolls, --- loamy,carbonatic, mesic	shallow grv loam ---	HSC 4 0	Atca2/Stco4/ Bogr2/Pied	Edaphic- zootic	0-15% Complex			
	Typic Calciustolls, --- fine-loamy,carb., mesic	mod. deep grv loam ---	HSC 4 0	Atca2/Stco4/ Bogr2/Pied	Edaphic- zootic				
592	Typic Calciustolls, --- fine-loamy, carb., mesic	--- grv loam ---	HSC 4 0	Pied/Jumo Stco4	Edaphic	0-15% Complex			
	Petro. Calciustolls, --- loamy, carbonatic, mesic	shallow grv loam ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic				
599	Typic Argiustolls, --- fine,montmorillonitic, mesic	--- grv cl ---	HSC 4 0	Bogr2/Pied	Edaphic- zootic	0-15% Complex			
	Typic Argiustolls, --- fine-loamy, mixed mesic	--- grv loam ---	HSC 4 0	Bogr2/Pied/	Edaphic- zootic				
603	Eutric Glossoboralfs, --- clayey-skeletal,mont.,	--- gr fsl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire/ edaphic	0-15% Complex			at back
	Lithic Eutrochrepts, --- loamy-skeletal, mixed, frigid	--- cbv fsl ---	LSC 6 +1	Pien/Pipos/	Fire/				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
604	Eutric Glossoboralfs, --- clayey-skeletal, mont. ---	--- gr fsl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic	16-40% Complex			
	Lithic Eutrochretps, --- loamy-skeletal, mixed, frigid	--- cbv fsl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic				
	Typic Paleboralfs, --- clayey-skeletal, mont. ---	deep gr fsl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic				
605	Lithic Glossoboralfs, --- clayey-skeletal, mont. ---	--- cbv sl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic	0-15% Complex			
	Eutric Glossoboralfs, --- clayey-skeletal, mont. ---	--- grv fsl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic				
606	Lithic Glossoboralfs, --- clayey-skeletal, mont. ---	--- cbv sl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic	16-40% Complex			
	Eutric Glossoboralfs, --- clayey-skeletal, mont. ---	--- grv fsl ---	LSC 6 +1	Pien/Pipos/ Potr5	Fire- edaphic				
612	Lithic Haploborolls, --- loamy-skeletal, mixed, ---	--- gr fsl ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic- Fire	16-40% Complex			
	Mollic Eutroboralfs, --- clayey-skeletal, mont. ---	mod.deep gr fsl ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic- Fire				

at back

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
613	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	0-15%			
	---	gr	6	Pipos/Quga		Complex			
	clayey-skeletal, mont.	fsl	0						
	---	---							
	Lithic Eutrochrepts,	---	LSC	Abco/Psmeg/	Edpahic				
	---	cbv	6	Pipos/Quga					
	loamy-skeletal, mixed,	fsl	0						
	frigid	---							
614	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	16-40%			
	---	gr	6	Pipos/Quga		Complex			
	clayey-skeletal, mont.	fsl	0						
	---	---							
	Lithic Eutrochrepts,	---	LSC	Abco/Psmeg/	Edpahic				
	---	cbv	6	Pipos/Quga					
	loamy-skeletal, mixed,	fsl	0						
	frigid	---							
615	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	0-15%			
	---	gr	6	Pipos/Quga		Complex			
	clayey-skeletal, mont.	fsl	0						
	---	---							
	Lithic Glossoboralfs,	---	LSC	Abco/Psmeg/	Edpahic				
	---	cbv	6	Pipos/Quga					
	clayey-skeletal, mont.	fsl	0						
	---	---							
619	Typic Eutroboralfs	---	LSC	Pipos/Quga/	Edaphic-	0-15%			
	---	gr	6	Potr5/Abco/	Fire	Complex			
	clayey-skeletal, mont.	fsl	-1						
	---	---							
	Eutric Glossoboralfs,	---	LSC	Pipos/Quga/	Edaphic-				
	---	gr	6	Potr5/Abco	Fire				
	clayey-skeletal, mont.	fsl	-1						

620	Lithic Haploborolls,	---	LSC	Pipos/Quga	Edaphic	15-40%			
	---	grv	5			Complex			
	loamy-skeletal,mixed	loam	0						
	---	---							
	Typic Eutroboralfs,	mod. deep	LSC	Pipos/Quga	Edaphic				
	---	gr	5						
	clayey-skeletal,mont.	loam	0						
	---	---							

at back

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
621	Mollic Eutroboralfs --- --- ---	---	LSC 5	Pipos	Edaphic	40-120% Complex			
	Lithic Haploborolls --- --- ---	---	LSC 5	Pipos	Edaphic				
	Rock Outcrop	---	---	---	---				
622	Lithic Haploborolls, --- loamy-skeletal, mixed, ---	--- gr fsl ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic- Fire	0-15% Complex			
	Mollic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep gr fsl ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic- Fire				
623	Typic Paleboralfs, --- clayey-skeletal,mont. ---	--- gr sl ---	LSC 6 0	Abco/Psmeg/ Pipos/Quga	Edaphic	0-15% Complex			
	Eutric Glossoboralfs, --- clayey-skeletal,mont. ---	--- gr sl ---	LSC 6 0	Abco/Psmeg/ Pipos/Quga	Edaphic				
624	Eutric Glossoboralfs, --- clayey-skeletal,mont. ---	--- gr sl ---	LSC 6 0	Abco/Psmeg/ Pipos/Quga	Edaphic	15-40% Complex			
	Typic Paleboralfs, --- clayey-skeletal,mont. ---	--- grv sl ---	LSC 6 0	Abco/Psmeg/ Pipos/Quga	Edaphic				
625	Eutric Glossoboralfs --- --- ---	---	LSC 6	Psmeg	Edaphic	40-120% Complex			
	Rock Outcrop	---	---	---	---				

at back

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
626	Typic Cryoboralfs, --- clayey-skeletal,mont. ---	--- grv sl ---	LSC 7 -1	Pien/Abla/ Abco/Psmeg	Edaphic	15-40% Complex			
	Typic Paleboralfs, --- clayey-skeletal,mont., cryic	--- gr sl ---	LSC 7 -1	Pien/Abla/ Abco/Psmeg	Edaphic				
627	Typic Cryoboralfs --- --- ---	---	LSC 7 -1	Pien/Abla/ Abco/Psmeg	Edaphic	40-120% Complex			
	Typic Paleboralfs, --- --- cryic	---	LSC 7 -1	Pien/Abla/ Abco/Psmeg	Edaphic				
	Rock Outcrop	---	---	---	---				
630	Lithic Eutroboralfs, --- clayey-skeletal,mixed ---	--- grv loam ---	LSC 5 0	Fear2/Mumo	Edaphic- fire	0-15% Complex			
	Mollic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep gr loam ---	LSC 5 0	Fear2/Mumo	Edaphic- fire				
631	Lithic Eutroboralfs, --- clayey-skeletal,mixed ---	--- grv loam ---	LSC 5 0	Pipos/Quga	Edaphic	0-15% Complex			
	Typic Eutroboralfs, --- clayey-skeletal,mont. ---	mod. deep gr loam ---	LSC 5 0	Pipos/Quga	Edaphic				
632	Lithic Ustochrepts, --- loamy-skeletal,carb., mesic	--- grv fsl ---	LSC 3 +1	Artr2/Bogr2/ Stco4	Edaphic	0-15% Complex			
	Aridic Ustochrepts, --- loamy-skeletal, carb., mesic	mod. deep grv fsl ---	LSC 3 +1	Artr2/Bogr2/ Stco4	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
633	Lithic Ustochrepts, calcareous loamy-skeletal,mixed, mesic	--- grv fsl ---	LSC 3 +1	Atca2/Bogr2/ Eula5	Topo- edaphic	15-40% Complex			
	Lithic Ustorthents, --- loamy-skeletal,mixed (calcareous), mesic	v. shallow grv fsl ---	LSC 3 +1	Atca2/Bogr2/ Eula5	Topo- edaphic				
	Rock Outcrop	---	---	---	---				
634	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic- zootic	0-15% Complex			
	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv fsl ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic- zootic				
636	Aridic Ustochrepts, --- loamy-skeletal,carb., mesic	--- gr fsl ---	LSC 3 +1	Atca2/Bogr2/ Eula5	Topo- edaphic	0-15% Complex			
	Aridic Ustochrepts, --- fine-loamy, carb., mesic	--- --- fsl ---	LSC 3 +1	Atca2/Bogr2/ Eula5	Topo- edaphic				
637	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- grv fsl ---	LSC 3 +1	Atca2/Bogr2/ Eula5	Topo- edaphic	0-15%			
641	Typic Paleboralfs, --- clayey-skeletal,mont., cryic	--- gr loam ---	LSC 7 -1	Pien/Abla/ Abco/Psmeg	Edaphic	0-15% Complex			
	Typic Cryoboralfs, --- clayey-skeletal,mont. ---	--- --- fsl ---	LSC 7 -1	Pien/Abla/ Abco/Psmeg	Edaphic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
642	Typic Eutrochrepts, --- loamy-skeletal,mixed, frigid	mod. deep grv loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic- zootic	0-15% Complex			
	Lithic Eutrochrepts, --- loamy-skeletal,mixed, frigid	--- grv loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic- zootic				
643	Lithic Eutrochrepts, --- loamy-skeletal,mixed, frigid	--- grv loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic- zootic	16-40% Complex			
	Typic Eutrochrepts, --- loamy-skeletal,mixed, frigid	mod. deep grv loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic- zootic				
644	Typic Haplustalfs, --- clayey-skeletal,mont., mesic	mod. deep gr loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	0-15% Complex			
	Typic Calciustolls, --- loamy-skeletal,mixed, mesic	mod. deep grv loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic				
645	Typic Eutrochrepts, --- loamy-skeletal,mixed, frigid	mod. deep grv loam ---	LSC 6 0	Feov/Bran/ Mumo	Topo- edpahic	40-80% Complex			
	Lithic Eutrochrepts, --- loamy-skeletal,mixed, frigid	--- grv loam ---	LSC 6 0	Feov/Bran/ Mumo	Topo- edaphic				

at back

at back

32D

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
648	Typic Argiborolls	mod. deep	HSC	Pipos/Pied/	Edaphic	40-120%			
	---	cbv	5	Quga		Complex			
	---	loam	-1						
	---	---							
	Lithic Argiborolls	---	HSC	Pipos/Pied/	Edaphic				
	---	cbv	5	Quga					
	---	loam	-1						
	---	---							
	Rock Outcrop	---	---	---	---				
649	Vertic Argiborolls,	mod. deep	HSC	Pipos/Pied/	Edaphic	0-15%			
	---	cb	5	Quga					
	fine, montmorillonitic	cl	-1						
	---	---							
655	Argic Cryoborolls,	---	LSC	Feov/Dain/	Edaphic-	0-15%			
	---	gr	7	Mumo	zootic				
	fine-loamy, mixed	loam	-1						
	---	---							
658	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	0-15%			
	---	cb	6	Pipos/Quga		Complex			
	fine, montmorillonitic	loam	0						
	---	---							
	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic				
	---	cbv	6	Pipos/Quga					
	clayey-skeletal,mont.	loam	0						
	---	---							
659	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	15-40%			
	---	cb	6	Pipos/Quga		Complex			
	fine-loamy,mixed	loam	0						
	---	---							
	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic				
	---	st	6	Pipos/Quga					
	loamy-skeletal,mixed	loam	0						
	---	---							
660	Typic Eutrochrepts,	mod. deep	LSC	Quga/Rone	Topo-	40-120%			
	---	stony	5		edaphic-	Complex			
	---	fsl			fire				
	frigid	---							
	Typic Haploborolls	mod. deep	LSC	Quga/Rone	Topo-				
	---	stony	5		edaphic-				
	---	loam			fire				
	---	---							

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
672	Typic Haplustalfs, --- clayey-skeletal,mont., mesic	--- grv loam ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic- zootic	0-15% Complex			
	Typic Haplustalfs, --- fine,montmorillonitic, mesic	--- gr loam ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic- zootic				
677	Lithic Ustochrepts, calcareous, loamy-skeletal,mixed, mesic	--- gr vfsl ---	HSC 4 0	Atca2/Stco4/ Agcr/Pied	Edaphic- zootic	0-15% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr vfsl ---	HSC 4 0	Atca2/Stco4/ Agcr/Pied	Edaphic- zootic				
681	Typic Eutroboralfs --- --- ---	mod. deep grv fsl ---	LSC 5	Pipos	Edaphic	40-80% Complex			
	Lithic Eutroboralfs --- --- ---	--- cobbly fsl ---	LSC 5	Pipos	Edaphic				
	Rock Outcrop	---	---	---	---				
682	Typic Haplustalfs, --- fine-loamy, mixed, mesic	deep --- lvfs ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic- zootic	0-15%			
683	Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- cbv vfsl ---	LSC 4 +1	Artr2/Stco4/ Agcr/Quga	Edaphic- zootic	0-15% Complex			
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr vfsl ---	LSC 4 +1	Artr2/Stco4/ Agcr/Quga	Edaphic- zootic				

Map Sym.	Map Unit Name Soil Taxonomic	Phase	Climate Class	Vegetation Taxonomic	Climax Class	Slope Kind Map Unit	Acres of M.U.	Pct. of Total	Page No.
681	Typic Eutroboralfs --- --- ---	mod. deep grv fsl ---	LSC 5	Pipos	Edaphic	40-80% Complex	5870	0.37	292
	Lithic Eutroboralfs --- --- ---	--- cobbly fsl ---	LSC 5	Pipos	Edaphic				
	Rock Outcrop	---	---	---	---				
682	Typic Haplustalfs, --- fine-loamy, mixed, mesic	deep --- lvfs ---	LSC 4	Artr2/Agcr/ Quga +1	Edaphic- zootic	0-15%	3572	0.22	294
683	Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- cbv vfsl ---	LSC 4	Artr2/Stco4/ Agcr/Quga +1	Edaphic- zootic	0-15% Complex	10421	0.65	296
	Typic Ustochrepts, --- loamy-skeletal,carb., mesic	mod. deep gr vfsl ---	LSC 4	Artr2/Stco4/ Agcr/Quga +1	Edaphic- zootic				

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 3-Fluventic Ustochrepts, HSC, 4, fine-loamy, mixed, mesic, deep, very fine sandy loam: 0-5 percent slopes, Atca2/Agsm/Pied.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear valley plains. Component formed from alluvium from sedimentary parent material. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs on this map unit from 01 October to 31 March and the winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 2000 to 2200 meters. Delineations are elongated in shape and vary in size from 5 to 50 hectares. Ephemeral streams are present within the map unit. This map unit is characterized bya dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Fluventic Ustochrepts, --- fine-loamy, mixed, mesic	deep --- very fine sandy loam ---	HSC 4	Atca2/Agsm/ Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 10 C MSST --- C	90%
2.2					MAP cm ME m MAST C MSST C	%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, --- fine-loamy, mixed, mesic	--- --- --- ---	HSC 4	Atca2/Agsm/ Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 10 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 These soils are susceptible to compaction and gully formation.

3.2

3.3

3.4

Map Symbol: 3

4.0 Estimated Soil Loss Rates.

4.1 Sheet/Rill Erosion				4.2 Sheet/Rill Erosion				4.3 Sheet/Rill Erosion				4.4 Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.9	6.7	1.2	0.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	75												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	25	5	65												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	300			
Forage (maximum)	1100			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Fair			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Turkey	Used			
Pronghorn	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	T			
Juniperus osteosperma	Juos	1			
Pinus edulis	Pied	1			
Atriplex canescens	Atca2	5			
Chrysothamnus nauseousus	Chna	1			
Gutierrezia sarothrae	Gusa2	2			
Eurotia lanata	Eula5	T			
Opuntia polyacantha	Oppo	1			
Opuntia whipplei	Opwh	1			
Yucca baccata	Yuba	T			
Castilleja linariaefolia	Cali4	.5			
Erigeron flagellaris	Erfl	T			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	15			
Andropogon scoparius	Ansc2	T			
Aristida divaricata	Ardi5	T			
Bouteloua curtipendula	Bocu	3			
Bouteloua gracilis	Bogr2	15			
Bouteloua hirsuta	Bohi	.1			
Hilaria Jamesii	Hija	T			
Oryzopsis hymenoides	Orhy	T			
Poa fendleriana	Pofe	.1			
Sitanion hystrix	Sihy	.5			
Sporobolus cryptandrus	Spcr	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 5-Pachic Udic Argiborolls, LSC, 6, fine-loamy, mixed, deep, loam - Pachic Udic Argiborolls, LSC, 6, loamy-skeletal, mixed, deep, loam, complex: 0-15 percent slopes, Popr/Feov/Bran.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple linear and concave valley plains. Components formed in alluvium from limestone parent materials. Mean annual precipitation ranges from 62 to 74 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs on this map unit from 15 October to 15 April. Mean annual snowfall is 150 centimeters and mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. Elevations range from 2600 to 2800 meters. Delineations are elongated in shape and vary in size from 8 to 50 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Pachic Udic Argiborolls, --- fine-loamy, mixed ---	deep --- loam ---	LSC 6	Popr/Feov/ Bran	Topo- edaphic zootic	MAP 68 cm ME 2700 m MAST 4 C MSST 9 C	40%
2.2 Pachic Udic Argiborolls, --- loamy-skeletal, mixed ---	deep --- loam ---	LSC 6	Popr/Feov/ Bran	Topo- edaphic zootic	MAP 68 cm ME 2700 m MAST 4 C MSST 9 C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Cumulic Udic Haploborolls, --- fine-loamy, mixed ---	deep --- loam ---	LSC 6	Popr/Feov/ Bran	Topo- edaphic zootic	MAP 68 cm ME 2700 m MAST 4 C MSST 9 C	10%
2.6 Udic Argiborolls --- fine, mixed ---	--- --- ---	LSC 6	Abco/Psmeg/ Pipo/Quga	Topo- edaphic	MAP 68 cm ME 2700 m MAST 4 C MSST 9 C	10%

3.0 Management Implications.

3.1 & 3.2 These soils have a low bearing strength when wet. Soil surface layers and subsoil are wet from snowmelt in the spring and following periods of heavy ranifall in the summer. These soils are susceptible to compaction and formation of gullies.

3.3

3.4

Map Symbol: 5

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
14.2	6.7	3.0	0.2	14.2	6.7	3.0	0.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	18	40	95	0	18	40	95								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	10	30	55	5	10	30	55								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	3750	3750		
Forage	3550	3550		
Forage (maximum)	3750	3750		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Fair		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Red-wing Blackback	Ess.	Ess.		
Savannah Sparrow	Ess.	Ess.		
Cinnemon Teal	Imp.	Imp.		
Northern Harrier	Imp.	Imp.		
Wild Turkey	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		
Compaction	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Achillea millefolium lanulosa	Acmil	T	T		
Aconitum columbianum	Acco4	.5	.5		
Antennaria parvifolia	Anpa4	2	2		
Arenaria aberrans	Arab	T	T		
Arenaria fendleri	Arfe3	T	T		
Artemisia frigida	Arfr4	1	1		
Campanula rotundifolia	Caro2	.5	.5		
Erigeron formosissimus	Erfo3	T	T		
Erysimum capitatum	Erca14	T	T		
Gilia aggregata	Giag	1	1		
Lathyrus arizonica	Laar	1	1		
Phlox diffusa	Phdi3	.3	.3		
Potentilla anserina	Poan5	2	2		
Ranunculus cymbalaria	Racy	T	T		
Sisyrinchium longipes	Silo	T	T		
Swertia radiata	Swra	1	1		
Taraxacum officinale	Taof	1	1		
Verbena macdougalii	Vema	T	T		
Agropyron trachycaulum	Agtr	T	T		
Bromus anomalus	Bran	20	20		
Carex	CAREX	5	5		
Danthonia intermedia	Dain2	5	5		
Festuca ovina	Feov	15	15		
Koeleria cristata	Kocr	2	2		
Muhlenbergia montana	Mumo	T	T		
Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 6-Pachic Argiborolls, LSC, 5, fine, montmorillonitic, deep, clay loam, 0-5 percent slopes, Popr/Fear2.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. Component formed in alluvium from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snow fall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2000 to 2200 meters. Delineations are elongated in shape and vary in size from 10 to 150 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dentritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Pachic Argiborolls,	deep	LSC	Popr/Fear2	Topo-	MAP 56 cm	80%
---	---	5		edaphic	ME 2100 m	
fine, montmorillonitic	clay loam			zootic	MAST 6 C	
---	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Pachic Argiborolls,	---	LSC	Popr/Fear2	Topo-	MAP 56 cm	10%
---	---	5		edaphic	ME 2100 m	
clayey-skeletal, montmorillonitic	---			zootic	MAST 6 C	
---	---				MSST 12 C	
2.6 Aquic Argiborolls,	---	LSC	CAREX/Popr	Topo-	MAP 56 cm	10%
---	---	5		edaphic	ME 2100 m	
fine, montmorillonitic	---			zootic	MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 Component is subject to seasonal flooding and gully erosion due to landscape position. Management activities limited by wetness factor. The shrink/swell clay can effect foundations and buildings.

3.2

3.3

3.4

Map Symbol: 6

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.2	6.7	1.6	0.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	25	5	60												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2500			
Forage	2000			
Forage (maximum)	2800			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Mod.			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Pronghorn	Imp.			
Turkey	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	P			
Pinus ponderosa	Pipo	P			
Artemisia carruthii	Arca14	.1			
Artemisia frigida	Arfr4	.1			
Ceanothus fendleri	Cefe	P			
Chrysothamnus nauseosus	Chna2	1			
Gutierrezia sarothrae	Gusa2	1			
Quercus gambelii	Quga	P			
Ribes cereum	Rice	P			
Rosa arizonica	Roar2	T			
Achillea millefolium lanulosa	Acmil	.3			
Antennaria rosea	Anro2	.1			
Erigeron speciosus	Ersp4	T			
Eriogonum racemosum	Erra3	.1			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Iris missouriensis	Irmi	.5			
Lotus wrightii	Lowr	P			
Lupinus argenteus	Luar3	T			
Oxytropis lambertii	Oxla3	T			
Potentilla anserina	Poan5	.1			
Thalictrum fendleri	Thfe	P			
Verbascum thapsus	Veth	.5			
Agropyron intermedium	Agin2	P			
Agropyron smithii	Agsm	.1			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	P			
Carex	CAREX	2			
Festuca arizonica	Fear2	10			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	101			
Muhlenbergia wrightii	Muwr	.1			
Poa fendleriana	Pofe	1			
Poa pratensis	Popr	5			
Sitanion hystrix	Sihy	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 7-Cumulic Haplustolls, HSC, 4, fine-loamy, mixed, mesic, deep, loam: 0-5 percent slopes, Agsm/Pied.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple concave and linear valley plains. Component formed from mixed alluvium from sedimentary and basaltic origins. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1600 to 1800 meters. Delineations are elongated in shape and vary in size from 5 to 50 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Cumulic Haplustolls, --- fine-loamy, mixed, mesic	deep --- very fine sandy loam ---	HSC 4	Agsm/Pied	Topo-edaphic zootic	MAP 40 cm ME 1700 m MAST 10 C MSST --- C	80%
2.2					MAP cm ME m MAST C MSST C	%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Pachic Argiustolls, --- fine-loamy, mixed, mesic	--- --- --- ---	HSC 4	Agsm/Pied	Topo-edaphic zootic	MAP 40 cm ME 1700 m MAST 10 C MSST --- C	10%
2.6 Pachic Argiustolls, --- fine, mixed, mesic	--- --- --- ---	HSC 4	Agsm/Pied	Topo-edaphic zootic	MAP 40 cm ME 1700 m MAST 10 C MSST --- C	10%

3.0 Management Implications.

3.1 The surface layers and subsoil are wet from snowmelt in the winter and early spring and following periods of heavy rains in the summer. The soils are susceptible to compaction, puddling and displacement due to soil strength during wetness. They are susceptible to gully formation.

3.3

3.4

Map Symbol: 7

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.9	6.7	1.2	0.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	75												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	25	5	60												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2500			
Forage	2300			
Forage (maximum)	2500			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Good			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Pronghorn	Used			
Turkey	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Mod.			
Trails	Sli.			
Campgrounds	Sli.			
Wheeled O.R.V.	Sli.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Mod.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	T			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	T			
Atriplex canescens	Atca2	T			
Berberis fremontii	Befr	T			
Chrysothamnus nauseosus	Chna2	T			
Gutierrezia sarothrae	Gusa2	T			
Eurotia lanata	Eula5	2			
Opuntia polyacantha	Oppo	.5			
Opuntia whipplei	Opwh	T			
Yucca baccata	Yuba	T			
Castilleja linariaefolia	Cali4	1			
Erigeron flagellaris	Erfl	T			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	15			
Andropogon scoparius	Ansc2	T			
Aristida divaricata	Ardi 5	T			
Bouteloua curtipendula	Bocu	5			
Bouteloua gracilis	Bogr2	15			
Oryzopsis hymenoides	Orhy	T			
Poa fendleriana	Pofe	.1			
Sitanion hystrix	Sihy	.5			
Sporobolus cryptandrus	Spcr	.2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 9-Cumulic Haploborolls, LSC, 5, fine-loamy, mixed, deep, loam - Cumulic Haploborolls, LSC, 5, loamy-skeletal, mixed, deep, loam, complex: 0-15 percent slopes, Popr/Agsm/Pipo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. They occur on nearly level to gently sloping simple linear and concave valley plains. Components formed in alluvium from limestone parent materials. Mean annual precipitation ranges from 50 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs on this map unit from 01 November to 15 April. This map unit has a mean annual snowfall of 120 centimeters and a mean annual snow accumulation of 35 centimeters. The freeze free period is 100 days. Elevations range from 2300 to 2500 meters. Delineations are elongated and vary in size from 10 to 150 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Cumulic Haploborolls, --- fine-loamy, mixed ---	deep --- loam ---	LSC 5	Popr/Agsm/ Pipo	Topo- edaphic zootic	MAP 56 cm ME 2400 m MAST 6 C MSST 12 C	50%
2.2 Cumulic Haploborolls, --- loamy-skeletal, mixed ---	deep --- loam ---	LSC 5	Popr/Agsm/ Pipo	Topo- edaphic zootic	MAP 56 cm ME 2400 m MAST 6 C MSST 12 C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Pachic Argiborolls, --- fine-loamy, mixed ---	deep --- loam ---	LSC 5	Popr/Agsm/ Pipo	Topo- edaphic zootic	MAP 56 cm ME 2400 m MAST 6 C MSST 12 C	20%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 & 3.2 These soils have a low bearing strength when wet. The soil surface layers and subsoil are wet from snowmelt in the spring and following periods of heavy rainfall in the summer. These soils are susceptible to compaction and formation of gullies.

3.3

3.4

Map Symbol: 9

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
11.4	6.7	1.6	0.2	11.4	6.7	1.6	0.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	12	50	90	0	12	50	90								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	15	35	45	5	15	35	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2750	2750		
Forage	2550	2550		
Forage (maximum)	2750	2750		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	---	---		
Source Suitability:				
Topsoil	Good	Mod.		
Roadfill	Fair	Good		
Wildlife Habitat Suit:				
Wild Turkey	Imp.	Imp.		
Deer	Imp.	Imp.		
Nrthn Pocket Gopher	Imp.	Imp.		
Redtail Hawk	Imp.	Imp.		
Long Eared Myotis	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Sli.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		
Compaction	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Achillea millefolium lanulosa	Acmil	1	1		
	Aconitum columbianum	Acco4	.3	.3		
	Antennaria parvifolia	Anpa4	2	2		
	Arenaria aberrans	Arab	T	T		
	Arenaria fendleri	Arfe3	.5	.5		
	Artemisia frigidia	Arfr4	3	3		
	Erigeron speciosus	Ersp4	T	T		
	Eriogonum ovalifolium	Erov	T	T		
	Erysimum capitatum	Erca14	T	T		
	Gilia aggregata	Giag	1	1		
	Lupinus argenteus	Luar3	2	2		
	Phlox diffusa	Phdi3	.3	.3		
	Potentilla anserina	Poan5	1	1		
	Sisyrinchium longipes	Silo	T	T		
	Swertia radiata	Swra	2	2		
	Taraxacum officinale	Taof	.5	.5		
	Verbascum thapus	Veth	.3	.3		
	Verbena macdougalii	Vema	T	T		
	Agropyron smithii	Agsm	10	10		
	Bouteloua gracilis	Bogr2	5	5		
	Carex	CAREX	3	3		
	Danthonia intermedia	Dain2	5	5		
	Koeleria cristata	Kocr	5	5		
	Muhlenbergia filicumis	Mufi	2	2		
	Muhlenbergia montana	Mumo	10	10		
	Poa fendleriana	Pofe	3	3		
	Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 10-Typic Argiborolls, LSC, 5, 0, fine, montmorillonitic, deep, loam: 0-5 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. Component formed in alluvium from basalt and cinders. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperataure ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2000 to 2200 meters. Delineations are elongated in shape and vary in size from 10 to 150 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiborolls,	deep	LSC	Pipo/Quga	Topo-	MAP 56 cm	90%
---	---	5		edaphic	ME 2100 m	
fine, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Pachic Argiborolls,	---	LSC	Popr/Fear2	Topo-	MAP 56 cm	10%
---	---	5		edaphic	ME 2100 m	
fine, montmorillonitic,	---	0		zootic	MAST 6 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 This soil is subject to seasonal flooding. Soils are generally wet or saturated in early spring from snowmelt and in summer following periods of heavy rainfall.

3.2

3.3

3.4

Map Symbol: 10

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
6.1	6.7	1.3	.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	40	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
15	5	35	45												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	525			
Forage	275			
Forage (maximum)	2650			
Timber	Site Index			
Pipo	75			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	High			
Source Suitability:				
Topsoil	Low			
Roadfill	Low			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Turkey	Imp.			
Pronghorn	Used			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Mod.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Sev.			
Plant Competition	---			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	65			
Quercus gambelii	Quga	1			
Berberis repens	Bere	T			
Ceanothus fendleri	Cefe	T			
Quercus gambelii	Quga	5			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	T			
Achillea millefolium lanulosa	Acmil	5			
Antennaria rosea	Anro	.1			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Lupinus argenteus	Luar3	4			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.2			
Festuca arizonica	Fear2	5			
Koeleria cristata	Kocr	1			
Muhlenbergia montana	Mumo	2			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 11-Cumulic Haploborolls, LSC, 5, fine-loamy, mixed, deep, very fine sandy loam: 0-5 percent slopes, Popr/Mumo.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. Component formed from mixed alluvium from sedimentary parent material. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2000 to 2200 meters. Delineations are elongated in shape and vary in size from 10 to 80 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Cumulic Haploborolls,	deep	LSC	Popr/Mumo	Topo-	MAP 56 cm	80%
---	---	5		edaphic	ME 2100 m	
fine-loamy, mixed,	very fine sandy loam			zootic	MAST 6 C	
---	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Pachic Argiborolls,	---	LSC	Popr/Mumo	Topo-	MAP 56 cm	10%
---	---	5		edaphic	ME 2100 m	
fine, montmorillonitic,	---			zootic	MAST 6 C	
---	---				MSST 12 C	
2.6 Pachic Argiborolls,	---	LSC	Popr/Mumo	Topo-	MAP 56 cm	10%
---	---	5		edaphic	ME 2100 m	
fine-loamy, mixed,	---			zootic	MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 These soils are susceptible to compaction, puddling and displacement due to low soil strength during wetness. The surface layers and subsoil are wet from snowmelt in winter and early spring and following periods of heavy rains in the summer. They are susceptible to gully formation.

3.2

3.3

3.4

Map Symbol: 11

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
9.0	6.7	1.9	.3												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	7	40	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	30	10	55												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2750			
Forage	2550			
Forage (maximum)	2750			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Good			
Roadfill	Fair			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Pronghorn	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Mod.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Artemisia tridentata	Artr2	T			
	Chrysothamnus nauseosus	Chna2	1			
	Gutierrezia sarothrae	Gusa2	2			
	Achillea millefolium lanulosa	Acmil	5			
	Antennaria rosea	Anro2	T			
	Arenaria fendleri	Arfe3	T			
	Artemisia frigidia	Arfr4	3			
	Erigeron speciosus	Ersp4	T			
	Lupinus argenteus	Luar3	2			
	Potentilla anserina	Poan5	T			
	Taraxacum officinale	Taof	1			
	Agropyron smithii	Agsm	1			
	Bouteloua gracilis	Bogr2	1			
	Carex	CAREX	2			
	Danthonia parryi	Dapa2	5			
	Koeleria cristata	Kocr	5			
	Muhlenbergia filicumis	Mufi	2			
	Muhlenbergia montana	Mumo	10			
	Poa fendleriana	Pofe	T			
	Poa pratensis	Popr	10			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 15-Typic Torrifluvents, LSC, 2, sandy-skeletal, mixed, (calcareous), mesic, deep, gravelly loamy fine sand, high water table-Typic Torrifluvents, LSC, 2, coarse-loamy, mixed, (calcareous), mesic, deep fine sandy loam, high water table-Riverwash complex: 0-15 percent slopes, Pofr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple linear and concave valley plains. Components formed in alluvium from sedimentary parent material. Mean annual precipitation ranges from 24 to 30 centimeters; mean annual air temperature ranges from 11 to 13 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover occurs on this map unit from 01 December to 01 March. This map unit has a mean annual snowfall of 60 centimeters and a mean annual snow accumulation of 5 centimeters. The freeze free period is 150 days. Elevations range from 950 to 1300 meters. Delineations are elongated in shape and vary in size from 5 to 100 hectares. Streams within this map unit are mainly ephermeral with a few perennial sections around springs. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Torrifluvents, --- sandy-skel. mixed, (calcareous), mesic	deep gravelly loamy fine sand high water table	LSC 2	Pofr2	Topo- edaphic zootic	MAP 28 cm ME 1100 m MAST 10 C MSST 15 C	35%
2.2 Typic Torrifluvents, --- coarse-loamy, mixed, (calcareous), mesic	deep --- fine sandy loam high water table	LSC 2	Pofr2	Topo- edaphic zootic	MAP 28 cm ME 1100 m MAST 10 C MSST 15 C	25%
2.3 Riverwash					MAP cm ME m MAST C MSST C	30%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Ustic Torrifluvents, --- fine-loamy, mixed, (calcareous) mesic	deep --- fine sandy loam ---	LSC 2	Pofr2	Topo- edaphic zootic	MAP 28 cm ME 1100 m MAST 10 C MSST 15 C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 & 3.2 This map unit occurs in the Kanab Creek Wilderness.

3.3

3.4

Map Symbol: 15

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.7	2.2	2.7	.5	3.1	2.2	1.9	.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	10	50	0	10	10	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	5	5	65	15	5	5	75								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	500		
Forage	175	175		
Forage (maximum)	550	550		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Good		
Wildlife Habitat Suit:				
Canyon tree frog	Ess.	Ess.		
Yellow breasted chat	Ess.	Ess.		
Bl-gr gnat catcher	Ess.	Ess.		
Cooper's hawk	Imp.	Imp.		
Willow fly catcher	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sli.	Sli.		
Trails	Sli.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		
Compaction	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus ostersperma	Juos	1	1		
Pinus edulis	Pied	.5	.5		
Populus fremontii	Pofr2	30	30		
Acacia greggii	Acgr	3	3		
Chrysothamnus nauseousus	Chna2	1	1		
Coleogyne ramosissima	Cora	1	1		
Ephedra viridis	Epvi	T	T		
Gutierrezia sarothrae	Gusa2	2	2		
Nolina microcarpus	Nomi	1	1		
Opuntia erinacea	Oper	3	3		
Quercus turbinella	Qutu2	3	3		
Rhus trilobata	Rhtr	1	1		
Salix exigua	Saex	10	10		
Salix lavigata	Sala	10	10		
Tamarix pentandra	Tape	T	T		
Yucca utahensis	Yuut	.5	.5		
Trifolium	TRIFO	T	T		
Hilaria Jamesii	Hija	2	2		
Oryzopsis hymenoides	Orhy	T	T		
Sporobolus cryptandrus	Spcr	1	1		
Stipa comata	Stco4	1	1		
Stipa speciosa	Stsp3	3	3		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 17-Cumulic Haplustolls, LSC, 4, 0, fine-loamy, mixed, mesic, deep loams: 0-5 percent slopes, Artr2/Bogr2/Pied.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. The component formed in alluvium from limestone parent material. The mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally occurs on this map unit from 01 December to 01 April. This map unit has a mean annual snowfall of 90 centimeters and a mean annual snow accumulation of 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are elongated in shape and vary in size from 8 to 150 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Cumulic Haplustolls, --- fine-loamy, mixed, mesic	deep --- loam ---	LSC 4 0	Artr2/Bogr2 Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	80%
2.2					MAP cm ME m MAST C MSST C	%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Pachic Argiustolls, --- fine-loamy, mixed, mesic	deep --- loam ---	LSC 4 0	Artr2/Bogr2 Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6 Cumulic Haplustolls, --- loamy-skeletal, mixed mesic	deep --- loam ---	LSC 4 0	Artr2/Bogr2 Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%

3.0 Management Implications.

3.1 The surface layers and subsoil are wet from snowmelt in winter and early spring and following periods of heavy rains in the summer. The soils are susceptible to compaction and formation of gullies.

3.2

3.3

Map Symbol: 17

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
9.5	6.7	4.1	1.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	20	55												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	5	10	80												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650			
Forage	250			
Forage (maximum)	1500			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Fair			
Roadfill	Good			
Wildlife Habitat Suit:				
Vesper sparrow	Ess.			
Mule deer	Imp.			
Black-tld jackrabbit	Imp.			
Western meadowlark	Imp.			
Common poorwill	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Mod.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	---			
Compaction	Sev.			

6.0 Composition of Plant Community.	Symbol	% Canopy Cover	6.1	6.2	6.3	6.4
Scientific Name						
Juniperus osteosperma	Juos	T				
Pinus edulis	Pied	T				
Artemisia frigida	Arfr4	T				
Artemisia tridentata	Artr2	8				
Chrysothamnus nauseosus	Chna2	T				
Gutierrezia sarothrae	Gusa2	5				
Marrubium vulgare	Mavu	T				
Purshia tridentata	Putr2	T				
Sphaeralcea parvifolia	Sppa2	1				
Calochortus	CALOC	T				
Castilleja linariaefolia	Cali4	T				
Erigeron flagellaris	Erfl	T				
Hymenoxys richardsonii	Hyri	T				
Linum lewisii	Lile3	T				
Lomatium leptocarpum	Lole	T				
Lotus wrightii	Lowr3	T				
Phlox woodhousei	Phwo2	T				
Rumex crispus	Rucr	P				
Senecio multilobatus	Semu3	T				
Solanum elaeognifolium	Soel	P				
Verbascum thapsus	Veth	1				
Verbena ciliata	Veci	T				
Agropyron cristatum	Agcr	2				
Agropyron trachycaulum	Agtr	T				
Agropyron smithii	Agsm	20				
Andropogon scoparius	Ansc2	T				
Aristida divaricata	Ardi5	T				
Bouteloua gracilis	Bogr2	10				
Oryzopsis hymenoides	Orhy	2				
Poa fendleriana	Pofe	2				
Sitanion hystrix	Sihy	3				
Sporobolus cryptandrus	Spcr	1				

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 20-Vertic Haplaquolls, LSC, 5, very fine, montmorillonitic, frigid, deep, clay, occassionally flooded: 0-5 percent slopes, CAREX/ELEOC/Pola4/Alge.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on level to nearly level simple linear and concave closed basins. Component formed in mixed alluvium from basalt and cinders. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2050 to 2200 meters. Delineations are ovoid in shape and vary in size from 20 to 200 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Vertic Haplaquolls,	deep	LSC	CAREX/ELEOC	Topo-	MAP	56 cm	100%
---	---	5	Pola4/Alge	edaphic	ME	2150 m	
very fine, montmorillonitic,	clay			zootic	MAST	6 C	
frigid	occassionally flooded				MSST	12 C	
2.2					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.3					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.6					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	

3.0 Management Implications.

3.1 This map unit is a wet meadow which becomes seasonally flooded and holds water in most years. It is considered to be a valuable wildlife habitat.

3.2

3.3

3.4

Map Symbol: 20

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.3	9.0	.3	.0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	50	100												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	40	10	45												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2850			
Forage	2850			
Forage (maximum)	2850			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Water fowl	Ess.			
Elk	Imp.			
Mule deer	Imp.			
Turkey	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	---			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Amaranthus gracezians	Amgr	.1			
Astragalus sp.	ASTRA	T			
Polygonum lapthifolium	Pola4	5			
Zinnia grandiflora	Zigr	T			
Agropyron intermedium	Agin	T			
Agropyron smithii	Agsm	T			
Alopecurus geniculatus	Alge	.1			
Carex sp.	CAREX	30			
Eleocharis sp.	ELEOC	30			
Sitanion hystrix	Sihy	T			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 23-Fluventic Ustochrepts, LSC, 4, loamy-skeletal, mixed, mesic, deep loam-Fluventic Ustochrepts, LSC, 4, fine-loamy, mixed, mesic, deep loam, complex: 0-5 percent slopes, Artr2/Bogr2/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex valley plains. Components formed in alluvium from sedimentary parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs on the map unit from 01 December to 01 April. This map unit has a mean annual snowfall of 90 centimeters and a mean annual snow accumulation of 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are elongated in shape and vary in size from 8 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Fluventic Ustochrepts, --- loamy-skeletal, mixed, mesic	deep --- loam ---	LSC 4	Artr2/Bogr2 Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	50%
2.2	Fluventic Ustochrepts, --- fine-loamy, mixed, mesic	deep --- loam ---	LSC 4	Artr2/Bogr2 Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	40%
2.3						MAP cm ME m MAST C MSST C	%
2.4						MAP cm ME m MAST C MSST C	%
2.5	Typic Ustochrepts, --- loamy-skeletal, mixed, mesic	deep --- loam ---	LSC 4	Artr2/Bogr2 Pied	Topo- edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6						MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 & 3.2 The soil surface layers and subsoils are wet from winter rains and snow and from periods of heavy rainfall in the summer. These soils have a low bearing strength when wet. These soils are susceptible to compaction and formation of gullies.

3.3

3.4

Map Symbol: 23

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
11.9	6.7	6.5	2.7	11.9	6.7	6.5	2.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	15	20	55	0	15	20	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
15	1	10	74	10	1	10	79								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	575	575		
Forage	225	225		
Forage (maximum)	1500	1500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Fair		
Roadfill	Good	Good		
Wildlife Habitat Suit:				
vesper sparrow	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Blk-tail jackrabbit	Imp	Imp		
Western meadowlark	Imp.	Imp.		
Common poorwill	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		
Compaction	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	T	T		
	Artemisia tridentata	Artr2	15	15		
	Chrysothamnus nauseousus	Chna2	T	T		
	Eurotia lanata	Eula5	1	1		
	Gutierrezia sarothrae	Gusa2	2	2		
	Marrubium vulgare	Mavu	T	T		
	Opuntia polyacantha	Oppo	.5	.5		
	Purshia tridentata	Putr2	T	T		
	Sphaeralcea parvifolia	Sppa2	.5	.5		
	Yucca utahensis	Yuut	1	1		
	Calochortus	CALOC	T	T		
	Castilleja linariaefolia	Cali4	T	T		
	Erigeron flagellaris	Erfl	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Linum lewisii	Lile3	T	T		
	Lomatium leptocarpum	Lole	T	T		
	Lotus wrightii	Lowr3	T	T		
	Phlox woodhousei	Phwo2	T	T		
	Senecio multilobatus	Semu3	T	T		
	Solanum elaeagnifolium	Soel	P	P		
	Verbascum thapsus	Veth	.1	.1		
	Verbena ciliata	Veci	T	T		
	Agropyron cristatum	Agcr	4	4		
	Agropyron smithii	Agsm	10	10		
	Andropogon scoparius	Ansc2	T	T		
	Aristida divaricata	Ardi5	T	T		
	Bouteloua gracilis	Bogr2	5	5		
	Koeleria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	1	1		
	Poa fendleriana	Pofe	.1	.1		
	Sitanion hystrix	Sihy	2	2		
	Sporobolus cryptandrus	Spcr	2	2		
	Stipa comata	Stico4	3	3		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 32-Fluventic Ustochrepts, LSC, 4, 0, fine-loamy, mixed, mesic, deep, fine sandy loam-Fluventic Ustochrepts, LSC, 4, 0, loamy-skeletal, mixed, mesic, moderately deep, fine sandy loam, complex: 0-15 percent slopes, Pied/Juos/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple linear and concave valley plains. Components formed in alluvium from sedimentary parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs on this map unit from 01 December to 01 April. This map unit has a mean annual snowfall of 90 centimeters and mean annual snow accumulation of 20 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 10 to 200 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Fluventic Ustochrepts, --- fine-loamy, mixed, mesic	deep --- fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2	Topo- edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	45%
2.2 Fluventic Ustochrepts, --- loamy-skeletal, mixed, mesic	moderately deep --- fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2	Topo- edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	45%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, --- fine-loamy, mixed, mesic	--- --- fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2	Topo- edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6 Typic Ustochrepts, --- loamy-skeletal, mixed, mesic	--- --- fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2	Topo- edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%

3.0 Management Implications.

3.1 & 3.2 These soils have a low bearing strength when wet. The soil surface layers and subsoils are wet from rain and snow during the winter and early spring, and from periods of heavy rainfall in the summer. These soils are susdeptible to compaction and formation of gullies.

3.3

3.4

Map Symbol: 32

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
7.7	6.7	5.3	2.0	7.7	6.7	5.3	205								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	10	45	0	5	10	45								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	5	10	75	10	5	10	75								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	800		
Forage	300	300		
Forage (maximum)	1500	1500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Fair		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Vesper sparrow	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Blk-tail jackrabbit	Imp.	Imp.		
Western meadowlark	Imp.	Imp.		
Common poorwill	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		
Compaction	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus monosperma	Jumo	10	10		
	Juniperus osteosperma	Juos	10	10		
	Pinus edulis	Pied	10	10		
	Artemisia tridentata	Artr2	10	10		
	Atriplex canescens	Atca2	2	2		
	Chrysothamnus nauseousus	Chna2	T	T		
	Eurotia lanata	Eula5	T	T		
	Gutierrezia sarothrae	Gusa2	2	2		
	Opuntia polyacantha	Oppo	1	1		
	Purshia tridentata	Putr2	1	1		
	Sphaeralcea parvifolia	Sppa2	1	1		
	Yucca utahensis	Yuut	3	3		
	Castilleja linariaefolia	Cali4	T	T		
	Erigeron flagellaris	Erfl	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Linum lewisii	Lile3	T	T		
	Lotus wrightii	Lowr3	T	T		
	Phlox woodhousei	Phwo2	T	T		
	Senecio multilobatus	Semu3	T	T		
	Solanum elaeagnifolium	Soel	T	T		
	Verbascum thapsus	Veth	T	T		
	Verbena ciliata	Veci	T	T		
	Agropyron cristatum	Agcr	1	1		
	Agropyron smithii	Agsm	5	5		
	Agropyron trachycaulum	Agtr	T	T		
	Aristida divaricata	Ardi5	.1	.1		
	Bouteloua gracilis	Bogr2	10	10		
	Koeleria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	1	1		
	Poa fendleriana	Pofe	.1	.1		
	Sitanion hystrix	Sihy	.5	.5		
	Sporobolus cryptandrus	Spcr	1	1		
	Stipa comata	Stco4	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 35-Argic Cryaquolls, LSC, 7, -1, fine-loamy, mixed, deep loam, CAREX/JUNCU-Argiaquic Cryoborolls, LSC, 7, -1, loamy-skeletal, mixed, deep loam, Popr/Deca5/CAREX association: 0-15% slopes.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple linear and concave valley plains. The components were formed in alluvium from limestone parent material. Mean annual precipitation ranges from 70 to 78 centimeters; mean annual air temperature ranges from 1 to 3 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 October to 15 May. This map unit has a mean annual snowfall of 170 centimeters and a mean annual snow accumulation of 100 centimeters. The freeze free period is 70 days. Elevations range from 2800 to 3000 meters. Delineations are irregular in shape and vary in size from 8 to 100 hectares. Ephemeral streams and perennial ponds are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Argic Cryaquolls,	deep	LSC	CAREX/JUNCU	Topo-	MAP 74 cm	40%
---	---	7		edaphic	ME 2900 m	
fine-loamy, mixed	loam	-1		zootic	MAST 3 C	
---	---				MSST 7 C	
2.2 Argiaquic Cryoborolls,	deep	LSC	CAREX/Deca5	Topo-	MAP 74 cm	40%
---	---	7	Popr	edaphic	ME 2900 m	
loamy-skeletal, mixed	loam	-1		zootic	MAST 3 C	
---	---				MSST 7 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Argic Cryaquolls,	deep	LSC	CAREX/JUNCU	Topo-	MAP 74 cm	10%
---	---	7		edaphic	ME 2900 m	
fine-loamy, mixed	loam	-1		zootic	MAST 3 C	
---	---				MSST 7 C	
2.6 Cryic Pachic Paleborolls,	deep	LSC	CAREX/Deca5	Topo-	MAP 74 cm	10%
---	---	7	PoprX	edaphic	ME 2900 m	
fine-loamy, mixed	loam	-1		zootic	MAST 3 C	
---	---				MSST 7 C	

3.0 Management Implications.

3.1 & 3.2 These soils are wet to the surface part to all of the growing season. In some areas, the soil will remain saturated for the entire year.

3.3

3.4

Map Symbol: 35

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.9	6.7	.8	.7	8.9	6.7	.8	.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	60	95	0	10	60	95								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
2	20	40	38	2	25	40	33								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	4000	4000		
Forage	3300	3300		
Forage (maximum)	3500	4500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Fair		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Red-wing blackback	Ess.	Ess.		
Savannah sparrow	Ess.	Ess.		
Wild turkeys	Imp.	Imp.		
Red-tail hawk	Imp.	Imp.		
Teals	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		
Compaction	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Campanula rotundifolia	Caro2	1	1		
Erigeron eximus	Erex4		5		
Fragaria ovalis	Frov		T		
Geranium richardsonii	Geri		.5		
Goodyera oblongifolia	Goob2		.5		
Haplopappus parryi	Hapa6		.5		
Habenaria sparsiflora	Hasp	T			
Pedicularis groenlandica	Pegr2	2			
Trautvetteria grandis	Trgr	1			
Veratrum californicum	Veca2	15			
Bromus ciliatus	Brci2		.5		
Carex aquatilis	Caaq	10	T		
Carex bella	Cabe3	T	P		
Carex nebraskensis	Cane2	T	T		
Carex vesicaris	Cave6	5	T		
Deschampsia caespitosa	Deca5	10	5		
Festuca ovina	Feov	5	10		
Juncus albeccens	Jual2	2			
Juncus castaneus	Juac	1			
Juncus drummondii	Judr	7			
Juncus saximontanus	Jusa	P			
Kobresia bellardi	Kobe	5			
Poa pratensis	Popr	10	25		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 36-Pachic Argiustolls, HSC, 4, fine, mixed, mesic, deep, gravelly clay loam: 0-5 percent slopes, Chna2/Agsm/Pied.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. Component formed from mixed alluvium from basalt. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are elongated in shape and vary in size from 5 to 50 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Pachic Argiustolls, --- fine, mixed, mesic	deep gravelly clay loam ---	HSC 4	Chna2/Agsm Pied	Topo- edaphic zootic	MAP 40 cm ME 1800 m MAST 10 C MSST --- C	80%
2.2					MAP cm ME m MAST C MSST C	%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Argiustolls, --- fine, mixed, mesic	--- --- --- ---	HSC 4	Chna2/Agsm/ Pied	Topo- edaphic zootic	MAP 40 cm ME 1800 m MAST 10 C MSST --- C	10%
2.6 Vertic Argiustolls, --- fine, montmorillonitic, mesic	--- --- --- ---	HSC 4	Chna2/Agsm/ Pied	Topo- edaphic zootic	MAP 40 cm ME 1800 m MAST 10 C MSST --- C	10%

3.0 Management Implications.

3.1 Soils have low bearing strength when wet. Surface and clay subsurface horizons are generally wet for short periods following heavy rainfall. Erosion hazard is severe for gully erosion due to flooding.

3.2

3.3

3.4

Map Symbol: 36

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.1	6.7	.9	0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	20	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	15	5	50												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2500			
Forage	2300			
Forage (maximum)	2300			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Mod.			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Turkey	Used			
Pronghorn	Used.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus deppeana	Jude2	P			
Juniperus monosperma	Jumo	1			
Juniperus osteosperma	Juos	1			
Pinus edulis	Pied	2			
Artemisia frigida	Arfr4	T			
Atriplex canescens	Atca2	T			
Cercocarpus montanus	Cemo2	T			
Chrysothamnus nauseosus	Chna2	8			
Eurotia lanata	Eula5	T			
Gutierrezia sarothrae	Gusa2	T			
Opuntia polacantha	Oppo	T			
Castillejo linariaefolia	Cali4	T			
Erigeron flagellaris	Erfl	.5			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	10			
Andropogon scoparius	Ansc	T			
Aristida divaricata	Ardi5	T			
Bouteloua curtipendula	Bocu	4			
Bouteloua gracilis	Bogr2	20			
Koeleria cristata	Kocr	.1			
Oryzopsis hymenoides	Orhy	T			
Poa fendleriana	Pofe	.1			
Sitanion hystrix	Sihy	.5			
Sporobolus cryptandrus	Spcr	.2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 37-Aquic Haploborolls, LSC, 5, loamy-skeletal, mixed, deep, gravelly very fine sandy loam; 0-5 percent slopes, Popr/CAREX/Fear2.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. Component formed in alluvium from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2300 meters. Delineations are elongated in shape and vary in size from 10 to 200 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Aquic Haploborolls, --- loamy-skeletal, mixed, ---	deep gravelly very fine sandy loam ---	LSC 5	Popr/CAREX/ Fear2	Topo- edaphic zootic	MAP 56 cm ME 2200 m MAST 6 C MSST 12 C	80%
2.2					MAP cm ME m MAST C MSST C	%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Cumulic Haploborolls, --- fine-loamy, mixed, ---	--- --- --- ---	LSC 5	Popr/CAREX/ Fear2	Topo- edaphic zootic	MAP 56 cm ME 2200 m MAST 6 C MSST 12 C	10%
2.6 Aquic Haploborolls, --- fine-loamy, mixed, ---	--- --- --- ---	LSC 5	Popr/CAREX/ Fear2	Topo- edaphic zootic	MAP 56 cm ME 2200 m MAST 6 C MSST 12 C	10%

3.0 Management Implications.

3.1 Component is subject to seasonal flooding and fluctuating water table. Management activities are limited by wetness.

3.2

3.3

3.4

Map Symbol: 37

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.1	9.0	.6	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	25	5	45												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2500			
Forage	2000			
Forage (maximum)	2750			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Good			
Roadfill	Fair			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Pronghorn	Imp.			
Turkey	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus deppeana	Jude2	P			
	Pinus ponderosa	Pipo	P			
	Artemisia carruthii	Arca4	.1			
	Artemisia frigida	Arfr4	.1			
	Chrysothamnus nauseosus	Chna2	1			
	Gutierrezia sarothrae	Gusa2	.1			
	Ribes cereum	Rice	P			
	Rosa arizonica	Roar2	T			
	Achillea millefolium lanulosa	Acmil	.3			
	Antennaria rosea	Anro2	.1			
	Eriogonum racemosum	Erra	.1			
	Equisetum hyemale	Eqhy	T			
	Geranium caespitosum	Geca3	T			
	Gilia aggregata	Giag	T			
	Iris missouriensis	Irmi	.5			
	Lotus wrightii	Lowr	P			
	Lupinus argenteus	Luar3	T			
	Oxytropis lambertii	Oxla	T			
	Potentilla anserina	Poan5	.1			
	Thalictrum fendleri	Thfe	P			
	Verbascum thapsus	Veth	.5			
	Agropyron intermedium	Agin	P			
	Agropyron smithii	Agsm	.1			
	Agropyron trachycaulum	Agtr	T			
	Blepharoneuron tricholepis	Bltr	P			
	Carex sp.	CAREX	5			
	Festuca arizonica	Fear2	10			
	Koeleria cristata	Kocr	T			
	Muhlenbergia montana	Mumo	5			
	Muhlenbergia wrightii	Muwr	.1			
	Poa fendleriana	Pofe	1			
	Poa pratensis	Popr	15			
	Phleum pratense	Phpr	.1			
	Sitanion hystrix	Sihy	3			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 41-Typic Argiustolls, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, deep, clay loam: 0-15 percent slopes, Agsm/Pied.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave valley plains. Component formed in mixed alluvium. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are elongated in shape and vary in size from 5 to 50 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiustolls,	deep	HSC	Agsm/Pied	Topo-	MAP 40 cm	80%
---	---	4		edaphic	ME 1800 m	
clayey-skeletal, montmorillonitic,	clay loam	0		zootic	MAST 10 C	
mesic					MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Pachic Argiustolls,	deep	HSC	Agsm/Pied	Topo-	MAP 40 cm	10%
---	---	4		edaphic	ME 1800 m	
fine, montmorillonitic,	---	0		zootic	MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Argiustolls,	deep	HSC	Agsm/Pied	Topo-	MAP 40 cm	10%
---	---	4		edaphic	ME 1800 m	
fine, montmorillonitic,	---	0		zootic	MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 These are soils in valley plains and swales, and are very productive.

3.2

3.3

3.4

Map Symbol: 41

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
7.1	6.7	3.2	.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	2	20	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	10	10	55												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	950			
Forage	425			
Forage (maximum)	2150			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Turkey	Used			
Pronghorn	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Mod.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	P			
Juniperus monosperma	Jumo	5			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	5			
Artemisia frigida	Arfr4	T			
Atriplex canescens	Atca2	4			
Cercocarpus montanus	Cemo2	T			
Eurotia lanata	Eula5	2			
Fallugia paradoxa	Fapa	5			
Gutierrezia sarothrae	Gusa2	1			
Opuntia polyacantha	Oppo	1			
Opuntia whipplei	Opwh	1			
Castillejo linariaefolia	Cali4	.5			
Erigeron flagellaris	Erfl	.3			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	8			
Andropogon scoparius	Ansc2	T			
Aristida arizonica	Arar6	2			
Bouteloua curtipendula	Bocu	10			
Bouteloua gracilis	Bogr2	20			
Koeleria cristata	Kocr	.1			
Oryzopsis hymenoides	Orhy	2			
Poa fendleriana	Pofe	T			
Sitanion hystrix	Sihy	1			
Sporobolus cryptandrus	Spcr	.3			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 150-Rock outcrop - Lithic Torriorthents, LSC, 2, +1, coarse-loamy, mixed, (calcareous), mesic, loamy fine sand, complex: 0-15% percent slopes, Cora/Hija.

Setting: This map unit consists of multitaxa Terrestrial System components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Components formed in residuum and eoliam deposits from sandstone and limestone parent material. Mean annual precipitation ranges from 24 to 30 centimeters; mean annual air temperature ranges from 11 to 13 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover occurs on this map unit from 01 December to 31 March. This map unit has a mean annual snowfall of 60 centimeters and a mean annual snow accumulation of 5 centimeters. The freeze free period is 150 days. Elevations range from 1250 to 1600 meters. Delineations are irregular in shape and vary in size from 100 to 500 hectares. Ephemeral streams are present within this map unit. It is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Rock outcrop					MAP	cm	50%
					ME	m	
					MAST	C	
					MSST	C	
2.2 Lithic Torriorthents,	---	LSC	Cora/Hija	Edaphic	MAP	28 cm	40%
---	---	2			ME	1400 m	
coarse-loamy, mixed, (calcareous),	loamy fine sand	+1			MAST	10 C	
mesic	---				MSST	15 C	
2.3					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5 Typic Torriorthents,	moderately deep	LSC	Cora/Hija	Edaphic	MAP	28 cm	10%
---	---	2			ME	1400 m	
coarse-loamy, mixed, (calcareous),	loamy fine sand	+1			MAST	10 C	
mesic	---				MSST	15 C	
2.6					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	

3.0 Management Implications.

3.1

3.2 This map unit occurs within the Kanab Creek Wilderness. The high percentage of rock outcrop and shallow soil depth, limit most management activities.

3.3

3.4

Map Symbol: 150

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
				7.0	2.2	3.1	2.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
				0	40	25	40								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
				10	7	5	78								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody		200		
Forage		100		
Forage (maximum)		125		
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation		Low		
Reforestation		---		
Source Suitability:				
Topsoil		Poor		
Roadfill		Poor		
Wildlife Habitat Suit:				
Blk-throated sparrow		Ess.		
Peregrin falcon		Ess.		
Desert bighorn		Ess.		
Vaux's swift		Ess.		
Collared lizzard		Imp.		
Limitations For:				
Timber Harvest		---		
Cutbank Stability		Sli.		
Unsurfaced Roads		Sev.		
Trails		Sli.		
Campgrounds		Sev.		
Wheeled O.R.V.		Sev.		
Hazards:				
Erosion(Sheet & Rill)		Sev.		
Mass Wasting		---		
Windthrow		---		
Plant Competition		---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Agave desrti	Agde	T			
	Baccharis	BACCH	T			
	Berberis haematocarpa	Beha	1			
	Coleogyne ramosissima	Cora	15			
	Ephedra viridis	Epvi	2			
	Eriogonum	ERIOG	T			
	Fallugia paradoxa	Fapa	T			
	Gutierrezia sarothrae	Gusa2	2			
	Nolina microcarpus	Nomi	.1			
	Opuntia erinacea	Oper	3			
	Quercus turbinella	Qutu2	8			
	Rhus trilobata	Rhtr	3			
	Sheperdia rotundifolia	Shro	1			
	Yucca utahensis	Yuut	.5			
	Achillea millefolium lanulosa	Acmil	T			
	Castilleja chromosa	Cach	T			
	Hilaria Jamesii	Hija	3			
	Oryzopsis hymenoides	Orhy	1			
	Stipa comata	Stco4	2			
	Stipa speciosa	Stsp3	3			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 151-Typic Torriorthents, LSC, 2, +1, loamy-skeletal, mixed, (calcareous), mesic, deep, gravelly fine sandy loam-Rock outcrop, complex: 0-40 percent slopes, Cora/Hija.

Setting: This map unit consists of multitaxa Terrestrial System components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on simple linear nearly level elevated plains and moderately steep to steep concave and convex sideslopes of hills. Components formed in talus and alluvium from sedimentary parent material. Mean annual precipitation ranges from 24 to 30 centimeters; mean annual air temperature ranges from 11 to 13 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold (LSC). Patchy snow cover occurs from 01 December to 31 March. This map unit has a mean annual snowfall of 60 centimeters and a mean annual snow accumulation of 5 centimeters. The freeze free period is 150 days. Elevations range from 1200 to 1600 meters. Delineations are irregular in shape and vary in size from 50 to 200 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Torriorthents, --- loamy-skeletal, mixed,(calcareous) mesic	deep gravelly fine sandy loam ---	LSC 2 +1	Cora/Hija	Edaphic	MAP 28 cm ME 1400 m MAST 10 C MSST 15 C	70%
2.2 Rock outcrop					MAP cm ME m MAST C MSST C	20%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Lithic Torriorthents, --- loamy-skeletal,mixed,(calcareous) mesic	--- gravelly fine sandy loam ---	LSC 2 +1	Cora/Hija	Edaphic	MAP 28 cm ME 1400 m MAST 10 C MSST 15 C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 This unit occurs only in the Kanab Creek Wilderness. Rill and gully formation is prevalent.

3.2

3.3

3.4

Map Symbol: 151

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
15.4	6.7	4.3	3.0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	20	30	40												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	7	5	48												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	275			
Forage	175			
Forage (maximum)	400			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Fair			
Wildlife Habitat Suit:				
Blk-throated sparrow	Ess.			
Peregrin falcon	Ess.			
Desert bighorn	Ess.			
Vaux's swift	Ess.			
Collared lizzard	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Mod.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	Mod.			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Agave deserti	Agde	T			
	Baccharis	BACCH	T			
	Berberis haematocarpa	Beha	1			
	Coleogyne ramosissima	Cora	15			
	Ephedra viridis	Epvi	1			
	Eriogonum	ERIOG	T			
	Fallugia paradoxa	Fapa	T			
	Gutierrezia sarothrae	Gusa2	2			
	Nolina microcarpus	Nomi	.3			
	Opuntia erinacea	Oper	2			
	Quercus turbinella	Qutu2	8			
	Rhus trilobata	Rhtr	3			
	Sheperdia rotundifolia	Shro	.5			
	Yucca utahensis	Yuut	1			
	Achillea millefolium lanulosa	Acmil	T			
	Castilleja chromosa	Cach	T			
	Hilaria jamesii	Hija	3			
	Oryzopsis hymenoides	Orhy	.5			
	Stipa comata	Stco4	2			
	Stipa speciosa	Stsp3	5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 153-Rock outcrop - Lithic Torriorthents, LSC, 2, +1, coarse-loamy, mixed, (calcareous), mesic, loamy fine sand, complex: 40-120 percent slopes, Cora/Hija.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steeply sloping to stromgly sloping complex convex and concave escarpments. Components formed in residuum and eolian parent material from sandstone and limestone. Mean annual precipitation ranges from 24 30 centimeters; mean annual air temperature ranges from 11 to 13 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover occurs on this map unit from 01 December to 31 March. This map unit has a mean annual snowfall of 60 centimeters and a mean annual snow accumulation of 5 centimeters. The freeze free period is 150 days. Elevations range from 975 to 1350 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Rock Outcrop					MAP	cm	60%
					ME	m	
					MAST	C	
					MSST	C	
2.2 Lithic Torriorthents,	---	LSC	Cora/Hija	Edaphic	MAP 28	cm	40%
---	---	2			ME 1100	m	
coarse-loamy,mixed,(calcareous)	loamy fine sand	+1			MAST 10	C	
mesic	--				MSST 15	C	
2.3					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.6					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	

3.0 Management Implications.

3.1

3.2 This map unit only occurs in the Kanab Creek Wilderness. The steep slopes, high percent of rock outcrop and shallow soils limit most management activities.

3.3

3.4

Map Symbol: 153

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
				38.7	4.5	8.8	6.0								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
				0	55	40	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
				40	8	5	47								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody		200		
Forage		100		
Forage (maximum)		150		
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation		Low		
Reforestation		---		
Source Suitability:				
Topsoil		Poor		
Roadfill		Poor		
Wildlife Habitat Suit:				
Blk-throated sparrow		Ess.		
Peregrin falcon		Ess.		
Desert bighorn		Ess.		
Vaux's swift		Ess.		
Collared lizzard		Imp.		
Limitations For:				
Timber Harvest		---		
Cutbank Stability		Sli.		
Unsurfaced Roads		Sev.		
Trails		Sev.		
Campgrounds		Sev.		
Wheeled O.R.V.		Sev.		
Hazards:				
Erosion(Sheet & Rill)		Sev.		
Mass Wasting		Mod.		
Windthrow		---		
Plant Competition		---		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Agave deserti	Agde	T			
Baccharis	BACCH	T			
Berberis haematocarpa	Beha	2			
Coleogyne ramosissima	Cora	5			
Ephedra viridis	Epvi	2			
Eriogonum	ERIOG	T			
Fallugia paradoxa	Fapa	T			
Gutierrezia sarothrae	Gusa2	T			
Nolina microcarpus	Nomi	1			
Opuntia erinacea	Oper	1			
Quercus turbinella	Qutu2	8			
Rhus trilobata	Rhtr	5			
Sheperdia rotundifolia	Shro	T			
Yucca utahensis	Yuut	.5			
Achillea millefolium lanulosa	Acmil	T			
Castilleja chromosa	Cach	T			
Hilaria jamesii	Hija	.5			
Oryzopsis hymenoides	Orhy	T			
Stipa comata	Stco4	.5			
Stipa speciosa	Stsp3	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 154-Typic Ustorthents, LSC, 3, +1, loamy-skeletal, mixed, (calcareous), mesic, extremely gravelly fine sandy loam - Rock outcrop, complex: 40-120 percent slopes, Artr2/Bogr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steeply sloping to strongly sloping complex concave and convex escarpments. Component .1 formed in talus from sedimentary parent material. Mean annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover occurs on this map unit from 01 December to 31 March. This map unit has a mean annual snowfall of 70 centimeters and a mean annual snow accumulation of 10 centimeters. The freeze free period is 145 days. Elevations range from 1400 to 1600 meters. Delineations are irregular in shape and vary in size from 100 to 1000 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Ustorthents,	---	LSC	Artr2/Bogr2	Edaphic	MAP 32 cm	70%
---	gravelly	3			ME 1500 m	
loamy-skeletal,mixed,(calcareous)	fine sandy loam	+1			MAST 10 C	
mesic	---				MSST --- C	
2.2 Rock outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustorthents,	---	LSC	Artr2/Bogr2	Edaphic	MAP 32 cm	10%
---	gravelly	3			ME 1500 m	
loamy-skeletal,mixed,(calcareous)	fine sandy loam	+1			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 This map unit occurs only in the Kanab Creek Wilderness. The steep slopes and high surface rock content will limit most management activities.

3.2

3.3

3.4

Map Symbol: 154

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
38.9	6.7	13.6	9.7												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	30	40												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	10	15	25												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	200			
Forage	150			
Forage (maximum)	450		-	
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Blk-throated sparrow	Ess.			
Peregrin falcon	Ess.			
Desert bighorn	Ess.			
Vaux's swift	Ess.			
Collared lizzard	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Sev.			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.	Symbol	% Canopy Cover 6.1	6.2	6.3	6.4
Scientific Name					
Agave deserti	Agde	T			
Artemisia tridentata	Artr2	.5			
Baccharis	BACCH	.5			
Berberis haematocarpa	Beha	.5			
Coleogyne ramosissima	Cora	.3			
Ephedra viridis	Epvi	2			
Eriogonum	ERIOG	T			
Fallugia paradoxa	Fapa	T			
Gutierrezia sarothrae	Gusa2	.5			
Nolina microcarpus	Nomi	.5			
Opuntia erinacea	Oper	.3			
Rhus trilobata	Rhtr	.5			
Sheperdia rotundfolia	Shro	.5			
Yucca utahensis	Yuut	.3			
Achillea millefolium lanulosa	Acmil	T			
Castilleja chromosa	Cach	T			
Agropyron trachycaulum	Agtr	T			
Bouteloua gracilis	Bogr2	2			
Hilaria jamesii	Hija	T			
Oryzopsis hymenoides	Orhy	.5			
Sitanion hystrix	Sihy	2			
Stipa comata	Stco4	4			
Stipa speciosa	Stsp3	T			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 156-Udic Haploborolls, LSC, 6 - Dystric Eutrocrepts, LSC, 6 - Rock outcrop, complex: 40-80 percent slopes, Quga/Rone.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on extremely steep complex concave and convex escarpments. Components formed in the talus from sedimentary parent material. Mean annual precipitatiaon ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs on this map unit from 15 October to 15 April. This map unit has a mean annual snowfall of 150 centimeters and mean annual snow accumulation of 70 centimeters. The freeze free period is 90 days. Elevations range from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Udic Haploborolls	---	LSC	Quga/Rone	Topo-	MAP 68 cm	40%
---	---	6		edaphic	ME 2700 m	
---	---			fire	MAST 5 C	
---	---				MSST 9 C	
2.2 Dystric Eutrochrepts	---	LSC	Quga/Rone	Topo-	MAP 68 cm	30%
---	---	6		edaphic	ME 2700 m	
---	---			fire	MAST 5 C	
---	---				MSST 9 C	
2.3 Rock outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Udic Argiborolls	---	LSC	Quga/Rone	Topo-	MAP 68 cm	10%
---	---	6		edaphic	ME 2700 m	
---	---			fire	MAST 5 C	
---	---				MSST 9 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 A severe limitation is assigned to most management acitivites due to steep slopes and high rock content.

3.3

3.4

Map Symbol: 156

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
107.4	6.7	5.6	2.3	107.4	6.7	5.6	2.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	65	70	60	0	65	70	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	5	15	30	50	5	10	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1000	1000		
Forage	250	250		
Forage (maximum)	1500	1500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Williamson sapsucker	Imp.	Imp.		
Red squirrel	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Abies concolor	Abco	T	T		
Pinus ponderosa	Pipo	T	T		
Populus tremuloides	Potr5	20	20		
Pseudotsuga menziesii glauca	Psmeg	T	T		
Berberis repens	Bere	T	T		
Juniperis communis	Juco6	.3	.3		
Pachystima Myrsinites	Pamy	T	1		
Quercus gambelii	Quga	30	30		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	20	20		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilis	Syor	T	T		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolis	Caro2	T	T		
Fragaria ovalis	Frov	T	T		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensis macdougalii	Mema	T	T		
Vicia americana	Viam	T	T		
Bromus anomalus	Bran	T	.1		
Bromus ciliatus	Brci2		.1		
Koelaria cristata	Kocr	T	T		
Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 165-Typic Haplustalfs, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very flaggy sandy clay loam - Lithic Haplustalfs, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, very flaggy, sandy clay loam complex: 0-15 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping simple linear and concave elevated plains. Components formed from residuum from sandstone parent material. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1650 to 1750 meters. Delineations are irregular in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	very flaggy	4			ME 1700 m	
clayey-skeletal, montmorillonitic,	sandy clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Lithic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	very flaggy	4			ME 1700 m	
clayey-skeletal, montmorillonitic,	sandy clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	---	4			ME 1700 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Shallow depth to clay subsoil and high percentage of flaggy surface rock fragments precludes most management opportunities.

3.2 Shallow depth and high percentage of flaggy surface rock fragments precludes most management opportunities.

3.3

3.4

Map Symbol: 165

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.6	6.7	1.6	.2	2.6	4.5	1.6	.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	10	65	0	0	10	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	2	8	40	50	2	8	40								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	600		
Forage	275	200		
Forage (maximum)	1200	1000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	8	6		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Sli.	Sli.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
	Juniperus deppeana	Jude2	T	T		
	Juniperus monsperma	Jumo	20	15		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	20	15		
	Artemisia fridiga	Arfr4	T	T		
	Berberis fremontii	Befr	.1	.1		
	Chrysothamnus nauseosus	Chna2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Opuntia polyacantha	Oppo	T	T		
	Opuntia whipplei	Opwh	T	T		
	Rhus trilobata	Rhtr	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja linariaefolia	Cali4	1	1		
	Erigeron flagellaris	Erfl	.2	.2		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	T	T		
	Andropogon scoparius	Ansc2	P	P		
	Aristida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	4	4		
	Bouteloua gracilis	Bogr2	10	5		
	Hilaria jamesii	Hija	T	T		
	Koelaria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	T	T		
	Poa fendleriana	Pofe	.1	.1		
	Sitanion hystrix	Sihy	.5	.5		
	Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 166-Typic Haplustalfs, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very flaggy fine sandy loam - Lithic Haplustalfs, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, very flaggy fine sandy loam complex: 15-40 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep escarpments and hills. Components formed in residuum from sandstone parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1700 to 1800 meters. Delineations are irregular in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	very flaggy	4			ME 1750 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Lithic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	30%
---	very flaggy	4			ME 1750 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1750 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Rock Outcrop					MAP cm	10%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Shallow depth to clay subsoil, high percentage of flaggy surface rock fragments and slope precludes most management activities. Component has moderate forage production but low revegetation potential.

3.2 Shallow depth, high percentage of flaggy surface rock fragments, and slope precludes most management activities.

3.3

3.4

Map Symbol: 166

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
13.8	6.7	8.7	1.9	13.8	4.5	8.7	1.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	25	10	50	0	30	10	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	7	3	40	50	7	3	40								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	600		
Forage	275	275		
Forage (maximum)	1000	1000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	6	6		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus deppeana	Jude2	P	P		
Juniperus monosperma	Jumo	15	12		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	15	10		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	.1	.1		
Chrysothamnus nauseosus	Chna2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.2	.2		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	4	4		
Bouteloua gracilis	Bogr2	10	8		
Hilaria jamesii	Hija	T	T		
Koelaria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	.1	.1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 167-Typic Haplustalfs, HSC, 4, 0, mesic, moderately deep, very flaggy fine sandy loam - Lithic Haplustalfs, HSC, 4, 0, very flaggy fine sandy loam complex: 40-80 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to very steep simple linear and convex escarpments and hills. Components formed from residuum from sandstone parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1700 to 1900 meters. Delineations are irregular in shape and vary in size from 20 to 100 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	very flaggy	4			ME 1800 m	
---	fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Lithic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	30%
---	very flaggy	4			ME 1800 m	
---	fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1800 m	
---	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Rock Outcrop					MAP cm	10%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Steep slopes, surface rock fragments (flagstone) and rock outcrop preclude most management activity. Component has moderate forage production but low revegetation potential.

3.2 Shallow depth, steep slopes, high percentage of flaggy surface rock fragments precludes most management activities.

3.3

3.4

Map Symbol: 167

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
34.9	6.7	18.5	6.0	34.9	4.5	18.5	6.0								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	40	15	45	0	50	15	45								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
60	10	5	25	60	10	5	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	300		
Forage	150	100		
Forage (maximum)	700	600		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	15	20		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	15	10		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	.1	.1		
Chrysothamnus nauseosus	Chna 2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	2	2		
Bouteloua gracilis	Bogr2	5	5		
Hilaria jamesii	Hija	T	T		
Koelaria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	.1	.1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 172-Lithic Ustochrepts, HSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, gravelly fine sandy loam: 0-15 percent slopes, Pied/Jumo/Stco4.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave elevated and lowland plains. Component formed from residuum from sedimentary parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1850 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 150 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	80%
calcareous,	gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, mixed,	fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	10%
calcareous,	---	4	Stco4		ME 1900 m	
loamy-skeletal, mixed,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	10%
calcareous,	---	4	Stco4		ME 1900 m	
fine-loamy, mixed,	---	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 These soils formed from the Moenkopi Formation and wherever these soils are found there is a noticeable lack of vegetative ground cover suggesting there is something naturally in the soils which restricts vegetative ground cover.

3.2

3.3

3.4

Map Symbol: 172

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.3	4.5	.7	.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	35												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	5	10	45												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	350			
Forage	75			
Forage (maximum)	500			
Timber	Site Index			

Fuelwood	cd/ac			
Pied/Jumo	4	4		
Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Turkey	Used			
Plain titmouse	Imp.			
Pronghorn	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Sli.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	10			
Juniperus osteosperma	Juos	3			
Pinus edulis	Pied	10			
Artemisia frigida	Arfr4	T			
Atriplex canescens	Atca2	T			
Berberis fremontii	Befr	T			
Chrysothamnus nauseosus	Chna2	T			
Cowania mexicana stansburiana	Comes	2			
Eurotia lanata	Eula5	T			
Gutierrezia sarothrae	Gusa2	1			
Opuntia polyacantha	Oppo	T			
Yucca baccata	Yuba	T			
Agropyron smithii	Agsm	T			
Aristida arizonica	Arar6	T			
Bouteloua curtipendula	Bocu	3			
Bouteloua gracilis	Bogr2	5			
Hilaria jamesii	Hija	T			
Koeleria cristata	Kocr	T			
Oryzopsis hymenoides	Orhy	T			
Poa fendleriana	Pofe	.3			
Sitanion hystrix	Sihy	.5			
Sporobolus cryptandrus	Spcr	.5			
Stipa comata	Stco4	4			
Stipa neomexicana	Stne2	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 250-Lithic Ustochrepts, LSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, gravelly fine sandy loam: 0-15 percent slopes, Pied/Juos/ Artr2/Stco4.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. The mean annual precipitation ranges from 36 to 44 centimeters; mean annual temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. The mean annual snowfall is 90 centimeters and mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 50 to 800 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Lithic Ustochrepts, calcareous loamy-skeletal, mixed, mesic	--- gravelly fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	80%
2.2						MAP cm ME m MAST C MSST C	%
2.3						MAP cm ME m MAST C MSST C	%
2.4						MAP cm ME m MAST C MSST C	%
2.5	Typic Ustochrepts, --- loamy-skeletal, carbonitic, mesic	moderately gravelly fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6	Rock outcrop					MAP cm ME m MAST C MSST C	10%

3.0 Management Implications.

3.1 This soil contains significant quanities of lime throughout the profile. A pH of 8 is not uncommon and may hinder revegetation efforts. Excessive ground disturbance which brings more calcareous soil to the surface should be avoided.

3.2

3.3

3.4

Map Symbol: 250

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.0	4.5	2.6	.7												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	15	50												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	2	15	58												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	425			
Forage	175			
Forage (maximum)	525			
Timber	Site Index			

Fuelwood	cd/ac			
	4			
Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Pinyon jay	Ess.			
Plain titmouse	Ess.			
Pinyon mouse	Ess.			
Mule deer	Imp.			
Bl-gr gnatcatcher	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Sli.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	5			
Juniperus osteosperma	Juos	10			
Pinus edulis	Pied	10			
Amelanchier utahensis	Amut	T			
Artemisia frigida	Arfr4	T			
Artemisia tridentata	Artr2	8			
Atriplex canescens	Atca2	T			
Cercocarpus montanus	Cemo2	T			
Chrysothamnus nauseosus	Chna2	T			
Cowania mexicana stansburiana	Comes	5			
Eurotia lanata	Eula5	T			
Gutierrezia sarothrae	Gusa2	2			
Marrubium vulgare	Mavu	T			
Oppuntia polyacantha	Oppo	.5			
Purshia tridentata	Putr2	.5			
Sphaeralcea parvifolia	Sppa2	.3			
Yucca utahensis	Yuut	T			
Calochortus	CALOC	T			
Castilleja linariaefolia	Cali4	.5			
Erigeron flagellaris	Erfl	.5			
Hymenoxys richardsonii	Hyri	1			
Linum lewisii	Lile3	T			
Lotus wrightii	Lowr	T			
Phlox woodhousei	Phwo	T			
Verbena ciliata	Veci	T			
Agropyron cristatum	Agcr	2			
Agropyron smithii	Agsm	8			
Aristida divaricata	Ardi5	T			
Bouteloua curtipendula	Bocu	3			
Bouteloua gracilis	Bogr2	8			
Oryzopsis hymenoides	Orhy	.5			
Poa fendleriana	Pofe	1			
Sitanion hystrix	Sihy	1			
Sporobolus cryptandrus	Spcr	1			
Stipa comata	Stco4	4			
Stipa neomexicana	Stne2	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 251-Lithic Ustochrepts, LSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, very gravelly fine sandy loam - Rock outcrop, complex: 15-40 percent slopes, Pied/Juos/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occur on moderately steep to steep simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period from 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs on this map unit from 01 December to 01 April. This map unit has a mean annual snowfall of 90 centimeters and a mean annual snow accumulation of 20 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2200 meters. Delineations are irregular in shape and very in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Pied/Juos/	Edaphic	MAP 40 cm	60%
calcareous	very gravelly	4	Artr2/Stco4		ME 2100 m	
loamy-skeletal, mixed,	fine sandy loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.2 Rock outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Ustochrepts,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	10%
---	very gravelly	4	Artr2/Stco4		ME 2100 m	
loamy-skeletal, carbonitic,	fine sandy loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.6 Lithic Ustorthents,	very shallow	LSC	Pied/Juos/	Edaphic	MAP 40 cm	10%
---	very gravelly	4	Artr2/Stco4		ME 2100 m	
loamy-skeletal,mixed,(calcareous)	fine sandy loam	0			MAST 9 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 This soil contains significant quanities of lime throughout the profile. A pH of 8 is not uncommon and may hinder revegetation efforts. Excessive ground disturbance which brings more calcareous soil to the surface should be avoided.

3.2

3.3

3.4

Map Symbol: 251

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
29.9	4.5	17.5	4.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	12	50												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
35	1	10	54												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	425			
Forage	100			
Forage (maximum)	550			
Timber	Site Index			

Fuelwood	cd/ac			
Pied/Juos	4			
Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Pinyon jay	Ess.			
Plain titmouse	Ess.			
Pinyon mouse	Ess.			
Mule deer	Imp.			
bl-gr gnatcatcher	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	5			
Juniperus osteosperma	Juos	10			
Pinus edulis	Pied	10			
Amelanchier utahensis	Amut	T			
Artemisia frigida	Arfr4	T			
Artemisia tridentata	Artr2	8			
Atriplex canescens	Atca2	T			
Cercocarpus montanus	Cemo2	T			
Chrysothamnus nauseosus	Chna2	T			
Cowania mexicana stansburiana	Comes	5			
Eurotia lanata	Eula5	T			
Gutierrezia sarothrae	Gusa2	2			
Marrubium vulgare	Mavu	T			
Oppuntia polyacantha	Oppo	1			
Purshia tridentata	Putr2	T			
Sphaeralcea parvifolia	Sppa	.3			
Yucca utahensis	Yuut	T			
Calochortus	CALOC	T			
Castilleja linariaefolia	Cali4	.5			
Erigeron flagellaris	Erfl	.3			
Hymenoxys richardsonii	Hyri	1			
Linum lewisii	Lile3	T			
Lotus wrightii	Lowr	T			
Phlox woodhousei	Phwo	T			
Verbena ciliata	Veci	T			
Agropyron cristatum	Agcr	2			
Agropyron smithii	Agsm	8			
Aristida divaricata	Ard15	T			
Bouteloua curtipendula	Bocu	3			
Bouteloua gracilis	Bogr2	8			
Oryzopsis hymenoides	Orhy	.5			
Poa fendleriana	Pofe	1			
Sitanion hystrix	Sihy	2			
Sporobolus cryptandrus	Spcr	1			
Stipa comata	Stco4	4			
Stipa neomexicana	Stne2	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 252-Lithic Ustochrepts, LSC, 4, 0, calcareous, mesic, very gravelly fine sandy loam - Typic Ustochrepts, LSC, 4, 0, calcareous, mesic, moderately deep, very gravelly fine sandy loam - Rock outcrops, complex: 40-80 percent slopes, Pied/Juos/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on extremely steep complex concave and convex escarpments. Components formed in talus from sedimentary parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October and 31 March and the winters are cold(LSC). Patchy snow cover normally occurs on this map unit from 01 December to 01 April. Mean annual snowfall is 90 centimeters and mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. Elevation ranges from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Pied/Juos/	Edaphic	MAP 40 cm	40%
calcareous	very gravelly	4	Artr2/Stco4		ME 2100 m	
---	fine sandy loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	30%
calcareous	very gravelly	4	Artr2/Stco4		ME 2100 m	
---	fine sandy loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.3 Rock outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustorthents,	very shallow	LSC	Pied/Juos/	Edaphic	MAP 40 cm	10%
---	very gravelly	4	Artr2/Stco4		ME 2100 m	
(calcareous)	fine sandy loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 A severe limitation is assigned to most management activities due to steep slopes and shallow soils.

3.2 A severe limitation is assigned to most management activities due to steep slopes.

3.3

3.4

Map Symbol: 252

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
39.1	6.7	23.3	5.3	39.1	4.5	23.2	5.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	10	50	0	45	10	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	2	8	35	55	2	8	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	375	575		
Forage	150	150		
Forage (maximum)	750	850		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
bl-gr gnatcatcher	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Mod.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	4	5		
Juniperus osteosperma	Juos	5	8		
Pinus edulis	Pied	5	8		
Amelanchier utahensis	Amut	T	T		
Artemisia frigida	Arfr4	T	T		
Artemisia tridentata	Artr2	5	8		
Atriplex canescens	Atca2	T	T		
Cercocarpus montanus	Cemo	T	T		
Cowania mexicana stansburiana	Comes	3	5		
Eurotia lanata	Eula5	T	T		
Gutierrezia sarothrae	Gusa2	2	3		
Oppuntia polyacantha	Oppo	1	1		
Purshia tridentata	Putr2	1	1		
Sphaeralcea parvifolia	Sppa	.3	.3		
Yucca utahensis	Yuut	1	1		
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.3	.3		
Hymenoxys richardsonii	Hyri	1	1		
Linum lewisii	Lile3	T	T		
Lotus wrightii	Lowr	.5	.5		
Phlox woodhousei	Phwo	.3	.3		
Verbena ciliata	Veci	.3	.3		
Agropyron cristatum	Agcr	.5	1		
Agropyron smithii	Agsm	2	4		
Aristida divaricata	Ardi5	T	T		
Bouteloua curtipendula	Bocu	T	T		
Bouteloua gracilis	Bogr2	2	4		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	1	2		
Sporobolus cryptandrus	Spcr	T	T		
Stipa comata	Stco4	2	2		
Stipa neomexicana	Stne2	.5	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 255-Lithic Ustochrepts, HSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, gravelly very fine sandy loam: 0-15 percent slopes, Atca2/Stco4/Bogr2/Pied.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave elevated and lowland plains. Component formed from residuum from limestone parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1900 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Atca2/Stco4	Edaphic	MAP 40 cm	95%
calcareous,	gravelly	4	Bogr2/Pied		ME 1950 m	
loamy-skeletal, mixed,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustorthents,	---	HSC	Atca2/Stco4	Edaphic	MAP 40 cm	5%
calcareous,	---	4	Bogr2/Pied		ME 1950 m	
loamy-skeletal, mixed,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Revegetation potential is low. These ratings are due to shallow depth, low available water holding capacity, high amounts of rock fragments, and high pH.

3.2

3.3

3.4

Map Symbol: 255

4.0 Estimated Soil Loss Rates.

4.1 Sheet/Rill Erosion				4.2 Sheet/Rill Erosion				4.3 Sheet/Rill Erosion				4.4 Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.9	4.5	1.7	.4												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	20	55												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF >2mm	Veg. BA	Lit.	Soil	RF >2mm	Veg. BA	Lit.	Soil	RF >2mm	Veg. BA	Lit.	Soil	RF >2mm	Veg. BA	Lit.	Soil
23	20	2	55												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	625			
Forage	175			
Forage (maximum)	900			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Pronghorn	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Juniperus monosperma	Jumo	T			
Pinus edulis	Pied	T			
Atriplex confertifolia	Atco	T			
Berberis fremontii	Befr	T			
Chrysothamnus nauseosus	Chna2	T			
Cowania mexicana stansburiana	Comes	3			
Gutierrezia sarothrae	Gusa2	1			
Opuntia polyacantha	Oppo	.5			
Opuntia whipplei	Opwh	T			
Rhus trilobata	Rhtr	T			
Yucca baccata	Yuba	T			
Castilleja linariaefolia	Cali4	1			
Erigeron flagellaris	Erfl	T			
Hymenoxys richardsonii	Hyri	T			
Agropyron cristatum	Agcr	5			
Agropyron smithii	Agsm	2			
Aristida arizonica	Arar6	T			
Bouteloua curtipendula	Bocu	4			
Bouteloua gracilis	Bogr2	20			
Oryzopsis hymenoides	Orhy	T			
Poa fendleriana	Pofe	T			
Sitanion hystrix	Sihy	1			
Sporobolus cryptandrus	Spcr	2			
Stipa comata	Stco4	10			
Stipa neomexicana	Stne2	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 257-Typic Haplustalfs, LSC, 4, +1, fine-loamy, mixed, mesic, deep, loamy very fine sand: 0-15 percent slopes, Pied/Juos/Quga/Artr2.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple linear and concave basins and lowland plains. Components formed from colluvium from limestone and sandstone. Mean annual precipitation ranges from 40 to 50 centimeters; mean annual air temperature ranges from 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 15 November to 01 April. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 25 centimeters. The freeze free period is 120 days. Elevations range from 1950 to 2100 meters. Delineations are irregular in shape and vary in size from 100 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	deep	LSC	Pied/Juos/	Edaphic	MAP 46 cm	80%
---	---	4	Quga/Artr2		ME 2000 m	
fine-loamy, mixed,	loamy very fine sand	+1			MAST 8 C	
mesic	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustalfs,	---	LSC	Pied/Juos/	Edaphic	MAP 46 cm	10%
---	---	4	Quga/Artr2		ME 2000 m	
loamy-skeletal, mixed,	---	+1			MAST 8 C	
mesic	---				MSST --- C	
2.6 Typic Argiustolls,	---	LSC	Pied/Juos/	Edaphic	MAP 46 cm	10%
---	---	4	Quga/Artr2		ME 2000 m	
fine-loamy, mixed,	---	+1			MAST 8 C	
mesic	---				MSST --- C	

3.0 **Management Implications.**

3.1 Unit good for fuelwooding and will respond well to revegetation work.

3.2

3.3

3.4

Map Symbol: 257

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
6.0	6.7	1.2	.4												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	40	65												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	15	30	45												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	750			
Forage	175			
Forage (maximum)	1600			
Timber	Site Index			

Fuelwood	cd/ac			
Pied/Juos	14			
Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Fair			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Pronghorn	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Mod.			
Trails	Sli.			
Campgrounds	Sli.			
Wheeled O.R.V.	Sli.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	5			
Juniperus osteosperma	Juos	25			
Pinus edulis	Pied	15			
Artemisia tridentata	Artr2	25			
Atriplex confertifolia	Atco	1			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	2			
Purshia tridentata	Putr2	2			
Quercus gambelii	Quga	2			
Antennaria rosea	Anro2	T			
Castilleja linariaefolia	Cali4	.5			
Erigeron flagellaris	Erfl	.5			
Hymenoxys richardsonii	Hyri	T			
Lupinus argenteus	Luar3	T			
Agropyron smithii	Agsm	1			
Agropyron trachycaulum	Agtr	T			
Andropogon scoparius	Ansc2	T			
Aristida divaricata	Ardi5	T			
Bouteloua curtipendula	Bocu	.5			
Bouteloua gracilis	Bogr2	25			
Koeleria cristata	Kocr	.3			
Muhlenbergia montana	Mumo	T			
Poa fendleriana	Pofe	.5			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 260-Lithic Ustochrepts, LSC, 4, +1, calcareous, loamy-skeletal, mixed, mesic, very gravelly very fine sandy loam - Typic Ustochrepts, LSC, 4, +1, loamy-skeletal, carbonatic, mesic, moderately deep, very gravelly very fine sandy loam complex: 0-15 percent slopes, Pied/Quga/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping complex concave and convex elevated and lowland plains. Components formed from residuum from limestone parent materials. Mean annual precipitation ranges from 40 to 50 centimeters; mean annual air temperature ranges from 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally occurs from 15 November to 01 April. This map unit has a mean annual snowfall of 100 centimeters and mean annual snow accumulation of 25 centimeters. The freeze free period is 120 days. Elevations range from 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Pied/Quga/	Edpahic	MAP 46 cm	55%
calcareous,	very gravelly	4	Artr2/Stco4		ME 2200 m	
loamy-skeletal, mixed,	very fine sandy loam	+1			MAST 8 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	LSC	Pied/Quga/	Edaphic	MAP 46 cm	40%
---	gravelly	4	Artr2/Stco4		ME 2200 m	
loamy-skeletal, carbonatic,	very fine sandy loam	+1			MAST 8 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustochrepts,	---	LSC	Pied/Quga/	Edaphic	MAP 46 cm	5%
calcareous,	---	4	Artr2/Stco4		ME 2200 m	
loamy, mixed,	very fine sandy loam	+1			MAST 8 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 These soils contain significant quantities of lime throughout the profile. A pH of 8 is not uncommon and may hinder revegetation efforts. Excessive ground disturbance which brings more calcareous soil to the surface should be avoided.

3.2

3.3

3.4

Map Symbol: 260

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
6.6	4.5	1.4	.5	6.6	6.7	1.4	.5								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	8	40	65	0	0	40	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
32	15	23	30	32	15	23	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	675		
Forage	75	100		
Forage (maximum)	1300	1300		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Juos	12	13		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	8	10		
Juniperus osteosperma	Juos	8	10		
Pinus edulis	Pied	20	25		
Artemisia frigida	Arfr4	1	1		
Artemisia tridentata	Artr2	10	10		
Atriplex canescens	Atca2	T	T		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	5	5		
Guterrezia sarothrae	Gusa2	T	T		
Purshia tridentata	Putr2	T	T		
Quercus gambelii	Quga	1	1		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Bouteloua curtipendula	Bocu	1	1		
Bouteloua gracilis	Bogr2	2	2		
Koeleria cristata	Kocr	T	T		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	2	2		
Sporobolus cryptandrus	Spcr	T	T		
Stipa comata	Stco4	2	2		
Stipa neomexicana	Stne2	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 261-Lithic Ustochrepts, LSC, 4, +1, calcareous, loamy-skeletal, mixed, mesic, very gravelly fine sandy loam - Rock Outcrop complex: 15-40 percent slopes, Pied/Quga/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex elevated plains. The components formed from residuum from sedimentary parent material. Mean annual precipitation ranges from 40 to 50 centimeters; mean annual air temperaure ranges from 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Patchy snow cover normally occurs from 15 November to 01 April. This map unit has a mean annual snowfall of 100 centimeters and mean annual snow accumulation of 25 centimeters. The freeze free period is 120 days. Elevations range from 1900 to 2150 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- very gravelly fine sandy loam ---	LSC 4 +1	Pied/Quga/ Artr2/Stco4	Edaphic	MAP 46 cm ME 2000 m MAST 8 C MSST --- C	70%
2.2 Rock Outcrop					MAP cm ME m MAST C MSST C	20%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	moderately deep very gravelly fine sandy loam ---	LSC 4 +1	Pied/Quga/ Artr2/Stco4	Edaphic	MAP 46 cm ME 2000 m MAST 8 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 This soil contains significant quantities of lime throughout the profile. A pH of 8 is not uncommon and may hinder revegetation efforts. These soils are shallow and rocky.

3.2

3.3

3.4

Map Symbol: 261

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
28.2	4.5	10.5	2.0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	25	65												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	10	15	25												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650			
Forage	75			
Forage (maximum)	1300			
Timber	Site Index			

Fuelwood	cd/ac			
Pied /Juos	12			
Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Sli.			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.	Scientific Name	Symbol	% Canopy Cover 6.1	6.2	6.3	6.4
	Juniperus monosperma	Jumo	5			
	Juniperus osteosperma	Juos	10			
	Pinus edulis	Pied	15			
	Artemisia frigida	Arfr4	1			
	Artemisia tridentata	Artr2	10			
	Atriplex canescens	Atca2	T			
	Cercocarpus montanus	Cemo2	T			
	Cowania mexicana stansburiana	Comes	T			
	Guterrezia sarothrae	Gusa2	T			
	Purshia tridentata	Putr2	T			
	Quercus gambelii	Quga	3			
	Castilleja linariaefolia	Cali4	.5			
	Erigeron flagellaris	Erfl	.5			
	Hymenoxys richardsonii	Hyri	T			
	Agropyron smithii	Agsm	T			
	Andropogon scoparius	Ansc2	P			
	Bouteloua curtipendula	Bocu	1			
	Bouteloua gracilis	Bogr2	2			
	Koeleria cristata	Kocr	T			
	Poa fendleriana	Pofe	1			
	Sitanion hystrix	Sihy	2			
	Sporobolus cryptandrus	Spcr	T			
	Stipa comata	Stco4	2			
	Stipa neomexicana	Stne2	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 263-Lithic Ustochrepts, LSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, very gravelly loam - Typic Ustochrepts, LSC, 4, 0, loamy-skeletal, carbonatic, mesic, moderately deep, gravelly loam, complex: 0-15 percent slopes, Pied/Juos/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. The map unit has a mean annual snowfall of 90 centimeters and a mean annual snow accumulation of 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Pied/Juos/	Edaphic	MAP 40 cm	40%
calcareous	very gravelly	4	Artr2/Stco4		ME 2100 m	
loamy-skeletal, mixed,	loam	0			MAST 9 C	
					MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	40%
---	gravelly	4	Artr2/Stco4		ME 2100 m	
loamy-skeletal, carbonatic,	loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustalfs,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	10%
---	gravelly	4	Artr2		ME 2100 m	
fine, mixed,	loam	0			MAST 9 C	
mesic	---				MSST --- C	
2.6 Typic Ustochrepts,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	10%
---	gravelly	4	Artr2/Stco4		ME 2100 m	
fine-loamy, carbonatic,	loam	0			MAST 9 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 & 3.2 These soils contain significant quanities of lime throughout the profile. A pH of 8 is not uncommon and may hinder revegetation efforts. Excessive ground disturbance which brings more calcareous soil to the surface should be avoided. These soils have a high percentage of rock fragments throughout the profile and on the surface.

3.3

3.4

Map Symbol: 263

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.0	4.5	3.4	1.5	6.7	6.7	2.2	.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	8	30	0	0	20	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
60	2	8	30	20	2	15	63								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	800		
Forage	175	375		
Forage (maximum)	950	1000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Juos	4	6		
Potential for:	Rating			
Revegetation	~~Low~~	~~Low~~		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
bl-gr gnatcatcher	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	Mod.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	5	5		
Juniperus osteosperma	Juos	8	10		
Pinus edulis	Pied	8	10		
Amelanchier utahensis	Amut	T	T		
Artemisia frigida	Arfr4	T	T		
Artemisia tridentata	Artr2	10	10		
Atriplex canescens	Atca2	T	T		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	5	5		
Eurotia lanata	Eula5	T	T		
Gutierrezia sarothrae	Gusa2	3	3		
Marrubium vulgare	Mavu	T	T		
Opuntia polyacantha	Oppo	1	1		
Purshia tridentata	Putr2	.3	.3		
Sphaeralcea parvifolia	Sppa	1	1		
Yucca utahensis	Yuut	.3	.3		
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.3	.3		
Hymenoxys richardsonii	Hyri	1	1		
Linum lewisii	Lile3	T	T		
Lotus wrightii	Lowr	.3	.3		
Phlox woodhousei	Phwo	.3	.3		
Verbena ciliata	Veci	T	T		
Agropyron cristatum	Agcr	2	3		
Agropyron smithii	Agsm	8	10		
Aristida divaricata	Ardi5	T	T		
Bouteloua curtipendula	Bocu	T	T		
Bouteloua gracilis	Bogr2	8	10		
Oryzopsis hymenoides	Orhy	.5	.5		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	2	3		
Sporobolus cryptandrus	Spcr	1	2		
Stipa comata	Stco4	2	5		
Stipa neomexicana	Stne2	1	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 264-Lithic Ustochrepts, LSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, very gravelly loam-Typic Ustochrepts, LSC, 4, 0, loamy-skeletal, carbonatic, mesic, moderately deep, very gravelly loam-Rock outcrop, complex; 15-40 percent slopes, Pied/Juos/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex elegated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. The mean annual snowfall is 90 centimeters and the mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. The map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts, calcareous loamy-skeletal, mixed, mesic	--- very gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	40%
2.2 Typic Ustochrepts, --- loamy-skeletal, carbonatic, mesic	moderately deep very gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	30%
2.3 Rock outcrops					MAP cm ME m MAST C MSST C	20%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, --- fine-loamy, carbonatic, mesic	moderately deep very gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 & 3.2 These soils contain signigicant quanities of lime throughout the profile. A pH of 8 is not uncommon and may hinder revegetation efforts. Excessive ground disturbance will bring more calcareous soil to the surface and should be avoided. These soils have a high precentage of rock fragment in the profile and on the surface.

3.3

3.4

Map Symbol: 264

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
29.9	4.5	12.8	3.4	39.9	6.7	11.9	4.5								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	20	55	0	45	30	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	3	17	30	20	3	27	50								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	750		
Forage	175	275		
Forage (maximum)	950	1000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	~~Mod.~~ Low	~~Mod.~~ Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Bl-gr gnatcatcher	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	3	3		
Juniperus osteosperma	Juos	5	10		
Pinus edulis	Pied	5	10		
Amelanchier utahensis	Amut	T	T		
Artemisia frigida	Arfr4	T	T		
Artemisia tridentata	Artr2	10	10		
Atriplex canescens	Atca2	T	T		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	8	5		
Eurotia lanata	Eula5	T	T		
Gutierrezia sarothrae	Gusa2	5	5		
Marrubium vulgare	Mavu	T	T		
Opuntia polyacantha	Oppo	1	1		
Purshia tridentata	Putr2	.3	.3		
Sphaeralcea parvifolia	Sppa	1	1		
Yucca utahensis	Yuut	.5	.5		
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.3	.3		
Hymenoxys richardsonii	Hyri	.5	.5		
Linum lewisii	Lile3	T	T		
Lotus wrightii	Lowr	.3	.3		
Phlox woodhousei	Phwo	.3	.3		
Verbena ciliata	Veci	.1	.1		
Agropyron cristatum	Agcr	2	3		
Agropyron smithii	Agsm	7	10		
Aristida divaricata	Ardi5	T	T		
Bouteloua gracilis	Bogr2	7	10		
Koeleria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	.5	.5		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	2	2		
Sporobolus cryptandrus	Spcr	1	2		
Stipa comata	Stco4	3	5		
Stipa neomexicana	Stne2	1	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 265-Lithic Eutroboralfs, LSC, 5, 0, loamy-skeletal, mixed, cobbly very fine sandy loam: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping simple linear and convex elevated plains. Component formed from mixed sedimentary residuum. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2000 to 2250 meters. Delineations are irregular in shape and very in size from 100 to 600 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	80%
---	cobbly	5			ME 2150 m	
loamy-skeletal, mixed,	very fine sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Haploborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
fine, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 The shallow soil depth and high rock fragment content limit the soil moisture retention. This will have a negative effect on reforestation projects.

3.2

3.3

3.4

Map Symbol: 265

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
7.8	4.5	1.3	.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	45	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	15	30	30												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	225			
Forage (maximum)	2350			
Timber	Site Index			
Pipo	65			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Pygmy nuthatch	Imp.			
Turkey	Ess.			
Abert squirrel	Ess.			
Limitations For:	.			
Timber Harvest	Mod.			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	---			
Windthrow	Sev.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	65			
Quercus gambelii	Quga	2			
Berberis repens	Bere	.3			
Ceanothus fendleri	Cefe	T			
Purshia tridentata	Putr2	T			
Quercus gambelii	Quga	10			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	T			
Achillea millefolium lanulosa	Acmil	5			
Antennaria rosea	Anro2	.5			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Lupinus argenteus	Luar3	4			
Pterospora andromedea	Ptan2	P			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.2			
Koeleria cristata	Kocr	3			
Muhlenbergia montana	Mumo	2			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 266-Lithic Eutroboralfs, LSC, 5, 0, loamy-skeletal, mixed, stoney loam - Rock Outcrop complex: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex escarpments. Component formed in residuum from mixed sedimentary parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2050 to 2250 meters. Delineations are elongated in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	60%
---	stoney	5			ME 2150 m	
loamy-skeletal, mixed,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Rock Outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Haploborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Lithic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 The shallow soil depth and high rock fragment content limit the soil moisture retention and the management opportunities.

3.2

3.3

3.4

Map Symbol: 266

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
52.2	4.5	7.3	1.2												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	60	50	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	8	42	20												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	225			
Forage (maximum)	2350			
Timber	Site Index			
Pipo	65			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Pygmy nuthatch	Imp.			
Turkey	Ess.			
Ebert squirrel	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	---			
Windthrow	Sev.			
Plant Competition	---			

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Pinus ponderosa	Pipo	60			
	Quercus gambelii	Quga	2			
	Berberis repens	Bere	T			
	Ceanothus fendleri	Cefe	T			
	Purshia tridentata	Putr2	T			
	Quercus gambelii	Quga	10			
	Ribes cereum	Rice	T			
	Robinia neomexicana	Rone	3			
	Achillea millefolium lanulosa	Acmil	3			
	Antennaria rosea	Anro2	1			
	Erigeron speciosus	Ersp4	T			
	Geranium caespitosum	Geca3	T			
	Lupinus argenteus	Luar3	4			
	Pterospora andromedea	Ptan2	P			
	Agropyron trachycaulum	Agtr	T			
	Blepharoneuron tricholepis	Bltr	.2			
	Koleria cristata	Kocr	3			
	Muhlenbergia montana	Mumo	2			
	Poa fendleriana	Pofe	3			
	Poa pratensis	Popr	T			
	Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 271-Lithic Ustochrepts, LSC, 5, frigid - Udic Ustochrepts, LSC, 5, frigid - Rock outcrops, complex: 40-80 percent slopes, Pipos.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on extremely steep complex concave and convex escarpments. Components formed in talus from sedimentary parent material. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period from 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. The mean annual snowfall is 120 centimeters and the mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2300 to 2500 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Pipos	Edaphic	MAP 56 cm	30%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
frigid	---				MSST 12 C	
2.2 Udic Ustochrepts,	---	LSC	Pipos	Edaphic	MAP 56 cm	30%
---	---	5			ME 2400 m	
---	---				MAST C	
frigid	---				MSST C	
2.3 Rock outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Haploborolls,	---	LSC	Pipos	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Eutroboralfs,	---	LSC	Pipos	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 Management activities are restricted by steep slopes and rocky soils.

3.3

3.4

Map Symbol: 271

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
84.6	4.5	11.7	3.6	127.0	6.7	17.6	5.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	70	50	75	0	70	50	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	5	45	10	20	5	45	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	375	375		
Forage	125	150		
Forage (maximum)	1400	1500		
Timber	Site Index			
Pipos	45	50		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Sev.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Juniperus monosperma	Jumo	1	1		
Juniperus osteosperma	Juos	1	1		
Juniperus scopulorum	Jusc2	1	1		
Pinus edulis	Pied	2	2		
Pinus ponderosa	Pipos	10	15		
Populus tremuloides	Potr5	15	20		
Pseudotsuga menziesii glauca	Psmeg	2	2		
Artemisia tridentata	Artr2	1	1		
Berberis repens	Bere	1	1		
Ceanothus fendleri	Cefe	T	T		
Pursia tridentata	Putr2	T	T		
Quercus gambelii	Quga	10	10		
Ribes cercum	Rice	T	T		
Robinia neomexicana	Rone	8	10		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria parvifolia	Anpa4	1	1		
Erysimum capitatum	Erca14	.3	.3		
Fragaria ovalis	Frov	T	T		
Geranium caespitosum	Geca3	.1	.1		
Gilia aggregata	Giag	T	T		
Lotus wrightii	Lowr	T	T		
Lupinus argenteus	Luar3	4	4		
Oxalis metcalfei	Oxme	T	T		
Pteridium aquilinum	Ptaq	P	P		
Pterospora andromeda	Ptan2	T	T		
Senecio multilobatus	Semu3	.1	.1		
Thalictrum fendleri	Thfe	.1	.1		
Agropyron smithii	Agsm	1	1		
Agropyron trachycaulum	Agtr	.5	.5		
Blepharoneuron tricholepis	Bltr	1	1		
Bouteloua gracilis	Bogr2	.5	.5		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 272-Typic Haplustalfs, LSC, 4, +1, clayey-skeletal, montmorillonitic, mesic - Typic Haplustalfs, LSC, 4, +1, fine, montmorillonitic, mesic, gravelly loams, complex: 0-15 percent slopes, Pied/Juos/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping complex concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 42 to 50 centimeters; mean annual air temperature ranges from 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs from 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs on this map unit from 15 November to 01 April. The mean annual snowfall is 100 centimeters and the mean annual snow accumulation is 25 centimeters. The freeze free period is 120 days. The elevation ranges from 2000 to 2300 meters. Delineations are irregular in shape and vary in size from 100 to 800 hectares. Ephemeral streams are presnt within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs, --- clayey-skeletal, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 7 C MSST --- C	40%
2.2 Typic Haplustalfs, --- fine, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 7 C MSST --- C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, calcareous loamy-skeletal, mixed, mesic	--- gravelly sandy loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 7 C MSST --- C	10%
2.6 Lithic Haplustalfs, --- loamy-skeletal, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 7 C MSST --- C	10%

3.0 Management Implications.

3.1 & 3.2 Operations which mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and the probability of success of some management activities, such as revegetation projects. The high shrink-swell potential of these soils require critical consideration if structural facilities are considered.

3.3

3.4

Map Symbol: 272

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
9.5	6.7	5.0	.7	9.5	6.7	5.0	.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	15	65	0	7	15	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	1	15	59	15	2	15	68								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	750	750		
Forage	175	175		
Forage (maximum)	1600	1600		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Juos	14	14		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Cooper's hawk	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus monosperma	Jumo	5	5		
	Juniperus osteosperma	Juos	15	15		
	Juniperus scopularum	Jusc2	T	T		
	Pinus edulis	Pied	25	25		
	Artemisia tridentata	Artr2	15	15		
	Atriplex canescens	Atca2	1	1		
	Cercocarpus montanus	Cemo2	1	1		
	Cowania mexicana stansburiana	Comes	2	2		
	Gutierrezia sarothrae	Gusa2	2	2		
	Purshia tridentata	Putr2	1	1		
	Quercus gambelii	Quga	5	5		
	Sphaeralcea parvifolia	Sppa	T	T		
	Antennaria parvifolia	Anpa4	.5	.5		
	Calochortus	CALOC	T	T		
	Castilleja linariaefolia	Cali4	.5	.5		
	Erigeron flagellaris	Erfl	.5	.5		
	Hymenoxys richardsonii	Hyri	T	T		
	Lomatium leptocarpum	Lole	.1	.1		
	Lupinus argenteus	Luar3	.2	.2		
	Penstemon caespitosus	Peca4	.5	.5		
	Phlox woodhousei	Phwo	.5	.5		
	Senecio multilobatus	Semu3	.3	.3		
	Verbena ciliata	Veci	.1	.1		
	Agropyron cristatum	Agcr	1	1		
	Agropyron smithii	Agsm	3	3		
	Aristida divaricata	Ardi5	T	T		
	Bouteloua curtipendula	Bocu	.5	.5		
	Bouteloua gracilis	Bogr2	20	20		
	Koeleria cristata	Kocr	.5	.5		
	Muhlenbergia montana	Mumo	1	1		
	Poa fendleriana	Pofe	1	1		
	Sitanion hystrix	Sihy	5	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 273-Typic Haplustalfs, LSC, 4, +1, clayey-skeletal, montmorillonitic, mesic - Typic Haplustalfs, LSC, 4, +1, fine, montmorillonitic, mesic, gravelly loams, complex: 15-40 percent slopes, Pied/Juos/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 15 November to 01 April. The mean annual snowfall is 100 centimeters and the mean annual snow accumulation is 25 centimeters. The freeze free period is 120 days. The elevation ranges from 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs, --- clayey-skeletal, montmorillonitic, mesic	--- gravelly loam	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 8 C MSST --- C	50%
2.2 Typic Haplustalfs, --- fine, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 8 C MSST --- C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Lithic Haplustalfs, --- fine-loamy, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 8 C MSST --- C	10%
2.6 Typic Haplustalfs, --- loamy-skeletal, montmorillonitic, mesic	--- gravelly, loam ---	LSC 4 +1	Pied/Juos/ Quga/Artr2	Edaphic	MAP 46 cm ME 2200 m MAST 8 C MSST --- C	10%

3.0 Management Implications.

3.1 & 3.2 Operations which mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and the probability of success of some management acitvities, such as revegetation projects. The high shrink-swell potential of these soils require critical consideration if structural facilities are considered.

3.3

3.4

Map Symbol: 273

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
24.4	6.7	6.7	2.6	24.4	6.7	6.7	2.6								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	30	30	60	0	30	30	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	3	25	27	35	3	20	42								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	750	750		
Forage	175	175		
Forage (maximum)	1600	1600		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
(steep slope)	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Cooper's hawk	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus monosperma	Jumo	5	5		
Juniperus osteosperma	Juos	15	15		
Juniperus scopularum	Jusc	P	P		
Pinus edulis	Pied	20	20		
Artemisia tridentata	Atrt2	10	10		
Atriplex canescens	Atca2	1	1		
Cercocarpus montanus	Cemo2	1	1		
Cowania mexicana stansburiana	Comes	3	3		
Gutierrezia sarothrae	Gusa2	2	2		
Purshia tridentata	Putr2	1	1		
Quercus gambelii	Quga	8	8		
Sphaeralcea parvifolia	Sppa	1	1		
Antennaria parvifolia	Anpa4	.5	.5		
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Lomatium leptocarpum	Lole	.1	.1		
Lupinus argenteus	Luar3	.2	.2		
Penstemon caespitosus	Peca4	.5	.5		
Phlox woodhousei	Phwo	.5	.5		
Senecio multilobatus	Semu3	.3	.3		
Verbena ciliata	Veci	.1	.1		
Agropyron cristatum	Agcr	1	1		
Agropyron smithii	Agsm	3	3		
Aristida divaricata	Ardi5	T	T		
Bouteloua curtipendula	Bocu	.5	.5		
Bouteloua gracilis	Bogr2	20	20		
Koeleria cristata	Kocr	.5	.5		
Muhlenbergia montana	Mumo	1	1		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	5	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 274-Typic Ustochrepts, LSC, 4, calcareous, mesic-Lithic Ustochrepts, LSC, 4, calcareous, mesic: Pied/Juos/Artr2/Stco4 - Typic Haplustalfs, LSC, 4, mesic: Pied/Juos/Artr2 - Rock Outcrops, complex: 40-120 percent slopes.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. components .1, .2, .3, and .4 occur in an intricate pattern and are not separable. It occurs on extremely steep complex concave and convex escarpments. Components formed in talus from sedimentary parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation ocurs between 01 October and 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 15 November to 01 April. The mean annual snowfall is 90 centimeters and the mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. The elevation ranges from 1900 to 2300 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Ustochrepts,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	40%
calcareous	extremely gravelly	4	Artr2/Stco4		ME 2100 m	
---	fine sandy loam				MAST 9 C	
mesic	---				MSST --- C	
2.2 Lithic Ustochrepts,	---	LSC	Pied/Juos/	Edaphic	MAP 40 cm	20%
calcareous	extremely gravelly	4	Artr2/Stco4		ME 2100 m	
---	fine sandy loam				MAST 9 C	
mesic	---				MSST --- C	
2.3 Typic Haplustalfs,	moderately deep	LSC	Pied/Juos/	Edaphic	MAP 40 cm	20%
---	extremely gravelly	4	Artr2		ME 2100 m	
---	fine sandy loam				MAST 9 C	
mesic	---				MSST --- C	
2.4 Rock Outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.5					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1, 3.2 & 3.3 Most management activities are restricted by steep slopes and rocky soils.

3.4

Map Symbol: 274

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
12.1	6.7	7.4	3.0	12.1	6.7	7.4	3.0	12.1	6.7	7.4	3.0				
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	15	10	35	0	15	10	35	0	15	10	35				
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
75	1	9	15	80	1	9	10	75	1	9	15				

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	650	650	
Forage	175	175	175	
Forage (maximum)	950	950	1125	
Timber	Site Index			
	---	---	---	
Fuelwood	cd/ac			
(too steep)	---	---	---	
Potential for:	Rating			
Revegetation	Low	Low	Low	
Reforestation	---	---	---	
Source Suitability:				
Topsoil	Poor	Poor	Poor	
Roadfill	Poor	Poor	Poor	
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.	Ess.	
Plain titmouse	Ess.	Ess.	Ess.	
Pinyon mouse	Ess.	Ess.	Ess.	
Mule deer	Imp.	Imp.	Imp.	
Cooper's hawk	Imp.	Imp.	Imp.	
Limitations For:				
Timber Harvest	---	---	---	
Cutbank Stability	Sli.	Sli.	Sli.	
Unsurfaced Roads	Sev.	Sev.	Sev.	
Trails	Sev.	Sev.	Sev.	
Campgrounds	Sev.	Sev.	Sev.	
Wheeled O.R.V.	Sev.	Sev.	Sev.	
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.	Sev.	
Mass Wasting	Sev.	Sev.	Sev.	
Windthrow	Mod.	Mod.	Mod.	
Plant Competition	Sli.	Sli.	Sli.	

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus monosperma	Jumo	3	2	3	
	Juniperus osteosperma	Juos	5	4	5	
	Juniperus scopulorum	Jusc	P	P	P	
	Pinus edulis	Pied	8	8	8	
	Amelanchier utahensis	Amut	T	T		
	Artemisia frigida	Arfr4	T	T		
	Artemisia tridentata	Artr2	5	3	5	
	Atriplex canescens	Atca2	T	T	T	
	Cercocarpus montanus	Cemo2	1	1	1	
	Cowania mexicana stansburiana	Comes	3	3	1	
	Gutierrezia sarothrae	Gusa2	T	T	T	
	Opuntia polyacantha	Oppo	T	T	T	
	Purshia tridentata	Putr2	T	T	T	
	Quercus gambelii	Quga	10	8	10	
	Antennaria parvifolia	Anpa4	.5	.2	.5	
	Castilleja linariaefolia	Cali4	.5	.5	.5	
	Erigeron flagellaris	Erfl	.5	.5	.5	
	Hymenoxys richardsonii	Hyri	T	T	T	
	Lupinus argenteus	Luar3	.1	.1	.3	
	Penstemon caespitosus	Peca4	.1	.1	.3	
	Phlox woodhousei	Phwo	T	T	T	
	Senecio multilobatus	Semu3	T	T	T	
	Verbena ciliata	Veci	T	T	.1	
	Agropyron smithii	Agsm	T	T	.1	
	Aristida divaricata	Ardi5	T	T	T	
	Bouteloua curtipendula	Bocu	2	2	1	
	Bouteloua gracilis	Bogr2	5	5	8	
	Koeleria cristata	Kocr	T	T	.5	
	Oryzopsis hymenoides	Orhy	.3	.3	.3	
	Poa fendleriana	Pofe	1	1	1	
	Sitanion hystrix	Sihy	1	1	1	
	Sporobolus cryptandrus	Spcr	1	1		
	Stipa comata	Stco4	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 275-Lithic Ustochrepts, LSC, 5, -1, loamy-skeletal, mixed, frigid, cobbly very fine sandy loam; 0-15 percent slopes, Pipo/Pied/Quga/Artr2.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping simple linear and convex elevated plains. Components formed in residuum from limestone parent materials. Mean annual precipitation ranges from 46 to 52 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 110 centimeters and mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. Elevations range from 2050 to 2250 meters. Delineations are irregular in shape and vary in size from 20 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	80%
---	cobbly	5	Quga/Artr2		ME 2050 m	
loamy-skeletal, mixed,	very fine sandy loam	-1			MAST 7 C	
frigid	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Udic Ustochrepts,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2050 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
frigid	---				MSST --- C	
2.6 Typic Eutroboralfs,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2050 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
---	---				MSST --- C	

3.0 Management Implications.

3.1 Shallow depth and high rock fragment content will limit mechanical treatments and reforestation and revegetation attempts.

3.2

3.3

3.4

Map Symbol: 275

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
4.1	6.7	.8	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	40	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700			
Forage	175			
Forage (maximum)	1500			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			
Pied/Juos	4			
Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Fair			
Roadfill	Good			
Wildlife Habitat Suit:				
Ebert squirrel	Ess.			
Pygmy nuthatch	Imp.			
Elk	Imp.			
Mule deer	Imp.			
Turkey	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Sev.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	T			
Juniperus osteosperma	Juos	5			
Pinus edulis	Pied	15			
Pinus ponderosa	Pipo	30			
Ceanothus fendleri	Cefe	T			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	T			
Pachystima Myrsinites	Pamy	T			
Purshia tridentata	Putr2	4			
Quercus gambelii	Quga	8			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosea	Anro2	T			
Castilleja linariaefolia	Cali4	1			
Erigeron specious	Ersp4	T			
Hymenoxys richardsonii	Hyri	T			
Lupinus argenteus	Luar3	3			
Agropyron trachycaulum	Agtr	T			
Andropogon scoparius	Ansc2	2			
Blepharoneuron tricholepis	Bltr	.1			
Bouteloua curtipendula	Bocu	.1			
Bouteloua gracilis	Bogr2	5			
Koeleria cristata	Kocr	1			
Muhlenbergia montana	Mumo	.5			
Poa fendleriana	Pofe	3			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 276-Lithic Haploborolls, LSC, 5, -1, loamy-skeletal, mixed, very cobbly loam - Rock Outcrop complex: 15-40 percent slopes, Pipo/Pied/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs of moderately steep to steep complex convex and concave escarpments. Component formed in residuum from limestone parent materials. Mean annual precipitation ranges from 46 to 52 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 110 centimeters and mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. Elevations range from 2050 to 2250 meters. Delineations are elongated in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Haploborolls,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	60%
---	very cobbly	5	Quga/Artr2		ME 2100 m	
loamy-skeletal, mixed,	loam	-1			MAST 7 C	
---	---				MSST --- C	
2.2 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustochrepts,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2100 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
frigid	---				MSST --- C	
2.6 Typic Haploborolls,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2100 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
---	---				MSST --- C	

3.0 Management Implications.

3.1 Slope, surface rock fragments and rock outcropping limit most management opportunities.

3.2

3.3

3.4

Map Symbol: 276

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
66.9	4.5	9.3	1.5												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	65	50	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
26	4	50	20												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800			
Forage	175			
Forage (maximum)	1500			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			
Pied/Juos	4			
Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Fair			
Wildlife Habitat Suit:				
Turkey	Ess.			
Ebert squirrel	Ess.			
Pygmy nuthatch	Imp.			
Elk	Imp.			
Mule deer	Imp.			
Limitations For:				
Timber Harvest	Sev.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	---			
Windthrow	Sev.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus monosperma	Jumo	T			
	Juniperus osteosperma	Juos	5			
	Pinus edulis	Pied	10			
	Pinus ponderosa	Pipo	25			
	Artemisia tridentata	Artr2	5			
	Ceanothus fendleri	Cefe	T			
	Cercocarpus montanus	Cemo2	T			
	Gutierrezia sarothrae	Gusa2	T			
	Pachystima Myrsinites	Pamy	T			
	Purshia tridentata	Putr2	4			
	Quercus gambelii	Quga	5			
	Achillea millefolium lanulosa	Acmil	1			
	Antennaria rosea	Anro2	T			
	Castilleja linariaefolia	Cali4	T			
	Erigeron speciousus	Ersp4	T			
	Hymenoxys richardsonii	Hyri	T			
	Lupinus argenteus	Luar3	3			
	Agropyron trachycaulum	Agtr	T			
	Andropogon scoparius	Ansc2	2			
	Blepharoneuron tricholepis	Bltr	.1			
	Bouteloua curtipendula	Bocu	.1			
	Bouteloua gracilis	Bogr2	5			
	Koeleria cristata	Kocr	1			
	Muhlenbergia montana	Mumo	.5			
	Poa fendleriana	Pofe	3			
	Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 277-Lithic Ustochrepts, HSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, very gravelly very fine sandy loam - Typic Ustochrepts, HSC, 4, 0, loamy-skeletal, carbonatic, mesic, moderately deep, gravelly very fine sandy loam, complex: 0-15 percent slopes, Pied/Jumo/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated and lowland plains. Components formed from residuum from limestone parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1800 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	50%
calcareous,	very gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, mixed,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	40%
---	gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, carbonatic	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Calciustolls,	moderately deep	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	10%
---	gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, carbonatic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Shallow depths and high rock content will limit mechanical treatments. These soils contain significant quantities of lime throughout the profile and a pH of 8 is common.

3.2 These soils contain significant quantities of lime throughout the profile and a pH of 8 is common. Excessive ground disturbance which will bring more calcareous soil to the surface should be avoided.

3.3

3.4

Map Symbol: 277

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.1	4.5	2.2	.6	7.2	6.7	3.1	.8								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	20	55	0	5	20	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
52	15	8	25	35	15	8	42								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	650		
Forage	150	175		
Forage (maximum)	950	1000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	5	6		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	15	15		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	15	15		
Artemisia frigida	Arfr4	T	T		
Atriplex canescens	Atca2	T	T		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	3	3		
Eurotia lanata	Eula5	.5	.5		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Purshia tridentata	Putr2	T	T		
Yucca baccaata	Yuba	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	.5	.5		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	3	4		
Bouteloua gracilis	Bogr2	6	7		
Koeleria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	T	T		
Sitanion hystrix	Sihy	1	1		
Sporobolus cryptandrus	Spcr	T	T		
Stipa comata	Stco4	2	2		
Stipa neomexicana	Stne2	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 281-Typic Ustochrepts, LSC, 4, 0, loamy-skeletal, mixed, mesic, moderately deep, gravelly fine sandy loam - Typic Haplustalfs, LSC, 4, 0, fine, montmorillonitic, mesic, moderately deep, gravelly loam, complex: 0-15 percent slopes, Pied/Juos/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple linear elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold (LSC). Patchy snow cover normally occurs from 01 December to 01 April. Mean annual snowfall is 90 centimeters and mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 100 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Ustochrepts, --- loamy-skeletal, mixed, mesic	moderately deep gravelly fine sandy loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	50%
2.2 Typic Haplustalfs, --- fine, montmorillonitic mesic	moderately deep gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Haplustalfs, --- clayey-skeletal, montmorillonitic, mesic	moderately deep gravelly loam ---	LSC 4	Pied/Juos/ Artr2	Edaphic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 **Management Implications.**

3.1 These soils have a high pH in the subsurface horizons. Operations which mix these horizons with the surface will reduce the potential site productivity and lower revegetation success rates.

3.2 Operations which mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and lower revegetation success rates.

3.3

3.4

Map Symbol: 281

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
7.1	6.7	3.1	0.8	9.5	6.7	4.2	1.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	20	55	0	7	20	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
17	3	17	63	20	3	17	60								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	650		
Forage	175	175		
Forage (maximum)	950	1125		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Juos	10	10		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Poor		
Roadfill	Good	Poor		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Cooper's hawk	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sev.		
Unsurfaced Roads	Sli.	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Sli.	Sli.		
Wheeled O.R.V.	Sli.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Juniperus monosperma	Jumo	3	3		
Juniperus osteosperma	Juos	8	8		
Pinus edulis	Pied	8	8		
Amelanchier utahensis	Amut	T			
Artemisia frigida	Arfr4	T			
Artemisia tridentata	Artr2	10	10		
Atriplex canescens	Atca2	2			
Cercocarpus montanus	Cemo2	T	T		
Gutierrezia sarothrae	Gusa2	3	3		
Marrubium vulgare	Mavu	T	T		
Opuntia polyacantha	Oppo	1	1		
Purshia tridentata	Putr2	.5	.5		
Sphaeralcea parvifolia	Sppa2	.5	.5		
Yucca utahensis	Yuut	1			
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.3		
Hymenoxys richardsonii	Hyri	T	T		
Lomatium leptocarpum	Lole		.1		
Penstemon caespitosus	Peca4	T	.1		
Phlox woodhousei	Phwo	.3	.5		
Senecio multilobatus	Semu3	.1	.1		
Verbascum thapsus	Veth	.3	.3		
Verbena ciliata	Veci	.3	.3		
Agropyron cristatum	Agcr	1	1		
Agropyron smithii	Agsm	8	8		
Aristida divaricata	Ardi5	T	T		
Bouteloua curtipendula	Bocu	4	4		
Bouteloua gracilis	Bogr2	10	10		
Koeleria cristata	Kocr	T	.1		
Oryzopsis hymenoides	Orhy	1	1		
Poe fendleriana	Pofe	.5	.5		
Sitanion hystrix	Sihy	1	1		
Sporobolus cryptandrus	Spcr	1	.1		
Stipa comata	Stco4	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 283-Typic Eutroboralfs, LSC, 5, -1, fine, montmorillonitic, gravelly, very fine sandy loam - Typic Eutroboralfs, LSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, gravelly very fine sandy loam complex: 0-15 percent slopes, Pipo/Pied/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping complex concave and convex elevated and lowland plains. Components formed from residuum from limestone and sandstone parent materials. Mean annual precipitation ranges from 46 to 52 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 110 centimeters and mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. Elevations range from 2050 to 2250 meters. Delineations are irregular in shape and vary in size from 15 to 200 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	50%
---	gravelly	5	Quga/Artr2		ME 2150 m	
fine, montmorillonitic,	very fine sandy loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Typic Eutroboralfs,	moderately deep	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	30%
---	gravelly	5	Quga/Artr2		ME 2150 m	
clayey-skeletal, montmorillonitic,	very fine sandy loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2150 m	
fine, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Lithic Eutroboralfs,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2150 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 **Management Implications.**

3.1 & 3.2 These soils have low bearing strength when wet which causes trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects.

3.3

3.4

Map Symbol: 283

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
4.3	6.7	.8	.1	4.3	6.7	.8	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	45	85	0	0	45	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	17	28	30	25	17	28	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	800		
Forage	175	175		
Forage (maximum)	2000	2000		
Timber	Site Index			
Pipo	55	55		
Fuelwood	cd/ac			
Pied/Juos	4	4		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Turkey	Ess.	Ess.		
Ebert squirrel	Ess.	Ess.		
Pygmy nuthatch	Imp.	Imp.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus monosperma	Jumo	T	T		
	Juniperus osteosperma	Juos	5	5		
	Pinus edulis	Pied	10	10		
	Pinus ponderosa	Pipo	30	30		
	Artemisia tridentata	Artr2	5	5		
	Ceanothus fendleri	Cefe	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Pachystima Myrsinites	Pamy	T	T		
	Purshia tridentata	Putr2	3	3		
	Quercus gambelii	Quga	8	8		
	Achillea millefolium lanulosa	Acmil	1	1		
	Antennaria rosea	Anro2	T	T		
	Castilleja linariaefolia	Cali4	1	1		
	Erigeron speciousus	Ersp4	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Lupinus argenteus	Luar3	3	3		
	Agropyron smithii	Agsm	2	2		
	Agropyron trachycaulum	Agtr	T	T		
	Andropogon scoparius	Ansc2	2	2		
	Blepharoneuron tricholepis	Bltr	.1	.1		
	Bouteloua curtipendula	Bocu	.1	.1		
	Bouteloua gracilis	Bogr2	5	5		
	Koeleria cristata	Kocr	1	1		
	Muhlenbergia montana	Mumo	.5	.5		
	Poa fendleriana	Pofe	3	3		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 284-Typic Eutroboralfs, LSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, very gravelly very fine sandy loam - Typic Eutroboralfs, LSC, 5, -1, fine, montmorillonitic, gravelly very fine sandy loam complex: 15-40 percent slopes, Pipo/Pied/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex escarpments. Components formed from residuum from limestone and sandstone parent materials. Mean annual precipitation ranges from 46 to 52 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 110 centimeters and mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. Elevations range from 2050 to 2250 meters. Delineations are elongated in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	moderately deep	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	45%
---	very gravelly	5	Quga/Artr2		ME 2150 m	
clayey-skeletal, montmorillonitic,	very fine sandy loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Typic Eutroboralfs,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	35%
---	gravelly	5	Quga/Artr2		ME 2150 m	
fine, montmorillonitic,	very fine sandy loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralf,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2150 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Lithic Ustochrepts,	---	LSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga/Artr2		ME 2150 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
frigid	---				MSST 13 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet which cause trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects.

3.3

3.4

Map Symbol: 284

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
54.7	6.7	9.4	1.2	76.5	6.7	13.2	1.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	45	85	0	60	45	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
35	10	35	20	35	10	35	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	800		
Forage	175	175		
Forage (maximum)	2000	2000		
Timber	Site Index			
Pipo	55	55		
Fuelwood	cd/ac			
Pied/Juos	4	4		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Turkey	Ess.	Ess.		
Ebert squirrel	Ess.	Ess.		
Pygmy nuthatch	Imp.	Imp.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	5	5		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	15	15		
Pinus ponderosa	Pipo	25	25		
Artemisia tridentata	Artr2	5	5		
Ceanothus fendleri	Cefe	T	T		
Cercocarpus montanus	Cemo2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Pachystima Myrsinites	Pamy	T	T		
Purshia tridentata	Putr2	3	3		
Quercus gambelii	Quga	10	10		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria rosea	Anro2	T	T		
Castilleja linariaefolia	Cali4	T	T		
Erigeron speciousus	Ersp4	T	T		
Hymenoxys richardsonii	Hyri	T	T		
Lupinus argenteus	Luar3	3	3		
Agropyron smithii	Agsm	1	1		
Agropyron trachycaulum	Agtr	T	T		
Andropogon scoparius	Ansc2	2	2		
Blepharoneuron tricholepis	Bltr	.1	.1		
Bouteloua curtipendula	Bocu	1	1		
Bouteloua gracilis	Bogr2	5	5		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	.5	.5		
Poe fendleriana	Pofe	3	3		
Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 287-Lithic Ustochrepts, HSC, 4, +1, calcareous, loamy-skeletal, mixed, mesic, cobbly very fine sandy loam - Typic Ustochrepts, HSC, 4, +1, loamy-skeletal, carbonatic, mesic, moderately deep, gravelly very fine sandy loam complex: 0-15 percent slopes, Pied/Jumo/Quga/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecsosytem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated and lowland plains. Components formed from residuum from limestone parent materials. Mean annual precipitation ranges from 40 to 50 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(HSC). Snow cover rarely occurs in this map unit. The freeze free period is 140 days. Elevations range from 1900 to 2100 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 46 cm	60%
calcareous,	cobbly	4	Quga/Stco4		ME 2000 m	
loamy-skeletal, mixed,	very fine sandy loam	+1			MAST 9 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	HSC	Pied/Jumo/	Edaphic	MAP 46 cm	30%
---	gravelly	4	Quga/Stco4		ME 2000 m	
loamy-skeletal, carbonatic,	very fine sandy loam	+1			MAST 9 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 46 cm	10%
calcareous,	---	4	Quga/Stco4		ME 2000 m	
loamy, mixed,	very fine sandy loam	+1			MAST 9 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Ground disturbances which may bring more calcareous soil to the surface should be avoided. A pH of 8 is common in the subsoils. Mechanical treatments will be restricted by the high percentage of cobbles on the surface.

3.3

3.4

Map Symbol: 287

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.7	4.5	.8	.4	3.7	6.7	.8	.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	40	55	0	0	40	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
17	15	23	45	17	15	25	43								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	700		
Forage	150	175		
Forage (maximum)	1600	1600		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	12	14		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	15	20		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	20	25		
Atriplex confertifolia	Atco	T	T		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	2	2		
Gutierrezia sarothrae	Gusa2	1	1		
Purshia tridentata	Putr2	T	T		
Quercus gambelii	Quga	2	2		
Antenarria rosea	Anro2	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Lupinus argenteus	Luar3	T	T		
Agropyron smithii	Agsm	1	1		
Andropogon scoparius	Ansc2	T	T		
Aristida divaricata	Ardi5	T	T		
Bouteloua curtipendula	Bocu	5	7		
Bouteloua gracilis	Bogr2	10	15		
Koeleria cristata	Kocr	.3	.3		
Muhlenbergia montana	Mumo	T	T		
Poa fendleriana	Pofe	1	1		
Poa pratensis	Popr	T	T		
Sitanion hystrix	Sihy	1	1		
Stipa comata	Stco4	5	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 288-Typic Haplustalfs, HSC, 4, 0, fine, montmorillonitic, mesic, moderately deep, gravelly very fine sandy loam - Typic Haplustalfs, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very gravelly very fine sandy loam complex: 0-15 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping complex concave and convex elevated and lowland plains. Components formed from residuum from mixed sedimentary parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). This map unit has a mean annual snowfall of 80 centimeters. Snow cover rarely occurs on this mapping unit. The freeze free period is 150 days. Elevations range from 1600 to 1900 meters. Delineations are irregular in shape and vary in size from 20 to 200 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	45%
---	gravelly	4			ME 1800 m	
fine, montmorillonitic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	35%
---	very gravelly	4			ME 1800 m	
clayey-skeletal, montmorillonitic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiustolls	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1800 m	
clayey-skeletal, montmorillonitic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1800 m	
fine, montmorillonitic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet which causes trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects.

3.3

3.4

Map Symbol: 288

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.7	6.7	1.9	.4	2.6	6.7	1.4	.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	55	0	0	15	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
35	5	10	50	40	5	10	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	700		
Forage	275	275		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	8	8		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Pronghorn	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
	Juniperus deppeana	Jude2	T	T		
	Juniperus monosperma	Jumo	20	20		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	20	20		
	Artemisia frigida	Arfr4	T	T		
	Berberis fremontii	Befr	.1	.1		
	Chrysothamnus nauseosus	Chna2	T	T		
	Gutierrezia sarothrae	Gusa2	1	1		
	Opuntia polyacantha	Oppo	T	T		
	Opuntia whipplei	Opwh	T	T		
	Rhus trilobata	Rhtr	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja linariaefolia	Cali4	1	1		
	Erigeron flagellaris	Erfl	.2	.2		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	1	1		
	Andropogon scoparius	Ansc2	P	P		
	Aristida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	4	4		
	Bouteloua gracilis	Bogr2	10	10		
	Hilaria jamesii	Hija	T	T		
	Koelaria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	T	T		
	Poa fendleriana	Pofe	.1	.1		
	Sitanion hystrix	Sihy	.5	.5		
	Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 290-Typic Eutroboralfs, LSC, 5, 0, fine, montmorillonitic, gravelly very fine sandy loam - Typic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, gravelly very fine sandy loam complex: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping complex concave and convex elevated and lowland plains. Components formed from residuum from limestone and sandstone parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 15 to 200 hectares. Ephemeral streams are present within the map unit. This map uniti is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	50%
---	gravelly	5			ME 2200 m	
fine, montmorillonitic,	very fine sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Typic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	30%
---	gravelly	5			ME 2200 m	
clayey-skeletal, montmorillonitic,	very fine sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2200 m	
fine, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2200 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet which causes trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects.

3.3

3.4

Map Symbol: 290

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
4.3	6.7	.8	.1	4.3	6.7	.8	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	45	85	0	0	45	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	12	33	25	30	12	33	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450	450		
Forage	200	200		
Forage (maximum)	2300	2300		
Timber	Site Index			
Pipo	65	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Turkey	Ess.	Ess.		
Ebert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Pinus ponderosa	Pipo	65	65		
	Berberis repens	Bere	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Purshia tridentata	Putr2	T	T		
	Quercus gambelii	Quga	5	5		
	Ribes cereum	Rice	T	T		
	Robinia neomexicana	Rone	T	T		
	Achillea millefolium lanulosa	Acmil	1	1		
	Antennaria rosea	Anro2	.1	.1		
	Erigeron speciosus	Ersp4	T	T		
	Geranium caespitosum	Geca3	T	T		
	Lupinus argenteus	Luar3	4	4		
	Pterospora andromedea	Ptan2	T	T		
	Agropyron trachycaulum	Agtr	T	T		
	Blepharoneuron tricholepis	Bltr	.2	.2		
	Koeleria cristata	Kocr	1	1		
	Muhlenbergia montana	Mumo	2	2		
	Poa fendleriana	Pofe	3	3		
	Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 291-Typic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, gravelly very fine sandy loam - Typic Eutroboralfs, LSC, 5, 0, fine, montmorillonitic, gravelly very fine sandy loam complex: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex escarpments. Components formed in residuum from limestone and sandstone parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snow fall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2300 meters. Delineations are elongated in shape and vary in size from 20 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	45%
---	gravelly	5			ME 2200 m	
clayey-skeletal, montmorillonitic,	very fine sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Typic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	35%
---	gravelly	5			ME 2200 m	
fine, montmorillonitic,	very fine sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2200 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2200 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet which causes trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success of projects.

3.3

3.4

Map Symbol: 291

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
85.6	6.7	9.8	1.9	85.6	6.7	9.8	1.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	63	55	85	0	63	55	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	5	50	15	30	5	50	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450	450		
Forage	200	200		
Forage (maximum)	2300	2300		
Timber	Site Index			
Pipo	65	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	High		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Ebert squirrel	Ess.	Ess.		
Turkey	Ess.	Ess.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	65	65		
Quercus gambelii	Quga	2	2		
Berberis repens	Bere	T	T		
Ceanothus fendleri	Cefe	1	1		
Purshia tridentata	Putr2	T	T		
Quercus gambelii	Quga	8	8		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	T	T		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria rosea	Anro2	.1	.1		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Lupinus argenteus	Luar3	4	4		
Pterospora andromedea	Ptan2	T	T		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	3	3		
Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 293-Mollic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic - Mollic Eutroboralfs, LSC, 5, 0, fine, montmorillonitic, sandy loams, complex: 0-15 percent slopes, Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple linear plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2300 to 2500 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. The map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	40%
---	---	5			ME 2400 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	40%
---	---	5			ME 2400 m	
fine, montmorillonitic,	sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
fine, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet which causes trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects. The surface horizon is less than 4".

3.3

3.4

Map Symbol: 293

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.5	6.7	1.0	.2	8.5	6.7	1.0	.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	55	85	0	5	55	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	2	53	35	10	2	53	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	500		
Forage	300	300		
Forage (maximum)	2500	2500		
Timber	Site Index			
Pipo	75	75		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Mod.	Mod.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sev.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus scopulorum	Jusc	T	T		
Pinus ponderosa	Pipos	65	65		
Populus tremuloides	Potr5	10	10		
Quercus gambelii	Quga	5	5		
Berberis repens	Bere	.3	.3		
Ceanothus fendleri	Cefe	.3	.3		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	5	5		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria parvifolia	Anpa4	1	1		
Arenaria abberans	Arab	T	T		
Commelina dianthifolia	Codi4	T	T		
Corallorhiza maculata	Coma4	T	T		
Erigeron speciosus	Ersp4	.3	.3		
Eriogonum racemosum	Erra3	T	T		
Erysimum capitatum	Erca14	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	.3	.3		
Lomatium leptocarpum	Lole	T	T		
Lotus wrightii	Lowr	.1	.1		
Lupinus argenteus	Luar3	3	3		
Oxalis metcalfei	Oxme	T	T		
Pterospera andromedea	Ptan2	P	P		
Rumex crispus	Rucr	T	T		
Senecio multilobatus	Semu3	.1	.1		
Smilacina racemosa	Smra	T	T		
Swertia radiata	Swra	T	T		
Thalictrum fendleri	Thfe	.3	.3		
Verbena macdougalii	Vema	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	8	8		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	3	3		
Poa fendleriana	Pofe	5	5		
Poa longiligula	Polo	1	1		
Sitanion hystrix	Sihy	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 294-Mollic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic - Mollic Eutroboralfs, LSC, 5, 0, fine, montmorillonitic, sandy loams, complex: 15-40 percent slopes, Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple linear elevated plains. Components formed in residuum from limestone parent material. The mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Aproximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2300 to 2500 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	50%
---	---	5			ME 2400 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	30%
---	---	5			ME 2400 m	
fine, montmorillonitic,	sandy loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Argiborolls,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet which can cause problems with skidding or use of any kind of equipment and can cause soil damage. Operations which mix the clayey subsoil with the surface horizon, which is less than 4" in depth, will reduce site productivity and probability of success for projects. Rock outcrop can be found within the map unit.

3.3

Map Symbol: 294

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
50.2	6.7	4.5	1.1	50.2	6.7	4.5	1.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	51	60	85	0	51	60	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	2	53	35	10	2	53	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	500		
Forage	300	300		
Forage (maximum)	2500	2500		
Timber	Site Index			
Pipos	75	75		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sev.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus scopulorum	Jusc2	T	T		
Pinus ponderosa	Pipos	60	60		
Populus tremuloides	Potr5	15	15		
Quercus gambelii	Quga	5	5		
Berberis repens	Bere	.3	.3		
Ceanothus fendleri	Cefe	.3	.3		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	8	8		
Rosa arizonica	Roar2	T	T		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria parvifolia	Anpa4	1	1		
Arenaria aberrans	Arab	T	T		
Commelina dianthifolia	Codi4	T	T		
Corallorhiza maculata	Coma4	T	T		
Erigeron speciosus	Ersp4	.1	.1		
Erysimum capitatum	Erca14	T	T		
Geranium caespitosum	Geca3	.1	.1		
Gilia aggregata	Giag	.3	.3		
Lomatium leptocarpum	Lole	T	T		
Lotus wrightii	Lowr	.1	.1		
Lupinus argenteus	Luar3	3	3		
Oxalis metcalfei	Oxme	T	T		
Pterospera andromedea	Ptan2	P	P		
Rumex crispus	Rucr	T	T		
Senecio multilobatus	Semu3	.1	.1		
Smilacina racemosa	Smra	T	T		
Swertia radiata	Swra	T	T		
Thalictrum fendleri	Thfe	.3	.3		
Verbena macdougalii	Vema	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	8	8		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	3	3		
Poa fendleriana	Pofe	5	5		
Poa longiligua	Polo	1	1		
Sitanion hystrix	Sihy	3	3		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 295-Lithic Ustochrepts, HSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, very gravelly sandy loam - Typic Ustochrepts, HSC, 4, 0, loamy-skeletal, carbonatic, mesic, moderately deep, very gravelly sandy loam - Rock Outcrop complex: 15-40 percent slopes, Pied/Jumo/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex hill slopes. Components formed from residuum from limestone parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover is rarely found on this map unit. The freeze free period is 150 days. Elevations range from 1800 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	40%
calcareous,	very gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, mixed,	sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	30%
---	very gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, carbonatic,	sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Ustochrepts,	moderately deep	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	10%
---	very gravelly	4	Stco4		ME 1900 m	
loamy-skeletal, mixed,	sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Shallow depths, high rock content, and slopes will limit mechanical treatments. Caution should be taken so the subsoil is not brought to the surface due to the high pH of the subsoil.

3.2 High rock content and slopes will limit mechanical treatments. Caution should be taken so the high pH subsoil is not brought to the surface.

3.3

3.4

Map Symbol: 295

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
28.2	4.5	15.1	3.2	28.2	6.7	12.0	3.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	15	55	0	35	20	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	2	13	35	40	2	18	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	550		
Forage	150	175		
Forage (maximum)	900	950		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	5	6		
Potential for:	Rating			
Revegetation	Poor	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus monosperma	Jumo	10	15		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	15		
	Artemisia frigida	Arfr4	T	T		
	Atriplex canescens	Atca2	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Cowania mexicana stansburiana	Comes	3	4		
	Eurotia lanata	Eula5	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Opuntia polyacantha	Oppo	1	1		
	Purshia tridentata	Putr2	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja linariaefolia	Cali4	.5	.5		
	Erigeron flagellaris	Erfl	.5	.5		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	.5	.5		
	Aristida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	3	4		
	Bouteloua gracilis	Bogr2	6	7		
	Koeleria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	T	T		
	Poa fendleriana	Pofe	T	T		
	Sitanion hystrix	Sihy	T	T		
	Sporobolus cryptandrus	Spcr	T	T		
	Stipa comata	Stco4	2	3		
	Stipa neomexicana	Stne2	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 296-Lithic Ustochrepts, HSC, 4, 0, calcareous, mesic, very gravelly, sandy loam - Typic Ustochrepts, HSC, 4, 0, calcareous, mesic, moderately deep, very gravelly sandy loam - Rock Outcrop complex: 40-80 percent slopes, Pied/Jumo/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on steep to very steep complex concave and convex hill, scarp, and mountain slopes. Components formed from mixed residuum parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1800 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	40%
calcareous,	very gravelly	4	Stco4		ME 1900 m	
---	sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	30%
calcareous,	very gravelly	4	Stco4		ME 1900 m	
---	sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustorthents,	very shallow	HSC	Pied/Jumo/	Edaphic	MAP 40 cm	10%
calcareous,	very gravelly	4	Stco4		ME 1900 m	
---	sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Steep slopes, rocky soils, and shallow depths exclude most management activities.

3.2 Steep slopes and rocky soils exclude most management activities.

3.3

3.4

Map Symbol: 296

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
72.8	4.5	38.3	12.4	72.8	6.7	38.3	12.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	70	15	50	0	60	15	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
60	2	13	25	50	2	13	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	550		
Forage	150	150		
Forage (maximum)	800	850		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	6	6		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Used	Used		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus monosperma	Jumo	10	10		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	10		
	Artemisia frigida	Arfr4	T	T		
	Atriplex canescens	Atca2	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Cowania mexicana stansburiana	Comes	3	3		
	Eurotia lanata	Eula5	T	T		
	Gutierrezia sarothrae	Gusa2	1	1		
	Opuntia polyacantha	Oppo	1	1		
	Purshia tridentata	Putr2	T	T		
	Yucca baccata	Yuba	.3	.3		
	Castilleja linariaefolia	Cali4	.5	.5		
	Erigeron flagellaris	Erfl	.5	.5		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	.5	.5		
	Aristida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	3	3		
	Bouteloua gracilis	Bogr2	5	6		
	Koeleria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	.3	.3		
	Poa fendleriana	Pofe	T	T		
	Sitanion hystrix	Sihy	1	1		
	Sporobolus cryptandrus	Spcr	T	T		
	Stipa comata	Stco4	2	2		
	Stipa neomexicana	Stne2	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 297-Mollic Eutroboralfs, LSC, 5, -1, fine, montmorillonitic, gravelly sandy loam - Mollic Eutroboralfs, LSC, 5, -1, clayey-skeletal, montmorillonitic, very gravelly, sandy loam, complex: 0-15 percent slopes, Pipos/Pied/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple linear and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 46 to 54 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs between 01 October and 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 110 centimeters and mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. The elevation ranges from 2200 to 2400 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs, --- fine, montmorillonitic, ---	--- gravelly sandy loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	MAP 50 cm ME 2300 m MAST 7 C MSST 13 C	50%
2.2 Mollic Eutroboralfs, --- clayey-skeletal, montmorillonitic, ---	--- very gravelly sandy loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	MAP 50 cm ME 2300 m MAST 7 C MSST 13 C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Eutroboralfs, --- clayey-skeletal, montmorillonitic, ---	--- very gravelly sandy loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	MAP 50 cm ME 2300 m MAST 7 C MSST 13 C	10%
2.6 Typic Eutroboralfs, --- fine, montmorillonitic, ---	--- very gravelly sandy loam ---	LSC 5 -1	Pipos/Pied/ Quga/Artr2	Edaphic	MAP 50 cm ME 2300 m MAST 7 C MSST 13 C	10%

3.0 Management Implications.

3.1 & 3.2 These soils have a low bearing strength when wet which can cause trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon, which is less than 4" in depth, will reduce site productivity and probability of success for projects. In areas where the surface has been disturbed, the surface texture tends to become loam and the soils become Typic Eutroboralfs. The clay being a shrink/swell clay can cause problems with building foundations and poured cement floors.

3.3

Map Symbol: 297

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.5	6.7	1.0	.3	8.5	6.7	1.0	.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	65	80	0	5	65	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
20	2	63	15	20	2	63	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	800		
Forage	250	250		
Forage (maximum)	2000	2000		
Timber	Site Index			
Pipos	65	65		
Fuelwood	cd/ac			
Pied/Juos	4	4		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Acorn woodpecker	Ess.	Ess.		
Lewis' woodpecker	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Cooper's hawk	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sev.	Sev.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	T	T		
Juniperus osteosperma	Juos	8	8		
Juniperus scopulorum	Jusc2	P	P		
Pinus edulis	Pied	15	15		
Pinus ponderosa	Pipos	25	25		
Artemisia tridentata	Artr2	5	5		
Ceanothus fendleri	Cefe	.5	.5		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	5	5		
Gutierrezia sarothrae	Gusa2	1	1		
Pachystima Myrsinites	Pamy	P	P		
Purshia tridentata	Putr2	1	1		
Quercus gambelii	Quga	10	10		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria parvifolia	Anpa4	2	2		
Arenaria aberrans	Arab	T	T		
Castilleja linariaefolia	Cali4	.3	.3		
Commelina dianthifolia	Codi4	T	T		
Eriogonum racemosum	Erra3	T	T		
Erigeron speciousus	Ersp4	.3	.3		
Hymenoxys richardsonii	Hyri	T	T		
Lomatium leptocarpum	Lole	.1	.1		
Lotus wrightii	Lowr	.3	.3		
Lupinus argenteus	Luar3	.5	.5		
Penstemon linaroids	Peli2	.3	.3		
Senecio multilobatus	Semu3	.3	.3		
Agropyron cristata	Agcr	.3	.3		
Agropyron smithii	Agsm	2	2		
Blepharoneuron tricholepis	Bltr	.1	.1		
Bouteloua gracilis	Bogr2	5	5		
Carex	CAREX	1	1		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	3	3		
Poa longiligua	Polo	T	T		
Sitanion hystrix	Sihy	3	3		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 298-Mollic Eutroboralfs, LSC, 5, -1, clayey-skeletal, montmorillonitic - Mollic Eutroboralfs, LSC, 5, -1, fine, montmorillonitic, gravelly sandy loams, complex: 15-40 percent slopes, Pipos/Pied/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 46 to 54 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs between 01 October and 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snow fall is 110 centimeters and the mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. The elevation ranges from 2200 to 2400 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	50%
---	gravelly	5	Quga/Artr2		ME 2300 m	
clayey-skeletal, montmorillonitic,	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Mollic Eutroboralfs,	---	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	30%
---	gravelly	5	Quga/Pied		ME 2300 m	
fine, montmorillonitic,	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Eutroboralfs,	---	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	10%
---	gravelly	5	Quga/Artr2		ME 2300 m	
clayey-skeletal, montmorillonitic,	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Typic Argiborolls,	---	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	10%
---	gravelly	5	Quga/Artr2		ME 2300 m	
clayey-skeletal, montmorillonitic,	loam	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet. Operations which mix the clayey subsoil with the surface horizon, which is less than 4" in depth, will reduce site productivity and probability of success for plantations.

3.3

3.4

Map Symbol: 298

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
50.2	6.7	4.5	1.6	50.2	6.7	4.5	1.6								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	60	80	0	51	60	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	2	50	23	20	3	52	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	800		
Forage	250	250		
Forage (maximum)	2000	2000		
Timber	Site Index			
Pipos	60	60		
Fuelwood	cd/ac			
(too steep)	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Acorn woodpecker	Ess.	Ess.		
Lewis' woodpecker	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Cooper's hawk	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Mod.	Mod.		
Windthrow	Sev.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	T	T		
Juniperus osteosperma	Juos	8	8		
Juniperus scopulorum	Jusc2	P	P		
Pinus edulis	Pied	15	15		
Pinus ponderosa	Pipos	20	20		
Artemisia tridentata	Artr2	5	5		
Ceanothus fendleri	Cefe	1	1		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	5	5		
Gutierrezia sarothrae	Gusa2	1	1		
Pachystima Myrsinites	Pamy	P	P		
Purshia tridentata	Putr2	1	1		
Quercus gambelii	Quga	10	10		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria parvifolia	Anpa4	1	1		
Arenaria aberrans	Arab	T	T		
Castilleja linariaefolia	Cali4	.3	.3		
Commelina dianthifolia	Codi4	T	T		
Erigeron speciousus	Ersp4	.3	.3		
Eriogonum racemosum	Erra3	.3	.3		
Hymenoxys richardsonii	Hyri	T	T		
Lomatium leptocarpum	Lole	.1	.1		
Lotus wrightii	Lowr	.3	.3		
Lupinus argentus	Luar3	.3	.3		
Penstemon linaroids	Peli2	.3	.3		
Senecio multilobatus	Semu3	.3	.3		
Agropyron cristata	Agcr	.3	.3		
Agropyron smithii	Agsm	2	2		
Blepharoneuron tricholepis	Bltr	.1	.1		
Bouteloua gracilis	Bogr2	5	5		
Carex	CAREX	1	1		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	3	3		
Poa longiligua	Polo	T	T		
Sitanion hystrix	Sihy	3	3		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 299-Typic Haploborolls, LSC, 5, -1, moderately deep, very gravelly loam-Lithic Argiborolls, LSC, 5, -1, gravelly loam, complex: 40-80 percent slopes, Pipos/Pied/Quga/Artr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in talus from limestone parent material. Mean annual precipitation ranges from 46 to 54 centimeters: mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs between 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 01 April. Mean annual snowfall is 110 centimeters and the mean annual snow accumulation is 30 centimeters. The freeze free period is 110 days. The elevation ranges from 2200 to 2400 meters. Delineations are irregular in shape and vary in size from 50 to 150 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haploborolls,	moderately deep	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	50%
---	very gravelly	5	Quga/Artr2		ME 2300 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Lithic Argiborolls,	---	LSC	Pipos/Pied	Edaphic	MAP 50 cm	30%
---	very gravelly	5	Quga/Artr2		ME 2300 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Haploborolls,	---	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	10%
---	very gravelly	5	Quga/Artr2		ME 2300 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Typic Argiborolls,	moderately deep	LSC	Pipos/Pied/	Edaphic	MAP 50 cm	10%
---	very gravelly	5	Quga/Artr2		ME 2300 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 These soils have severe limitations for most management activities due to steep slopes and high gravel content.

3.2 These soils have severe limitations for most management activities due to steep slopes, high gravel content, and shallow depths.

3.3

3.4

Map Symbol: 299

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
91.6	6.7	8.2	5.1	91.6	4.5	8.2	5.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	65	60	70	0	72	60	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
15	1	64	20	15	1	64	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	525	400		
Forage	200	200		
Forage (maximum)	2125	1500		
Timber	Site Index			
Pipos	50	45		
Fuelwood	cd/ac			
(too steep)	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Acorn woodpecker	Ess.	Ess.		
Lewis' woodpecker	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Cooper's hawk	Imp.	Imp.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Mod.	Mod.		
Windthrow	Sev.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Juniperus osteosperma	Juos	8	8		
Juniperus scopulorum	Jusc2	P	P		
Pinus edulis	Pied	15	15		
Pinus ponderosa	Pipos	10	10		
Artemisia tridentata	Artr2	5	5		
Ceanothus fendleri	Cefe	1	1		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	2	2		
Gutierrezia sarothrea	Gusa2	3	3		
Opuntia polyacantha	Oppo	.5	.5		
Quercus gambelii	Quga	15	15		
Sphaeralcea parvifolia	Sppa2	1	1		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria parvifolia	Anpa4	.5	.5		
Arenaria aberans	Arab	T	T		
Castilleja linariaefolia	Cali4	.3	.3		
Commelina dianthifolia	Codi4	T	T		
Erigeron speciousus	Ersp4	.3	.3		
Eriogonum racemosum	Erra3	.1	.1		
Hymenoxys richardsonii	Hyri	T	T		
Lotus wrightii	Lowr	.3	.3		
Lupinus argentus	Luar3	1	1		
Penstemon linaroids	Peli2	.1	.1		
Senecio multilobatus	Semu3	.3	.3		
Verbena ciliata	Veci	.1	.1		
Agropyron cristata	Agcr	.3	.3		
Agropyron smithii	Agsm	1	1		
Blepharoneuron tricholepis	Bltr	T	T		
Bouteloua gracilis	Bogr2	5	5		
Carex	CAREX	.5	.5		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	1	1		
Poa fendleriana	Pofe	1	1		
Poa longiligua	Polo	1	1		
Sitanion hystrix	Sihy	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 300-Udic Ustochrepts, LSC, 5, 0, loamy-skeletal, mixed, frigid, very gravelly sandy loam: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on moderately steep to steep complex concave and convex mountains. Components formed in residuum from rhyolite and dacite parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2150 to 2350 meters. Delineations are irregular in shape and vary in size from 20 to 200 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Udic Ustochrepts,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	80%
---	very gravelly	5			ME 2250 m	
loamy-skeletal, mixed,	sandy loam	0			MAST 6 C	
frigid	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustorthents,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2250 m	
loamy-skeletal, mixed (nonacid),	---	0			MAST 6 C	
frigid	---				MSST 12 C	
2.6 Lithic Ustochrepts,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2250 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
frigid	---				MSST 12 C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 300

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
33.5	6.7	5.8	0.7												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	40	45	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	5	40	15												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	225			
Forage (maximum)	2350			
Timber	Site Index			
Pipo	60			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Elk	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Goshawk	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Mod.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	Mod.			
Windthrow	Mod.			
Plant Competition	Sli.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Pinus ponderosa	Pipo	65			
Quercus gambelii	Quga	5			
Berberis repens	Bere	.1			
Ceanothus fendleri	Cefe	.2			
Purshia tridentata	Putr2	T			
Quercus gambelii	Quga	5			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	T			
Rosa arizonica	Roar2	P			
Achillea millefolium lanulosa	Acmil	.1			
Antennaria rosea	Anro2	T			
Eriogonum racemosum	Erra	T			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Lotus wrightii	Lowr	T			
Lupinus argenteus	Luar3	.2			
Potentilla anseriana	Poan5	T			
Pterospora andromedea	Ptan2	P			
Thalictrum fendleri	Thfe	T			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.1			
Festuca arizonica	Fear2	2			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	3			
Poa fendleriana	Pofe	.5			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 302-Typic Dystrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, very gravelly sandy loam: 15-40 percent slopes, Abco/Psmeg/Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on moderately steep to steep complex concave and convex mountains. Component formed from residuum from rhyolite and dacite parent materials. Mean annual precipitation ranges from 58 to 64 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 140 centimeters and mean annual snow accumulation is 60 centimeters. The freeze free period is 100 days. Elevations range from 2400 to 2650 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Dystrochrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 64 cm	80%
---	very gravelly	6	Pipo/Quga		ME 2500 m	
loamy-skeletal, mixed,	sandy loam	0			MAST 6 C	
frigid	---				MSST 10 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Udorthents.	---	LSC	Abco/Psmeg/	Edaphic	MAP 64 cm	10%
---	---	6	Pipo/Quga		ME 2500 m	
loamy-skeletal, mixed, (nonacid),	---	0			MAST 6 C	
frigid	---				MSST 10 C	
2.6 Lithic Udorthents	---	LSC	Abco/Psmeg/	Edaphic	MAP 64 cm	10%
---	---	6	Pipo/Quga		ME 2500 m	
loamy-skeletal, mixed, (nonacid),	---	0			MAST 6 C	
frigid	---				MSST 10 C	

3.0 Management Implications.

3.1 Activities that mix the subsoils with the surface horizon should be avoided as this will reduce the site productivity and the probability of success of projects.

3.2

3.3

3.4

Map Symbol: 302

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
38.3	6.7	5.3	.9												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	50	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
37	10	40	13												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400			
Forage	150			
Forage (maximum)	3500			
Timber	Site Index			
Abco	70			
Psmeg	70			
Pipo	65			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Mod.			
Source Suitability:				
Topsoil	Fair			
Roadfill	Fair			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Goshawk	Ess.			
Elk	Imp.			
Mule deer	Imp.			
Turkey	Imp.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Mod.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Mod.			
Windthrow	Mod.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.

Scientific Name	Symbol	% Canopy Cover	6.1	6.2	6.3	6.4
Abies concolor	Abco	30				
Pinus ponderosa	Pipo	15				
Populus tremuloides	Potr5	10				
Pseudotsuga menziesii glauca	Psmeg	30				
Berberis repens	Bere	3				
Juniperus communis	Juco6	1				
Lonicera involucrata	Loin5	T				
Pachystima Myrsinites	Pamy	1				
Quercus gambelii	Quga	T				
Ribes cereum	Rice	T				
Robinia neomexicana	Rone	T				
Salix scouleriana	Sasc	T				
Symphoricarpos oreophilus	Syor2	.5				
Allium geyeri	Alge	T				
Aquilegia caerulea	Aqca	T				
Artemisia franseriodides	Arfr2	2				
Campanula rotundifolia	Caro2	T				
Fragaria ovalis	Frov	T				
Geranium caespitosum	Geca3	.5				
Geranium richardsonii	Geri	.1				
Lathyrus arizonica	Laar	.1				
Mertensia Macdougalii	Mema	T				
Vicia americana	Viam	T				
Bromus ciliatus	Brci	.1				
Festuca arizonica	Fear2	2				
Poa pratensis	Popr	T				

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 303-Dystric Cryochrepts, LSC, 7, moderately deep, very cobbly sandy loam: 40-80 percent slopes, Pien.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on steep to extremely steep complex concave and convex mountains. Component formed in residuum and colluvium from dacite parent materials. Mean annual precipitation ranges from 70 to 78 centimeters; mean annual air temperature ranges from 1 to 3 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 October to 15 May. Mean annual snowfall is 170 centimeters and the mean annual snow accumulation is 100 centimeters. The freeze free period is 70 days. The elevation ranges from 2600 to 3000 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Dystric Cryochrepts,	moderately deep	LSC	Pien	Edaphic	MAP 74 cm	80%
---	very cobbly	7			ME 2800 m	
---	sandy loam				MAST 3 C	
---	---				MSST 7 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Cryochrepts	---	LSC	Pien	Edaphic	MAP 74 cm	10%
---	---	7			ME 2800 m	
---	---				MAST 3 C	
---	---				MSST 7 C	
2.6 Rock Outcrops					MAP cm	10%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Management activities are limited by steep slopes and high percentage of rock fragments. The area is almost exclusively Englemann Spruce and occurs on the north side of Kendrick Mountain.

3.2

3.3

3.4

Map Symbol: 303

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
59.4	6.7	3.3	1.3												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	70	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	5	60	5												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300			
Forage	75			
Forage (maximum)	3000			
Timber	Site Index			
Pien	75			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Red squirrel	Imp.			
Mule deer	Imp.			
Goshawk	Imp.			
Limitations For:				
Timber Harvest	Sev.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Sev.			
Windthrow	Mod.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Abies concolor	Abco	T			
	Abies lasicarpa arizonica	Ablaa	5			
	Picea engelmanii	Pien	50			
	Picea pungens	Pipu	T			
	Populus tremuloides	Potr5	T			
	Pseudotsuga menziesii glauca	Psmeg	T			
	Berberis repens	Bere	T			
	Holodiscus dumosus	Hodu	T			
	Juniperus communis	Juco6	3			
	Lonicera involucrata	Loin5	P			
	Pachystima Myrsinites	Pamy	1			
	Rubus strigosus	Rust	T			
	Salix scouleriana	Sasc	T			
	Symphoricarpos oreophilus	Syor2	.1			
	Aquilegia elegantula	Aqel	.5			
	Campanula rotundifolia	Caro2	T			
	Erigeron formosissimus	Erfo2	5			
	Fragaris ovalis	Frov	T			
	Geranium caespitosum	Geca3	T			
	Geranium richardsonii	Geri	.5			
	Goodyera oblongifolia	Goob2	.5			
	Haplopapus parryi	Hapa6	.5			
	Lathyrus arizonica	Laar	T			
	Mertensia Macdougalii	Mema	T			
	Smilacina racemosa	Smra	1			
	Thalictrum fendleri	Thfe	T			
	Vicia americana	Viam	T			
	Bromus anomalus	Bran	1			
	Carex	CAREX	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 304-Typic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, very gravelly loam: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping complex concave and convex benches and summit plains. The component formed in residuum from andesite and trachyte parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2150 to 2250 meters. Delineations are irregular in shape and vary in size from 15 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Typic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	80%
	---	very gravelly	5			ME 2200 m	
	clayey-skeletal, montmotillonitic,	loam	0			MAST 6 C	
	---	---				MSST 12 C	
2.2						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
	---	---	5			ME 2200 m	
	clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
	---	---				MSST 12 C	
2.6	Typic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
	---	---	5			ME 2200 m	
	loamy-skeletal, mixed,	---	0			MAST 6 C	
	---	---				MSST 12 C	

3.0 Management Implications.

3.1 Soils are subject to trafficability problems and damage when they are wet. These problems can be mitigated or avoided by restricting traffic to periods when the soils are dry, frozen or snow packed.

3.2

3.3

3.4

Map Symbol: 304

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.3	6.7	.4	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	45	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	10	35	10												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500			
Forage	250			
Forage (maximum)	2500			
Timber	Site Index			
Pipo	70			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Mod.			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Elk	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Goshawk	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Sli.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Sli.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	P			
Pinus ponderosa	Pipo	60			
Quercus gambelii	Quga	T			
Berberis repens	Bere	T			
Ceanothus fendleri	Cefe	T			
Purshia tridentata	Putr2	T			
Quercus gambelii	Quga	T			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	T			
Rosa arizonica	Roar2	P			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosea	Anro2	.3			
Eriogonum racemosum	Erra	T			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Lathyrus arizonica	Laar	T			
Lupinus argenteus	Luar3	1			
Oxytropis lambertii	Oxla	.2			
Potentilla anserina	Poan5	T			
Pterospora andromedea	Ptan2	P			
Thalictrum fendleri	Thfe	T			
Verbascum thapsus	Veth	.1			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.1			
Festuca arizonica	Fear2	4			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	2			
Poa fendleriana	Pofe	2			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 305-Typic Eutroboralfs, HSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam: 0-15 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping complex concave and convex benches and summit plains. The components formed in residuum from andesite and trachyte parent materials. Mean annual precipitation ranges from 48 to 52 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 15 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 52 cm	80%
---	very cobbly	5	Quga		ME 2200 m	
clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 56 cm	10%
---	---	5	Quga		ME 2200 m	
clayey-skeletal, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Typic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 56 cm	10%
---	---	5	Quga		ME 2200 m	
loamy-skeletal, mixed,	---	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 These soils have a low bearing strength when wet which can cause trafficability problems (puddling, compaction, etc.) and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce the site productivity and probability of success for projects.

3.2

3.3

Map Symbol: 305

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	6.7	.6	.0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	35	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	10	25	20												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800			
Forage	175			
Forage (maximum)	2000			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			
Pied	6			
Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Plain titmouse	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Mule deer	Imp.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Sli.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Mod.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	10			
Juniperus monosperma	Jumo	2			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	10			
Pinus ponderosa	Pipo	30			
Quercus gambelii	Quga	1			
Artemisia frigida	Arfr4	T			
Cenaothus fendleri	Cefe	T			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	T			
Quercus gambelii	Quga	1			
Rhus trilobata	Rhtr	.5			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosea	Anro2	T			
Castilleja linariaefolia	Cali4	T			
Erigoron speciosus	Ersp4	T			
Hymenoxys richardsonii	Hyri	T			
Lupinus argenteus	Luar3	3			
Pterospora andromedea	Ptan2	T			
Agropyron tachycaulum	Agtr	P			
Blepharoneuron tricholepis	Bltr	.1			
Bouteloua curtipendula	Bocu	.1			
Bouteloua gracilis	Bogr2	5			
Festuca arizonica	Fear2	1			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	.5			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 310-Typic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on moderately steep to steep complex concave and convex escarpments and mountains. Components formed in residuum from andesite and trachyte parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2150 to 2400 meters. Delineations are irregular in shape and vary in size from 20 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	80%
---	very cobbly	5			ME 2250 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2250 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2250 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 This soil is characterized by having steep slopes and a substantial rock cover, which may limit potential for site preparation by mechanized equipment. Subsurface soil contains heavy clay which should not be mixed into the relatively thin topsoils. Maintenance of ground cover is essential to prevent gully erosion.

3.3

3.4

Map Symbol: 310

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
30.6	6.7	4.2	1.7												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	40	50	70												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	10	40	10												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500			
Forage	250			
Forage (maximum)	2500			
Timber	Site Index			
Pipo	70			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Elk	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Goshawk	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	Sli.			
Windthrow	Mod.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	P			
Pinus ponderosa	Pipo	55			
Quercus gambelii	Quga	10			
Berberis repens	Bere	T			
Ceanothus fendleri	Cefe	T			
Purshia tridentata	Putr2	T			
Quercus gambelii	Quga	5			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	5			
Rosa arizonica	Roar2	P			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosea	Anro2	.1			
Eriogonum racemosum	Erra	T			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Lathyrus arizonica	Laar	T			
Lupinus argenteus	Luar3	1			
Oxytropis lambertii	Oxla	.2			
Potentilla anserina	Poan5	T			
Pterospora andromedea	Ptan2	P			
Thalictrum fendleri	Thfe	.1			
Verbascum thapsus	Veth	.1			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.1			
Festuca arizonica	Fear2	2			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	1			
Poa fendleriana	Pofe	1			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 311-Typic Eutroboralfs, HSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam: 15-40 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on moderately steep to steep complex concave and convex escarpments and mountains. Components formed in residuum from andesite and trachyte parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 November to 01 March. Mean annual snowfall is 100 centimeters and the mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2050 to 2300 meters. Delineations are irregular in shape and vary in size from 20 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Typic Eutroboralfs,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	80%
	---	very cobbly	5	Quga		ME 2150 m	
	clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
	---	---				MSST 13 C	
2.2						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Mollic Futroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
	---	---	5	Quga		ME 2150 m	
	clayey-skeletal, montmorillonitic,	---	-1			MAST 7 C	
	---	---				MSST 13 C	
2.6	Lithic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
	---	---	5	Quga		ME 2150 m	
	clayey-skeletal, montmorillonitic,	---	-1			MAST 7 C	
	---	---				MSST 13 C	

3.0 **Management Implications.**

3.1 These soils have a low bearing strength when wet which can cause trafficability problems and soil damage. Operations which mix the clayey subsoil with the surface horizon will reduce the site productivity and probability of success for projects.

3.2

3.3

Map Symbol: 311

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
30.6	6.7	9.2	.7												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	40	30	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	10	30	85												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800			
Forage	175			
Forage (maximum)	2000			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Plain titmouse	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Mule deer	Imp.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Sli.			
Windthrow	Mod.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	10			
Juniperus monosperma	Jumo	2			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	10			
Pinus ponderosa	Pipo	30			
Quercus gambelii	Quga	T			
Artemisia frigida	Arfr4	T			
Ceanothus fendleri	Cefe	T			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	T			
Quercus gambelii	Quga	T			
Rhus trilobata	Rhtr	.1			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosea	Anro2	T			
Castilleja linariaefolia	Cali4	T			
Erigeron speciosus	Ersp4	P			
Hymenoxys richardsonii	Hyri	T			
Lupinus argenteus	Luar3	3			
Pterospora andromedea	Ptan2	T			
Agropyron trachycaulum	Agtr	P			
Blepharoneuron tricholepis	Bltr	.1			
Bouteloua curtipendula	Bocu	.1			
Bouteloua gracilis	Bogr2	5			
Festuca arizonica	Fear2	1			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	.5			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 312-Eutric Glossoboralfs, LSC, 6, moderately deep very cobbly loam-Lithic Glossoboralfs, LSC, 6, very cobbly loam - Rock Outcrop complex: 40-80 percent slopes, Psmeg.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on steep to very steep simple concave and convex mountains and escarpments. Components formed in residuum from andesite and trachyte parent materials. Mean annual precipitation ranges from 58 to 68 centimeters; mean annual air temperature ranges from 4 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 150 centimeters and mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. Elevations range from 2250 to 2750 meters. Delineations are irregular in shape and vary in size from 25 to 150 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Eutric Glossoboralfs,	moderately deep	LSC	Psmeg	Edaphic	MAP 66 cm	50%
---	very cobbly	6			ME 2300 m	
---	loam				MAST 5 C	
---	---				MSST 10 C	
2.2 Lithic Glossoboralfs,	---	LSC	Psmeg	Edaphic	MAP 66 cm	30%
---	very cobbly	6			ME 2300 m	
---	loam				MAST 5 C	
---	---				MSST 10 C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Steep slopes and surface rock fragments will limit most management activities.

3.2 Steep slopes, shallow soils, and surface rock fragments will limit most management activities.

3.3

3.4

Map Symbol: 312

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
77.8	6.7	19.6	1.7	77.8	4.5	19.6	1.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	60	35	85	0	60	35	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
60	5	30	5	60	5	30	5								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	150	150		
Forage (maximum)	1500	1500		
Timber *	Site Index			
Abco	70	70		
Psmeg	70	70		
Pipo	65	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Imp.	Imp.		
Goshawk	Imp.	Imp.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Turkey	Imp.	Imp.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

* see management implications

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Abies concolor	Abco	30	30		
Pinus ponderosa	Pipo	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	30		
Berberis repens	Bere	3	3		
Juniperus communis	Juco6	1	1		
Lonicera involucrata	Loin5	T	T		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	2	2		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	5	5		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia caerulea	Aqca	T	T		
Artemisia franseriodides	Arfr2	2	2		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	T	T		
Geranium caespitosum	Geca3	.5	.5		
Geranium ricahrdsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdougalii	Mema	T	T		
Vicia americana	Viam	T	T		
Bromus ciliatus	Brci2	.1	.1		
Festuca arizonica	Fear2	2	2		
Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 322-Typic Dystrochrepts, LSC, 6, frigid, moderately deep, very gravelly sandy loam - Lithic Udorthents, LSC, 6, frigid, very gravelly sandy loam complex: 40-80 percent slopes, Psmeg.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to very steep simple concave and convex mountains. Components formed in residuum from rhyolite and dacite parent materials. Mean annual precipitation ranges from 64 to 68 centimeters; mean annual air temperature ranges from 4 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 15 October to 15 April. Mean annual snowfall is 150 centimeters and mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. Elevations range from 2400 to 2800. Delineations are irregular in shape and vary in size from 24 to 400 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Dystrochrepts,	moderately deep	LSC	Psmeg	Edaphic	MAP 68 cm	55%
---	very gravelly	6			ME 2600 m	
---	sandy loam				MAST 5 C	
frigid	---				MSST 9 C	
2.2 Lithic Udorthents,	---	LSC	Psmeg	Edaphic	MAP 68 cm	30%
---	very gravelly	6			ME 2600 m	
---	sandy loam				MAST 5 C	
frigid	---				MSST 9 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Eutric Glossoboralfs,	---	LSC	Psmeg	Edaphic	MAP 68 cm	10%
---	---	6			ME 2600 m	
---	---				MAST 5 C	
---	---				MSST 9 C	
2.6 Typic Udorthents,	---	LSC	Psmeg	Edaphic	MAP 68 cm	5%
---	---	6			ME 2600 m	
---	---				MAST 5 C	
frigid	---				MSST 9 C	

3.0 Management Implications.

3.1 Steep slopes, and rock fragments limit most management activities.

3.2 Steep slopes, rock fragments, and shallow soils limit most management activities.

3.3

3.4

Map Symbol: 322

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
48.4	6.7	3.5	1.1	48.4	4.5	3.5	1.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	65	85	0	60	65	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
27	8	60	5	27	8	60	5								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	150	125		
Forage (maximum)	1800	1500		
Timber	Site Index			
Abco	70	65		
Pipo	65	60		
Psmeg	70	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Goshawk	Ess.	Ess.		
Abert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Turkey	Imp.	Imp.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Abies concolor	Abco	30	25		
	Pinus ponderosa	Pipo	15	30		
	Populus tremuloides	Potr5	10	10		
	Pseudotsuga menziesii glauca	Psmeg	30	30		
	Berberis repens	Bere	3	3		
	Juniperus communis	Juco6	3	3		
	Lonicera involucrata	Loin5	T	T		
	Pachystima Myrsinites	Pamy	1	1		
	Quercus gambelii	Quga	T	T		
	Ribes cereum	Rice	T	T		
	Robinia neomexicana	Rone	T	T		
	Salix scouleriana	Sasc	T	T		
	Symphoricarpos oreophilus	Syor2	.5	.5		
	Allium geyeri	Alge	T	T		
	Aquilegia caerulea	Aqca	T	T		
	Artemisia franseriodides	Arfr2	2	2		
	Campanula rotundifolia	Caro2	T	T		
	Fragaria ovalis	Frov	T	T		
	Geranium caespitosum	Geca3	.5	.5		
	Geranium richardsonii	Geri	.1	.1		
	Lathyrus arizonica	Laar	.1	.1		
	Mertensia Macdougalii	Mema	T	T		
	Vicia americana	Viam	T	T		
	Bromus ciliatus	Brci2	.1	.1		
	Festuca arizonica	Fear2	2	2		
	Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 325-Udic Ustochrepts, LSC, 5, 0, loamy-skeletal, mixed, frigid, deep, gravelly loam: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping complex concave and convex fans and lowland plains. Component formed in residuum from rhyolite and dacite parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2250 meters. Delineations are irregular in shape and vary in size from 50 to 700 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic draingage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Udic Ustochrepts,	deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	80%
---	gravelly	5			ME 2150 m	
loamy-skeletal, mixed,	loam				MAST 6 C	
frigid	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Udic Ustochrepts,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
fine-loamy, mixed,	---				MAST 6 C	
frigid	---				MSST 12 C	
2.6 Typic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
loamy-skeletal, mixed,	---				MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 325

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.1	6.7	.5	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	45	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	10	35	25												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	225			
Forage (maximum)	2350			
Timber	Site Index			
Pipo	65			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Fair			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Elk	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Goshawk	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sli.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Sli.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Mod.			
Plant Competition	Sli.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	65	65		
Quercus gambelii	Quga	T	T		
Berberis repens	Bere	.1			
Ceanothus fendleri	Cefe	1			
Purshia tridentata	Putr2	T			
Quercus gambelii	Quga	T			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	T			
Rosa arizonica	Roar2	P			
Achillea millefolium lanulosa	Acmil	.3			
Antennaria rosea	Anro2	.1			
Eriogonum racemosum	Erra	T			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Lathyrus arizonica	Laar	T			
Lupinus argenteus	Luar3	.5			
Oxytropis lambertii	Oxla	.5			
Potentilla anserina	Poan5	T			
Pterospora andromedea	Ptan2	P			
Thalictrum fendleri	Thfe	T			
Verbascum thapsus	Veth	.1			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.2			
Festuca arizonica	Fear2	4			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	5			
Poa fendleriana	Pofe	1			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 326-Udic Ustochrepts, HSC, 5, -1, loamy-skeletal, mixed, frigid, deep, gravelly loam: 0-15 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of a single Terrrestrial Ecosystem component. It occurs on nearly level to strongly sloping complex concave and convex lowland plains. Component formed in residuum from rhyolite parent material. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2050 to 2150 meters. Delineations are irregular in shape and vary in size from 50 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Udic Ustochrepts,	deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	80%
	---	gravelly	5	Quga		ME 2100 m	
	loamy-skeletal, mixed,	loam	-1			MAST 7 C	
	frigid	---				MSST 13 C	
2.2						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Typic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
	---	---	5	Quga		ME 2100 m	
	loamy-skeletal, mixed,	---	-1			MAST 7 C	
	---	---				MSST 13 C	
2.6	Udic Ustochrepts,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
	---	---	5	Quga		ME 2100 m	
	fine-loamy, mixed,	---	-1			MAST 7 C	
	frigid	---				MSST 13 C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 326

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.1	6.7	.6	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	40	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	15	25	30												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	725			
Forage	150			
Forage (maximum)	1900			
Timber	Site Index			
Pipo	50			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Fair			
Wildlife Habitat Suit:				
Elk	Imp.			
Plain titmouse	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sli.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Sli.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	---			
Windthrow	Mod.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Symbol	% Canopy Cover 6.1	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	10			
Juniperus monosperma	Jumo	2			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	10			
Pinus ponderosa	Pipo	30			
Quercus gambelii	Quga	T			
Artemisia frigida	Arfr4	T			
Ceanothus fendleri	Cefe	T			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	T			
Quercus gambelii	Quga	T			
Rhus trilobata	Rhtr	.1			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosea	Anro2	T			
Castilleja linariaefolia	Cali4	T			
Erigeron speciosus	Ersp4	P			
Hymenoxys rihcardsonii	Hyri	T			
Lupinus argenteus	Luar3	3			
Pterospora andromedea	Ptan2	T			
Agropyron trachycaulum	Agtr	P			
Blepharoneuron tricholepis	Bltr	.1			
Bouteloua curtipendula	Bocu	.1			
Bouteloua gracilis	Bogr2	5			
Festuca arizonica	Fear2	1			
Muhlenbergia montana	Mumo	.5			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 401-Mollic Eutroboralfs, LSC, 5, 0, fine, montmorillonitic, gravelly clay loam: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to moderately sloping simple concave and convex fans and elevated plains. Components formed from residuum from cinder and basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2000 to 2250 meters. Delineations are irregular in shape and vary in size from 100 to 600 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	80%
---	gravelly	5			ME 2150 m	
fine, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Argiborolla,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
fine, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 This unit is well suited to timber production and natural regeneration is good. Heavy clay occurs within 5 inches of the surface and care should be taken to avoid mixing the subsurface horizon with the surface horizon. These soils are subject to trafficability problems and soil damage when they are wet. Activities should be restricted to periods when the soil is dry, frozen or snow packed.

3.2

3.3

Map Symbol: 401

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.3	6.7	.4	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	55	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	10	45	15												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500			
Forage	250			
Forage (maximum)	2500			
Timber	Site Index			
Pipo	70			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	High			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Elk	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Goshawk	Ess.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Sli.			
Plant Competition	Sli.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	T			
Pinus ponderosa	Pipo	65			
Quercus gambelii	Quga	1			
Berberis repens	Bere	T			
Ceanothus fendleri	Cefe	T			
Purshia tridentata	Putr2	T			
Quercus gambelii	Quga	2			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	T			
Rosa arizonica	Roar2	P			
Achillea millefolium lanulosa	Acmil	.3			
Antennaria rosulata	Anro3	.1			
Eriogonum racemosum	Erra	T			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Lotus wrightii	Lowr	T			
Lupinus argenteus	Luar3	1			
Potentilla anserina	Poan5	T			
Pterospora andromedea	Ptan2	P			
Thalictrum fendleri	Thfe	T			
Verbascum thapsus	Veth	.3			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.1			
Festuca arizonica	Fear2	4			
Koeleria cristata	Kocr	.1			
Muhlenbergia montana	Mumo	2			
Poa fendleriana	Pofe	2			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	.5			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 402-Mollic Eutroboralfs, LSC, 5, 0, fine, mixed, moderately deep, very cindery loam - Lithic Eutroboralfs, LSC, 5, 0, clayey-skeletal, mixed, very cindery loam complex: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple concave and convex cones and hills. Components formed in residuum from cinder and ash parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2050 to 2400 meters. Delineations are ovoid to circular in shape and vary in size from 25 to 400 hectares. Streams are not present within the map unit. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Mollic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	60%
	---	very cindery	5			ME 2250 m	
	fine, mixed,	loam	0			MAST 6 C	
	---	---				MSST 12 C	
2.2	Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	20%
	---	very cindery	5			ME 2250 m	
	clayey-skeletal, mixed,	loam	0			MAST 6 C	
	---	---				MSST 12 C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
	---	---	5			ME 2250 m	
	clayey-skeletal, mixed,	---	0			MAST 6 C	
	---	---				MSST 12 C	
2.6	Rock Outcrops					MAP cm	10%
						ME m	
						MAST C	
						MSST C	

3.0 Management Implications.

3.1 & 3.2 The very cindery rock fragment component of this soil makes it prone to erosion when ground cover (i.e. litter, grasses, forbs) is lacking.

3.3

3.4

Map Symbol: 402

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
24.6	6.7	4.2	.5	24.6	4.5	5.1	1.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	35	45	85	0	45	40	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	10	35	15	40	10	30	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	450		
Forage	250	225		
Forage (maximum)	2500	2350		
Timber	Site Index			
Pipo	70	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Low		
Reforestation	Mod.	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Goshawk	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Sev.		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	65	60		
Quercus gambelii	Quga	1	5		
Berberis repens	Bere	T	T		
Ceanothus fendleri	Cefe	T	T		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	T	T		
Rosa arizonica	Roar2	P	P		
Achillea millefolium lanulosa	Acmil	.1	.1		
Antennaria rosulata	Anro3	T	T		
Eriogonum racemosum	Erra	T	T		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	T	T		
Lotus wrightii	Lowr	T	T		
Lupinus argenteus	Luar3	1	1		
Potentilla anserina	Poan5	T	T		
Pterospora andromedea	Ptan2	P	P		
Thalictrum fendleri	Thfe	T	T		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.1	.1		
Festuca arizonica	Fear2	3	2		
Koeleria cristata	Kocr	.1	T		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	1	1		
Poa pratensis	Popr	T	T		
Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 405-Mollic Eutroboralfs, HSC, 5, -1, fine, montmorillonitic, very gravelly clay loam: 0-15 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to moderately sloping simple concave and convex fans and elevated plains. Components formed in residuum from cinder and basaltic parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2150 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	80%
---	very gravelly	5	Quga		ME 2050 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2050 m	
clayey-skeletal, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Typic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2050 m	
fine, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 **Management Implications.**

3.1 Heavy clay occurs within 5 inches of the surface and care should be taken to avoid mixing the subsurface horizon with the surface. These soils are subject to trafficabiltiy problems and soil damage when they are wet. Activities should be restricted to periods when the soil is dry, frozen or snow packed.

3.2

3.3

Map Symbol: 405

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	6.7	.5	.0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	80												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	10	20	25												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800			
Forage	175			
Forage (maximum)	2000			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Plain titmouse	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Mule deer	Imp.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Sli.			
Campgrounds	Mod.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Sli.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	10			
Juniperus monosperma	Jumo	2			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	10			
Pinus ponderosa	Pipo	30			
Quercus gambelii	Quga	T			
Artemisia frigida	Arfr4	T			
Ceanothus fendleri	Cefe	T			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	T			
Quercus gambelii	Quga	T			
Rhus trilobata	Rhtr	.1			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosulata	Anro3	T			
Castilleja linariaefolia	Cali4	T			
Erigeron speciosus	Ersp4	T			
Hymenoxys richardsonii	Hyri	T			
Lupinus argenteus	Luar3	3			
Pterospora andromedea	Ptan2	P			
Agropyron trachycaulum	Agtr	P			
Blepharoneuron tricholepis	Bltr	.1			
Bouteloua curtipendula	Bocu	.1			
Bouteloua gracilis	Bogr2	5			
Festuca arizonica	Fear2	1			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	.5			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 406-Mollic Eutroboralfs, HSC, 5, -1, fine, mixed, moderately deep, very cindery loam - Lithic Eutroboralfs, HSC, 5, -1, clayey-skeletal, mixed, very cindery loam complex: 15-40 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex cones and hills. Components formed in residuum from cinder and ash parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snow fall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2200 meters. Delineations are ovoid to circular in shape and vary in size from 25 to 400 hectares. Streams are not present within the map unit. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	50%
---	very cindery	5	Quga		ME 2100 m	
fine, mixed,	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Lithic Eutroboralfs,	shallow	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	30%
---	very cindery	5	Quga		ME 2100 m	
clayey-skeletal, mixed,	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2100 m	
clayey-skeletal, mixed,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Lithic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2100 m	
fine, mixed,	---	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 These soils are found on cinder cones and slopes which are very unstable naturally. Any ground disturbing activities on these landforms can cause accelerated erosion.

3.2 These soils are found on cinder cones and slopes which are very unstable. The shallow depth increases this hazard.

3.3

3.4

Map Symbol: 406

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
24.6	6.7	7.4	1.0	35.5	4.5	15.3	4.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	35	30	75	0	55	20	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	5	25	20	50	5	15	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	725		
Forage	175	150		
Forage (maximum)	2000	1900		
Timber	Site Index			
Pipo	55	50		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Mod.	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Sev.		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Mod.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus deppeana	Jude2	10	10		
	Juniperus monosperma	Jumo	2	2		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	10		
	Pinus ponderosa	Pipo	30	25		
	Quercus gambelii	Quga	T	T		
	Artemisia frigida	Arfr4	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Quercus gambelii	Quga	T	T		
	Rhus trilobata	Rhtr	.1	.1		
	Achillea millefolium lanulosa	Acmil	1	1		
	Antennaria rosulata	Anro3	T	T		
	Castilleja linariaefolia	Cali4	T	T		
	Erigeron speciosus	Ersp4	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Lupinus argenteus	Luar3	3	3		
	Pterospora andromedea	Ptan2	T	T		
	Agropyron trachycaulum	Agtr	P	P		
	Blepharoneuron tricholepis	Bltr	.1	.1		
	Bouteloua curtipendula	Bocu	.1	.1		
	Bouteloua gracilis	Bogr2	5	5		
	Festuca arizonica	Fear2	1	1		
	Koeleria cristata	Kocr	T	T		
	Muhlenbergia montana	Mumo	.5	.5		
	Poa fendleriana	Pofe	3	3		
	Poa pratensis	Popr	T	T		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 407-Typic Vitrandepts, LSC, 5, 0, cindery, frigid, moderately deep, very cindery loam - Lithic Vitrandepts, LSC, 5, 0, cindery, frigid, very cindery loam complex: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. They occur on moderately steep to steep simple concave and convex cinder cone slopes. Components formed in residuum from cinder parent materials. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2300 to 2500 meters. Delineations are ovoid to circular in shape and vary in size from 100 to 400 hectares. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Vitrandepts,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	50%
---	very cindery	5			ME 2400 m	
cindery,	loam	0			MAST 6 C	
frigid	---				MSST 12 C	
2.2 Lithic Vitrandepts,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	40%
---	very cindery	5			ME 2400 m	
cindery,	loam	0			MAST 6 C	
frigid	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
clayey-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 407

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
35.5	6.7	8.9	1.5	35.5	4.5	8.9	1.5								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	35	75	0	55	35	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
48	12	22	18	50	10	25	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	350		
Forage	200	175		
Forage (maximum)	2000	1800		
Timber	Site Index			
Pipo	60	55		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Abert squirrel	Imp.	Imp.		
Turkey	Used	Used		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Mod.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	---	---		
Windthrow	Sli.	Sev.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	65	60		
Quercus gambelii	Quga	1	1		
Berberis repens	Bere	T	T		
Ceanothus fendleri	Cefe	T	T		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	T	T		
Achillea millifolium lanulosa	Acmil	1	1		
Antennaria rosulata	Anro3	.1	.1		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Lupinus argenteus	Luar3	4	4		
Pterospora andromedea	Ptan2	T	T		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Festuca arizonica	Fear2	5	5		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	3	3		
Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 431-Mollic Eutroboralfs, HSC, 5, -1, - Lithic Eutroboralfs, HSC, 5, -1 complex: 40-80 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to very steep simple concave and convex cones and hills. Components formed in residuum from cinder and ash parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2100 to 2400. Delineations are ovoid in shape and vary in size from 25 to 400 hectares. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	50%
---	---	5	Quga		ME 2250 m	
---	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Lithic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	30%
---	---	5	Quga		ME 2250 m	
---	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2250 m	
---	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Typic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2250 m	
---	---	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 & 3.2 Steep slopes, naturally unstable soils, and high amounts of gravel will limit most management activities.

3.3

3.4

Map Symbol: 431

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
57.9	6.7	17.4	2.5	51.7	4.5	21.1	2.5								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	30	75	0	65	25	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	15	15	15	60	15	10	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	400		
Forage	125	100		
Forage (maximum)	800	700		
Timber	Site Index			
Pipo	65	60		
Fuelwood	cd/ac			
Pied	6	4		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
	Juniperus deppeana	Jude2	10	8		
	Juniperus monosperma	Jumo	2	2		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	10		
	Pinus ponderosa	Pipo	30	30		
	Quercus gambelii	Quga	T	T		
	Artemisia frigida	Arfr4	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Gutierrezia sarothrae	Gusa2	1	1		
	Rhus trilobata	Rhtr	T	T		
	Achillea millefolium lanulosa	Acmil	1	1		
	Antennaria rosulata	Anro3	T	T		
	Castilleja linariaefolia	Cali4	.3	.3		
	Erigeron speciosus	Ersp4	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Lupinus argenteus	Luar3	3	3		
	Pterospora andromedea	Ptan2	P	P		
	Agropyron trachycaulum	Agtr	P	P		
	Blepharoneuron tricholepis	Bltr	.1	.1		
	Bouteloua curtipendula	Bocu	.1	.1		
	Bouteloua gracilis	Bogr2	5	5		
	Festuca arizonica	Fear2	1	1		
	Koeleria cristata	Kocr	T	T		
	Muhlenbergia montana	Mumo	.5	.5		
	Poa fendleriana	Pofe	3	3		
	Poa pratensis	Popr	T	T		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 440-Mollic Vitrandepts, LSC, 5, 0, cindery, frigid, very cindery loam: 15-40 percent slopes, Fear2/Mumo.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on moderately steep to steep simple concave and convex cones and hills. Components formed in residuum from cinder and ash parent materials. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2300 to 2500 meters. Delineations are ovoid to circular in shape and vary in size from 100 to 400 hectares. Streams are not present within the map unit. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Vitrandepts,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	80%
---	very cindery	5		fire	ME 2400 m	
cindery,	loam	0			MAST 6 C	
frigid	---				MSST 12 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Vitrandepts,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire	ME 2400 m	
cindery,	---	0			MAST 6 C	
frigid	---				MSST 12 C	
2.6 Lithic Vitrandepts,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire	ME 2400 m	
cindery,	---	0			MAST 6 C	
frigid	---				MSST 12 C	

3.0 Management Implications.

3.1 These soils are naturally unstable.

3.2

3.3

3.4

Map Symbol: 440

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
35.5	6.7	11.1	2.0												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	30	70												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	25	5	30												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2300			
Forage	2000			
Forage (maximum)	2300			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Fair			
Wildlife Habitat Suit:				
Elk	Used			
Mule deer	Used			
Pronghorn	Used			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Mod.			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	P			
Pinus ponderosa	Pipo	T			
Artemisia carruthii	Arca4	.1			
Artemisia frigida	Arfr4	.1			
Ceanothus fendleri	Cefe	T			
Chrysothamnus nauseosus	Chna2	T			
Ribes cereum	Rice	T			
Rosa arizonica	Roar2	.1			
Tetradymia canescens	Teca	T			
Achillea millefolium 1anulosa	Acmi1	.1			
Antennaria rosulata	Anro3	.1			
Eriogonum racemosum	Erra	.1			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Gilia aggregata	Giag	T			
Lotus wrightii	Lowr	T			
Lupinus argenteus	Luar3	.2			
Oxytropis lambertii	Oxla	.3			
Potentilla anserina	Poan5	.1			
Thalictrum fendleri	Thfe	T			
Verbascum thapsus	Veth	1			
Andropogon scoparius	Ansc2	T			
Bromus anomalus	Bran	P			
Festuca arizonica	Fear2	15			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	15			
Muhlenbergia wrightii	Muwr	T			
Poa fendleriana	Pofe	5			
Sitanion hystrix	Sihy	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 476-Typic Haplustalfs, HSC, 4, 0, mesic, moderately deep, very cindery loam - Lithic Haplustalfs, HSC, 4, 0, mesic, very cindery loam complex: 40-80 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on very steep to extremely steep simple concave and convex cones and hills. Components formed in residuum from cinder and ash parent materials. Mean annual precipitation ranges from 36 to 45 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover is rarely found on this map unit. The freeze free period is 150 days. Elevations range from 2000 to 2200 meters. Delineations are ovoid to circular in shape and vary in size from 25 to 200 hectares. Streams are not present within the map unit. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	60%
---	very cindery	4			ME 2100 m	
---	loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Lithic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	30%
---	very cindery	4			ME 2100 m	
---	loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustochrepts,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	very cindery	4			ME 2100 m	
---	loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Due to the steep slopes and severe erosion hazard, the risk of accelerated erosion and loss of site productivity exists for any type of ground disturbance.

3.3

3.4

Map Symbol: 476

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
17.4	6.7	9.1	2.0	17.4	4.5	7.6	2.0								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	25	15	55	0	35	20	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
72	8	5	10	67	5	13	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	400		
Forage	175	125		
Forage (maximum)	900	800		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	8	8		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	15	10		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	15	10		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	.1	.1		
Chrysothamnus nauseosus	Chna2	T	T		
Gutierrezia sarothrae	Gusa2	1	1		
Opuntia polyacantha	Oppo	T	T		
Rhus trilobata	Rhtr	.3	.3		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	T	T		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	4	2		
Bouteloua gracilis	Bogr2	10	8		
Hilaria jamesii	Hija	T	T		
Koelaria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	.1	.1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	.1	.1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 495-Typic Haplustalfs, HSC, 4, 0, fine, montmorillonitic, mesic, very gravelly clay loam: 0-15 percent slopes, Pied/Jumo.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to strongly sloping simple concave and convex fans and elevated plains. Components formed in residuum from cinder and basaltic parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1700 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	80%
---	very gravelly	4			ME 1850 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1850 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Argiborolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1850 m	
fine, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 Soils show good revegetation response in areas that are fuelwooded. These soils are subject to trafficability problems (puddling, compaction) and soil damage when they are wet.

3.2

3.3

3.4

Map Symbol: 495

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.3	6.7	.5	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	25	70												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	10	15	30												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700			
Forage	275			
Forage (maximum)	1200			
Timber	Site Index			

Fuelwood	cd/ac			
Pied/Juos	8			
Potential for:	Rating			
Revegetation	Mod.			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Turkey	Used			
Pronghorn	Used.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Sli.			
Campgrounds	Sli.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Sli.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	T			
Juniperus monosperma	Jumo	20			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	20			
Artemisia frigida	Arfr4	T			
Berberis fremontii	Befr	.1			
Chrysothamnus nauseosus	Chna2	T			
Gutierrezia sarothrae	Gusa2	T			
Opuntia polyacantha	Oppo	T			
Opuntia whipplei	Opwh	T			
Rhus trilobata	Rhtr	T			
Yucca baccata	Yuba	T			
Castilleja linariaefolia	Cali4	1			
Erigeron flagellaris	Erfl	.2			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	T			
Andropogon scoparius	Ansc2	P			
Aristida arizonica	Arar6	T			
Bouteloua curtipendula	Bocu	4			
Bouteloua gracilis	Bogr2	10			
Hilaria jamesii	Hija	T			
Koelaria cristata	Kocr	T			
Oryzopsis hymenoides	Orhy	T			
Poa fendleriana	Pofe	.1			
Sitanion hystrix	Sihy	.5			
Sporobolus cryptandrus	Spcr	.2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 496-Typic Haplustalfs, HSC, 4, 0, fine, mixed, mesic, very cindery loam - Lithic Haplustalfs, HSC, 4, 0, clayey-skeletal, mixed, mesic, very cindery loam complex: 15-40 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex cones and hills. Components formed in residuum from cinder and ash parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1800 to 2100 meters. Delineations are ovoid to circular in shape and vary in size from 25 to 400 hectares. Streams are not present within the map unit. This map unit is characterized by a radial drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	very cindery	4			ME 1950 m	
fine, mixed,	loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Lithic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	30%
---	very cindery	4			ME 1950 m	
clayey-skeletal, mixed,	loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1950 m	
clayey-skeletal, mixed,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1950 m	
fine, mixed,	---	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 **Management Implications.**

3.1

3.2

3.3

3.4

Map Symbol: 496

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
20.7	6.7	9.0	1.9	20.7	4.5	11.0	1.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	30	20	60	0	40	15	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	10	10	25	55	10	5	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	650		
Forage	275	225		
Forage (maximum)	1200	1100		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	8	7		
Potential for:	Rating			
Revegetation	Mod.	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sli.	Sev.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus deppeana	Jude2	T	T		
	Juniperus monosperma	Jumo	20	15		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	20	20		
	Artemisia frigida	Arfr4	T	T		
	Berberis fremontii	Befr	.1	.1		
	Chrysothamnus nauseosus	Chna2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Opuntia polyacantha	Oppo	T	T		
	Opuntia whipplei	Opwh	T	T		
	Rhus trilobata	Rhtr	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja linariaefolia	Cali4	1	1		
	Erigeron flagellaris	Erfl	.2	.2		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	T	T		
	Andropogon scoparius	Ansc2	P	P		
	Aristida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	4	4		
	Bouteloua gracilis	Bogr2	10	10		
	Hilaria jamesii	Hija	T	T		
	Koelaria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	T	T		
	Poa fendleriana	Pofe	.1	.1		
	Sitanion hystrix	Sihy	.5	.5		
	Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 507-Vertic Argiborolls, HSC, 5, -1, fine, montmorillonitic, deep, very gravelly clay loam - Vertic Argiborolls, HSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam complex: 0-15 percent slopes, Chna2/Fear2/Bogr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and linear elevated and lowland plains. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snow fall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2150 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Vertic Argiborolls,	deep	HSC	Chna2/Fear2	Edaphic	MAP 48 cm	60%
---	very gravelly	5	Bogr2	zootic	ME 2050 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Vertic Argiborolls,	moderately deep	HSC	Chna2/Fear2	Edaphic	MAP 48 cm	30%
---	very cobbly	5	Bogr2	zootic	ME 2050 m	
clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Udic Chromusterts,	---	HSC	Chna2/Fear2	Edaphic	MAP 48 cm	10%
---	---	5	Bogr2	zootic	ME 2050 m	
fine, montmorillonitic,	---	-1			MAST 7 C	
frigid	---				MSST 13 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 The physical properties of this map unit produce seasonal surface cracking which causes accelerated drying of subsoils. Management activities which aggravate or reduce protective vegetative ground cover tend to accelerate the degradative effects of the vertic properties which can include uprooting and pushing of rock fragments to the surface.

3.3

3.4

Map Symbol: 507

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
.7	6.7	.4	0.0	1.5	6.7	.9	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	75	0	0	15	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	10	5	45	50	10	5	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	750		
Forage	500	450		
Forage (maximum)	1000	900		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Jude2	2	2		
Potential for:	Rating			
Revegetation	Mod.	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Used	Used		
Mule deer	Used	Used		
Pronghorn	Ess.	Ess.		
Turkey	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus deppeana	Jude2	T	T		
	Pinus ponderosa	Pipo	T	T		
	Artemisia frigida	Arfr4	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Chrysothamnus nauseous	Chna2	2	2		
	Gutierrezia sarothrae	Gusa2	1	1		
	Opuntia whipplei	Opwh	T	T		
	Ribes cereum	Rice	.1	.1		
	Rhus trilobata	Rhtr	.1	.1		
	Achillea millefolium lanulosa	Acmil	.1	.1		
	Antennaria rosulata	Anro3	4	2		
	Castilleja linariaefolia	Cali4	T	T		
	Cirsium wheeleri	Ciwh2	T	T		
	Hymenoxys richardsonii	Hyri	.3	.3		
	Lupinus argenteus	Luar3	.1	.1		
	Agropyron trachycaulum	Agtr	T	T		
	Bouteloua curtipendula	Bocu	T	T		
	Bouteloua gracilis	Bogr2	5	4		
	Festuca arizonica	Fear2	1	1		
	Koeleria cristata	Kocr	.1	.1		
	Muhlenbergia montana	Mumo	T	T		
	Muhlenbergia wrightii	Muwr	T	T		
	Poa fendleriana	Pofe	1	1		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 513-Typic Argiborolls, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, cobbly clay loam - Pachic Argiborolls, LSC, 5, 0, fine, montmorillonitic, deep, loam complex: 0-15 percent slopes, Fear2/Mumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and linear elevated and lowland plains. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 100 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiborolls,	moderately deep	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	50%
---	cobbly	5		fire	ME 2200 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Pachic Argiborolls,	deep	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	30%
---	---	5		fire	ME 2200 m	
fine, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiborolls,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire	ME 2200 m	
fine, montmotillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Pachic Argiborolls,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire	ME 2200 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems (puddling, compaction, rutting, etc.) and soil damage when they are wet.

3.3

3.4

Map Symbol: 513

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.0	6.7	.3	0	1.4	6.7	.4	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	75	0	0	35	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	25	5	40	10	30	5	55								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	2300	2500		
Forage	1200	1600		
Forage (maximum)	2600	2800		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	High		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Mod.		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Used	Used		
Mule deer	Used	Used		
Pronghorn	Ess.	Ess.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Artemisia carruthii	Arca4	.5	.5		
Artemisia frigida	Arfr4	.1	.1		
Ceanothus fendleri	Cefe	T	T		
Chrysothamnus nauseosus	Chna2	3	6		
Ribes cereum	Rice	T	T		
Rosa arizonica	Roar2	P	P		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria rosulata	Anro3	.1	.1		
Eriogonum racemosum	Erra	.1	.1		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	T	T		
Lotus wrightii	Lowr	T	T		
Lupinus argenteus	Luar3	.5	1		
Oxytropis lambertii	Oxla	P	P		
Potenialla anserina	Poan5	.1	.1		
Thalictrum fendleri	Thfe	T	T		
Verbascum thapsus	Veth	.1	.1		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	P	P		
Bromus anomalus	Bran	.3	.3		
Carex	CAREX	.5	.5		
Festuca arizonica	Fear2	20	25		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	15	15		
Muhlenbergia wrightii	Muwr	T	.1		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	2	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 514-Vertic Argiustolls, HSC, 4, 0, fine, montmorillonitic, mesic, deep, very gravelly clay loam - Vertic Argiustolls, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very cobbly clay loam complex: 0-15 percent slopes, Chna2/Bogr2/Hija.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and concave elevated and lowland plains. Components formed from residuum from basaltic parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Vertic Argiustolls,	deep	HSC	Chna2/Bogr2	Edaphic	MAP 40 cm	50%
---	very gravelly	4	Hija		ME 1900 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Vertic Argiustolls,	moderately deep	HSC	Chna2/Bogr2	Edaphic	MAP 40 cm	30%
---	very cobbly	4	Hija		ME 1900 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Chromusterts,	---	HSC	Chna2/Bogr2	Edaphic	MAP 40 cm	10%
---	---	4	Hija		ME 1900 m	
fine, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Argiustolls,	---	HSC	Chna2/Bogr2	Edaphic	MAP 40 cm	10%
---	---	4	Hija		ME 1900 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 & 3.2 Operations which mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and the probability of success of some management activities, such as revegetation.

3.3

3.4

Map Symbol: 514

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.3	6.7	.9	.1	1.3	6.7	.9	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	10	70	0	0	10	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	10	1	49	42	10	0	48								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	700		
Forage	275	275		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Used	Used		
Turkey	Used	Used		
Pronghorn	Ess.	Ess.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	1	1		
Chrysothamnus nauseosus	Chna2	10	10		
Gutierrezia sarothrae	Gusa2	1	1		
Opuntia polyacantha	Oppo	1	1		
Opuntia whipplei	Opwh	.3	.3		
Rhus trilobata	Rhtr	1	1		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	T	T		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	5	5		
Andropogon scoparius	Ansc2	1	1		
Aristida divaricata	Arar6	1	1		
Bouteloua curtipendula	Bocu	10	10		
Bouteloua gracilis	Bogr2	20	20		
Bouteloua hirsuta	Bohi	T	T		
Hilaria jamesii	Hija	10	10		
Oryzopsis hymeniodes	Orhy	1	1		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	5	5		
Sporobolus cryptandrus	Spcr	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 518-Lithic Argiborolls, LSC, 5, 0, clayey-skeletal, montmorillonitic, very cobbly clay loam - Typic Arigiborolls, LSC, 5, 0, fine, montmorillonitic, moderately deep, very cobbly clay loam complex: 0-15 percent slopes, Fear2/Mumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and linear elevated and lowland plains. Components formed from residuum from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and and winters are cold(LSC). Patchy snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2050 to 2250 meters. Delineations are irregular in shape and vary in size from 100 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Argiborolls,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	50%
---	very cobbly	5		fire	ME 2150 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Typic Argiborolls,	moderately deep	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	40%
---	very cobbly	5		fire	ME 2150 m	
fine, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiborolls,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire	ME 2150 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 518

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	4.5	.6	.1	1.5	4.5	.6	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	25	70	0	0	30	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	20	5	20	45	25	5	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1950	2300		
Forage	900	1200		
Forage (maximum)	2500	2650		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	High		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Used	Used		
Mule deer	Used	Used		
Pronghorn	Ess.	Ess.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Mod.		
Wheeled O.R.V.	Mod.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	P	P		
Pinus ponderosa	Pipo	P	P		
Artemisia carruthii	Arca4	.5	.5		
Artemisia frigida	Arfr4	.1	.1		
Ceanothus fendleri	Cefe	T	T		
Chrysothamnus nauseosus	Chna2	2	5		
Quercus gambelii	Quga	P	P		
Ribes cereum	Rice	T	T		
Rosa arizonica	Roar3	P	P		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria rosulata	Anro3	.1	.1		
Eriogonum racemosum	Erra	.1	.1		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	T	T		
Lotus wrightii	Lowr	T	T		
Lupinus argenteus	Luar3	.5	1		
Oxytropis lambertii	Oxla	P	P		
Potentilla anserina	Poan5	.1	.1		
Thalictrum fendleri	Thfe	T	T		
Verbascum thapsus	Veth	.1	.1		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	P	P		
Festuca arizonica	Fear2	15	20		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	10	15		
Muhlenbergia wrightii	Muwr	T	.1		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	2	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 519-Lithic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, very cobbly clay loam - Lithic Argiborolls, LSC, 5, 0, fine, montmorillonitic, very cobbly clay loam complex: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and linear elevated plains. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2000 to 2250 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	50%
---	very cobbly	5			ME 2100 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Lithic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	30%
---	very cobbly	5			ME 2100 m	
fine, montmorillonitic,	clay loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2100 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2100 m	
fine, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 Shallow soil depths and high content of rock fragments throughout the profile will limit management activities.

3.2

3.3

3.4

Map Symbol: 519

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	4.5	.5	0	1.5	4.5	.5	0								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	70	0	0	30	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	5	25	20	45	5	25	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450	475		
Forage	225	225		
Forage (maximum)	2350	2500		
Timber	Site Index			
Pipo	60	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Goshawk	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sev.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Pinus ponderosa	Pipo	55	60		
Quercus gambelii	Quga	5	1		
Berberis repens	Bere	T	T		
Ceanothus fendleri	Cefe	T	T		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	T	T		
Rosa arizonica	Roar2	P	P		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria rosulata	Anro3	.1	.1		
Eriogonum racemosum	Erra	T	T		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	T	T		
Lathyrus arizonica	Laar	T	T		
Lupinus argenteus	Luar3	.5	1		
Oxytropis lambertii	Oxla	.1	.1		
Potentilla anserina	Poan5	T	T		
Pterospora andromedea	Ptan2	P	P		
Thalictrum fendleri	Thfe	T	T		
Verbascum thapsus	Veth	.1	.1		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.1	.1		
Festuca arizonica	Fear2	2	2		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 523-Lithic Argiustolls, LSM, 4, +1, mesic, very cobbly loam - Typic Argiustolls, LSM, 4, +1, mesic, moderately deep, very cobbly loam - Rock Outcrop complex: 15-120 percent slopes, Pimo/Jude2/Qutu2/Arpu5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to extremely steep complex concave and convex escarpments. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 52 to 56 centimeters; mean annual air temperature ranges from 8 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are mild (LSM). Snow cover does not normally exist. Mean annual snowfall is 40 centimeters with no accumulation. The freeze free period is 200 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 25 to 100 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Argiustolls,	---	LSM	Pimo/Jude2/	Topo-	MAP 56 cm	40%
---	very cobbly	4	Qutu2/Arpu5	edaphic	ME 1900 m	
---	loam	+1			MAST 13 C	
mesic	---				MSST --- C	
2.2 Typic Argiustolls,	moderately deep	LSM	Pimo/Jude2/	Topo-	MAP 56 cm	30%
---	very cobbly	4	Qutu2/Arpu5	edaphic	ME 1900 m	
---	loam	+1			MAST 13 C	
mesic	---				MSST --- C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustalfs,	---	LSM	Pimo/Jude2/	Topo-	MAP 56 cm	10%
---	---	4	Qutu2/Arpu5	edaphic	ME 1900 m	
---	---	+1			MAST 13 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Steep slopes, surface rock fragments and rock outcrops limit most management activities.

3.3

3.4

Map Symbol: 523

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
44.0	4.5	17.2	3.8	44.0	4.5	17.2	3.8								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	20	60	0	45	20	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	15	5	25	50	15	5	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	650		
Forage	100	150		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	5	5		
Juniperus osteosperma	Juos	1	1		
Pinus monophylla	Pimo	5	5		
Quercus arizonica	Quar	1	1		
Agave	AGAVE	T	T		
Arctostaphylos Pringlei	Arpr	4	4		
Arctostaphylos pungens	Arpu5	15	15		
Baccharis pteronoides	Bapt2	.1	.1		
Cercocarpus montanus	Cemo2	3	3		
Cowania mexicana stansburiana	Comes	T	T		
Garrya Wrightii	Gawr3	2	2		
Mimosa biuncifera	Mibi3	T	T		
Nolina microcarpa	Nomi	3	3		
Opuntia spinosior	Opsp	T	T		
Quercus turbinella	Qutu2	15	15		
Rhamnus crocea ilicifolia	Rhcri	T	T		
Rhus ovata	Rhov	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Yucca elata	Yuel	2	2		
Yucca schottii	Yusc	T	T		
Astragalus	ASTRA	T	T		
Eriogonum	ERIOG	1	1		
Eriogonum Wrightii	Erwr	1	1		
Psoralea tenuiflora	Pste3	1	1		
Agropyron smithii	Agsm	.1	.1		
Andropogon scoparius	Ansc2	.1	.1		
Bouteloua curtipendula	Bocu	.1	.1		
Bouteloua gracilis	Bogr2	1	1		
Eragrostis intermedia	Erin	3	3		
Koeleria cristata	Kocr	.1	.1		
Lycurus phleoides	Lyph	.1	.1		
Muhlenbergia longiligula	Mulo	.5	.5		
Muhlenbergia montana	Mumo	.5	.5		
Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 525-Typic Argiborolls, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, very cobbly loam - Typic Argiborolls, LSC, 5, 0, fine, montmorillonitic, moderately deep, very cobbly loam - Rock Outcrop complex: 15-40 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple concave and convex escarpments. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2250 meters. Delineations are elongated in shape and vary in size from 20 to 200 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiborolls,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	40%
---	very cobbly	5			ME 2150 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Typic Argiborolls,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	25%
---	very cobbly	5			ME 2150 m	
fine, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3 Rock Outcrop					MAP cm	25%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2150 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems and soil damage when they are wet. Activities should be restricted to periods when the soil is dry, frozen or snow packed. Revegetation potential and topsoil are rated low or poor due to the high surface rock content.

3.3

3.4

Map Symbol: 525

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
35.5	6.7	8.4	.8	35.5	6.7	8.4	.8								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	43	35	85	0	43	35	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	5	30	15	45	5	30	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	525	525		
Forage	275	275		
Forage (maximum)	2650	2650		
Timber	Site Index			
Pipo	75	75		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Goshawk	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sli.	Sli.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus deppeana	Jude2	P	P		
	Pinus ponderosa	Pipo	55	55		
	Quercus gambelii	Quga	10	10		
	Berberis repens	Bere	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Quercus gambelii	Quga	5	5		
	Ribes cereum	Rice	T	T		
	Robinia neomexicana	Rone	5	5		
	Rosa arizonica	Roar3	P	P		
	Achillea millefolium lanulosa	Acmil	.1	.1		
	Antennaria rosulata	Anro3	T	T		
	Eriogonum racemosum	Erra	T	T		
	Erigeron speciosus	Ersp4	T	T		
	Geranium caespitosum	Geca3	T	T		
	Gilia aggregata	Giag	T	T		
	Lathyrus arizonica	Laar	T	T		
	Lupinus argenteus	Luar3	.5	.5		
	Oxytropis lambertii	Oxla	.2	.2		
	Potentilla anserina	Poan5	T	T		
	Pterospora andromedea	Ptan2	P	P		
	Thalictrum fendleri	Thfe	.1	.1		
	Verbascum thapsus	Veth	.1	.1		
	Agropyron trachycaulum	Agtr	T	T		
	Blepharoneuron tricholepis	Bltr	.1	.1		
	Festuca arizonica	Fear2	2	3		
	Koeleria cristata	Kocr	T	T		
	Muhlenbergia montana	Mumo	1	2		
	Poa fendleriana	Pofe	1	1		
	Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 537-Mollic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam - Typic Argiborolls, LSC, 5, 0, fine, montmorillonitic, cobbly clay loam complex: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of Multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and linear elevated plains. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 50 to 1000 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic draingage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Mollic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	45%
	---	very cobbly	5			ME 2150 m	
	clayey-skeletal, montmorillonitic,	clay loam	0			MAST 6 C	
	---	---				MSST 12 C	
2.2	Typic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	35%
	---	cobbly	5			ME 2150 m	
	fine, montmorillonitic,	clay loam	0			MAST 6 C	
	---	---				MSST 12 C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Mollic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
	---	---	5			ME 2150 m	
	fine, montmorillonitic,	---	0			MAST 6 C	
	---	---				MSST 12 C	
2.6	Typic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
	---	---	5			ME 2150 m	
	clayey-skeletal, montmorillonitic,	---	0			MAST 6 C	
	---	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems and soil damaage when they are wet. Activities should be restricted to periods when the soil is dry, frozen or snow packed. The clays are shrink/swell clays and this will need to be considered for structures, paved roads, foundations.

3.3

3.4

Map Symbol: 537

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	6.7	.3	0	2.3	6.7	.3	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	45	85	0	0	50	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	5	40	15	30	10	40	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	525		
Forage	250	275		
Forage (maximum)	2500	2650		
Timber	Site Index			
Pipo	70	75		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	High		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Fair		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Ess.	Ess.		
Goshawk	Ess.	Ess.		
Elk	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sli.	Sli.		
Plant Competition	Mod.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	P	P		
Pinus ponderosa	Pipo	60	65		
Quercus gambelii	Quga	5	1		
Berberis repens	Bere	T	T		
Ceanothus fendleri	Cefe	T	T		
Quercus gambelii	Quga	5	1		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	T	T		
Rosa arizonica	Roar2	P	P		
Achillea millefolium lanulosa	Acmil	.3	1		
Antennaria rosulata	Anro3	.1	.1		
Eriogonum racemosum	Erra	T	T		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	T	T		
Lathyrus arizonica	Laar	T	T		
Lupinus argenteus	Luar3	.5	1		
Oxytropis lambertii	Oxla	.2	.2		
Potentilla anserina	Poan5	T	T		
Pterospora andromedea	Ptan2	P	P		
Thalictrum fendleri	Thfe	T	T		
Verbascum thapsus	Veth	.1	.1		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.1	.1		
Festuca arizonica	Fear2	4	5		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	2	3		
Poa fendleriana	Pofe	2	2		
Poa pratensis	Popr	T	T		
Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 539-Typic Argiborolls, LSC, 5, moderately deep, very cobbly loam - Rock Outcrop complex: 40-120 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in colluvium over residuum from basaltic parent materials. Mean annual precipitation ranges from 46 to 56 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2300 to 2500 meters. Delineations are elongated in shape and vary in size from 20 to 200 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiborolls,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	50%
---	very cobbly	5			ME 2400 m	
---	loam				MAST 6 C	
---	---				MSST 12 C	
2.2 Rock Outcrop					MAP cm	40%
(Basalt)					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Argiborolls,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Steep slopes, surface rock fragments and exposures of rock outcrops limit most management activities.

3.2

3.3

3.4

Map Symbol: 539

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
62.0	6.7	18.5	4.4												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	52	30	65												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
65	10	20	5												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	225			
Forage (maximum)	1800			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Abert squirrel	Ess.			
Elk	Ess.			
Turkey	Ess.			
Pygmy nuthatch	Imp.			
Mule deer	Ess.			
Limitations For:				
Timber Harvest	Sev.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Sev.			
Windthrow	Mod.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	1			
PInus ponderosa	Pipo	50			
Berberis repens	Bere	T			
Ceanothus fendleri	Cefe	T			
Quercus gambelii	Quga	10			
Ribes cereum	Rice	T			
Robinia neomexicana	Rone	10			
Achillea millefolium lanulosa	Acmil	2			
Antennaria rosulata	Anro3	.3			
Erigeron speciosus	Ersp4	T			
Geranium caespitosum	Geca3	T			
Lupinus argenteus	Luar3	5			
Pterospora andromedea	Ptan2	T			
Agropyron trachycaulum	Agtr	T			
Blepharoneuron tricholepis	Bltr	.2			
Koeleria cristata	Kocr	1			
Muhlenbergia montana	Mumo	2			
Poa fendleriana	Pofe	3			
Poa pratensis	Popr	T			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 540-Typic Eutrochrepts, LSM, 6, -1, frigid, moderately deep, stony very fine sandy loam - Udic Haploborolls, LSM, 6, -1, moderately deep, stony very fine sandy loam - Rock Outcrop association: 40-120 percent slopes, Psmeg/Pipo/Jude2/Qutu2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur on steep to very steep complex concave and convex canyon escarpments. The components formed in colluvium over residuum of sandstone parent materials. Mean annual precipitation ranges from 68 to 72 centimeters; mean annual air temperature ranges from 4 to 5 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March. Mean annual snowfall is 170 centimeters and mean annual snow accumulation is 30 centimeters. The freeze free period is 150 days. Elevations range from 1500 to 1900 meters. Delineations are irregular in shape and vary in size from 25 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutrochrepts,	moderately deep	LSM	Psmeg/Pipo/	Topo-	MAP 70 cm	35%
---	stony	6	Jude2/Qutu2	edaphic	ME 1650 m	
---	very fine sandy loam	-1			MAST 8 C	
frigid	---				MSST 12 C	
2.2 Udic Haploborolls,	moderately deep	LSM	Psmeg/Pipo/	Topo-	MAP 70 cm	30%
---	stony	6	Jude2/Qutu2	edaphic	ME 1650 m	
---	very fine sandy loam	-1			MAST 8 C	
---	---				MSST 12 C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Udic Argiborolls,	---	LSM	Psmeg/Pipo/	Topo-	MAP 70 cm	15%
---	---	6	Jude2/Qutu2	edaphic	ME 1650 m	
---	---	-1			MAST 8 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Most of this mapping unit falls within Wilderness Area boundaries. The steep slopes, high percentage of rock fragments on the surface and throughout the profile, and rock outcrops will limit management activities.

3.3

3.4

Map Symbol: 540

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
140.5	6.7	12.7	3.1	140.5	6.7	19.5	3.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	75	60	85	0	75	50	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
28	2	65	5	45	2	45	8								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	300		
Forage	50	50		
Forage (maximum)	1000	1000		
Timber	Site Index			
Psmeg	55	65		
Pipo	45	55		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus deppeana	Jude2	4	4		
	Pinus ponderosa	Pipo	45	45		
	Pseudotsuga menziesii glauca	Psmeg	25	25		
	Quercus arizonica	Quar	1	1		
	Quercus gambelii	Quga	T	T		
	Arctostaphylos pungens	Arpu5	2	2		
	Ceanothus fendleri	Cefe	2	2		
	Cercoparpus montana	Cemo	1	1		
	Nolina microcarpa	Nomi	T	T		
	Robinia neomexicana	Rone	1	1		
	Yucca baccata	Yuba	1	1		
	Achillea millefolium lanulosa	Acmil	6	6		
	Pteridium aquilinum	Ptaq	5	5		
	Koeleria cristata	Kocr	T	T		
	Leptochloa dubia	Ledu	T	T		
	Muhlenbergia montana	Mumo	2	2		
	Poa fendleriana	Pofe	1	1		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 541-Typic Ustorthents, LSM, 4, +1, mesic - Lithic Ustorthents, LSM, 4, +1, mesic - Rock Outcrop association: 40-120 percent slopes, Pimo/Jude2/Qutu2/Arpu5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 .2 and .3 occur on steep to extremely steep complex concave and convex canyon escarpments. Components formed in colluvium over residual sandstone parent materials. Mean annual precipitation ranges from 52 to 56 centimeters; mean annual air temperature ranges from 8 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are mild(LSM). Snow cover does not normally exist. Mean annual snowfall is 40 centimeters with no accumulation. The freeze free period is 200 days. Elevations range from 1450 to 1850 meters. Delineations are irregular in shape and vary in size from 25 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Ustorthents,	---	LSM	Pimo/Jude2/	Topo-	MAP 56 cm	30%
---	---	4	Qutu2/Arpu5	edaphic	ME 1650 m	
---	---	+1			MAST 13 C	
mesic	---				MSST --- C	
2.2 Lithic Ustorthents,	---	LSM	Pimo/Jude2/	Topo-	MAP 56 cm	20%
---	---	4	Qutu2/Arpu5	edaphic	ME 1650 m	
---	---	+1			MAST 13 C	
mesic	---				MSST --- C	
2.3 Rock Outcrop					MAP cm	40%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiustolls,	---	LSM	Pimo/Jude2/	Topo-	MAP 56 cm	10%
---	---	4	Qutu2/Arpu5	edaphic	ME 1650 m	
---	---	+1			MAST 13 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Most of this mapping unit falls within Wilderness Area boundaries. Steep slopes and high rock fragment content restrict most management activities.

3.2 Most of this mapping unit falls within Wilderness Area boundaries. Steep slopes, shallow depths, and high rock fragment content restrict most management activities.

3.3

3.4

Map Symbol: 541

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
48.9	6.7	25.9	5.4	48.9	4.5	25.9	5.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	15	55	0	60	15	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
65	10	5	20	65	5	10	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	650	600		
Forage	150	100		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus deppeana	Jude2	T	T		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	5	2		
	Quercus arizonica	Quar	T	T		
	Agave	AGAVE	T	T		
	Arctostaphylos Pringlei	Arpr	4	4		
	Arctostaphylos pungens	Arpu5	15	15		
	Baccharis pternoides	Bapt2	.1	.1		
	Cercocarpus montanus	Cemo2	3	3		
	Cowania mexicana stansburiana	Comes	T	T		
	Garrya Wrightii	Gawr3	2	2		
	Mimosa biuncifera	Mibi3	T	T		
	Nolina microcarpa	Nomi	3	3		
	Opuntia spinosior	Opsp	T	T		
	Quercus turbinella	Qutu2	15	15		
	Rhamnus crocea ilicifolia	Rhcri	T	T		
	Rhus ovata	Rhov	T	T		
	Rhus trilobata	Rhtr	T	T		
	Yucca baccata	Yuba	T	T		
	Yucca elata	Yuel	2	2		
	Astragalus	ASTRA	T	T		
	Eriogonum	ERIOG	1	1		
	Eriogonum Wrightii	Erwr	1	1		
	Psoralea tenuiflora	Pste3	1	1		
	Agropyron smithii	Agsm	.1	.1		
	Andropogon scoparius	Ansc2	.1	.1		
	Bouteloua curitpendula	Bocu	.1	.1		
	Bouteloua gracilis	Bogr2	1	1		
	Eragrostis intermedia	Erin	3	3		
	Koeleria cristata	Kocr	.1	.1		
	Lycurus phleoides	Lyph	.1	.1		
	Muhlenbergia longiligula	Mulo	.5	.5		
	Muhlenbergia montana	Mumo	.5	.5		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 542-Vertic Argiustolls, HSC, 4, 0, fine, montmorillonitic, mesic, gravelly clay loam - Udic Chromusterts, HSC, 4, 0, fine, montmorillonitic, mesic, deep clay complex: 0-15 percent slopes, Chna2/Bogr2/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not spearable. It occurs on nearly level to moderately sloping complex concave and convex lowland and elevated plains and swales. Mean annual precipitation ranges fro 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1550 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 150 hectares. Ephemeral streams are present in the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Vertic Argiustolls,	---	HSC	Chna2/Bogr2	Topo-	MAP 40 cm	50%
---	gravelly	4	Pied	edaphic	ME 1850 m	
fine, montmorillonitic,	clay loam	0		zootic	MAST 10 C	
mesic	---				MSST --- C	
2.2 Udic Chromusterts,	deep	HSC	Chna2/Bogr2	Topo-	MAP 40 cm	40%
---	---	4	Pied	edaphic	ME 1850 m	
fine, montmorillonitic,	clay	0		zootic	MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Vertic Argiustolls,	---	HSC	Chna2/Bogr2	Topo-	MAP 40 cm	10%
---	---	4	Pied	edaphic	ME 1850 m	
clayey-skeletal, montmorillonitic,	---	0		zootic	MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems and soil damage when they are wet. The problems can be avoided by restricting activities to when soils are dry. Operations which mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and the probability of success of some management activities, such as revegetation.

3.3

3.4

Map Symbol: 542

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.0	6.7	.9	.1	1.3	6.7	.9	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	20	65	0	0	10	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	20	0	35	40	10	0	50								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	675		
Forage	275	250		
Forage (maximum)	1200	1175		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name		T	T		
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	T	T		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	T	T		
Artemisia frigida	Arfr4	T	T		
Chrysothamnus nauseosus	Chna2	10	5		
Gutierrezia sarothrae	Gusa2	1	1		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	T	T		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	5	5		
Andropogon scoparius	Ansc2	1	1		
Aristida divaricata	Ardi5	1	1		
Bouteloua curtipendula	Bocu	10	10		
Bouteloua gracilis	Bogr2	20	20		
Bouteloua hirsuta	Bohi	T	T		
Hilaria jamesii	Hija	10	10		
Oryzopsis hymenoides	Orhy	1	1		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	5	5		
Sporobolus cryptandrus	Spcr	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 543-Vertic Haplustalfs, HSC, 4, 0, fine, montmorillonitic, mesic, gravelly clay loam - Vertic Argiustolls, HSC, 4, 0, fine, montmorillonitic, mesic, moderately deep, very gravelly clay loam complex: 0-15 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping complex concave and convex elevated and lowland plains. Components formed in residuum from basaltic parent materials. Mean annual pecipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary is size from 20 to 700 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Vertic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	60%
---	very gravelly	4			ME 1850 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Vertic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	35%
---	very gravelly	4			ME 1850 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Udic Chromusterts,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	5%
---	---	4			ME 1850 m	
fine, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Operations that mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and the probability of success of some management activities, such as revegetation. The shrink/swell and vertic properties of the clay should be considered for any buildings or other structures.

3.3

3.4

Map Symbol: 543

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.3	6.7	.7	.1	1.3	6.7	.7	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	55	0	0	15	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
60	4	13	23	65	5	8	22								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	700		
Forage	350	275		
Forage (maximum)	1200	1350		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	8	8		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	20	20		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	15	15		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	T	T		
Chrysothamnus nauseosus	Chna2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	T	T		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	4	4		
Bouteloua gracilis	Bogr2	10	10		
Hilaria jamesii	Hija	T	T		
Koelaria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	.1	.1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 563-Mollic Eutroboralfs, HSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam - Typic Argiborolls, HSC, 5, -1, fine, montmorillonitic, cobbly clay loam complex: 0-15 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping complex concave and convex elevated and lowland plains. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2150 meters. Delineations are irregular in shape and vary in size from 20 to 600 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	45%
---	very cobbly	5	Quga		ME 2100 m	
clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Typic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	35%
---	cobbly	5	Quga		ME 2100 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2100 m	
fine, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Lithic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2100 m	
clayey-skeletal, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems and soil damage when they are wet. Activities should be restricted to periods when the soil is dry, frozen or snow packed. Activities which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects.

3.3

3.4

Map Symbol: 563

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	6.7	.5	.1	2.3	6.7	.6	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	70	0	0	35	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	10	20	15	30	15	20	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	800	825		
Forage	175	200		
Forage (maximum)	2000	2100		
Timber	Site Index			
Pipo	55	60		
Fuelwood	cd/ac			
Jude2	4	6		
Potential for:	Rating			
Revegetation	Mod.	High		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Mule deer	Used	Used		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	10	10		
Juniperus monosperma	Jumo	2	2		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	10	10		
Pinus ponderosa	Pipo	30	30		
Quercus gambelii	Quga	T	T		
Artemisia frigida	Arfr4	T	T		
Ceanothus fendleri	Cefe	T	T		
Cercocarpus montanus	Cemo2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Quercus gambelii	Quga	T	T		
Rhus trilobata	Rhtr	.1	.1		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria rosulata	Anro3	T	T		
Castilleja linariaefolia	Cali4	T	T		
Erigeron speciosus	Ersp4	P	P		
Hymenoxys richardsonii	Hyri	T	T		
Lupinus argenteus	Luar3	3	3		
Pterospora andromedea	Ptan2	P	P		
Agropyron trachycaulum	Agtr	P	P		
Blepharoneuron tricholepis	Bltr	.1	.1		
Bouteloua curtipendula	Bocu	.1	.1		
Bouteloua gracilis	Bogr2	5	5		
Festuca arizonica	Fear2	1	1		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	.5	.5		
Poa fendleriana	Pofe	3	3		
Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 564-Typic Argiborolls, HSC, 5, -1, clayey-skeletal, montmorillonitic, moderately deep, very cobbly clay loam - Typic Argiborolls, HSC, 5, -1, fine, montmorillonitic, moderately deep, cobbly clay loam - Rock Outcrops complex: 15-40 percent slopes, Pipi/Pied/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex escarpments. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulaiton is 15 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2150 meters. Delineations are elongated in shape and vary in size from 15 to 100 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiborolls,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	40%
---	very cobbly	5	Quga		ME 2100 m	
clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Typic Argiborolls,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	30%
---	cobbly	5	Quga		ME 2100 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3 Rock Outcrops					MAP cm	30%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	---	5	Quga		ME 2100 m	
clayey-skeletal, montmorillonitic,	---	-1			MAST 7 C	
---	---				MSST 13 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems and soil damage when they are wet. Activities should be restricted to periods when the soil is dry, frozen, or snow packed. Activities which mix the clayey subsoil with the surface horizon will reduce site productivity and probability of success for projects.

3.3

3.4

Map Symbol: 564

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
30.6	6.7	9.0	1.7	45.8	6.7	13.4	2.5								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	40	30	70	0	50	30	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	10	20	15	30	15	15	40								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	825	825		
Forage	200	200		
Forage (maximum)	2100	2100		
Timber	Site Index			
Pipo	60	60		
Fuelwood	cd/ac			
Jude2	4	4		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Mule deer	Used	Used		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus deppeana	Jude2	10	10		
	Juniperus monosperma	Jumo	2	2		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	10		
	Pinus ponderosa	Pipo	30	30		
	Quercus gambelii	Quga	T	T		
	Artemisia frigida	Arfr4	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Quercus gambelii	Quga	T	T		
	Rhus trilobata	Rhtr	.1	.1		
	Achillea millefolium lanulosa	Acmil	1	1		
	Antennaria rosulata	Anro3	T	T		
	Castilleja linariaefolia	Cali4	T	T		
	Erigeron speciosus	Ersp4	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Lupinus argenteus	Luar3	3	3		
	Pterospora andromedea	Ptan2	T	T		
	Agropyron trachycaulum	Agtr	P	P		
	Blepharoneuron tricholepis	Bltr	.1	.1		
	Bouteloua curtipendula	Bocu	.1	.1		
	Bouteloua gracilis	Bogr2	5	5		
	Festuca arizonica	Fear2	1	1		
	Koeleria cristata	Kocr	T	T		
	Muhlenbergia montana	Mumo	.5	.5		
	Poa fendleriana	Pofe	T	T		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 565-Lithic Argiborolls, HSC, 5, -1, clayey-skeletal, montmorillonitic, very cobbly clay loam - Lithic Argiborolls, HSC, 5, -1, fine, montmorillonitic, very cobbly clay loam complex: 0-15 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and linear elevated and lowland plains. Components formed from residuum from basaltic parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(HSC). Patchy snow cover normally exists from 01 November to 01 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2000 to 2150 meters. Delineations are irregular in shape and vary in size from 20 to 600 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 48 cm	50%
---	very cobbly	5	Quga		ME 2050 m	
clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Lithic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 48 cm	40%
---	very cobbly	5	Quga		ME 2050 m	
fine, montmorillonitic,	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralfs,	---	HSC	Pipo/Pied/	Edaphic	MAP 48 cm	10%
---	very cobbly	5	Quga		ME 2050 m	
clayey-skeletal, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Shallow depths and large percentage of cobbles on the surface will restrict most management activities.

3.3

3.4

Map Symbol: 565

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	4.5	.9	.1	1.5	4.5	.9	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	65	0	0	15	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	10	5	45	40	10	5	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	600		
Forage	175	175		
Forage (maximum)	1000	1000		
Timber	Site Index			
Pipo	45	45		
Fuelwood	cd/ac			
Pied/Jumo	4	4		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Mule deer	Used	Used		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sev.	Sev.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	5	5		
Juniperus monosperma	Jumo	2	2		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	7	7		
Pinus ponderosa	Pipo	20	20		
Quercus gambelii	Quga	T	T		
Artemisia frigida	Arfr4	T	T		
Ceanothus fendleri	Cefe	T	T		
Cercocarpus montanus	Cemo2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Quercus gambelii	Quga	2	2		
Rhus trilobata	Rhtr	T	T		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria rosulata	Anro3	T	T		
Castilleja linariaefolia	Cali4	T	T		
Erigeron speciosus	Ersp4	P	P		
Hymenoxys richardsonii	Hyri	T	T		
Lupinus argenteus	Luar3	3	3		
Pterospora andromedea	Ptan2	P	P		
Agropyron trachycaulum	Agtr	P	P		
Blepharoneuron tricholepis	Bltr	.1	.1		
Bouteloua curtipendula	Bocu	.1	.1		
Bouteloua gracilis	Bogr2	5	5		
Festuca arizonica	Fear2	1	1		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	.5	.5		
Poa fendleriana	Pofe	3	3		
Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 586-Typic Argiustolls, HSC, 4, 0, fine, montmorillonitic, mesic, very gravelly clay loam - Typic Argiustolls, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very cobble clay loam complex: 0-15 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping complex concave and convex elevated and lowland plains. Components formed from residuum from basaltic parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 800 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	40%
---	very gravelly	4			ME 1900 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	40%
---	very cobbly	4			ME 1900 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1900 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Vertic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	---	4			ME 1900 m	
fine, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 Shallow depth to clay subsoil may restrict some management acitivites such as unsurfaced roads and mechanical treatment for revegetation purposes.

3.2 Surface rock fragments preclude most mechanical activities for treatment for revegetation purposes.

3.3

3.4

Map Symbol: 586

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.3	6.7	.5	.1	1.3	6.7	.5	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	20	70	0	0	20	70								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	10	10	30	55	10	10	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	750	750		
Forage	300	300		
Forage (maximum)	1300	1300		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	9	9		
Potential for:	Rating			
Revegetation	Mod.	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Mod.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	20	20		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	25	25		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	.1	.1		
Chrysothamnus nauseosus	Chna2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.2	.2		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	4	4		
Bouteloua gracilis	Bogr2	10	10		
Hilaria jamesii	Hija	T	T		
Koelaria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	.1	.1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 587-Lithic Argiustolls, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, very cobbly clay loam - Vertic Argiustolls, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very cobbly clay loam complex: 0-15 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping simple convex and linear elevated plains and hills. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Argiustolls,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	50%
---	very cobbly	4			ME 1850 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Vertic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	30%
---	very cobbly	4			ME 1850 m	
clayey-skeletal, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Vertic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	very cobbly	4			ME 1850 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Vertic Haplustalfs,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
---	very cobbly	4			ME 1850 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 Shallow depth and surface rock fragments will restrict most mechanical activities. Shallow depth to the clayey subsoil can cause trafficability problems when the soil is wet.

3.2 These soils are subject to trafficability problems and soil damage when wet. Activities should be restricted to periods when the soils are dry.

3.3

3.4

Map Symbol: 587

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.3	4.5	.6	.1	1.3	6.7	.8	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	20	60	0	0	10	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	8	12	30	60	8	2	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	600		
Forage	225	250		
Forage (maximum)	1100	1100		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	6	8		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus deppeana	Jude2	T	T		
	Juniperus monosperma	Jumo	15	20		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	15		
	Artemisia frigida	Arfr4	T	T		
	Berberis fremontii	Befr	T	T		
	Chrysothamnus nauseosus	Chna2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Opuntia polyacantha	Oppo	T	T		
	Opuntia whipplei	Opwh	T	T		
	Rhus trilobata	Rhtr	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja linariaefolia	Cali4	1	1		
	Erigeron flagellaris	Erfl	.2	.2		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	T	T		
	Andropogon scoparius	Ansc2	P	P		
	Aristida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	4	4		
	Bouteloua gracilis	Bogr2	10	10		
	Hilaria jamesii	Hija	1	1		
	Koelaria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	T	T		
	Poa fendleriana	Pofe	.1	.1		
	Sitanion hystrix	Sihy	.5	.5		
	Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 589-Typic Argiustolls, HSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, very cobbly clay loam - Typic Argiustolls, HSC, 4, 0, fine, montmorillonitic, mesic, moderately deep, very cobbly clay loam -Rock Outcrops complex: 15-40 percent slopes, Pied/Jumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex escarpments. Components formed in residuum from basaltic parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters. Elevations range from 1750 to 2050 meters. Delineations are elongated in shape and vary in size from 15 to 100 hectares. Streams are not present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Typic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	35%
	---	very cobbly	4			ME 1950 m	
	clayey-skeletal, montmorillonitic,	clay loam	0			MAST 10 C	
	mesic	---				MSST --- C	
2.2	Typic Argiustolls,	moderately deep	HSC	Pied/Jumo	Edaphic	MAP 40 cm	35%
	---	very cobbly	4			ME 1950 m	
	fine, montmorillonitic,	clay loam	0			MAST 10 C	
	mesic	---				MSST --- C	
2.3	Rock Outcrops					MAP cm	20%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Lithic Haplustalfs,	---	HSC	Pied/Jumo	Edaphic	MAP 40 cm	10%
	---	---	4			ME 1950 m	
	clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
	mesic	---				MSST --- C	
2.6						MAP cm	%
						ME m	
						MAST C	
						MSST C	

3.0 Management Implications.

3.1 & 3.2 Components have moderate sheet and rill erosion hazard and are susceptible to gully erosion. Slope and surface rock fragments restrict most management activities.

3.3

3.4

Map Symbol: 589

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
20.0	6.7	8.5	1.8	20.0	6.7	8.5	1.8								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	25	20	60	0	25	20	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
55	10	10	25	50	15	5	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	750	750		
Forage	300	300		
Forage (maximum)	1300	1300		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	9	9		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	20	20		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	20	20		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	.1	.1		
Chrysothamnus nauseosus	Chna2	T	T		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.2	.2		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	T	T		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	4	4		
Bouteloua gracilis	Bogr2	10	10		
Hilaria jamesii	Hija	T	T		
Koeleria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	T	T		
Poa fendleriana	Pofe	.1	.1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	.2	.2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 591-Petrocalcic Calciustolls, HSC, 4, 0, loamy, carbonatic, mesic, shallow, very gravelly loam - Typic Calciustolls, HSC, 4, 0, fine-loamy, carbonatic, mesic, very gravelly loam complex: 0-15 percent slopes Atca2/Stco4/Bogr2/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping simple linear and convex elevated plains. Components formed in residuum from basaltic parent materials with secondary calcium carbonate accumulations. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Petrocalcic Calciustolls, --- loamy, carbonatic, mesic	shallow very gravelly loam ---	HSC 4 0	Atca2/Stco4 Bogr2/Pied	Edaphic zootic	MAP 40 cm ME 1900 m MAST 10 C MSST --- C	50%
2.2 Typic Calciustolls, --- fine-loamy, carbonatic, mesic	--- very gravelly loam ---	HSC 4 0	Atca2/Stco4 Bogr2/Pied	Edaphic zootic	MAP 40 cm ME 1900 m MAST 10 C MSST --- C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Petrocalcic Calciustolls, --- loamy-skeletal, carbonatic, mesic	shallow very gravelly loam ---	HSC 4 0	Atca2/Stco4 Bogr2/Pied	Edaphic zootic	MAP 40 cm ME 1900 m MAST 10 C MSST --- C	10%
2.6 Typic Calciustolls, --- loamy-skeletal, carbonatic, mesic	--- very gravelly loam ---	HSC 4 5	Atca2/Stco4 Bogr2/Pied	Edaphic zootic	MAP 40 cm ME 1900 m MAST 10 C MSST --- C	10%

3.0 **Management Implications.**

3.1 Limitation for this soil are associated with the restrictive layer which occurs at shallow depths and is impenetrable to roots.

3.2

3.3

3.4

Map Symbol: 591

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.0	4.5	1.1	.1	2.0	6.7	1.3	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	75	0	0	10	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
38	15	2	45	42	8	1	49								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	550	600		
Forage	225	275		
Forage (maximum)	1100	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Promghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sli.		
Unsurfaced Roads	Sev.	Sli.		
Trails	Sev.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus monosperma	Jumo	2	2		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	2	2		
Artemisia frigida	Arfr4	T	T		
Atriplex canescens	Atca2	1	1		
Cowania mexicana stansburiana	Comes	T	T		
Eurotia lanata	Eula5	3	3		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Purshia tridentata	Putr2	T	T		
Yucca baccata	Yuba	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	8	8		
Bouteloua gracilis	Bogr2	20	20		
Koeleria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	1	1		
Poa fendleriana	Pofe	T	T		
Sitanion hystrix	Sihy	2	2		
Sporobolus cryptandrus	Spcr	2	2		
Stipa comata	Stco4	10	10		
Stipa neomexicana	Stne2	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 592-Typic Calciustolls, HSC, 4, 0, fine-loamy, carbonatic, mesic, very gravelly loam - Petrocalcic Calciustolls, HSC, 4, 0, loamy, carbonatic, mesic, shallow, very gravelly loam complex: 0-15 percent slopes, Pied/Jumo/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated and lowland plains. Components formed from basaltic parent materials with secondary calcium carbonate accumulations. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Calciustolls, --- fine-loamy, carbonatic, mesic	--- very gravelly loam ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	MAP 40 cm ME 1900 m MAST 10 C MSST --- C	50%
2.2 Petrocalcic Calciustolls, --- loamy, carbonatic, mesic	shallow very gravelly loam ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	MAP 40 cm ME 1900 m MAST 10 C MSST --- C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Calciustolls, --- loamy-skeletal, carbonatic, mesic	--- very gravelly loam ---	HSC 4 0	Pied/Jumo/ Stco4	Edaphic	MAP 40 cm ME 1900 m MAST 10C MSST ---C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 A pH of 8 is common in the subsurface horizons.

3.2 Limitations for this component are associated with the restrictive layer which occurs at shallow depths and is impenetrable to roots. A pH of 8 is common.

3.3

3.4

Map Symbol: 592

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.0	6.7	1.1	.1	2.0	4.5	1.1	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	15	65	0	0	15	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
48	8	7	37	48	9	5	38								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	550		
Forage	275	225		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Jumo	7	5		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Used	Used		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sev.		
Unsurfaced Roads	Sli.	Sev.		
Trails	Sli.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus monosperma	Jumo	15	10		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	8		
	Artemisia frigida	Arfr4	T	T		
	Atriplex canescens	Atca2	T	T		
	Cowania mexicana stansburiana	Comes	2	2		
	Eurotia lanata	Eula5	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Opuntia polyacantha	Oppo	T	T		
	Opuntia whipplei	Opwh	T	T		
	Purshia tridentata	Putr2	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja linarieafolia	Cali4	1	1		
	Erigeron flagellaris	Erfl	.5	.5		
	Hymenoxys richardsonii	Hyri	T	T		
	Artistida arizonica	Arar6	T	T		
	Bouteloua curtipendula	Bocu	4	4		
	Bouteloua gracilis	Bogr2	6	6		
	Koeleria cristata	Kocr	T	T		
	Oryzopsis hymenoides	Orhy	T	T		
	Poa fendleriana	Pofe	T	T		
	Sitanion hystrix	Sihy	1	1		
	Sporobolus cryptandrus	Spcr	1	1		
	Stipa comata	Stco4	3	3		
	Stipa neomexicana	Stne2	2	2		

1.0 Date. 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 599-Typic Argiustolls, HSC, 4, 0, fine, montmorillonitic, mesic, very gravelly clay loam - Typic Argiustolls, HSC, 4, 0, fine-loamy, mixed, mesic, very gravelly loam complex: 0-15 percent slopes, Bogr2/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to strongly sloping simple linear and convex elevated and lowland plains. Components formed in residuum from basalt and cinders with secondary calcium carbonate accumulations. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperaturae ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no snow accumulation. The freeze free period is 150 days. Elevations range from 1600 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiustolls,	---	HSC	Bogr2/Pied	Edaphic	MAP 40 cm	50%
---	very gravelly	4		zootic	ME 1900 m	
fine, montmorillonitic,	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Argiustolls	---	HSC	Bogr2/Pied	Edaphic	MAP 40 cm	30%
---	very gravelly	4		zootic	ME 1900 m	
fine-loamy, mixed	clay loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Argiustolls,	---	HSC	Bogr2/Pied	Edaphic	MAP 40 cm	10%
---	---	4		zootic	ME 1900 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	
2.6 Typic Haplustalfs,	---	HSC	Bogr2/Pied	Edaphic	MAP 40 cm	10%
---	---	4		zootic	ME 1900 m	
fine, montmorillonitic,	---	0			MAST 10 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 599

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.0	6.7	1.5	.1	2.0	6.7	1.5	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	7	65	0	0	7	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
48	7	0	45	48	7	0	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	600		
Forage	300	300		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Fair		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pronghorn	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Mod.	Sli.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Sli.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	T	T		
Juniperus monosperma	Jumo	5	5		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	5	5		
Artemisia frigida	Arfr4	T	T		
Berberis fremontii	Befr	T	T		
Chrysothamnus nauseosus	Chna2	1	1		
Gutierrezia sarothrae	Gusa2	T	T		
Opuntia polyacantha	Oppo	T	T		
Opuntia whipplei	Opwh	T	T		
Rhus trilobata	Rhtr	T	T		
Yucca baccata	Yuba	T	T		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.2	.2		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	10	10		
Andropogon scoparius	Ansc2	P	P		
Aristida arizonica	Arar6	T	T		
Bouteloua curtipendula	Bocu	12	12		
Bouteloua gracilis	Bogr2	25	25		
Hilaria jamesii	Hija	3	3		
Koeleria cristata	Kocr	T	T		
Oryzopsis hymenoides	Orhy	1	1		
Poa fendleriana	Pofe	T	T		
Sitanion hystrix	Sihy	5	5		
Sporobolus cryptandrus	Spcr	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 620-Lithic Haploborolls, LSC, 5, 0, loamy-skeletal, mixed, very gravelly loam - Typic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, gravelly loam, complex: 15-40 percent slopes, Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Component .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the precipitation occurs between 01 October and 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 120 centimeters and the mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2300 to 2500 meters. Delineations are irregular in shape and vary in size from 50 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Haploborolls,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	40%
---	very gravelly	5			ME 2400 m	
loamy-skeletal, mixed,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Typic Eutroboralfs,	moderately deep	LSC	Pipos/Quga	Edaphic	MAP 56 cm	40%
---	gravelly	5			ME 2400 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Rock Outcrop					MAP cm	10%
					ME m	
					MAST C	
					MSST C	
2.6 Lithic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	gravelly	5			ME 2400 m	
loamy-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 Shallow depth and amount of the rock fragments throughout the profile will limit most management activities.

3.2 This map unit is generally found on dry, south facing slopes.

3.3

3.4

Map Symbol: 620

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
35.5	4.5	5.0	3.2	47.3	6.7	6.6	4.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	50	60	0	50	50	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	1	49	20	25	2	48	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	500		
Porage	200	250		
Porage (maximum)	2350	2500		
Timber	Site Index			
Pipos	55	60		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sev.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Juniperus scopulorum	Jusc2	P	P		
Pinus ponderosa	Pipos	25	35		
Quercus gambelii	Quga	5	5		
Berberis repens	Bere	.1	.1		
Ceanothus fendleri	Cefe	.1	.1		
Ribes cereum	Rice	T	T		
Robina neomexicana	Rone	5	8		
Rosa arizonica	Roar2	.3	.3		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria parvifolia	Anpa4	1	1		
Arenaria aberrans	Arab	T	T		
Commelina dianthifolia	Codi4	T	T		
Corallorhiza maculata	Coma4	T	T		
Erigeron speciosus	Ersp4	.1	.1		
Erysimum capitatum	Erca14	T	T		
Geranium caespitosum	Geca3	.1	.1		
Gilia aggregata	Giag	.3	.3		
Lotus wrightii	Lowr	.1	.1		
Lupinus argenteus	Luar3	5	5		
Oxalis metcalfei	Oxme	T	T		
Pterospera andromedea	Ptan2	P	P		
Senecio multilobatus	Semu3	.1	.1		
Thalictrum fendleri	Thfe	.1	.1		
Verbena macdougalii	Vema	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	8	8		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	5	5		
Poa fendleriana	Pofe	8	8		
Poa longiligula	Polo	5	5		
Sitanion hystrix	Sihy	8	8		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 621-Mollic Eutroboralfs, LSC, 5, - Lithic Haploborolls, LSC, 5 - Rock Outcrops, complex: 40-80 percent slopes, Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in residuum and talus from limestone parent material. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the precipitation occurs during the period of 01 October and 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 120 centimeters and the mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2250 to 2650 meters. Delineations are irregular in shape and vary in size from 50 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	30%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
---	---				MSST 12 C	
2.2 Lithic Haploborolls,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	30%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
---	---				MSST 12 C	
2.3 Rock outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Eutroboralfs,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
---	---				MSST 12 C	
2.6 Lithic Ustochrepts,	---	LSC	Pipos/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2400 m	
---	---				MAST 6 C	
frigid	---				MSST 12 C	

3.0 Management Implications.

3.1 & 3.2 Most management activities are limited by steep slopes and rocky profiles, and in some areas by shallow soils and rock outcrop.

3.3

3.4

Map Symbol: 621

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
30.5	4.5	9.2	4.3	30.5	2.2	9.2	4.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	30	50	0	65	30	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	1	29	20	50	1	29	20								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	450		
Forage	250	250		
Forage (maximum)	1200	1000		
Timber	Site Index			
Pipos	60	55		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Sev.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus scopulorum	Jusc	T	T		
Pinus ponderosa	Pipos	35	25		
Populus tremuloides	Potr5	T	T		
Quercus gambelii	Quga	10	10		
Berberis repens	Bere	.1	.1		
Ceanothus fendleri	Cefe	1	1		
Ribes cereum	Rice	T	T		
Robina neomexicana	Rone	10	8		
Rosa arizonica	Roar2	.3	.3		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria parvifolia	Anpa4	1	1		
Arenaria aberrans	Arab	T	T		
Commelina dianthifolia	Codi4	T	T		
Corallorhiza maculata	Coma4	P	P		
Erigeron speciosus	Ersp4	.3	.3		
Erysimum capitatum	Erca14	T	T		
Geranium caespitosum	Geca3	.1	.1		
Gilia agregata	Giag	1	1		
Lotus wrightii	Lowr	.1	.1		
Lupinus argenteus	Luar3	5	5		
Oxalis metcalfei	Oxme	T	T		
Pterospera andromedea	Ptan2	P	P		
Senecio multilobatus	Semu3	.3	.3		
Thalictrum fendleri	Thfe	.3	.3		
Verbena macdougalii	Vema	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	5	5		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	3	3		
Poa fendleriana	Pofe	3	3		
Poa pratensis	Popr	2	2		
Sitanion hystrix	Sihy	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 623-Typic Paleboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic-Eutric Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, gravelly sandy loams, complex: 0-15 percent slopes, Abco/Psmeg/Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Paleboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	gravelly	6	Pipos/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
---	---				MSST 9 C	
2.2 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	gravelly	6	Pipos/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
---	---				MSST 9 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Dystric Eutrocrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
---	gravelly	6	Pipos/Quga		ME 2700 m	
loamy-skeletal, mixed,	loam	0			MAST 5 C	
frigid	---				MSST 9 C	
2.6 Lithic Glossoboralfs	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
---	gravelly	6	Pipos/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
---	---				MSST 9 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet from snow melt in the spring and summer rains. When the vegetative ground cover is removed, these soils are prone to accelerated sheet and rill erosion on slopes over 8%.

3.3

3.4

Map Symbol: 623

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
10.6	6.7	.9	.1	10.6	6.7	.9	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	60	85	0	10	60	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	2	58	10	30	2	58	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	250	250		
Forage (maximum)	3500	3500		
Timber	Site Index			
Abco	75	75		
Psmeg	75	75		
Pipos	70	70		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	~~Low~~	~~Low~~		
Source Suitability:	Mod	Mod		
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Williamson sapsucker	Imp.	Imp.		
Red squirrel	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Abies concolor	Abco	30	30		
Pinus ponderosa	Pipos	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	30		
Berberis repens	Bere	1	1		
Juniperus communis	Juco6	3	3		
Lonicera involucrata	Loin5	P	P		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	3	3		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	1	1		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	1	1		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	1	1		
Carex	CAREX	3	3		
Dactylis glomerata	Dagl	T	T		
Deschampsia caespitosa	Deca	T	T		
Lolium perenne	Lope	T	T		
Muhlenbergia montana	Mumo	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 624-Eutric Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic-Typic Paleboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, very gravelly loams, complex: 15-40 percent slopes, Abco/Psmeg/Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple concave and linear elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 62 to 74 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snow fall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2400 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	gravelly	6	Pipos/Quga		ME 2600 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
---	---				MSST 9 C	
2.2 Typic Paleboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	gravelly	6	Pipos/Quga		ME 2600 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
---	---				MSST 9 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Dystric Eutrochrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	10%
---	very gravelly	6	Pipos/Quga		ME 2600 m	
loamy-skeletal, mixed,	sandy loam	0			MAST 5 C	
frigid	---				MSST 9 C	
2.6 Lithic Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	10%
---	gravelly	6	Pipos/Quga		ME 2600 m	
clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
---	---				MSST 9 C	

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet from snow melt and rains. When the vegetative cover is removed, these soils are prone to accelerated sheet and rill erosion .

3.3

3.4

Map Symbol: 624

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
85.0	6.7	4.7	1.9	85.0	6.7	4.7	1.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	65	70	85	0	65	70	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	3	47	25	25	3	47	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	200	200		
Forage (maximum)	3500	3500		
Timber	Site Index			
Abco	75	75		
Psmeg	75	75		
Pipo	70	70		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Williamson sapsucker	Ess.	Ess.		
Red squirrel	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Mod.	Mod.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Abies concolor	Abco	30	30		
Pinus ponderosa	Pipos	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	30		
Berberis repens	Bere	1	1		
Juniperus communis	Juco6	3	3		
Lonicera involucrata	Loin5	P	P		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	1	1		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	1	1		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	1	1		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	1	1		
Carex	CAREX	5	5		
Dactylis glomerata	Dagl	T	T		
Deschampsia caespitosa	Deca	T	T		
Lolium perenne	Lope	T	T		
Muhlenbergia montana	Mumo	.5	.5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 625-Eutric Glossoboralfs, LSC, 6, moderately deep, cobbly loam-Rock Outcrops, complex: 40-120 percent slopes, Psmeg.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep simple concave and linear escarpments. Component .1 formed in talus from sedimentary parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 ot 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2400 to 2700 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within this map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Eutric Glossoboralfs,	moderately deep	LSC	Psmeg	Edaphic	MAP 68 cm	60%
---	cobbly	6			ME 2500 m	
---	loam				MAST 5 C	
---	---				MSST 9 C	
2.2 Rock Outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Dystric Eutrochrepts,	---	LSC	Psmeg	Edaphic	MAP 68 cm	10%
---	cobbly	6			ME 2500 m	
---	loam				MAST 5 C	
---	---				MSST 9 C	
2.6 Typic Paleboralfs,	---	LSC	Psmeg	Edaphic	MAP 68 cm	10%
---	cobbly	6			ME 2500 m	
---	loam				MAST 5 C	
---	---				MSST 9 C	

3.0 **Management Implications.**

3.1 Management activities are limited by steep slopes and rock fragments on the surface.

3.2

3.3

3.4

Map Symbol: 625

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
162.5	6.7	3.6	3.6												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	75	85	85												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
33	1	39	27												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400			
Forage	150			
Forage (maximum)	3000			
Timber	Site Index			
Abco	70			
Pipos	65			
Psmeg	70			
Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Northern goshawk	Ess.			
Blue grouse	Ess.			
Williamson sapsucker	Ess.			
Red squirrel	Imp.			
Mule deer	Imp.			
Limitations For:				
Timber Harvest	Sev.			
Cutbank Stability	Mod.			
Unsurfaced Roads	Sev.			
Trails	Sev.			
Campgrounds	Sev.			
Wheeled O.R.V.	Sev.			
Hazards:				
Erosion(Sheet & Rill)	Sev.			
Mass Wasting	Sev.			
Windthrow	Mod.			
Plant Competition	Mod.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Abies concolor	Abco	25			
Pinus ponderosa	Pipos	15			
Populus tremuloides	Potr5	10			
Pseudotsuga menziesii glauca	Psmeg	25			
Quercus gambelii	Quga	5			
Berberis repens	Bere	1			
Juniperus communis	Juco6	3			
Lonicera involucrata	Loin5	P			
Pachystima Myrsinites	Pamy	1			
Ribes cereum	Rice	.3			
Robinia neomexicana	Rone	5			
Salix scouleriana	Sasc	T			
Symphoricarpos oreophilus	Syor2	.5			
Allium geyeri	Alge	T			
Aquilegia chrysantha	Aqch	T			
Campanula rotundifolia	Caro2	T			
Fragaria ovalis	Frov	.1			
Geranium caespitosum	Geca3	.5			
Geranium richardsonii	Geri2	.1			
Lathyrus arizonica	Laar	.1			
Mertensia Macdougalii	Mema	T			
Vicia americana	Viam	T			
Bromus ciliatus	Brci2	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 626-Typic Cryoboralfs, LSC, 7, -1, clayey-skeletal, montmorillonitic, very gravelly sandy loam - Typic Paleboralfs, LSC, 7, -1, clayey-skeletal, montmorillonitic, gravelly sandy loam, complex: 15-40 percent slopes, Pien/Abla/Abco/Psmeg.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple linear and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 62 to 76 centimeters; mean annual air temperature ranges from 1 to 3 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 October to 15 May. Mean annual snowfall is 170 centimeters and the mean annual snow accumulation is 100 centimeters. The freeze free period is 70 days. The elevation ranges from 2500 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Cryoboralfs,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	40%
---	very gravelly	7	Abco/Psmeg		ME 2650 m	
clayey-skeletal, montmorillonitic,	sandy loam	-1			MAST 3 C	
---	---				MSST 7 C	
2.2 Typic Paleboralfs,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	40%
---	gravelly	7	Abco/Psmeg		ME 2650 m	
clayey-skeletal, montmorillonitic,	sandy loam	-1			MAST 3 C	
cryic	---				MSST 7 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Cryochrepts,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	10%
---	very gravelly	7	Abco/Psmeg		ME 2650 m	
loamy-skeletal, mixed,	sandy loam	-1			MAST 3 C	
---	---				MSST 7 C	
2.6 Typic Cryoboralfs,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	10%
---	very gravelly	7	Abco/Psmeg		ME 2650 m	
loamy-skeletal, montmorillonitic,	sandy loam	-1			MAST 3 C	
---	---				MSST 7 C	

3.0 Management Implications.

3.1 & 3.2 These soils are prone to excessive sheet and rill erosion when the vegetative ground cover is removed, i.e. during skidding, etc. These soils have low bearing strength when wet leading to rutting and excessive soil movement. These soils are generally wet in the spring from snow melt and during the summer rainy season. They are droughty by nature which effects reforestation and reveg.

3.3

3.4

Map Symbol: 626

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
48.0	6.7	4.3	1.1	72.1	6.7	6.5	1.6								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	50	60	85	0	60	60	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surfaee Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
35	2	53	10	30	2	53	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	300		
Forage	100	100		
Forage (maximum)	4000	4000		
Timber	Site Index			
Pien	75	75		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Mod.	Mod.		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
3-toed woodpecker	Ess.	Ess.		
Mule deer	Ess.	Ess.		
Red squirrel	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Mod.	Mod.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Abies concolor	Abco	15	15		
Abies lasiocarpa arizonica	Ablaa	10	10		
Picea engelmanii	Pien	20	20		
Picea pungens	Pipu	5	5		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	20	20		
Berberis repens	Bere	T	T		
Holodiscus dumosus	Hodu	T	T		
Juniperus communis	Juco6	3	3		
Lonicera involucrata	Loin5	P	P		
Pachystima Myrsinites	Pamy	1	1		
Rubus strigosus	Rust	T	T		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.1	.1		
Aquilegia elegantula	Aqel	.5	.5		
Campanula rotundifolia	Caro2	T	T		
Erigeron formosissimus	Erfo3	2	2		
Fragaria ovalis	Frov	1	1		
Geranium caespitosum	Geca3	T	T		
Geranium richardsonii	Geri	.5	.5		
Goodyera oblongifolia	Goob2	.5	.5		
Haplopapus parryi	Hapa6	.5	.5		
Lathyrus arizonica	Laar	T	T		
Mertensia Macdougalii	Mema	T	T		
Smilacina racemosa	Smra	1	1		
Thalictrum fendleri	Thfe	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	.5	.5		
Carex	CAREX	3	3		
Dactylis glomerata	Dagl	T	T		
Danthonia intermedia	Dain2	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 627-Typic Cryoboralfs, LSC, 7, -1 - Typic Paleboralfs, LSC, 7, -1, cryic - Rock Outcrop, complex: 40-120 percent slopes, Pien/Ablaa/Abco/Psmeg.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in talus from sedimentary parent material. Mean annual precipitation ranges from 70 to 78 centimeters; mean annual air temperature ranges from 1 to 3 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover normally occurs from 01 October to 15 May. Mean annual snowfall is 170 centimeters and the mean annual snow accumulation is 100 centimeters. The freeze free period is 70 days. The elevation ranges from 2600 to 2750 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Cryoboralfs,	---	LSC	Pien/Ablaa/	Edaphic	MAP 74 cm	40%
---	---	7	Abco/Psmeg		ME 2650 m	
---	---	-1			MAST 3 C	
---	---				MSST 7 C	
2.2 Typic Paleboralfs,	---	LSC	Pien/Ablaa/	Edaphic	MAP 74 cm	30%
---	---	7	Abco/Psmeg		ME 2650 m	
---	---	-1			MAST 3 C	
cryic	---				MSST 7 C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Cryocrepts	---	LSC	Pien/Ablaa/	Edaphic	MAP 74 cm	10%
---	---	7			ME 2650 m	
---	---	-1			MAST 3 C	
---	---				MSST 7 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Management activities are limited by steep slopes and high rock fragment content on the surface and throughout the profile.

3.3

3.4

Map Symbol: 627

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
62.0	6.7	1.4	1.4	62.0	6.7	1.4	1.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	53	85	85	0	53	85	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
10	1	84	5	10	1	84	5								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	300		
Forage	75	75		
Forage (maximum)	3000	3000		
Timber	Site Index			
Pien	75	75		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
3-toed woodpecker	Ess.	Ess.		
Mule deer	Ess.	Ess.		
Red squirrel	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Mod.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1	6.2	6.3	6.4
			% Canopy Cover			
	Abies concolor	Abco	15	15		
	Abies lasicarpa arizonica	Ablaa	10	10		
	Picea engelmanii	Pien	15	15		
	Picea pungens	Pipu	10	10		
	Populus tremuloides	Potr5	10	10		
	Pseudotsuga menziesii glauca	Psmeg	20	20		
	Berberis repens	Bere	T	T		
	Holodiscus dumosus	Hodu	T	T		
	Juniperus communis	Juco6	3	3		
	Lonicera involucrata	Loin5	P	P		
	Pachystima Myrsinites	Pamy	1	1		
	Rubus strigosus	Rust	T	T		
	Salix scouleriana	Sasc	T	T		
	Symphoricarpos utahensis	Syut	.1	.1		
	Aquilegia elegantula	Aqel	.5	.5		
	Campanula rotundifolia	Caro2	T	T		
	Erigeron formosissimus	Erfo2	5	5		
	Fragaris ovalis	Frov	T	T		
	Geranium caespitosum	Geca3	T	T		
	Geranium richardsonii	Geri	.5	.5		
	Goodyera oblongifolia	Goob2	.5	.5		
	Haplopapus parryi	Hapa6	.5	.5		
	Lathyrus arizonica	Laar	T	T		
	Mertensia Macdougalii	Mema	T	T		
	Smilacina racemosa	Smra	1	1		
	Thalictrum fendleri	Thfe	T	T		
	Vicia americana	Viam	T	T		
	Bromus ciliatus	Brci2	1	1		
	Carex	CAREX	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 630-Lithic Eutroboralfs, LSC, 5, 0, clayey-skeletal, mixed, very gravelly, loam - Mollic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, gravelly loam complex: 0-15 percent slopes, Fear2/Mumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated plains and low hills. Components formed in residuum of limestone, the sandy facies, parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2050 to 2150 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Eutroboralfs,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	45%
---	very gravelly	5		fire-	ME 2100 m	
clayey-skeletal, mixed,	loam	0		zootic	MAST 6 C	
---	---				MSST 12 C	
2.2 Mollic Eutroboralfs,	moderately deep	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	35%
---	gravelly	5		fire-	ME 2100 m	
clayey-skeletal, montmorillonitic,	loam	0		zootic	MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralfs,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire-	ME 2100 m	
loamy-skeletal, mixed,	---	0		zootic	MAST 6 C	
---	---				MSST 12 C	
2.6 Mollic Eutroboralfs,	---	LSC	Fear2/Mumo	Edaphic	MAP 56 cm	10%
---	---	5		fire-	ME 2100 m	
fine, montmorillonitic,	---	0		zootic	MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1 Component is characterized by vegetative disclimax. Shallow depth, subsurface clay at a shallow depth, and high percentage of coarse fragments will restrict management.

3.2 Component is characterized by vegetative disclimax. The clay subsurface horizon is near the surface and will cause trafficability problems and soil damage when wet.

3.3

3.4

Map Symbol: 630

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.3	4.5	.9	.1	3.1	6.7	1.0	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	25	65	0	0	30	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	20	5	35	25	25	5	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1950	2300		
Forage	900	1200		
Forage (maximum)	2350	2500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Used	Used		
Mule deer	Used	Used		
Pronghorn	Ess.	Ess.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus deppeana	Jude2	P	P		
Pinus ponderosa	Pipo	T	T		
Artemisia carruthii	Arca4	.5	.5		
Artemisia frigida	Arfr4	.1	.1		
Ceanothus fendleri	Cefe	T	T		
Chrysothamnus nauseosus	Chna2	2	5		
Quercus gambelii	Quga	P	P		
Ribes cereum	Rice	T	T		
Rosa arizonica	Roar2	P	P		
Achillea millefolium lanulosa	Acmil	.3	.3		
Antennaria rosulata	Anro3	.1	.1		
Eriogonum racemosum	Erra	.1	.1		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	1	1		
Lotus wrightii	Lowr	T	T		
Lupinus argenteus	Luar3	1	1		
Oxytropis lambertii	Oxla	P	P		
Potentilla anserina	Poan5	.1	.1		
Thalictrum fendleri	Thfe	T	T		
Verbascum thapsus	Veth	.1	.1		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	P	P		
Carex	CAREX	.5	.5		
Festuca arizonica	Fear2	15	20		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	10	15		
Muhlenbergia wrightii	Muwr	T	.1		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	2	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 631-Lithic Eutroboralfs, LSC, 5, 0, clayey-skeletal, mixed, very gravelly loam - Typic Eutroboralfs, LSC, 5, 0, clayey-skeletal, montmorillonitic, moderately deep, gravelly loam complex: 0-15 percent slopes, Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex lowland and elevated plains. Components formed in residuum from sandy facies limestone parent materials. Mean annual precipitation ranges from 50 to 56 centimeters; mean annual air temperature ranges from 5 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally exists from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. Elevations range from 2050 to 2150 meters. Delineations are irregular in shape and vary in size from 50 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	45%
---	very gravelly	5			ME 2100 m	
clayey-skeletal, mixed,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.2 Typic Eutroboralfs,	moderately deep	LSC	Pipo/Quga	Edaphic	MAP 56 cm	35%
---	gravelly	5			ME 2100 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Eutroboralfs,	---	LSC	Pipo/Quga	Edaphic	MAP 56 cm	10%
---	---	5			ME 2100 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	
2.6 Typic Eutroboralfs,	---	LSC			MAP 56 cm	10%
---	---	5			ME 2100 m	
loamy-skeletal, mixed,	---	0			MAST 6 C	
---	---				MSST 12 C	

3.0 Management Implications.

3.1

3.2

3.3

3.4

Map Symbol: 631

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.3	4.5	.7	.1	3.1	6.7	.6	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	85	0	0	40	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	10	20	30	30	10	30	30								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450	500		
Forage	225	250		
Forage (maximum)	2350	2500		
Timber	Site Index			
Pipo	60	70		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Goshawk	Ess.	Ess.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Mod.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sev.	Sli.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus deppeana	Jude2	P	P		
Pinus ponderosa	Pipo	55	60		
Quercus gambelii	Quga	5	5		
Berberis repens	Bere	T	T		
Ceanothus fendleri	Cefe	T	T		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	T	T		
Rosa arizonica	Roar2	P	P		
Achillea millefolium lanulosa	Acmil	.3	1		
Antennaria rosulata	Anro3	.1	.1		
Eriogonum racemosum	Erra	T	T		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	T	T		
Lathyrus arizonica	Laar	T	T		
Lupinus argenteus	Luar3	.5	1		
Oxytropis lambertii	Oxla	.2	.2		
Potentilla anserina	Poan5	T	T		
Pterospora andromedea	Ptan2	P	P		
Thalictrum fendleri	Thfe	T	T		
Verbascum thapsus	Veth	.1	.2		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.1	.1		
Carex	CAREX	.5	1		
Festuca arizonica	Fear2	2	4		
Koeleria cristata	Kocr	T	T		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	.5	.5		

1.0 Date 01-90 MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS USDA-FS

Map Symbol and Name: 632-Lithic Ustochrepts, LSC, 3, +1, loamy-skeletal, carbonatic, mesic, very gravelly fine sandy loam - Aridic Ustochrepts, LSC, 3, +1, loamy-skeletal, carbonatic, mesic, moderately deep, very gravelly fine sandy loam, complex: 0-15 percent slopes, Artr2/Bogr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 precent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Patchy snow cover normally occurs between 01 December and 01 April. Mean annual snowfall is 70 centimeters and the mean annual snow accumulation is 10 centimeters. The freeze free period is 145 days. The elevation ranges from 1600 to 1800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral steams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts, --- loamy-skeletal, carbonatic, mesic	--- very gravelly fine sandy loam ---	LSC 3 +1	Artr2/Bogr2 Stco4	Edaphic	MAP 32 cm ME 1700 m MAST 11 C MSST --- C	70%
2.2 Aridic Ustochrepts, --- loamy-skeletal, carbonatic, mesic	moderately deep very gravelly fine sandy loam ---	LSC 3 +1	Artr2/Bogr2 Stco4	Edaphic	MAP 32 cm ME 1700 m MAST 11 C MSST --- C	20%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Lithic Ustorthents --- loamy-skeletal, mixed (calcareous) mesic	very shallow very gravelly fine sandy loam ---	LSC 3 +1	Artr2/Bogr2 Stco4	Edaphic	MAP 32 cm ME 1700 m MAST 11 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 Most management activities are limited due to shallow soil depth, high pH, and rock fragments.

3.2 Most management activites are limited by rock fragment content and high pH.

3.3

3.4

Map Symbol: 632

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.7	2.2	1.6	.4	3.7	2.2	1.6	.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	10	50	0	10	10	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
20	2	5	73	20	2	5	73								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	~~200~~ ~~300~~	~~220~~		
Forage (maximum)	550	550		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Brewer's sparrow	Ess.	Ess.		
Sage sparrow	Ess.	Ess.		
Sage thrasher	Ess.	Ess.		
Mule deer	Ess.	Ess.		
Blk-tld jackrabbit	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Mod.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Artemisia tridentata	Artr2	20	20		
Atriplex canescens	Atca2	2	2		
Chrysothamnus depressus	Chde2	5	5		
Eurotia lanata	Eula5	3	3		
Gutierrezia sarothrae	Gusa2	2	2		
Opuntia polyacantha	Oppo	.5	.5		
Sphaeralcea parvifolia	Sppa2	1	1		
Yucca utahensis	Yuut	1	1		
Castilleja chromosa	Cach7	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Phlox stansburyi	Phst2	T	T		
Agropyron cristatum	Agcr	1	1		
Agropyron smithii	Agsm	5	5		
Bouteloua gracilis	Bogr2	10	10		
Oryzopsis hymenoides	Orhy	1	1		
Sitanion hystrix	Sihy	2	2		
Sporobolus cryptandrus	Spcr	3	3		
Stipa comata	Stco4	10	10		
Stipa neomexicana	Stne2	5	5		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 633-Lithic Ustochrepts, LSC, 3, +1, calcareous, loamy-skeletal, mixed, mesic, very gravelly fine sandy loam - Lithic Ustorthents, LSC, 3, +1, loamy-skeletal, mixed, (calcareous), mesic, very shallow, very gravelly fine sandy loam - Rock Outcrops, complex: 15-40 percent slopes, Atca2/Bogr2/Eula5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple convex and linear elevated plains. Components formed in residuum from sedimentary parent material. The annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. Mean annual snowfall is 70 centimeters and the mean annual snow accumulation is 10 centimeters. The freeze free period is 145 days. The elevation ranges from 1600 to 1800 meters. Delineations are irregular in shape and vary in size from 50 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Atca2/Bogr2	Topo-	MAP 32 cm	40%
calcareous,	very gravelly	3	Eula5	edaphic	ME 1700 m	
loamy-skeletal, mixed,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.2 Lithic Ustorthents,	very shallow	LSC	Atca2/Bogr2	Topo-	MAP 32 cm	30%
---	very gravelly	3	Eula5	edaphic	ME 1700 m	
loamy-skeletal,mixed,(calcareous),	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.3 Rock Outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Aridic Ustochrepts,	moderately deep	LSC	Atca2/Bogr2	Topo-	MAP 32 cm	10%
calcareous,	very gravelly	3	Eula5	edaphic	ME 1700 m	
loamy-skeletal, mixed,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Most management activities are limited by shallow depth, slope, a high percentage of rock fragments, and a high pH.

3.2 Most management activities are limited by the very shallow depth, slope, a high percentage of rock fragments, and a high pH.

3.3

3.4

Map Symbol: 633

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
21.0	4.5	7.3	2.6	21.0	2.2	7.3	2.6								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	35	20	50	0	55	20	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
60	1	14	25	60	1	14	25								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	475	475		
Forage	400	400		
Forage (maximum)	550	500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Brewers' sparrow	Ess.	Ess.		
Sage sparrow	Ess.	Ess.		
Sage thrasher	Ess.	Ess.		
Pronghorn	Ess.	Ess.		
Blk-tld jack rabbit	Ess.	Ess.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Atriplex canescens	Atca2	25	15		
Eurotia lanata	Eula5	5	5		
Gutierrezia sarothrae	Gusa2	2	2		
Opuntia polyacantha	Oppo	T	T		
Purshia tridentata	Putr2	1	1		
Yucca utahensis	Yuut	2	2		
Castilleja chromosa	Cach7	T	T		
Erigeron flagellaris	Erfl	.1	.1		
Hymenoxys richardsonii	Hyri	T	T		
Bouteloua eriopoda	Boer4	2	2		
Bouteloua gracilis	Bogr2	20	20		
Enneapogon Devauxii	Ende	5	5		
Oryzopsis hymenoides	Orhy	1	1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr	1	1		
Stipa comata	Stco4	.1	.1		
Stipa neomexicana	Stne2	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 634-Typic Ustochrepts, LSC, 4, 0, loamy-skeletal, carbonatic, mesic, moderately deep, gravelly, loam - Lithic Ustochrepts, LSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, very gravelly fine sandy loam, complex: 0-15 percent slope, Artr2/Agcr/Stco4/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains that have been treated to remove the pinyon-juniper overstory. Components formed in residuum from limestone parent material. The mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. Mean annual snowfall is 90 centimeters and the mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are irrregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Ustochrepts, --- loamy-skeletal, carbonatic, mesic	moderately deep gravelly loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	60%
2.2 Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- very gravelly fine sandy loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, --- fine-loamy, carbonatic, mesic	moderately deep gravelly fine sandy loam ---	LSC 4 0	Artr2/Agce/ Stco4/Pied	Edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 **Management Implications.**

3.1 & 3.2 These soils contain significant quanities of lime throughout the profile. A pH of 8 is common and may hinder revegetation efforts. Excessive ground disturbance which brings more calcareous soil to the surface should be avoided. These soils have a high percentage of rock fragments throughout the profile and on the surface. The map unit has been treated in the past to remove the pinyon-juniper overstory to convert the area to higher forage potential.

3.3

3.4

Map Symbol: 634

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
11.3	6.7	6.0	1.2	8.5	4.5	4.5	0.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	10	55	0	10	10	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
17	1	7	75	20	1	7	72								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	250		
Forage	800	700		
Forage (maximum)	~~1500~~ 950	~~1500~~ 1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Vester sparrow	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Blk-tld jackrabbit	Imp.	Imp.		
Western meadowlark	Imp.	Imp.		
Commonpoorwill	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Amelanchier utahensis	Amut	T	T		
Artemisia frigida	Arfr4	T	T		
Artemisia tridentata	Artr2	15	15		
Atriplex canescens	Atca2	2	2		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	8	8		
Eurotia lanata	Eula5	2	2		
Gutierrezia sarothrae	Gusa2	3	3		
Marrubium vulgare	Mavu	T	T		
Opuntia polyacantha	Oppo	1	1		
Purshia tridentata	Putr2	.5	.5		
Sphaeralcea parvifolia	Sppa	1	1		
Yucca utahensis	Yuut	.5	.5		
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	1	1		
Hymenoxys richardsonii	Hyri	1	1		
Linum lewisii	Lile3	.3	.3		
Lotus wrightii	Lowr	.5	.5		
Phlox woodhousei	Phwo	.3	.3		
Verbena ciliata	Veci	T	T		
Agropyron cristatum	Agcr	15	10		
Agropyron smithii	Agsm	15	10		
Aristida divaricata	Ardi5	T	T		
Bouteloua curtipendula	Bocu	5	5		
Bouteloua gracilis	Bogr2	10	8		
Oryzopsis hymenoides	Orhy	1	1		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	8	5		
Sporobolus cryptandrus	Spcr	3	3		
Stipa comata	Stco4	5	5		
Stipa neomexicana	Stne2	2	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 636-Aridic Ustochrepts, LSC, 3, +1, loamy-skeletal, carbonatic, mesic, gravelly fine sandy loam - Aridic Ustochrepts, LSC, 3, +1, fine-loamy, carbonatic, mesic, fine sandy loam, complex: 0-15 percent slopes, Atca2/Bogr2/Eula5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Components formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover occurs from 01 December to 01 April. Mean annual snowfall is 70 centimeters and the mean annual snow accumulation is 10 centimeters. The freeze free period is 145 days. The elevation ranges from 1500 to 1900 meters. Delineations are irregular in shape and vary is size from 50 to 800 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Aridic Ustochrepts, --- loamy-skeletal, carbonatic, mesic	--- gravelly fine sandy loam ---	LSC 3 +1	Atca2/Bogr2 Eula5	Topo-edaphic	MAP 32 cm ME 1800 m MAST 11 C MSST --- C	50%
2.2 Aridic Ustochrepts, --- fine-loamy, carbonatic, mesic	--- --- fine sandy loam ---	LSC 3 +1	Atca2/Bogr2 Eula5	Topo-edaphic	MAP 32 cm ME 1800 m MAST 11 C MSST --- C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Aridic Ustochrepts, calcareous, fine-loamy, mixed, mesic	--- --- fine sandy loam ---	LSC 3 +1	Atca2/Bogr2 Eula5	Topo-edaphic	MAP 32 cm ME 1800 m MAST 11 C MSST --- C	10%
2.6 Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- gravelly fine sandy loam ---	LSC 3 +1	Atca2/Bogr2 Eula5	Topo-edaphic	MAP 32 cm ME 1800 m MAST 11 C MSST --- C	10%

3.0 Management Implications.

3.1 & 3.2 These soils have a high pH with an 8.0 being common. This will limit most management activities.

3.3

3.4

Map Symbol: 636

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.3	6.7	2.9	.7	9.9	6.7	5.4	1.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	10	50	0	8	10	50								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
16	1	5	78	12	1	9	78								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	600		
Forage	400	400		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Brewer's sparrow	Ess.	Ess.		
Sage sparrow	Ess.	Ess.		
Sage thrasher	Ess.	Ess.		
Pronghorn	Ess.	Ess.		
Blk-tld jackrabbit	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Atriplex canescens	Atca2	20	20		
Eurotia lanata	Eula5	5	5		
Gutierrezia sarothrae	Gusa2	3	3		
Opuntia polyacantha	Oppo	1	1		
Yucca utahensis	Yuut	1	1		
Calochortus	CALOC	T	T		
Castilleja chromosa	Cach7	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	10	10		
Bouteloua eriopoda	Boer4	5	5		
Bouteloua gracilis	Bogr2	10	10		
Enneapogon Desvauxii	Ende	5	5		
Oryzopsis hymenoides	Orhy	1	1		
Sitanion hystrix	Sihy	.5	.5		
Sporobolus cryptandrus	Spcr4	1	1		
Stipa comata	Stco4	2	2		
Stipa neomexicana	Stne2	.5	5.		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 637-Lithic Ustochrepts, LSC, 3, +1, calcareous, loamy-skeletal, mixed, mesic, very gravelly fine sandy loam: 0-15 percent slopes, Atca2/Bogr2/Eula5.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple concave and convex elevated plains. The component formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. The mean annual snowfall is 70 centimeters and the mean annual snow accumulation is 10 centimeters. The freeze free period is 145 days. The elevation ranges from 1600 to 1800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Atca2/Bogr2	Topo-	MAP 32 cm	80%
calcareous,	very gravelly	3	Eula5	edaphic	ME 1700 m	
loamy-skeletal, mixed,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustorthents,	very shallow	LSC	Atca2/Bogr2	Topo-	MAP 32 cm	10%
---	very gravelly	3	Eula5	edaphic	ME 1700 m	
loamy-skeletal,mixed,(calcareous),	fine sandy loam	+1			MAST 11 C	
					MSST --- C	
2.6 Rock Outcrops					MAP cm	10%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Management activities are restricted by high gravel content in the profile and on the surface, shallow soil depths. Only accidental sagebrush occur on this unit.

3.2

3.3

3.4

Map Symbol: 637

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.5	4.5	1.7	.4												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	10	50												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	1	11	43												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	475			
Forage	400			
Forage (maximum)	800			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	Low			
Reforestation	---			
Source Suitability:				
Topsoil	Poor			
Roadfill	Poor			
Wildlife Habitat Suit:				
Brewer's sparrow	Ess.			
Sage sparrow	Ess.			
Sage thrasher	Ess.			
Antelope	Ess.			
Blk-tld jackrabbit	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	---			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Atriplex canescens	Atca2	20			
Eurotia lanata	Eula5	5			
Gutierrezia sarothrae	Gusa2	2			
Opunita polyacantha	Oppo	T			
Purshia tridentata	Putr2	1			
Yucca utahensis	Yuut	1			
Calochortus	CALOC	T			
Castilleja chromosa	Cach7	.5			
Erigeron flagellaris	Erfl	.5			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	5			
Bouteloua eriopoda	Boer4	4			
Bouteloua gracilis	Bogr2	20			
Enneapogon Desvauxii	Ende	8			
Oryzopsis hymenoides	Orhy	1			
Sitanion hystrix	Sihy	.5			
Sporobolus cryptandrus	Spcr	1			
Stipa comata	Stco4	2			
Stipa neomexicana	Stne2	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 641-Typic Paleboralfs, LSC, 7, -1, clayey-skeletal, montmorillonitic, cryic, gravelly loam - Typic Cryoboralfs, LSC, 7, -1, clayey-skeletal, montmorillonitic, fine sandy loam, complex: 0-15 percent slopes, Pien/Abla/Abco/Psmeg.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 70 to 78 centimeters; mean annual air temperature ranges from 1 to 3 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 October to 15 May. The mean annual snowfall is 170 centimeters and the mean annual snow accumulation is 100 centimeters. The freeze free period is 70 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Paleboralfs,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	40%
---	gravelly	7	Abco/Psmeg		ME 2700 m	
clayey-skeletal, montmorillonitic,	loam	-1			MAST 3 C	
cryic	---				MSST 7 C	
2.2 Typic Cryoboralfs,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	40%
---	---	7	Abco/Psmeg		ME 2700 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	-1			MAST 3 C	
---	---				MSST 7 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Cryochrepts,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	10%
---	gravelly	7	Abco/Psmeg		ME 2700 m	
loamy-skeletal, mixed,	fine sandy loam	-1			MAST 3 C	
---	---				MSST 7 C	
2.6 Lithic Cryoboralfs,	---	LSC	Pien/Abla/	Edaphic	MAP 74 cm	10%
---	very gravelly	7	Abco/Psmeg		ME 2700 m	
clayey-skeletal, montmorillonitic,	loam	-1			MAST 3 C	
---	---				MSST 7 C	

3.0 Management Implications.

3.1 & 3.2 These soils are prone to sheet and rill erosion when the vegetative ground cover is removed, i.e. during skidding, brush piling, etc. These soils have low bearing strength when wet leading to rutting and soil movement. They are generally wet from snowmelt in the spring and heavy rains in the summer.

3.3

3.4

Map Symbol: 641

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.7	6.7	.8	.1	8.7	6.7	.8	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	60	90	0	5	60	90								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	2	58	15	25	2	58	15								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	300		
Forage	175	175		
Forage (maximum)	3500	3500		
Timber	Site Index			
Pien	65	65		
Abco	60	60		
Psmeg	60	60		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Fair	Fair		
Roadfill	Good	Good		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
3-toed woodpecker	Ess.	Ess.		
Mule deer	Ess.	Ess.		
Red squirrel	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	% Canopy Cover 6.1	6.2	6.3	6.4
	Abies concolor	Abco	15	15		
	Abies lasiocarpa arizonica	Ablaa	10	10		
	Picea engelmanii	Pien	20	20		
	Picea pungens	Pipu	5	5		
	Populus tremuloides	Potr5	8	8		
	Pseudotsuga menziesii glauca	Psmeg	20	20		
	Berberis repens	Bere	T	T		
	Holodiscus dumosus	Hodu	T	T		
	Juniperus communis	Juco6	8	8		
	Lonicera involucrata	Loin5	P	P		
	Pachystima Myrsinites	Pamy	1	1		
	Rubus strigosus	Rust	T	T		
	Salix scouleriana	Sasc	T	T		
	Symphoricarpos oreophilus	Syor2	.1	.1		
	Aquilegia elegantula	Aqel	.5	.5		
	Campanula rotundifolia	Caro2	T	T		
	Erigeron formosissimus	Erfo3	1	1		
	Fragaria ovalis	Frov	2	2		
	Geranium caespitosum	Geca3	T	T		
	Geranium richardsonii	Geri	.5	.5		
	Goodyera oblongifolia	Goob2	.5	.5		
	Haplopapus parryi	Hapa6	.5	.5		
	Lathyrus arizonica	Laar	T	T		
	Mertensia Macdougalii	Mema	T	T		
	Smilacina racemosa	Smra	1	1		
	Thalictrum fendleri	Thfe	T	T		
	Vicia americana	Viam	T	T		
	Blepharoneuron tricholepis	Bltr	T	T		
	Bromus anomalus	Bran	.5	.5		
	Carex	CAREX	3	3		
	Dactylis glomerata	Dagl	T	T		
	Danthonia intermedia	Dain2	T	T		
	Festuca ovina	Feov	.5	.5		
	Phleum pratense	Phpr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 642-Typic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, moderately deep, very gravelly loam - Lithic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, very gravelly, loam, complex: 0-15 percent slopes, Feov/Bran/Mumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2550 to 2650 meters. Delineations are irregular in shape and vary in size from 20 to 100 hectares. Ephemeral streams are within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutrochrepts, --- loamy-skeletal, mixed, frigid	moderately deep very gravelly loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic zootic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	40%
2.2 Lithic Eutrochrepts, --- loamy-skeletal, mixed, frigid	--- very gravelly loam	LSC 6 0	Feov/Bran/ Mumo	Edpahic zootic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Eutrochrepts, --- fine-loamy, mixed, frigid	moderately deep very gravelly loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	10%
2.6 Rock Outcrops					MAP cm ME m MAST C MSST C	10%

3.0 Management Implications.

3.1 These soils occur in high meadows and are in a motorized vehicle restricted area. The yellow Kaibab paintbrush occurs on this soil.

3.2 The shallow depth and rockiness of these soils and motorized restricted area will limit management activities. The yellow Kaibab paintbrush occurs on this soil.

3.3

3.4

Map Symbol: 642

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
5.7	6.7	1.2	.2	5.7	4.5	1.2	.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	40	80	0	5	40	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	1	39	35	25	1	39	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	3525	3425		
Forage	3300	3200		
Forage (maximum)	3525	3525		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Redwing blackback	Ess.	Ess.		
Savannah sparrow	Ess.	Ess.		
Nrthn pocket gopher	Imp.	Imp.		
Wild turkey	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Sev.		
Wheeled O.R.V.	Mod.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Achillea millefolium lanulosa	Acmil	T	T		
Aconitum columbianum	Acco4	T	T		
Antennaria parvifolia	Anpa4	2	2		
Arenaria aberrans	Arab	T	T		
Artemisia frigidia	Arfr4	T	T		
Campanula rotundifolia	Caro2	1	1		
Castilleja confusa kaibabensis	Cacok	T	T		
Erigeron formosissimus	Erfo	T	T		
Eriogonum ovalifolium	Erov	T	T		
Erysimum capitatum	Erca14	T	T		
Gilia aggregata	Giag	5	5		
Lathyrus arizonica	Laar	1	1		
Phlox diffusa	Phdi3	1	1		
Potentilla palcherrima	Popu9	2	2		
Sisyrinchium longipes	Silo	.5	5.		
Swertia radiata	Swra	2	T		
Taraxacum officinale	Taof	1	1		
Verbena macdougalii	Vema	T	T		
Agropyron tracycaulum	Agtr	T	T		
Bromus anomalus	Bran	10	10		
Carex	CAREX	3	3		
Danthonia intermedia	Dain	5	5		
Festuca ovina	Feov	10	10		
Koelaria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa pratensis	Popr	T	T		
Stipa lettermanii	Stle4	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-PS

Map Symbol and Name: 644-Typic Haplustalfs, LSC, 4, 0, clayey-skeletal, montmorillonitic, mesic, moderately deep, gravelly loam:Pied/Juos/Artr2 - Typic Calciustolls, LSC, 4, 0, loamy-skeletal, mixed, mesic, moderately deep, very gravelly loam, complex: 0-15 percent slopes, Pied/Juos/Artr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Patchy snow cover normally occurs from 15 November to 01 April. Mean annual snowfall is 90 centimeters and the mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2050 to 2250 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dentritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs, --- clayey-skeletal, montmorillonitic, mesic	moderately deep gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	MAP 40 cm ME 2150 m MAST 9 C MSST --- C	50%
2.2 Typic Calciustolls, --- loamy-skeletal, mixed, mesic	moderately deep very gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2/Stco4	Edaphic	MAP 40 cm ME 2150 m MAST 9 C MSST --- C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Argiustolls, --- clayey-skeletal, montmorillonitic, mesic	moderately deep gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	MAP 40 cm ME 2150 m MAST 9 C MSST --- C	10%
2.6 Typic Argiustolls, --- loamy-skeletal, mixed, mesic	moderately deep gravelly loam ---	LSC 4 0	Pied/Juos/ Artr2	Edaphic	MAP 40 cm ME 2150 m MAST 9 C MSST --- C	10%

3.0 Management Implications.

3.1 Operations which mix the clayey subsurface horizons with the surface will reduce potential site productivity and the probability of success of some management activities.

3.2 These soils have a high pH, generally around 8.0, which will effect management activities.

3.3

3.4

Map Symbol: 644

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
9.5	6.7	2.0	.7	7.1	6.7	1.5	.5								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	5	40	65	0	5	40	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	2	38	30	36	2	38	24								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	700	650		
Forage	200	200		
Forage (maximum)	1100	1100		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
Pied/Juos	7	7		
Potential for:	Rating			
Revegetation	Mod.	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Pinyon jay	Ess.	Ess.		
Plain titmouse	Ess.	Ess.		
Pinyon mouse	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Bl-gr gnatchatcher	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Sli.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	Mod.	Mod.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Juniperus monosperma	Jumo	5	5		
Juniperus osteosperma	Juos	10	10		
Pinus edulis	Pied	15	15		
Artemisia tridentata	Artr2	10	10		
Atriplex canescens	Atca2	1	1		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	T	5		
Eurotia lanata	Eula5		T		
Gutierrezia sarothrae	Gusa2	2	2		
Opuntia polyacantha	Oppo	T	T		
Purshia tridentata	Putr2	1	.3		
Sphaeralcea parvifolia	Sppa	T	T		
Yucca utahensis	Yuut	T	.1		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Lomatium leptocarpum	Lole	T			
Lotus wrightii	Lowr	.5	.3		
Phlox woodhousei	Phwo	.3	T		
Verbena ciliata	Veci	T	T		
Agropyron cristatum	Agcr	2	2		
Agropyron smithii	Agsm	5	5		
Bouteloua gracilis	Bogr2	10	10		
Oryzopsis hymenoides	Orhy	.5	.3		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	2	2		
Sporobolus cryptandrus	Spcr	T	2		
Stipa comata	Stco4		2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 648-Typic Argiborolls, HSC, 5, -1, moderately deep, very cobbly loam - Lithic Argiborolls, HSC, 5, -1, very cobbly loam - Rock Outcrops complex: 40-120 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of a multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep simple linear and convex hills and escarpments. Components formed in residuum from basalt and cinder parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold (HSC). Patchy snow cover normally exists from 01 December to 01 March. Mean annual snow fall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2100 to 2400. Delineations are irregular in shape and vary in size from 20 to 200 hectares. Streams are not present within the map unit. This map unit is characterized by a radial drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Argiborolls,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	40%
---	very cobbly	5	Quga		ME 2250 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2 Lithic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	30%
---	very cobbly	5	Quga		ME 2250 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.3 Rock Outcrops					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Eutroboralfs,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	very cobbly	5	Quga		ME 2250 m	
---	loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Steep slopes, and a high percentage of surface rock fragments will restrict most management activities.

3.2 Steep slopes, shallow soils, and a high percentage of surface rock fragments will restict most management activities.

3.3

3.4

Map Symbol: 648

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
62.0	6.7	15.5	6.9	62.0	4.5	12.7	6.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	35	55	0	65	40	55								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
56	4	32	8	50	3	36	11								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	400		
Forage	125	125		
Forage (maximum)	800	700		
Timber	Site Index			
Pipo	50	45		
Fuelwood	cd/ac			
Pied	4	4		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Used	Used		
Plain titmouse	Imp.	Imp.		
Turkey	Imp.	Imp.		
Pygmy nuthatch	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Juniperus deppeana	Jude2	10	8		
	Juniperus monosperma	Jumo	2	2		
	Juniperus osteosperma	Juos	T	T		
	Pinus edulis	Pied	10	10		
	Pinus ponderosa	Pipo	30	30		
	Quercus gambelii	Quga	1	1		
	Artemisia frigida	Arfr4	T	T		
	Ceanothus fendleri	Cefe	T	T		
	Cercocarpus montanus	Cemo2	T	T		
	Gutierrezia sarothrae	Gusa2	T	T		
	Rhus trilobata	Rhtr	T	T		
	Achillea millefolium lanulosa	Acmil	1	1		
	Antennaria rosulata	Anro3	T	T		
	Castilleja linariaefolia	Cali4	T	T		
	Erigeron speciosus	Ersp4	T	T		
	Hymenoxys richardsonii	Hyri	T	T		
	Lupinus argenteus	Luar3	T	T		
	Pterospora andromedea	Ptan2	T	T		
	Agropyron trachycaulum	Agtr	P	P		
	Blepharoneuron tricholepis	Bltr	.1	.1		
	Bouteloua curtipendula	Bocu	.1	.1		
	Bouteloua gracilis	Bogr2	5	5		
	Carex	CAREX	T	T		
	Festuca arizonica	Fear2	1	1		
	Koeleria cristata	Kocr	T	T		
	Muhlenbergia montana	Mumo	.5	.5		
	Poa fendleriana	Pofe	3	3		
	Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 649-Vertic Argiborolls, HSC, 5, -1, fine, montmorillonitic, moderately deep, cobbly clay loam: 0-15 percent slopes, Pipo/Pied/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to moderately sloping complex concave and convex elevated plains. Component formed in residuum and alluvium from basaltic parent materials. Mean annual precipitation ranges from 46 to 50 centimeters; mean annual air temperature ranges from 5 to 7 degrees Celsius. Approximately 45 percent of the annual precipitation occurs during the period of 01 October to 31 March. Mean annual snowfall is 100 centimeters and mean annual snow accumulation is 15 centimeters. The freeze free period is 130 days. Elevations range from 2100 to 2400 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Vertic Argiborolls,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	80%
---	very cobbly	5	Quga		ME 2250 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Argiborolls,	---	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	very cobbly	5	Quga		ME 2250 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	
2.6 Typic Argiborolls,	moderately deep	HSC	Pipo/Pied/	Edaphic	MAP 50 cm	10%
---	very cobbly	5	Quga		ME 2250 m	
fine, montmorillonitic,	clay loam	-1			MAST 7 C	
---	---				MSST 13 C	

3.0 Management Implications.

3.1 The vertic properties (shrink-swell clay) of the soils should be considered for many management activities.

3.2

3.3

3.4

Map Symbol: 649

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
1.5	6.7	.5	.1												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	30	65												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
48	22	10	20												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1000			
Forage	175			
Forage (maximum)	2000			
Timber	Site Index			
Pipo	55			
Fuelwood	cd/ac			
Pied/Jude	4			
Potential for:	Rating			
Revegetation	Mod.			
Reforestation	Low			
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Elk	Imp.			
Plain titmouse	Imp.			
Turkey	Imp.			
Pygmy nuthatch	Imp.			
Limitations For:				
Timber Harvest	Mod.			
Cutbank Stability	Sev.			
Unsurfaced Roads	Sev.			
Trails	Mod.			
Campgrounds	Sev.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Sli.			
Mass Wasting	---			
Windthrow	Mod.			
Plant Competition	Sev.			

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus deppeana	Jude2	8			
Juniperus monosperma	Jumo	8			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	10			
Pinus ponderosa	Pipo	20			
Quercus gambelii	Quga	T			
Artemisia frigida	Arfr4	T			
Ceanothus fendleri	Cefe	T			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	.5			
Quercus gambelii	Quga	3			
Rhus trilobata	Rhtr	.1			
Achillea millefolium lanulosa	Acmil	1			
Antennaria rosulata	Anro3	T			
Castilleja linariaefolia	Cali4	.5			
Erigeron speciosus	Ersp4	T			
Hymenoxys richardsonii	Hyri	T			
Lupinus argenteus	Luar3	3			
Pterospora anadromedea	Ptan2	P			
Agropyron trachycaulum	Agtr	P			
Blepharoneuron tricholepis	Bltr	.1			
Bouteloua curtipendula	Bocu	.1			
Bouteloua gracilis	Bogr2	5			
Carex	CAREX	T			
Festuca arizonica	Fear2	1			
Koeleria cristata	Kocr	T			
Muhlenbergia montana	Mumo	.5			
Poa fendleriana	Pofe	3			
Sitanion hystrix	Sihy	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 655-Argic Cryoborolls, LSC, 7, -1, fine-loamy, mixed, gravelly loam: 0-15 percent slopes, Feov/Dain/Mumo.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Component formed in residuum and alluvium from limestone parent material. Mean annual precipitation ranges from 70 to 78 centimeters; mean annual air temperature ranges from 1 to 3 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 October to 15 May. Mean annual snowfall is 170 centimeters and the mean annual snow accumulation is 100 centimeters. The freeze free period is 70 days. The elevation ranges from 2600 to 2700 meters. Delineations are irregular in shape and vary is size from 10 to 200 hectares. Ephemeral streams and some wet limestone sinks are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Argic Cryoboralls,	---	LSC	Feov/Dain/	Edaphic	MAP 74 cm	80%
---	gravelly	7	Mumo	zootic	ME 2650 m	
fine-loamy, mixed,	loam	-1			MAST 3 C	
---	---				MSST 7 C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Cryochrepts,	---	LSC	Feov/Dain/	Edaphic	MAP 74 cm	10%
---	gravelly	7	Mumo	zootic	ME 2650 m	
loamy-skeletal, mixed,	loam	-1			MAST 3 C	
---	---				MSST 7 C	
2.6 Argic Cryoborolls,	---	LSC	Feov/Dain/	Edaphic	MAP 74 cm	10%
---	gravelly	7	Mumo	zootic	ME 2650 m	
fine, mixed,	loam	-1			MAST 3 C	
---	---				MSST 7 C	

3.0 Management Implications.

3.1 This map unit is in high elevation meadows, which are motorize vehicle restriction areas. The yellow Kaibab paintbrush is found on these soils.

3.2

3.3

3.4

Map Symbol: 655

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.7	6.7	2.7	.5												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	8	30	70												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
15	5	25"	55												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1700			
Forage	2500			
Forage (maximum)	4250			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Fair			
Roadfill	Good			
Wildlife Habitat Suit:				
Redwing blacback	Ess.			
Savannah sparrow	Ess.			
Nrthn pocket gopher	Imp.			
Wild turkey	Imp.			
Mule deer	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sli.			
Trails	Sli.			
Campgrounds	Sli.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Sli.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Achillea millefolium lanulosa	Acmil	T			
Aconitum columbianum	Acco4	T			
Antennaria parvifolia	Anpa	3			
Arenaria aberrans	Arab	T			
Artemisia frigidia	Arfr4	.3			
Campanula rotundifolia	Caro2	1			
Castilleja confusa kaibabensis	Cacok	T			
Erigeron formosissimus	Erfo3	.3			
Eriogonum ovalifolium	Erov	T			
Erysimum capitatum	Ercal4	T			
Lathyrus arizonica	Laar	1			
Phlox diffusa	Phdi3	.3			
Potentilla pulcherrima	Popu9	3			
Ranunculus cymbalaria	Racy	P			
Sisyrinchium longipes	Silo	T			
Swertia radiata	Swra	.5			
Taraxacum officinale	Taof	1			
Verbena macdougalii	Vema	T			
Vicia americana	Viam	1			
Agropyron trachycaulum	Agtr	T			
Bromus anomalus	Bran	5			
Carex	CAREX	10			
Danthonia intermedia	Dain	10			
Festuca ovina	Feov	25			
Koelaria cristata	Kocr	P			
Muhlenbergia montana	Mumo	T			
Poa pratensis	Popr	1			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 658-Eutric Glossoboralfs, LSC, 6, 0, fine, montmorillonitic, cobbly loam - Eutric Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, very cobbly loam complex: 0-15 percent slopes, Abco/Psmeg/Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated and lowland plains. Components formed in andesite parent materials. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snow fall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	cobbly	6	Pipo/Quga		ME 2700 m	
fine, montmorillonitic,	loam	0			MAST 5 C	
---	---				MSST 9 C	
2.2 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	very cobbly	6	Pipo/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	loam	0			MAST 5 C	
---	---				MSST 9 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Paleboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	10%
---	---	6	Pipo/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	---	0			MAST 5 C	
---	---				MSST 9 C	
2.6 Dystric Eutrochrepts	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	10%
---	---	6	Pipo/Quga		ME 2700 m	
loamy-skeletal, mixed,	---	0			MAST 5 C	
---	---				MSST 9 C	

3.0 Management Implications.

3.1 & 3.2 These soils are subject to trafficability problems (puddling, compaction, etc.) and soil damage when wet. Activities should be restricted to periods when the soil is dry. Activities that mix the subsoils with the surface horizon should be avoided as this will reduce the site productivity and the probability of success of projects.

3.3

3.4

Map Symbol: 658

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
3.9	6.7	.3	.1	2.9	6.7	.4	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	60	85	0	0	50	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	8	50	12	40	7	40	13								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	150	150		
Forage (maximum)	3500	3500		
Timber	Site Index			
Abco	70	70		
Psmeg	70	70		
Pipo	65	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Spotted Owl	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Goshawk	Imp.	Imp.		
Elk	Imp.	Imp.		
Turkey	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Abies concolor	Abco	30	30		
Pinus ponderosa	Pipo	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	30		
Berberis repens	Bere	.5	.5		
Juniperus communis	Juco6	3	3		
Lonicera involucrata	Loin5	T	T		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	1	1		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	2	2		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdouglaii	Mema2	T	T		
Vicia americana	Viam	T	T		
Bromus anomalus	Bran	1	1		
Bromus ciliatus	Brci2	.1	.1		
Carex	CAREX	.5	.5		
Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 659-Eutric Glossoboralfs, LSC, 6, 0, fine-loamy, mixed, cobbly loam - Eutric Glossoboralfs, LSC, 6, 0, loamy-skeletal, mixed, stony loam complex: 15-40 percent slopes, Abco/Psmeg/Pipo/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep complex concave and convex elevated plains and hills. Components formed in residuum from andesite parent materials. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	cobbly	6	Pipo/Quga		ME 2700 m	
fine-loamy, mixed,	loam	0			MAST 5 C	
---	---				MSST 9 C	
2.2 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	40%
---	stony	6	Pipo/Quga		ME 2700 m	
loamy-skeletal, mixed,	loam	0			MAST 5 C	
---	---				MSST 9 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	10%
---	---	6	Pipo/Quga		ME 2700 m	
fine, mixed,	---	0			MAST 5 C	
---	---				MSST 9 C	
2.6 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	10%
---	---	6	Pipo/Quga		ME 2700 m	
clayey-skeletal, mixed,	---	0			MAST 5 C	
---	---				MSST 9 C	

3.0 Management Implications.

3.1 & 3.2 Activities that mix the subsurface with the surface horizon should be avoided as this will reduce the site productivity and the probability of success of projects.

3.3

3.4

Map Symbol: 659

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
59.4	6.7	6.7	1.3	59.4	6.7	6.7	1.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	55	85	0	55	55	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
29	11	45	15	35	2	53	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	400		
Forage	150	150		
Forage (maximum)	2500	2500		
Timber	Site Index			
Abco	70	70		
Psmeg	70	70		
Pipo	65	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Mod.	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Spotted owl	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Goshawk	Imp.	Imp.		
Elk	Imp.	Imp.		
Turkey	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Mod.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Abies concolor	Abco	30	30		
Pinus ponderosa	Pipo	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	30		
Berberis repens	Bere	.5	.5		
Juniperus communis	Juco6	3	3		
Lonicera involucrata	Loin5	T	T		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	1	1		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	2	2		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Bromus anomalus	Bran	1	1		
Bromus ciliatus	Brci2	.1	.1		
Carex	CAREX	.5	.5		
Poa pratensis	Popr	T	T		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 660-Typic Eutrochrepts, LSC, 5, frigid, moderately deep, very stony fine sandy loam - Typic Haploborolls, LSC, 6, moderately deep, very stony loam complex: 40-120 percent slopes, Quga/Rone.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in residuum from andesite parent materials. Mean annual precipitation ranges from 52 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 120 centimeters and mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2300 to 2500 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Streams are not present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutrochrepts,	moderately deep	LSC	Quga/Rone	Topo-	MAP 56 cm	50%
---	very stony	5		edaphic	ME 2400 m	
---	fine sandy loam			fire	MAST 6 C	
frigid	---				MSST 12 C	
2.2 Typic Haploborolls,	moderately deep	LSC	Quga/Rone	Topo-	MAP 56 cm	40%
---	very stony	5		edaphic	ME 2400 m	
---	loam			fire	MAST 6 C	
---	---				MSST 12 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Rock Outcrops					MAP cm	10%
					ME m	
					MAST C	
					MSST C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Steep slopes and rocky surface will restrict most management activities.

3.3

3.4

Map Symbol: 660

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
35.3	6.7	4.6	.8	52.9	6.7	6.7	1.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	40	50	85	0	50	50	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	4	45	6	45	4	45	6								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1000	1000		
Forage	250	300		
Forage (maximum)	2800	3000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Abert squirrel	Ess.	Ess.		
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Turkey	Imp.	Imp.		
Goshawk	Ess.	Ess.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Pinus ponderosa	Pipo	T	T		
	Populus tremuloides	Potr5	15	15		
	Berberis repens	Bere	1	1		
	Ceanothus fendleri	Cefe	T	T		
	Quercus gambelii	Quga	25	25		
	Ribes cereum	Rice	T	T		
	Robinia neomexicana	Rone	25	25		
	Rosa arizonica	Roar2	T	T		
	Achillea millefolium lanulosa	Acmil	.3	.3		
	Antennaria rosulata	Anro3	1	1		
	Erigeron speciosus	Ersp4	.3	.3		
	Geranium caespitosum	Geca3	.1	.1		
	Gilia aggregata	Giag	1	1		
	Lotus wrightii	Lowr	.1	.1		
	Lupinus argenteus	Luar3	5	5		
	Pterospera andromedea	Ptan2	P	P		
	Thalictrum fendleri	Thfe	.3	.3		
	Blepharoneuron tricholepis	Bltr	.2	.2		
	Carex	CAREX	5	5		
	Koeleria cristata	Kocr	1	1		
	Muhlenbergia montana	Mumo	3	3		
	Poa fendleriana	Pofe	3	3		
	Sitanion hystrix	Sihy	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 672-Typic Haplustalfs, LSC, 4, +1, clayey-skeletal, montmorillonitic, mesic, very gravelly loam - Typic Haplustalfs, LSC, 4, 0, +1, fine, montmorillonitic, mesic, gravelly loam, complex: 0-15 percent slopes, Artr2/Agcr/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple concave and convex elevated plains that have been treated to remove the pinyon/juniper. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 42 to 50 centimeters; mean annual air temperature ranges from 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally occurs from 15 November to 01 April. Mean annual snowfall is 100 centimeters and the mean annual snow accumulation is 25 centimeters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs, --- clayey-skeletal, montmorillonitic, mesic	--- very gravelly loam ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic zootic	MAP 46 cm ME 2100 m MAST 8 C MSST --- C	40%
2.2 Typic Haplustalfs, --- fine, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic zootic	MAP 46 cm ME 2100 m MAST 8 C MSST --- C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Argiustolls, --- fine, montmorillonitic, mesic	--- gravelly loam ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic zootic	MAP 46 cm ME 2100 m MAST 8 C MSST --- C	10%
2.6 Typic Argiustolls, --- clayey-skeletal, montmorillonitic, mesic	--- very gravelly loam ---	LSC 4 +1	Artr2/Agcr/ Quga	Edaphic zootic	MAP 46 cm ME 2100 m MAST 8 C MSST --- C	10%

3.0 Management Implications.

3.1 & 3.2 Operations which mix the clayey subsurface horizons with the surface will reduce potential site productivity and the probability of success of some management activities, such as revegetation projects. The high shrink/swell potential of these soils require critical consideration if structural facilities are contemplated.

3.3

3.4

Map Symbol: 672

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
7.1	6.7	2.2	.7	9.5	6.7	2.9	.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	2	30	60	0	8	25	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
40	4	21	35	25	5	20	50								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	500	500		
Forage	1100	1100		
Forage (maximum)	1600	1600		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Vesper sparrow	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Bk-tld jackrabbit	Imp.	Imp.		
Western meadowlark	Imp.	Imp.		
Common poorwill	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Juniperus osteosperma	Juos	3	3		
	Pinus edulis	Pied	5	5		
	Artemisia tridentata	Artr2	15	15		
	Atriplex canescens	Atca2	1	1		
	Cercocarpus montanus	Cemo2	1	1		
	Cowania mexicana stansburiana	Comes	3	3		
	Gutierrezia sarothrae	Gusa2	2	2		
	Purshia tridentata	Putr2	2	2		
	Quercus gambelii	Quga	10	10		
	Sphaeralcea parvifolia	Sppa	.3	.3		
	Calochortus	CALOC	T	T		
	Castilleja linariaefolia	Cali4	1	1		
	Erigeron flagellaris	Erfl	1	1		
	Hymenoxys richardsonii	Hyri	T	T		
	Lomatium leptocarpum	Lole	.5	.5		
	Lupinus argenteus	Luar3	.5	.5		
	Penstemon caespitosus	Peca4	1	1		
	Phlox woodhousei	Phwo	.5	.5		
	Senecio multilobatus	Semu3	1	1		
	Verbena ciliata	Veci	.5	.5		
	Agropyron cristatum	Agcr	3	3		
	Agropyron smithii	Agsm	15	15		
	Aristida divaricata	Ardi5	1	1		
	Bouteloua curitpendula	Bocu	1	1		
	Bouteloua gracilis	Bogr2	25	25		
	Koeleria cristata	Kocr	1	1		
	Muhlenbergia montana	Mumo	3	3		
	Poa fendleriana	Pofe	2	2		
	Sitanion hystrix	Sihy	8	8		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 677-Lithic Ustochrepts, HSC, 4, 0, calcareous, loamy-skeletal, mixed, mesic, gravelly very fine sandy loam - Typic Ustochrepts, HSC, 4, 0, loamy-skeletal, carbonatic, mesic, moderately deep, gravelly very fine sandy loam complex: 0-15 percent slopes, Atca2/Stco4/Agcr/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated and lowland plains. Components formed from residuum from limestone parent materials. Mean annual precipitation ranges from 36 to 46 centimeters; mean annual air temperature ranges from 8 to 10 degrees Celsius. Approximately 40 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(HSC). Snow cover rarely occurs on this map unit. This map unit has a mean annual snowfall of 80 centimeters and no accumulation. The freeze free period is 150 days. Elevations range from 1800 to 2000 meters. Delineations are irregular in shape and vary in size from 20 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is charcterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	HSC	Atca2/Stco4	Edaphic	MAP 40 cm	50%
calcareous,	gravelly	4	Agcr/Pied	zootic	ME 1900 m	
loamy-skeletal, mixed,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	HSC	Atca2/Stco4	Edaphic	MAP 40 cm	40%
---	gravelly	4	Agcr/Pied	zootic	ME 1900 m	
loamy-skeletal, carbonatic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Calciustolls,	moderately deep	HSC	Atca2/Stco4	Edaphic	MAP 40 cm	10%
---	gravelly	4	Agcr/Pied	zootic	ME 1900 m	
loamy-skeletal, carbonatic,	very fine sandy loam	0			MAST 10 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 & 3.2 Caution should be taken to not mix the highly calcareous subsurface with the surface horizon as this will lower the productivity.

3.3

3.4

Map Symbol: 677

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
6.6	4.5	2.0	.3	6.6	6.7	2.4	.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	30	75	0	0	25	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
22	23	5	50	18	22	2	58								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	350		
Forage	500	550		
Forage (maximum)	950	1000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Turkey	Used	Used		
Pronghorn	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	5	5		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	5	5		
Artemisia frigida	Arfr4	T	T		
Atriplex canescens	Atca2	1	1		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	3	3		
Eurotia lanata	Eula5	2	2		
Gutierrezia sarothrae	Gusa2	1	1		
Opuntia polyacantha	Oppo	1	1		
Purshia tridentata	Putr2	T	T		
Yucca baccata	Yuba	.3	.3		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richardsonii	Hyri	T	T		
Agropyron smithii	Agsm	5	5		
Aristida arizonica	Arar6	1	1		
Bouteloua curtipendula	Bocu	8	8		
Bouteloua gracilis	Bogr2	15	15		
Koeleria cristata	Kocr	.3	.3		
Oryzopsis hymenoides	Orhy	2	2		
Poa fendleriana	Pofe	.5	.5		
Sitanion hystrix	Sihy	2	2		
Sporobolus cryptandrus	Spcr	2	2		
Stipa comata	Stco4	8	8		
Stipa neomexicana	Stne2	2	2		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 681-Typic Eutroboralfs, LSC, 5, moderately deep, very gravelly fine sandy loam - Lithic Eutroboralfs, LSC, 5, cobbly fine sandy loam - Rock Outcrop, complex: 40-80 percent slopes, Pipo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in talus from sedimentary parent material. Mean annual precipitation ranges from 50 to 60 centimeters; mean annual air temperature ranges from 4 to 6 degrees Celsius. Approximately 55 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 120 centimeters and the mean annual snow accumulation is 35 centimeters. The freeze free period is 100 days. The elevation ranges from 2200 to 2500 meters. The delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs,	moderately deep	LSC	Pipo	Edaphic	MAP 56 cm	50%
---	very gravelly	5			ME 2350 m	
---	fine sandy loam				MAST 6 C	
---	---				MSST 12 C	
2.2 Lithic Eutroboralfs,	---	LSC	Pipo	Edaphic	MAP 56 cm	20%
---	cobbly	5			ME 2350 m	
---	fine sandy loam				MAST 6 C	
---	---				MSST 12 C	
2.3 Rock Outcrop					MAP cm	20%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	moderately deep	LSC	Pipo	Edaphic	MAP 56 cm	10%
---	very gravelly	5			ME 2350 m	
---	fine sandy loam				MAST 6 C	
---	---				MSST 12 C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Most management activities are restricted by steep slopes, gravelly soils, and a severe erosion hazard.

3.2 Most management activities are restricted by steep slopes, cobbly soils, shallow depths, and a high erosion potential.

3.3

3.4

Map Symbol: 681

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
86.4	6.7	2.7	1.9	86.4	4.5	2.7	1.9								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	65	80	85	0	65	80	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
15	3	77	5	15	3	77	5								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450	425		
Forage	200	200		
Forage (maximum)	1000	900		
Timber	Site Index			
Pipo	65	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	Low	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Wild turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	Sev.	Sev.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sev.	Sev.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus osteosperma	Juos	1	1		
Juniperus scopulorum	Jusc2	T	T		
Pinus edulis	Pied	1	1		
Pinus ponderosa	Pipo	50	50		
Populus tremuloides	Potr5	1	1		
Quercus gambelii	Quga	10	10		
Robinia neomexicana	Rone	10	10		
Berberis repens	Bere	.5	.5		
Ceanothus fendleri	Cefe	.3	.3		
Ribes cereum	Rice	T	T		
Rosa arizonica	Roar2	.5	.5		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria parvifolia	Anpa4	3	3		
Castilleja linariaefolia	Cali4	T	T		
Erigeron speciosus	Ersp4	T	T		
Geranium caespitosum	Geca3	T	T		
Gilia aggregata	Giag	1	1		
Hymenoxys richardsonii	Hyri	T	T		
Lotus wrightii	Lowr	.3	.3		
Lupinus argenteus	Luar3	4	4		
Senecio multilobatus	Semu3	.5	.5		
Thalictrum fendleri	Thfe	.5	.5		
Agropyron trachycaulum	Agtr	T	T		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	2	2		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa fendleriana	Pofe	3	3		
Sitanion hystrix	Sihy	1	1		

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 682-Typic Haplustalfs, LSC, 4, +1, fine-loamy, mixed, mesic, deep, loamy very fine sand: 0-15 percent slopes, Artr2/Agcr/Quga.

Setting: This map unit consists of a single Terrestrial Ecosystem component. It occurs on nearly level to moderately sloping simple convex and linear lowland plains. The component formed in colluvial and alluvial sandstone parent materials. Mean annual precipitation ranges from 42 to 50 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs from 01 October to 31 March and winters are cold(LSC). Patchy snow cover normally occurs on this map unit from 15 November to 01 April. The mean annual snowfall is 100 centimeters and the mean annual snow accumulation is 25 centimeters. The freeze free period is 120 days. Elevations range from 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Haplustalfs,	deep	LSC	Artr2/Agcr/	Edaphic	MAP 46 cm	80%
---	---	4	Quga	zootic	ME 2200 m	
fine-loamy, mixed,	loamy very fine sand	+1			MAST 8 C	
mesic	---				MSST --- C	
2.2					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Typic Haplustalfs,	---	LSC	Artr2/Agcr/	Edaphic	MAP 46 cm	10%
---	---	4	Quga	zootic	ME 2200 m	
loamy-skeletal, mixed,	---	+1			MAST 8 C	
mesic	---				MSST --- C	
2.6 Typic Argiustolls,	---	LSC	Artr2/Agcr/	Edaphic	MAP 46 cm	10%
---	---	4	Quga	zootic	ME 2200 m	
fine-loamy, mixed,	---	+1			MAST 8 C	
mesic	---				MSST --- C	

3.0 Management Implications.

3.1 Operations which mix the subsurface horizons with the surface will reduce potential site productivity and the probability of success of a project.

3.2

3.3

3.4

Map Symbol: 682

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
11.5	6.7	3.0	.5												
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	15	35	75												
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
5	35	2	58												

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450			
Forage	275			
Forage (maximum)	1600			
Timber	Site Index			

Fuelwood	cd/ac			

Potential for:	Rating			
Revegetation	High			
Reforestation	---			
Source Suitability:				
Topsoil	Good			
Roadfill	Good			
Wildlife Habitat Suit:				
Elk	Imp.			
Mule deer	Imp.			
Plain titmouse	Imp.			
Pronghorn	Imp.			
Limitations For:				
Timber Harvest	---			
Cutbank Stability	Sli.			
Unsurfaced Roads	Sli.			
Trails	Sli.			
Campgrounds	Sli.			
Wheeled O.R.V.	Mod.			
Hazards:				
Erosion(Sheet & Rill)	Mod.			
Mass Wasting	---			
Windthrow	---			
Plant Competition	Sev.			

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Juniperus monosperma	Jumo	2			
Juniperus osteosperma	Juos	T			
Pinus edulis	Pied	3			
Artemisia tridentata	Artr2	5			
Atriplex canescens	Atca2	3			
Cercocarpus montanus	Cemo2	T			
Gutierrezia sarothrae	Gusa2	1			
Purshia tridentata	Putr2	3			
Quercus gambelii	Quga	5			
Castilleja linariaefolia	Cali4	1			
Erigeron flagellaris	Erfl	1			
Hymenoxys richardsonii	Hyri	T			
Agropyron smithii	Agsm	10			
Agropyron trachycaulum	Agtr	2			
Aristida divaricata	Ardi5	T			
Bouteloua curtipendula	Bocu	5			
Bouteloua gracilis	Bogr2	25			
Koeleria cristata	Kocr	.5			
Muhlenbergia montana	Mumo	1			
Poa fendleriana	Pofe	.5			
Sitanion hystrix	Sihy	2			

1.0 Date 01-90 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 683-Lithic Ustochrepts, LSC, 4, +1, calcareous, loamy-skeletal, mixed, mesic, very cobbly very fine sandy loam - Typic Ustochrepts, LSC, 4, +1, loamy-skeletal, carbonatic, mesic, moderately deep gravelly very fine sandy loam complex: 0-15 percent slopes, Artr2/Stco4/Agcr/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple linear and convex elevated and lowland plains. Components formed in residuum and alluvium from limestone parent materials. Mean annual precipitation ranges from 42 to 50 centimeters; mean annual air temperature ranges form 6 to 8 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October and 31 March and winters are cold(LSC). Patchy snow cover normally occurs from 15 November to 01 April. This map unit has a mean annual snowfall of 100 centimeters and mean annual snow accumulation of 25 centimeters. The freeze free period is 120 days. Elevations range 2100 to 2300 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Ustochrepts,	---	LSC	Artr2/Stco4	Edaphic	MAP 46 cm	50%
calcareous,	very cobbly	4	Agcr/Quga	zootic	ME 2200 m	
loamy-skeletal, mixed,	very fine sandy loam	+1			MAST 8 C	
mesic	---				MSST --- C	
2.2 Typic Ustochrepts,	moderately deep	LSC	Artr2/Stco4	Edaphic	MAP 46 cm	40%
---	gravelly	4	Agcr/Quga	zootic	ME 2200 m	
loamy-skeletal, carbonatic,	very fine sandy loam	+1			MAST 8 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Lithic Ustochrepts,	---	LSC	Artr2/Stco4	Edaphic	MAP 46 cm	10%
calcareous,	---	4	Agcr/Quga	zootic	ME 2200 m	
loamy, mixed,	very fine sandy loam	+1			MAST 8 C	
mesic	---				MSST --- C	
2.6					MAP cm	%
					ME m	
					MAST C	
					MSST C	

3.0 **Management Implications.**

3.1

3.2

3.3

3.4

Map Symbol: 683

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.6	4.5	1.0	.1	3.7	6.7	.8	.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	25	70	0	0	40	75								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
48	20	7	25	15	25	15	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	450	475		
Forage	225	250		
Forage (maximum)	1250	1350		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Elk	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Plain titmouse	Imp.	Imp.		
Pronghorn	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Sli.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Mod.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sev.	Sev.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Juniperus monosperma	Jumo	3	3		
Juniperus osteosperma	Juos	T	T		
Pinus edulis	Pied	3	3		
Artemisia frigida	Arfr4	1	1		
Artemisia tridentata	Artr2	5	5		
Atriplex canescens	Atca2	5	5		
Cercocarpus montanus	Cemo2	T	T		
Cowania mexicana stansburiana	Comes	5	5		
Gutierrezia sarothrae	Gusa2	2	2		
Purshia tridentata	Putr2	2	2		
Quercus gambelii	Quga	5	5		
Castilleja linariaefolia	Cali4	1	1		
Erigeron flagellaris	Erfl	.5	.5		
Hymenoxys richarsonii	Hyri	T	T		
Agropyron smithii	Agsm	10	10		
Agropyron trachycaulum	Agtr	2	2		
Andropogon scoparius	Ansc2	P	P		
Bouteloua curtipendula	Bocu	8	8		
Bouteloua gracilis	Bogr2	20	20		
Koeleria cristata	Kocr	2	2		
Poa fendleriana	Pofe	2	2		
Sitanion hystrix	Sihy	3	3		
Sporobolus cryptandrus	Spcr	1	1		
Stipa comata	Stco4	5	5		
Stipa neomexicana	Stne2	3	3		

Classification

Soil

The system of soil classification currently used was adopted by the National Cooperative Soil Survey in 1965. Terrestrial ecosytem survey utilizes five categories of this system: order, suborder, great group, subgroup and family. Classification is based, on observed and/or inferred data from the field of soil science and other related disciplines. The properties selected for the higher categories are the result of soil genesis or of factors that affect soil genesis. Categories of the system are discussed in the following paragraphs:

ORDER. Ten soil orders are recognized as categories in the system. The properties used to differentiate among orders are those that reflect the kind and degree of dominant soil-forming processes that have taken place. Each order is identified by a word ending in "sol". An example is Alfisol.

SUBORDER. Each order is divided into suborders based primarily on properties that influence soil genesis and are important to growth or that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Boralf (Bor, meaning cool, plus alf, from Alfisol).

GREAT GROUP Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of expression of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and a prefix that suggests something about properties of the soil. An example is Cryoboralfs, (Cry, indicating cool summers, plus boralf, the suborder of the Alfisols that have cryic or frigid temperature regimes).

SUBGROUP. Each great group may be divided into subgroups: (1) The central (typic) concept of the great group, which is not necessarily the most extensive subgroup; (2) The intergrades, or transitional forms to other orders, suborders, or great groups; and (3) the extragrades, which have some properties that are representative of the great groups but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. An example is Typic Cryoboralfs.

FAMILY. Families are established within a subgroup on the basis of similar physical and chemical properties that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope and permanent cracks. A family name consists of the name of a subgroup and a series of adjectives. The adjectives are the class names for the soil properties used as family differentia. An example is loamy-skeletal, mixed, Typic Cryoboralfs.

Vegetation

The vegetation classification system is based upon the lands potential for vegetation development. The potential or climax vegetation is assumed to reflect climatic factors at the broadest classification level. Lower levels of the system are influenced by local factors of climate, soil, animals, fire, and other environmental influences. The system is hierachical, consisting of five levels or ranks of generalization. These ranks and their approximate scale are as follows:

	RANK	SCALE	
1.	Class	Global	1:10,000,000
2.	Formation	Continental	1:3,000,000
3.	Series	Subcontinental	1:500,000
4.	Subseries	Regional	1:50,000
5.	Association	Local	1:5,000

Vegetation within each rank is classified into mutually exclusive sets (or states) which are presumed to reflect the overriding influence of climate at the appropriate scale. This is referred to as the climatic climax vegetation. In addition, there are anomalias or departures from the expression of the climatic climax which are most evident at the Series, Subseries, and Association ranks. These departures are maintained in the potential expression of vegetation by sustained or episodic influences of fire, grazing animals, special soils, and local relief anomalies. These are referred to as fire, zootic, edaphic, or topographic climaxes. Such names merely allude to generalized causes and not to the particular mechanisms of ecological or historical interactions that bring about the departure of vegetation from its climatic climax expression.

Each level of classification represents an opportunity for predicting successional trends, assessing biotic potentials (including productivity), assessing management opportunities and limitations, and cataloging information. The ranks are defined as follows:

CLASS. Classes of vegetation represent broad structural groupings based upon gross aspects of climate at the global scale. The states of this class occurring in Region 3 are Forest, Woodland, Scrub, and herbaceous vegetation (Unesco 1973).

FORMATION. Vegetation with similar structural form (physiognomy) is controlled primarily by climates differentiated at a continental scale. The eight formation states in the Southwest are (from coldest to warmest climates respectively) alpine tundra, coniferous forest, deciduous forest, coniferous woodland, evergreen oak woodland, chaparral, grassland, and desert.

SERIES. Each state within this rank consists of vegetation having the same potential dominant species at climax. In the climatic series there is a

degree of climatic homogeneity that reflects the requirements and tolerances of the dominant indicator plants. There are approximately 17 climatic series in Region 3 (Layser and Schubert 1979, Moir 1982).

SUBSERIES. Regionalized differences in macroclimates and floristics 1/ result in different combinations of dominant plants occurring in different geographic areas of the Southwest. Each combination of dominant plants in the climatic climax constitutes a Subseries state (or vegetation Subseries). The vegetation Subseries ordered along a climatic gradient (generalized as a single, linear axis whose extremes represent hot-dry and cold-wet extremes) defines indirectly the primary climatic gradient of that region; see also Daubenmire's Vegetation Zone (1968, P 261-2).

ASSOCIATION. An association is the consistent combination of both overstory and understory climax dominants. Vegetation is relatively homogeneous as to the dominant plants of all structural layers (Daubenmire 1968).

1/ Floristics refers to the taxonomic assemblage of plants in any area, their geographic ranges, and evolutionary and migratory history.

Integration of Terrestrial Ecosystem Components:

The complex interaction of climate, soil and vegetation gives rise to several different Terrestrial Ecosystems. The interrelationship between soil, climate and vegetation may be depicted in the following diagram:

CLIMATE

TE

SOIL VEGETATION

The diagram indicates that soil and vegetation are influenced by climate and by each other. The product of these interactions is a Terrestrial Ecosystem.

The three components of a Terrestrial Ecosystem can be arranged into an infinite number of combinations. Gradient analysis is used to integrate these components to a realistic number. The basis for the initial segmentation of the gradient into uniform segments is by soil moisture and temperature regimes. This results in the preliminary continuum. The correlation of indicator plants with the soil moisture-temperature regimes results in a further refinement of the segments. The final phase consists of integrating soil categories (Soil Taxonomy) to form individual Terrestrial Ecosystems. The resultant ordered alignment of Terrestrial Ecosystems is the continuum of climatic climaxes. Departure from the climatic climax is attributed to a property resulting in edaphic, topographic, fire, or zootic climaxes. Occassionally it is a combination

of properties and the resultant climax is referred to as topo-edaphic, fire-zootic, etc.

Terrestrial ecosystem can be related to primary climaxes and associated disclimaxes. This relationship is depicted in the following diagram:

Primary Climaxes		
Edaphic	Topographic	
Disclimaxes		
Fire Zootic	Fire Zootic	Fire Zootic

Successional pathways for terrestrial ecosystems are controlled by climatic parameters. Table 3 contains information by columns that reflect these climatic parameters. It is possible to move from primary climax to disclimax within the limits indicated in the columns, but not among columns.

In some instances a terrestrial ecosystem has moved from climatic climax to an edaphic climax through site degradation. This shift is mainly attributed to soil loss exceeding tolerance over a significant period of time.

Table 2. Gradient Analysis for High Sun Cold Climate Continuum.

3	4	5	6	7	8	Descriptors		
						HSC		
						Climate		
Vaughn	Mtn.Air	Flagstaff	Cloudcrof			NOAA Wx. Sta:		
12	9	5	4	1	-3	MAAT	deg. C	0
---	10	6	5	2	-2			-1
11	8	5	3	0	---			+1
13	10[10]	6[6]	5[5]	2[2]	-2	MAST	deg. C	0
---	11	7	6	3[3]	-1[-1]			-1
12	9	6	4	1[2]	---			+1
---		12	9	6	4	MSST	deg. C	0
---		13	10	7	4			-1
		11	8	5	---			+1
---	5	2	1	-1	-6	MWST	deg. C	0
---	6	3	0	0	-5			-1
7	4	2	0	-2				+1
165	150(153)	120	90	60	30	FFP	no. days	0
---	160	130	100	70	40			-1
165	140	110	80	50	---			+1
30	40	56	68	76	88	MAP	cm	0
---	36	50	64	74	84			-1
31	46	60	72	80	---			+1
32	46	60	72	80				+1
---	80	110	140	170	210	MAS	cm	0
---	70	100	130	160	200			-1
60	90	120	150	180	---			+1
10P	10P	20P	50C	120C	15P	MASA	cm	0
---	---	15P	35P	90C	15P			-1
---	---	25P	70C	150C				+1
12/1	12/1	11/1	11/1	10/15	10/15	SP	mo.(s)	0
4/1	4/1	3/1	4/1	5/15	6/1			
---	---	12/1	11/1	10/15	10/15			-1
---	---	3/1	3/1	5/1	6/1			
---	---	11/1	10/15	10/15	---			+1
40	40	45	50	50	50	MLSP	% of ann.	
3.0	3.6	4.0	4.6	5.0	5.0	2yr 6hr	cm	
1820	2100	2400	2700	3200	3800	ME	m	0
1700	2000	2300	2600	3000	3600			-1
1900	2200	2500	2800	3400	---			+1
Ustic	Ustic	Ustic	Udic	Udic	Udic	SMR		
Mesic	Mesic	Frigid	Frigid	Cryic	Perg.	STR		

Table 3: Gradient Analysis for Low Sun Cold Climate Continuum

2	3	4	5	6	7	8	Descriptors		
							LSC		
							Climate		
							NOAA Wx. Sta:		
---	---	8(45°)	5(41°)	4 (39°)	1 37°		MAAT	deg. C	0
---	---	9(46°)	6 (43)	5(40)	2 38°				-1
12	10	7(44°)	5 (41)	3(38°)	036°				+1
---	---	9[9]	6[5]	5[5]	2		MAST	deg. C	0
---	---	10	7[7]	6	3[3]				-1
13	11[12]	8	6	4	1				+1
---			12	9	6		MSST	deg. C	0
---			13	10	7				-1
---			11	8	5				+1
---	---	5	2	1	-1		MWST	deg. C	0
---	---	6	3	2	0				-1
10	7	4	2	0	-2				+1
---		130(126)	100	90	60		FFP	no. days	0
---	---	140	110	100	70				-1
150	145	120	100	80	50				+1
---	---	40[35]16	56 (22)	68 (28)	76 (30)		MAP	cm	0
---	---	36 14	50 (20)	64 (26)	74(29.6)				-1
26	32 13	46 18	60 (24)	72 (29)	80				+1
---	---	90	120	150	180		MAS	cm	0
---	---	80	110	140	170				-1
40	70	100	130	160	190				+1
---	---	20P	35C	70C	120C		MASA	cm	0
---	---	15P	30C	60C	100C				-1
---	10P	25P	40C	90C	150C				+1
---	---	12/1	11/1	10/15	10/1		SP	mo.(s)	0
---		4/1	4/15	4/15	5/15				
---	---	12/1	11/1	11/1	10/1				-1
---		4/1	4/15	4/15	5/15				
---	12/1	11/15	11/1	10/1	10/1				+1
---	4/1	4/1	4/15	4/15	5/15				
60	60	60	55	50	50		MLSP	% of An.	
2.6	3.0	3.6	4.0	4.6	5.0		2 yr. 6	hr. st. cm	
1400	1800	2100	2400	2700	3000		ME	m	0
1200	1700	2000	2300	2600	2900				-1
1600	1900	2200	2500	2800	3100				+1
Aridic	Ustic	Ustic	Ustic	Udic	Udic		SMR		
Mesic	Mesic	Mesic	Frigid	Frigid	Cryic		STR		

Table 4. Gradient Analysis for Low Sun Mild Climate Continuum

1	2	3	4	5	6	Descriptor		
						LSM		
						Climate		
	Apache J	Globe				NOAA Wx. Sta.:		
		18(18)			---	MAAT	deg. C	0
---	22(22)							-1
					---			+1
23	20(20)	17(17)	14[13]	10	---	MAST	deg. C	0
---	21	18	15	11	8			-1
22[22]	19	16	13	9	---			+1
				14	---	MSST	deg. C	0
				15	12			-1
				13	---			+1
	[10]	[7]	[5]		---	MWST	deg. C	0
								-1
					---			+1
310	260	230(228)	200	170	---	FFP	no. days	0
---	290(290)	240	210	180	150			-1
300	250	220	220	160	---			+1
16	28	40(40)	52	64	---	MAP	cm	0
---	24(22)	36	48	60	72			-1
20	32	44	56	68	---			+1
0	0	0	30	90	---	MAS	cm	0
---	0	0	20	50	170			-1
0	0	10	40	130	---			+1
0	0	0	0	10	---	MASA	cm	
0								
---	0	0	0	0	30			-1
0	0	0	0	20	---			+1
---	---	---	---	12/15		SP	mo.(s)	0
				3/1				
---	---	---	---	---	12/15			-1
					3/15			
---	---	---	---	12/15	---			+1
				3/1				
60						MLSP	% of ann.	
3.0	3.0	3.6	4.0	4.6	5.0	2yr6hr st.cm		
300(777)	600	1200(1082	1500(1500	1900	---	ME	m	0
---	500(506)	1000	1400	1700	2200			-1
400(502)	800	1300	1600	2100	---			+1
Aridic	Aridic	Ustic	Ustic	Ustic	Udic	SMR		
Hyperth.	Thermic	Thermic	Mesic	Mesic	---	STR		0
---	Thermic	Thermic	Thermic	Mesic	Mesic			-1
Hyperth.	Thermic	Thermic	Mesic	Mesic	---			+1

Abbreviations

NOAA - National Oceanic and Atmospheric Administration-climatological data
MAAT - mean annual air temperature in deg. C.
MAST - mean annual soil temperature @ 50cm in deg. C.
MSST - mean summer soil temperature @ 50cm in deg. C.(June, July, August)
MWST - mean winter soil temperature @ 50cm in deg. C.(December, January, February)
FFP - freeze free period in days
MAP - mean annual precipitation in cm
MAS - mean annual snow in cm
MASA - mean annual snow accumulation (P-patchy, C-continuous) in cm
SP - snow period, continuous over two weeks or more, first accumulation to snow melt by month
MLSP - mean low sun precipitation in percent of annual precipitation
ME - mean elevation in m
SMR - soil moisture regime
STR - soil temperature regime
SS - subseries for vegetation (unit of classification)
( ) - plants vary by geographic distribution within constraints (temperature, precipitation, timing,etc.) LSC, HSC, HSM, and LSW
( ) - indicates measured values from climatic stations
[ ] - indicates measured values from field study
{ } - Plants are missing due to changes in climate over time. Usually this situation occurs in isolated mountain ranges. These changes can be attributed to cyclic periods in climate between glaciation and altithermal.
* - indicates plants are not presently included in National Handbook of Plant Names
** - indicates plant names have been submitted to SCS for inclusion in the NHPN
T - plant is present in amounts less than 0.1% in the plot
P - plant is present and occurs outside of plot

Glossary

Alluvium: Material such as rock fragments, sand, silt or clay that is deposited on land by water action.

Alpine Tundra: The alpine tundra zone (generally above 12,000 feet elevation) is considered to be that area above tree line due to severity of climate, characterized by grasses, forbs, sedges, and often dwarfed prostrate shrubs.

Aquic: A mostly reducing soil moisture regime nearly free of dissolved oxygen due to saturation by ground water or its capillary fringe and occurring at periods when the soil temperature at 50 centimeters is above 5 degrees Centigrade.

Badland: A land type generally devoid of vegetation and broken by an intricate maze of narrow ravines, sharp crests, and pinnacles resulting from serious erosion of soft geologic material.

Base saturation percentage: The extent to which the absorption complex of a soil is saturated with exchangeable cations other than hydrogen; expressed as a percentage of the total cation-exchange capacity.

Boulder: Rock fragments greater than 24 inches (60 centimeters) in diameter.

Calcareous soil: Soil containing sufficient free calcium carbonate or magnesium carbonate to effervesce carbon dioxide visibly when treated with cold 0.1 normal hydrochloric acid.

Cation-exchange capacity (CEC): The sum total of exchangeable cations that a soil can absorb: expressed in milliequivalents per 100 grams of oven dry soil.

Clay: A soil separate with diameter of less than .002 millimeters.

Climate: The sum total of all atmospheric or meteorological influences, principally temperature, moisture, wind, pressure and evaporation, which combine to characterize a region and give it individuality by influencing the nature of its land forms, soils, vegetation, and land use.

Climax: A plant community of the most advance type capable of development under and in dynamic equilibrium with the prevailing environment.

Cobble: Rock fragments ranging in size from 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Color, Soil: A color designation system that specifies the relative degrees of three simple variables of color: hue, value, and chroma.

Chroma: The relative purity, strength, or saturation of a color; directly related to the dominance of the determining wavelength of the light and inversely related to grayness; one of the three variables of color (hue, value, and chroma).

Control Section: (As used in the Soil Classification System of the National Cooperative Soil Survey in the United States). Depths of soil material within which certain diagnostic horizons, features, and other characteristics are used to differentiate in the classification of soils.

Cord: A unit of measurement of stacked wood containing 128 cubic feet within its outside surfaces. The standard cord is a pile of wood 4 feet by 8 feet, made up of sticks 4 feet long, containing about 80 solid cubic feet of wood.

Cryic: A soil temperature regime that has mean annual soil temperatures of more than 0 degrees Centigrade, but less than 8 degrees Centigrade.

Current Soil Loss: The rate of soil erosion occurring under existing conditions of effective ground cover.

Depth, Soil: The depth of soil material that plant roots can penetrate readily to obtain water and plant nutrients; the depth to a layer that differs sufficiently from the overlying material in physical or chemical properties to prevent or seriously retard the growth of roots.

Diagnostic Horizons: (As used in the Soil Classification System of the National Cooperative Soil Survey in the United States): Combinations of specific soil characteristics that are indicative of certain classes of soils. Those which occur at the soil surface are called epipedons, those below the surface diagnostic subsurface horizons:

Albic Horizon: A mineral soil horizon from which clay and free iron oxides have been removed or in which the oxides have been segregated to the extent that the color of the horizon is determined primarily by the color of the primary sand and silt particles rather than by coatings on these particles.

Argillic Horizon: A mineral soil horizon that is characterized by the illuvial accumulation of layer-latice silicate clays. The argillic horizon has a certain minimum thickness depending on the thickness of the solum, a minimum quantity of clay in comparison with an overlying eluvial horizon depending on the clay content of the eluvial horizon, and usually has coatings of oriented clay on the surface of pores or peds or bridging sand grains.

Calcic Horizon: A mineral soil horizon of secondary carbonate enrichment that is more than 15 cm (6 inches) thick, has a calcium carbonate equivalent of more than 15 percent, and has at least 5 percent more calcium carbonate equivalent than the underlying C horizon.

Cambic Horizon: A mineral soil horizon that has a texture of loamy very fine sand or finer, has soil structure rather than rock structure, contains some weatherable minerals, and is characterized by the lateration of removal of mineral material as indicated by mottling or gray colors, stronger chromas or redder hues than in underlying horizons, or the removal of carbonates. The cambic horizon lacks cementation or induration and has too few evidences of illuviation to meet the requirements of the argillic or spodic horizon.

Mollic Epipedon: A surface horizon of mineral soil that is dark colored and relatively thick, contains at least 1.0 percent organic matter, is not massive and hard or very hard when dry, has a base saturation of more than 50 percent when measured at pH 7.0.

Ochric Epipedon: A surface horizon of mineral soil that is too light in color, too high in chroma, too low in organic carbon, or too thin to be a plaggen, mollic, umbric, anthropic, or histic epipedon or that is both hard and massive when dry.

Umbric Epipedon: Similiar to mollic epipedon except that the base saturation is less than 50 percent. Generally found at the highest elevations above tree line.

Eolian Sand: Parent material that is deposited through wind action; commonly sandy sized materials as used in this survey area.

Ecosystem: A community, including all the component organisms, together with the environment, forming an interacting system.

Edaphic Climax: The ultimate vegetation where substratal peculiarities are sufficiently pronounced to produce a self-perpetuating vegetation that differs from the climatic climax of the area.

Ephemeral Stream: A stream or portion of a stream that flows only in direct response to precipitation, and receives little or no water from springs or no long continued supply from snow or other sources, and its channel is at all times above the water table.

Eroded: As used as a soil phase, the surface of a soil that has lost a measureable amount of original material due to accelerated erosion, approaching 25 percent or more.

Erosion: (1) The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep. (2) Detachment and movement of soil or rock fragments by water, wind, ice or gravity.

Accelerated Erosion: Erosion much more rapid than normal, natural, or geologic erosion, primarily as a result of the influence of the activities of man or in some cases of other animals or natural catastrophies that expose bare surfaces, for example, fires.

Geological Erosion: The normal or natural erosion caused by geological processes acting over long geologic periods and resulting in the wearing away of mountains, the building up of floodplains, coastal plains, etc. Also called natural erosion.

Gully Erosion: The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to considerable depths, ranging from 1 to 2 feet to as much as 75 to 100 feet.

Natural Erosion: Wearing away of the earth's surface by water, ice, or other natural agents under natural environmental conditions of climate, vegetation, etc., undisturbed by man. Also called geological erosion.

Rill Erosion: The removal of soil through the cutting of many small but conspicuous channels where runoff concentrates. Rill erosion is intermediate between sheet and gully erosion. The channels are shallow enough that they are easily obliterated by tillage.

Sheet Erosion: The more or less uniform removal of soil from an area without the development of conspicuous water channels. The channels are tiny or tortuous, exceedingly numerous, and unstable; they enlarge and straighten as the volume of runoff increases. Sheet erosion is less apparent, particularly in its early stages, than other types of erosion. It is generally more serious as slope gradient increases.

Wind Erosion: Wind is not generally an important cause of erosion in humid areas except on unprotected sandy soils and on tracts of drained and cultivated organic soils. In regions of low rainfall, wind erosion can be widespread, especially during periods of drought. Unlike water erosion, wind erosion is generally not related to slope gradient. The hazard of wind erosion is increased by removing or reducing the vegetation.

Excessively Drained: As used as a phase, soils that have very high rates of hydraulogic conductivity, and low water holding capacity to an extent that it effects the type of vegetation that grows on the soil.

Fire (pyro) Climax: A plant community which maintains its composition and structure only as a consequence of periodic burning.

Forage Production (climax): The amount of vegetation that is produced annually under the climax vegetation community and that is available and palatable to livestock or wildlife. (air dry, measured to a height of 4 1/2 feet.)

Forage Production (maximum): The amount of vegetation that is produced upon total elimination of non-forage species (air dry-measured to a height of 4 1/2 feet.)

Frigid: A soil temperature regime that has mean annual temperatures of more than 0 degrees Centigrade, but less than 8 degrees, and a difference of more than 5 degrees between mean summer and winter soil temperatures at 50 centimeteres depth, and warm summer temperatures.

Gravel: Rock fragments ranging in size from 0.2 to 7.6 centimeters in diameter.

Growing Stock Level: The square foot per acre basal area measurements that a residual stand has or will have when the stand diameter is 10 inches or more.

Gullied: As used as a soil phase, a soil that has lost excessive amounts of material due to accelerated erosion by water, forming large channels so deep that intensive measures such as reshaping are required to reclaim the soil.

Herbaceous Vegetation: As used in the UNESCO Vegetation Classification System, "Mainly composed of grasses, grasslike plants, and forbs."

Herbage Production (Climax): The total amount of herbaceous vegetation that is produced annually under the climax vegetative community measured to a height of 4.5 feet. This includes grasses, shrubs, and trees.

Hue: One of the three components of color (hue, value, chroma). Hue represents the dominant spectral (rainbow) color related to the dominant wavelength of the light.

Hydrothermally Altered Lands: Soils and/or geologic materials altered by geothermal waters.

Included Soils: Soils that are not present in every delineation of the subject mapping unit. Generally 15 percent or less of the total composition.

Infiltration Rate: A soil characteristic determining or describing the maximum rate at which water can enter the soil under specified conditions, including the presence of an excess of water. It has the dimensions of velocity.

Intermittent Stream: A stream or portion of a stream that flows only in direct response to precipitation. It receives little or no water from springs and no long continued supply from snow or other sources. It is dry for a large part of the year, ordinarily more than 3 months.

K-factor: The Soil Erodibility Factor used in the Universal Soil Loss Equation which represents the capability of a soil surface to resist sheet erosion. It is a function of the physical and chemical properties of the soil.

Liquid Limit: The water content (in percent) at which a soil changes from a plastic condition to a liquid state.

Lithic Contact: A boundary between soil and continuous, coherent underlying rock that has a hardness of three or more (Mohs scale).

Major Soils: Soils that are present in significant extent in every delineation of the subject mapping unit.

Mesic: A soil temperature regime that has mean annual soil temperatures of 8 degrees Centigrade or more, but less than 15 degrees and more than 5 degrees difference between mean summer and winter soil temperatures at 50 centimeters depth.

Mineral Soil: A soil consisting predominantly of, and having its properties determined predominantly by, mineral matter, usually containing less than 20 percent organic matter.

Mixed Minerology: A minerology class that has less than 40 percent of any one mineral besides feldspars or quartz.

Montmorillonite: An aluminosilicate clay mineral with 2:1 expanding crystal structure that is, with two silicon tetrahedral layers enclosing an aluminmum octahedral layer. Considerable expansion may be caused along the C axis by water moving between silical layers of contiguous units.

Mottled (soils): Soil horizons irregularly marked with spots of color. A common cause of mottling is impeded drainage, although there are other causes, such as soil development from an unevenly weathered rock. The weathering of different kinds of minerals may cause mottling.

Natural Soil Loss (NSL): The rate of soil loss under conditions associated with a climax category, (minimum rate). The boundary between potential capability and no capability is the line of constant slope as determined at the point where "TSL" is equivalent to "NSL".

Order: An indication of the intensity of soil mapping. Order one is very intense and order five is very general. Orders two, three, and four are of intermediate intensity.

Paralithic Contact: (As used in the Soil Classification System of the National Cooperative Soil Survey in the United States): A boundary between soil and continuous coherent underlying material that has a hardness of less than 3 (Mohs scale). When moist, the underlying material can be dug with a spade and chunks will disperse in water with 15 hours shaking. Example, shale.

Parent Material (soils): The unconsolidated, more or less chemically weathered mineral or organic matter from which the solum of soils has developed by pedogenic processes. The C horizon may or may not consist of materials similar to those from which the A and B horizons developed.

Ped: A unit of soil structure, such as an aggregate, crumb, prism, block, granule, formed by natural processes.

Pedon: A soil column extending down from the surface to reach a lower limit in some form of regolith or bedrock, and the smallest volume that can be called a "soil"

Perennial Stream: Streams that flow throughout the year and from source to mouth.

Pergelic: A soil temperature regime that has a mean annual temperature less than 0 degrees Centigrade.

Permeability, Soil: (i) The ease with which gases, liquids, or plant roots penetrate or pass through a bulk mass of soil or a layer of soil. Since different soil horizons vary in permeability, the particular horizon under question should be designated. (ii) The property of a porous medium itself that relates to the ease with which gases, liquids, or other substances can pass through it.

pH, Soil: The negative logarithm of the hydrogen activity of a soil. The degree of acidity (or alkalinity) of a soil as determined by means of a glass, quinhydrone, or other suitable electrode or indicator at a specified moisture content of soil-water ration and expressed in terms of the pH scale of 0 to 14.

Phase, Soil: A subdivision of a soil taxon, usually a soil series or other unit of classification based on characteristics that affect the use and management of the soil but which do not vary sufficiently to differentiate it as a separate soil series. A variation in a property or characteristic, such a degree of slope, degree of erosion, content of stones, texture of the surface, etc. Phases of soil series are the major components of the soil mapping units shown on detailed soil maps in the United States.

Plant Available Water: The amount of water that a soil can hold that is available for plant use (generally between 1/3 bar and 15 bars of tension).

Plastic Index: The numerical difference between the liquid and the plastic limit.

Plastic Limit: The water content (in percent) at which a soil changes from a nonplastic to a plastic condition.

Potential Frost Action: A soil rating to reflect the potential of soils to change volume due to freezing and thawing.

Potential Soil Loss (PSL): The rate of soil loss that would occur under conditions of complete removal of the vegetation and litter portion of effective ground cover (maximum rate).

Productivity, Soil: The capacity of a soil, in its normal environment, for producing a specified plant or sequence of plants under a specified system of management. The "specified" limitations are necessary since no soil can produce all crops with equal success nor can single system of management produce the same effect on all soils. Productivity emphasizes the capacity of soil to produce crops and should be expressed in terms of yields.

Reaction, Soil: The degree of acidity or alkalinity of a soil, usually expresed as a pH value. Descriptive terms commonly associated with certain ranges in pH are extremely acid, less than 4.5; very strongly acid, 4.5-5.0; strongly acid, 5.1-5.5; medium acid, 5.6-6.0; slightly acid, 6.1-6.5; neutral, 6.6-7.3; mildly alkaline, 7.4-7.8; moderately alkaline, 7.9-8.4: strongly alkaline, 8.5-9.0; and very strongly alkaline, more than 9.0.

Residual Material: Unconsolidated and partly weathered mineral materials accumulated by disintegration of consolidated rock in place.

Rock Fragments: All fragments greater than 2 millimeters. Includes gravel, cobble, stone, and boulder.

Rubbleland: Accumulations of loose, angular rock fragments, not water-worn or rounded.

Runoff: That portion of the precipitation on an area which is discharged from the area through stream channels. That which is lost without entering the soil is called surface runoff and that which enters the soil before reaching the stream is called groundwater runoff or seepage flow from groundwater.

Sand: A soil separate or mineral fragment ranging from 2.0 to 0.5 millimeters in diameter.

Seral: A plant community that does not represent the potential natural vegetation, but that is intermediate in the sequence of plan community successional stages.

Shrink-swell Potential: Susceptibility to volume change due to loss or gain in moisture content, in the soil.

Skeletal: Rock Fragments greater than 2 millimeters in diameter make up more than 35 percent by volume of the soil in the control section.

Slope Length (SL): It is the distance from the point of origin of overland flow to the point where either the slope gradient decreases enough that deposition begins, or the runoff becomes concentrated. A well defined stream channel or ditch need not be present.

Soil: The natural 3 dimensional medium for the growth of land plants; the collection of natural bodies on the earth's surface capable of supporting plants.

Soil Loss: The predicted net average annual soil loss from a site due to sheet and rill erosion under variable canopy cover, effective ground cover conditions, slope-effect parameters, precipitation and managment parameters.

Soil Structure: The combination or arrangement of primary soil particles into secondary particles, units, or peds. The secondary units are characterized and classified on the basis of size, shape, and degree of distinctness into classes, types, and grades, respectively.

Solum (plural: sola): The upper and most weathered part of the soil profile; the A and B horizons.

Somewhat Poorly Drained: Soils that have seasonal water tables, additions of water through seepage, or a layer with low hydraulic conductivity, to the extent that the vegetation that will grow is noticeably effected. Used as a soil phase in this report.

Stones: Rock fragments 10 to 24 inches in diameter.

Subsoil: Generally the portion of the soil below the surface or "A" horizon.

Terrestrial Ecosystem: A terrestrial ecosystem is a conceptual unit of interacting soil and climax vegetation controlled primarily by a specific climate. Phases of terrestrial ecosystems are the functional land units for which interpretations are made.

Texture, USDA: The relative proportions of sand, silt and clay as described by classes established by the USDA.

Tolerance Soil Loss (TSL): The maximum rate of soil loss that can occur while sustaining inherent site productivity.

Topographic Climax: Wherever local topography usually operating through microclimate produces a distinctive vegetative climax (Daubenmire).

Udic: A soil moisture regime that is neither dry for as long as 90 cumulative days, nor for as long as 60 consecutive days in the 90 days following summer solstice at periods when the soil temperature at 50 centimeters is above 5 degrees Celsius.

United Soil Classification System: A classification system based on the identification of soils according to their particle size, gradation, plasticity index, and liquid limit.

Ustic: A soil moisture regime that is intermediate between the aridic and udic regimes and common in temperate sub-humid or semiarid regions, or in tropical and subtropical regions with a monsoon climate. A limited amount of moisture is available for plants but occurs at times when the soil temperature is optimum for plant growth.

Value, Color: The relative lightness or intensity of color and approximately a function of the square root of the total amount of light. One of the three variables of color. See Munsell color system hue, and chroma.

Zootic Climax: The climax produced by the effects of man or his activities where the soil and modified vegetation form a dynamic and interlocking system. This includes pyro-zootic climaxes in which repeated burning that is required to produce fire climaxes is always a consequence of man's activity. This definition does not include natural fire climaxes where man is not involved.

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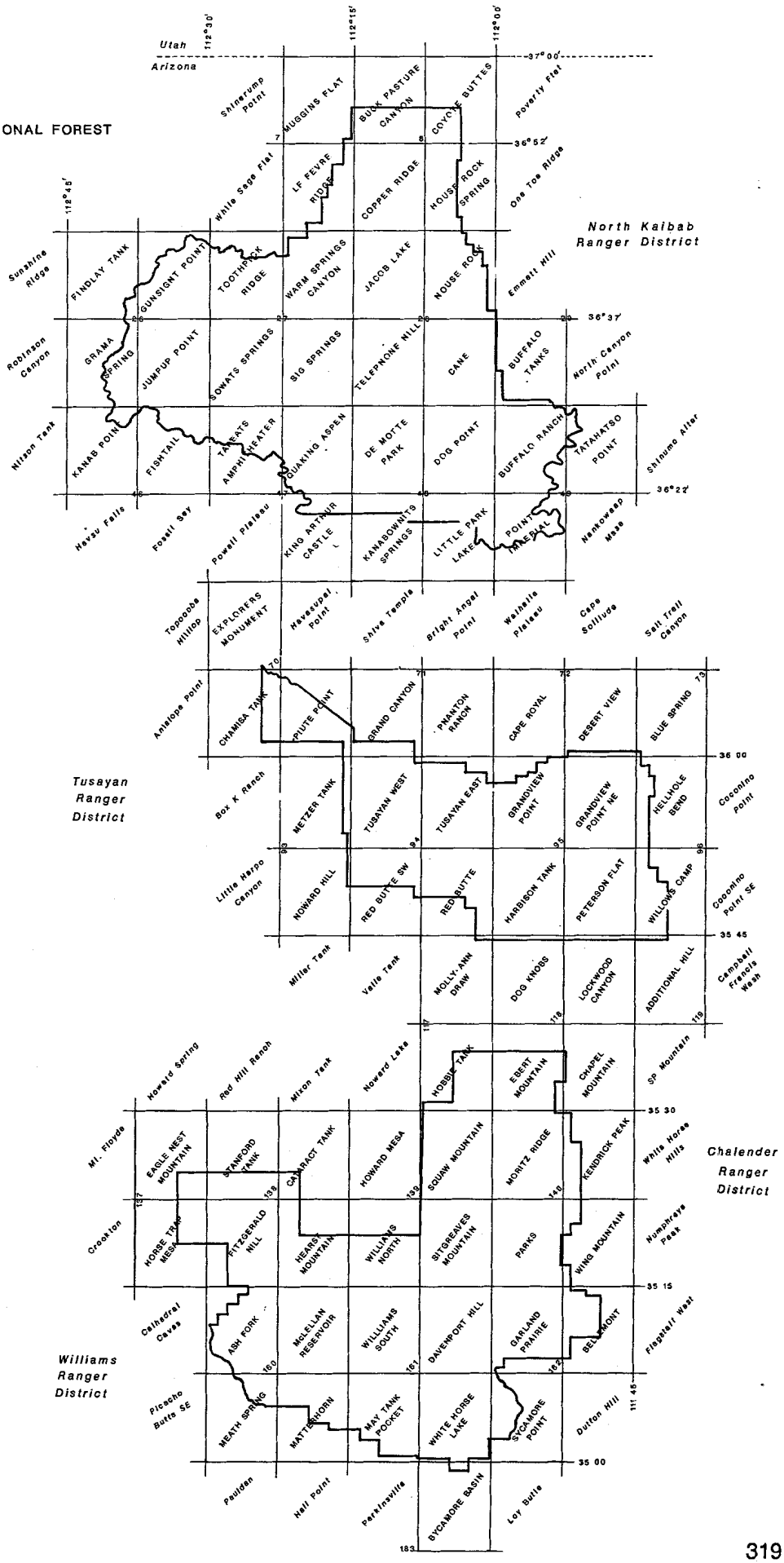
Map Index Sheet



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1.0 Date 4/95 MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS USDA-FS

Map Symbol and Name: 645 Typic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, moderately deep, very gravelly loam - Lithic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, very gravelly loam, complex: 40-80 percent slopes, Feov/Bran/Mumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on steep to extremely steep complex concave and convex escarpments. Components formed in residuum and talus from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 01 November to 30 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2550 to 2650 meters. Delineations are irregular in shape and vary in size from 5 to 50 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutrochrepts, --- loamy-skeletal, mixed, frigid	moderately deep very gravelly loam ---	LSC 6 0	Feov/Bran/ Mumo	Topo/ edaphic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	50%
2.2 Lithic Eutrochrepts, - amy-skeletal, mixed, frigid	--- very gravelly loam	LSC 6 0	Feov/Bran/ Mumo	Topo/ edaphic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Eutrochrepts, --- fine-loamy, mixed, frigid	moderately deep very gravelly loam ---	LSC 6 0	Feov/Bran/ Mumo	Topo/ edaphic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	10%
2.6 Rock Outcrops					MAP cm ME m MAST C MSST C	10%

3.0 Management Implications.

3.1 & 3.2 The shallow depth, slopes, and rockiness of these soils limit management activities. The Kaibab bladderpod does occur on these soils. The Kaibab paintbrush and Penstemen pseudoputus might occur in this TES unit.

3.3

Map Symbol: 645

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
73.3	4.5	23.4	4.8	73.3	2.2	23.4	4.8								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	60	20	60	0	75	20	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
50	2	15	33	50	2	15	33								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	150	100		
Forage	900	750		
Forage (maximum)	950	900		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Redwing blackback	Ess.	Ess.		
Savannah sparrow	Ess.	Ess.		
Nrthn pocket gopher	Imp.	Imp.		
Wild turkey	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Mod.	Mod.		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.		6.1	6.2	6.3	6.4
Scientific Name	Symbol	% Canopy Cover			
Achillea millefolium lanulosa	Acmil	T	T		
Aconitum columbianum	Acco4	T	T		
Antennaria parvifolia	Anpa4	2	2		
Arenaria aberrans	Arab	T	T		
Artemisia frigidia	Arfr4	T	T		
Campanula rotundifolia	Caro2	1	1		
Castilleja integra	Cain	T	T		
Erigeron formosissimus	Erfo	T	T		
Eriogonum ovalifolium	Erov	T	T		
Erysimum capitatum	Erca14	T	T		
Gilia aggregata	Giag	5	5		
Lesquerella kaibabensis	Leka	T	T		
Phlox diffusa	Phdi3	1	1		
Potentilla palcherrima	Popu9	2	2		
Sisyrinchium longipes	Silo	.5	5.		
Swertia radiata	Swra	2	T		
Taraxacum officinale	Taof	1	1		
Verbena macdougalii	Vema	T	T		
Agropyron tracycaulum	Agtr	T	T		
Bromus anomalus	Bran	10	10		
Carex	CAREX	3	3		
Danthonia intermedia	Dain	5	5		
Festuca ovina	Feov	10	10		
Koelaria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	2		
Poa pratensis	Popr	T	T		
Stipa lettermanii	Stle4	1	1		

Remarks: This map unit is found on the over 40% slopes between meadows and the tree line. The cold air trapped by the topography of the meadows and drainage bottoms keeps the vegetation as grasses and forbs instead of trees.

1.0 Date 7/93 rev 10/94 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 643 Lithic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, very gravelly loam - Typic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, moderately deep, very gravelly loam, complex: 16-40 percent slopes, Feov/Bran/Mumo.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple linear and concave elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 15 October to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2550 to 2650 meters. Delineations are irregular in shape and vary in size from 20 to 100 hectares. Ephemeral streams are within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Eutrochrepts, --- loamy-skeletal, mixed, frigid	--- very gravelly loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic zootic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	50%
2.2 Typic Eutrochrepts, --- loamy-skeletal, mixed, frigid	moderately deep very gravelly loam	LSC 6 0	Feov/Bran/ Mumo	Edpahic zootic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Eutrochrepts, --- fine-loamy, mixed, frigid	moderately deep very gravelly loam ---	LSC 6 0	Feov/Bran/ Mumo	Edaphic zootic	MAP 68 cm ME 2600 m MAST 5 C MSST 9 C	10%
2.6 Rock Outcrops					MAP cm ME m MAST C MSST C	10%

3.0 **Management Implications.**

3.1 The shallow depth, slopes, and rockiness of these soils limit management activities. The Kaibab paintbrush and Penstemen pseudoputus could occur and Kaibab bladderpod does occur on these soils.

3.2 These soils occur in high meadows. The Kaibab paintbrush and Penstemen pseudoputus could occur and Kaibab bladderdod does occur on these soils.

3.3

Map Symbol: 643

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
72.4	4.5	6.7	6.7	72.4	6.7	6.7	6.7								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	70	70	70	0	60	60	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
70	2	15	13	50	3	35	12								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	1200	1500		
Forage	1500	1800		
Forage (maximum)	1800	2000		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Redwing blackback	Ess.	Ess.		
Savannah sparrow	Ess.	Ess.		
Nrthn pocket gopher	Imp.	Imp.		
Wild turkey	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
	Achillea millefolium lanulosa	Acmil	T	T		
	Aconitum columbianum	Acco4	T	T		
	Antennaria parvifolia	Anpa4	2	2		
	Arenaria aberrans	Arab	T	T		
	Artemisia frigidia	Arfr4	T	T		
	Campanula rotundifolia	Caro2	1	1		
	Castilleja confusa kaibabensis	Cacok	T	T		
	Erigeron formosissimus	Erfo	T	T		
	Eriogonum ovalifolium	Erov	T	T		
	Erysimum capitatum	Erca14	T	T		
	Gilia aggregata	Giag	5	5		
	Lathyrus arizonica	Laar	1	1		
	Phlox diffusa	Phdi3	1	1		
	Potentilla palcherrima	Popu9	2	2		
	Sisyrinchium longipes	Silo	.5	5.		
	Swertia radiata	Swra	2	T		
	Taraxacum officinale	Taof	1	1		
	Verbena macdougalii	Vema	T	T		
	Agropyron tracycaulum	Agtr	T	T		
	Bromus anomalus	Bran	10	10		
	Carex	CAREX	3	3		
	Danthonia intermedia	Dain	5	5		
	Festuca ovina	Feov	10	10		
	Koelaria cristata	Kocr	1	1		
	Muhlenbergia montana	Mumo	2	2		
	Poa pratensis	Popr	T	T		
	Stipa lettermanii	Stle4	1	1		

1.0 Date 5/93 rev 10/94 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 622-Lithic Haploborolls, LSC, 6,-1, loamy-skeletal, mixed, gravelly fine sandy loams-Mollic Eutroboralfs, LSC, 6, -1, clayey-skeletal, montmorollonitic, gravelly fine sandy loams, complex: 0-15% percent slopes, Pipos/Quga/Potr5/Abco

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 62 to 66 centimeters; mean annual air temperature ranges from 4 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 140 centimeters and the mean annual snow accumulation is 60 centimeters. The freeze free period is 100 days. The elevation ranges from 2400 to 2650 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Haploborolls,	---	LSC	Pipos/Quga/	Edaphic	MAP 64 cm	40%
---	gravelly	6	Potr5/Abco	Fire	ME 2600 m	
loamy-skeletal, mixed,	fine sandy loam	-1			MAST 5 C	
---	---				MSST 10 C	
2.2 Mollic Eutroboralfs,	moderately deep	LSC	Pipos/Quga/	Edaphic	MAP 64 cm	40%
---	gravelly	6	Potr5/Abco	Fire	ME 2600 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	-1			MAST 5 C	
---	---				MSST 10 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipos/Quga	Fire/	MAP 64 cm	10%
---	gravelly	6	Potr5/Abco	Edaphic	ME 2600 m	
fine, montmorillonitic,	fine sandy loam	-1			MAST 5 C	
---	---				MSST 10 C	
2.6 Rock Outcrops					MAP cm	10%
					ME m	
					MAST C	
					MSST C	

3.0 **Management Implications.**

3.1 Soil are less than 20" deep, are high in rock fragments, and have a low water holding capacity. The surface soils are easily eroded. The surface horizon is less than 4".

3.2 Soil has a low bearing strength when wet which causes road maintenance problems, compactions and surface displacement if vehicles are on it when it is wet. The surface horizon is less than 4". Operations which mix the clayey subsoil with the surface horizon will lower site productivity.

Map Symbol: 622

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
10.7	4.5	.4	.2	10.7	6.7	.9	.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	20	50	90	0	8	60	95								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
45	2	43	10	25	2	63	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	500		
Forage	200	250		
Forage (maximum)	2350	2500		
Timber	Site Index			
Pipos	55	60		
(Abco regen)				
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Wild Turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Sli		
Cutbank Stability	Sli.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Mod.		
Wheeled O.R.V.	Sev.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	---	---		
Windthrow	Sev.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.

Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Abies concolor	Abco	P	P		
Pinus ponderosa	Pipos	40	60		
Populus tremuloides	Potr5	25	15		
Pseudotsuga menziesii glauca	Psmeg	P	P		
Quercus gambelii	Quga	5	5		
Berberis repens	Bere	.3	.5		
Ceanothus fendleri	Cefe	.3	.3		
Juniperus communis	Juco6	1	1		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	2	2		
Symphoricarpos oreophilus	Syor2	P	P		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria parvifolia	Anpa4	1	1		
Arenaria abberans	Arab	T	T		
Erigeron speciosus	Ersp4	.5	.3		
Eriogomun racemosum	Erra3	T	T		
Gilia aggregata	Giag	.5	.3		
Lotus wrightii	Lowr	.1	.1		
Lupinus argenteus	Luar3	3	3		
Senecio multilobatus	Semu3	.5	.1		
Thalictrum fendleri	Thfe	.5	.3		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	10	8		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	3		
Poa fendleriana	Pofe	2	3		
Poa longiligula	Polo	2	3		
Sitanion hystrix	Sihy	2	2		
Stipa columbiana	Stco3	1	1		

Remarks: This map unit is a warmer and drier Abco site. When fire is kept out of this ecosystem, white fir and douglas fir come into the understory in small amounts.

1.0 Date 4/95 MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS USDA-FS

Map Symbol and Name: 603 - Eutric Glossoboralfs, LSC, 6, +1, clayey-skeletal, montmorillonitic, gravelly fine sandy loam - Lithic Eutrochrepts, LCS, 6, +1, loamy-skeletal, mixed, frigid, very cobbly fine sandy loam, complex: 0-15 percent slopes, Pien/Pipos/Potr5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Components formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 70 to 74 centimeters; mean annual air temperature ranges from 2 to 4 degrees Celsius. Approximately 50 percent of the precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover occurs from 01 November to 30 April. Mean annual snowfall is 160 centimeters and mean annual snow accumulation is 90 centimeters. The freeze free period is 80 days. The elevation ranges from 2550 to 2750 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Eutric Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	60%
---	gravelly	6	Potr5	edaphic	ME	2650m	
clayey-skeletal, montmorillonitic	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.2 Lithic Eutrochrepts,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	20%
---	very cobbly	6	Potr5	edaphic	ME	2650m	
loamy-skeletal, mixed,	fine sandy loam	+1			MAST	3C	
frigid	---				MSST	9C	
2.3					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5 Lithic Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	10%
---	very cobbly	6	Potr5	edaphic	ME	2650m	
clayey-skeletal, montmorillonitic,	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.6 Typic Paleboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	10%
---	gravelly	6	Potr5	edaphic	ME	2650m	
clayey-skeletal, montmorillonitic,	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	

3.0 Management Implications.

3.1 These soils have low bearing strength when wet. When surface is bare, these soils are prone to accelerated sheet and rill erosion.

3.2 The shallow depth and rockiness will restrict management activities. These soils have low bearing strength when wet and are prone to sheet and rill erosion when bare.

3.3

Map Symbol: 603

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
6.6	4.5	.8	.4	6.6	2.2	.8	.4								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	25	70	80	0	45	70	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	5	60	5	40	2	53	5								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	350	300		
Forage	250	250		
Forage (maximum)	3500	3500		
Timber	Site Index			
Pien	70	60		
Pipos	70	60		
Psmeg	65	60		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	Low		
Reforestation	Mod.	Low		
Source Suitability:				
Topsoil	Fair	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Mod.	Sli.		
Unsurfaced Roads	Mod.	Sev.		
Trails	Sli.	Sev.		
Campgrounds	Sli.	Sev.		
Wheeled O.R.V.	Mod.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Abies concolor	Abco	5	5		
	Picea engelmanii	Pien	15	10		
	Picea pungens	Pipu	5	5		
	Pinus ponderosa	Pipos	20	15		
	Populus tremuloides	Potr5	20	20		
	Pseudotsuga menziesii glauca	Psmeg	10	5		
	Berberis repens	Bere	1	1		
	Holodiscus dumosus	Hodu	T	T		
	Juniperus communis	Juco6	1	3		
	Lonicera involucrata	Loin5	T	T		
	Pachystima Myrsinites	Pamy	1	1		
	Rubus strigosus	Rust	T	T		
	Sambucus glauca	Sagl	1	1		
	Symphoricarpos oreophilus	Syor2	.1	.1		
	Aquilegia coerulea	Aqco	T	T		
	Erigeron formosissimus	Erfo3	2	2		
	Fragaria ovalis	Frov	1	1		
	Geranium caespitosum	Geca3	.5	.5		
	Geranium richardsonii	Geri	.5	.5		
	Lathyrus arizonica	Laar	T	T		
	Mertensia Macdougalii	Mema2	T	T		
	Vicia americana	Viam	T	T		
	Blepharoneuron tricholepis	Bltr	T	T		
	Bromus ciliatus	Brci2	1	1		
	Carex	CAREX	3	3		
	Dactylis glomerata	Dagl	T	T		
	Lolium perenne	Lope	T	T		
	Muhlenbergia montana	Mumo	T	T		

Remarks: This map unit is a seral stage developed under frequent fire conditions.

1.0 Date 4/95 MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS USDA-FS

Map Symbol and Name: 604 - Eutric Glossoboralfs, LSC, 6, +1, clayey-skeletal, montmorillonitic, gravelly fine sandy loam - Lithic Eutrochreptss, LCS, 6, +1, loamy-skeletal, mixed, frigid, very cobbly fine sandy loam - Typic Paleboralfs, LSC, 6, +1, clayey-skeletal, montmorillonitic, gravelly fine sandy loam, complex: 16-40 percent slopes, Pien/Pipos/Potr5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1, .2, and .3 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple linear and convex elevated plains. Components formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 70 to 74 centimeters; mean annual air temperature ranges from 2 to 4 degrees Celsius. Approximately 50 percent of the precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover occurs from 01 November to 30 April. Mean annual snowfall is 160 centimeters and mean annual snow accumulation is 90 centimeters. The freeze free period is 80 days. The elevation ranges from 2550 to 2750 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

make it average 2600

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Eutric Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	40%
---	gravelly	6	Potr5	edaphic	ME	2650m	
clayey-skeletal, montmorillonitic	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.2 Lithic Eutrochrepts,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	20%
---	very cobbly	6	Potr5	edaphic	ME	2650m	
loamy-skeletal, mixed,	fine sandy loam	+1			MAST	3C	
frigid	---				MSST	9C	
2.3 Typic Paleboralfs,	deep	LSC	Pien/Pipos/	Fire/	MAP	72cm	20%
---	gravelly	6	Potr5	edaphic	ME	2650m	
clayey-skeletal, montmorillonitic	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5 Lithic Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	10%
---	very cobbly	6	Potr5	edaphic	ME	2650m	
clayey-skeletal, montmorillonitic,	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.6 Rock Outcrops					MAP	cm	10%
					ME	m	
					MAST	C	
					MSST	C	

3.0 Management Implications.

3.1 These soils have low bearing strength when wet. When surface is bare, these soils are prone to accelerated sheet and rill erosion.

3.2 The shallow depth and rockiness will restrict management activities. These soils are prone to compaction when wet and are prone to sheet and rill erosion when bare.

3.3 These soils have low bearing strength when wet. When the surface is bare, these soils are prone to lerated sheet and rill erosion.

Map Symbol: 604

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
41.6	4.5	2.3	1.3	41.6	2.2	2.3	1.3	41.6	4.5	2.3	1.3				
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	55	70	80	0	70	70	80	0	55	70	80				
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	5	60	5	40	2	53	5	30	5	60	5				

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	350	300	350	
Forage	250	250	250	
Forage (maximum)	3500	3000	3500	
Timber	Site Index			
Pien	70	60	70	
Pipos	70	60	70	
Psmeg	65	60	65	
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	High	Mod.	Mod.	
Reforestation	Mod.	Low	Low	
Source Suitability:				
Topsoil	Fair	Poor	Poor	
Roadfill	Fair	Poor	Fair	
Wildlife Habitat Suit:				
Limitations For:				
Timber Harvest *	Sev.	Sev.	Sev.	
Cutbank Stability	Mod.	Mod.	Mod.	
Unsurfaced Roads	Mod.	Sev.	Mod.	
Trails	Mod.	Sev.	Mod.	
Campgrounds	Sev.	Sev.	Sev.	
Wheeled O.R.V.	Sev.	Sev.	Sev.	
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.	Sev.	
Mass Wasting	Mod.	Sli.	Mod.	
Windthrow	Mod.	Sev.	Mod.	
Plant Competition	---	---	---	

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
	Abies concolor	Abco	5	5	5	
	Picea engelmanii	Pien	15	10	15	
	Picea pungens	Pipu	10	5	10	
	Pinus ponderosa	Pipos	15	10	15	
	Populus tremuloides	Potr5	20	20	20	
	Pseudotsuga menziesii glauca	Psmeg	15	5	15	
	Berberis repens	Bere	1	1	1	
	Holodiscus dumosus	Hodu	T	T	T	
	Juniperus communis	Juco6	1	3	3	
	Lonicera involucrata	Loin5	T	T	T	
	Pachystima Myrsinites	Pamy	1	1	1	
	Rubus strigosus	Rust	T	T	T	
	Sambucus glauca	Sagl	1	1	1	
	Symphoricarpos oreophilus	Syor2	.1	.1	.1	
	Aquilegia coerulea	Aqco	T	T	T	
	Erigeron formosissimus	Erfo3	2	2	2	
	Fragaria ovalis	Frov	1	1	1	
	Geranium caespitosum	Geca3	.5	.5	.5	
	Geranium richardsonii	Geri	.5	.5	.5	
	Lathyrus arizonica	Laar	T	T	T	
	Mertensia Macdougalii	Mema2	T	T	T	
	Vicia americana	Viam	T	T	T	
	Blepharoneuron tricholepis	Bltr	T	T	T	
	Bromus ciliatus	Brci2	1	1	1	
	Carex	CAREX	3	3	3	
	Dactylis glomerata	Dagl	T	T	T	
	Lolium perenne	Lope	T	T	T	
	Muhlenbergia montana	Mumo	T	T	T	

Remarks: This map unit is a seral stage developed under frequent fire conditions.

* Severe rating is due to erosion hazard.

1.0 Date 4/95 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 605 - Lithic Glossoboralfs, LSC, 6, +1, clayey-skeletal, montmorillonitic, very cobbly sandy loam - Eutric Glossoboralfs, LCS, 6, +1, clayey-skeletal, montmorillonitic, very gravelly fine sandy loam, complex: 0-15 percent slopes, Pien/Pipos/Potr5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Components formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 70 to 74 centimeters; mean annual air temperature ranges from 2 to 4 degrees Celsius. Approximately 50 percent of the precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover occurs from 01 November to 30 April. Mean annual snowfall is 160 centimeters and mean annual snow accumulation is 90 centimeters. The freeze free period is 80 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Lithic Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	50%
---	very cobbly	6	Potr5	edaphic	ME	2700m	
clayey-skeletal, montmorillonitic	sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.2 Eutric Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	40%
---	very gravelly	6	Potr5	edaphic	ME	2700m	
clayey-skeletal, montmorillonitic,	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.3					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5 Rock Outcrops					MAP	cm	10%
					ME	m	
					MAST	C	
					MSST	C	
2.6					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	

3.0 **Management Implications.**

3.1 The shallow depth and rockiness will restrict management activities. These soils are prone to compaction and/or displacement when wet.

3.2 These soils are prone to compaction and/or displacement when wet. Due to high gravel content the water holding capacity is low in the albic horizon.

3.3

Map Symbol: 605

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
2.2	2.2	.3	.2	2.2	4.5	.3	.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	0	50	60	0	0	50	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
70	1	20	9	70	2	20	8								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	50	100		
Forage	100	150		
Forage (maximum)	150	200		
Timber	Site Index			
Pien	45	60		
Pipos	45	60		
Psmeg	50	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Limitations For:				
Timber Harvest	Sev.	Mod.		
Cutbank Stability	Sli.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sli.	Sli.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	Sli.	Sli.		
Windthrow	Sev.	Sev.		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Abies concolor	Abco	5	5		
Picea engelmanii	Pien	15	10		
Picea pungens	Pipu	5	5		
Pinus ponderosa	Pipos	20	15		
Populus tremuloides	Potr5	20	20		
Pseudotsuga menziesii glauca	Psmeg	10	5		
Berberis repens	Bere	1	1		
Holodiscus dumosus	Hodu	T	T		
Juniperus communis	Juco6	1	3		
Lonicera involucrata	Loin5	T	T		
Pachystima Myrsinites	Pamy	1	1		
Rubus strigosus	Rust	T	T		
Sambucus glauca	Sagl	1	1		
Symphoricarpos oreophilus	Syor2	.1	.1		
Aquilegia coerulea	Aqco	T	T		
Erigeron formosissimus	Erfo3	2	2		
Fragaria ovalis	Frov	1	1		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.5	.5		
Lathyrus arizonica	Laar	T	T		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	1	1		
Carex	CAREX	3	3		
Dactylis glomerata	Dagl	T	T		
Lolium perenne	Lope	T	T		
Muhlenbergia montana	Mumo	T	T		

Remarks: This map unit is a seral stage developed under frequent fire conditions. This TES unit is the "dwarf forest" along FR 462, west of DeMotte Park. Current undisturbed areas are probably as productive as this unit will ever get.

1.0 Date 4/95 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 606 - Lithic Glossoboralfs, LSC, 6, +1, clayey-skeletal, montmorillonitic, very cobbly sandy loam - Eutric Glossoboralfs, LCS, 6, +1, clayey-skeletal, montmorillonitic, very gravelly fine sandy loam, complex: 16-40 percent slopes, Pien/Pipos/Potr5.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple concave and convex elevated plains. Components formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 70 to 74 centimeters; mean annual air temperature ranges from 2 to 4 degrees Celsius. Approximately 50 percent of the precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Continuous snow cover occurs from 01 November to 30 April. Mean annual snowfall is 160 centimeters and mean annual snow accumulation is 90 centimeters. The freeze free period is 80 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax			Comp
2.1 Lithic Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	40%
---	very cobbly	6	Potr5	edaphic	ME	2700m	
clayey-skeletal, montmorillonitic	sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.2 Eutric Glossoboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	40%
---	very gravelly	6	Potr5	edaphic	ME	2700m	
clayey-skeletal, montmorillonitic,	fine sandy loam	+1			MAST	3C	
---	---				MSST	9C	
2.3					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.4					MAP	cm	%
					ME	m	
					MAST	C	
					MSST	C	
2.5 Rock Outcrops					MAP	cm	10%
					ME	m	
					MAST	C	
					MSST	C	
2.6 Lithic Eutroboralfs,	---	LSC	Pien/Pipos/	Fire/	MAP	72cm	10%
---	very cobbly	6	Potr5	Edaphic	ME	2700m	
clayey-skeletal, montmorillonitic	sandy loam	+1			MAST	3C	
---	---				MSST	9C	

3.0 Management Implications.

3.1 The shallow depth and rockiness will restrict management activities. These soils are prone to compaction and/or displacement when wet.

3.2 These soils are prone to compaction and/or displacement when wet. Due to high gravel content the water holding capacity is low in the albic horizon.

3.3

Map Symbol: 606

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
13.9	2.2	1.7	1.3	13.9	4.5	1.7	1.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	45	50	60	0	25	50	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
70	1	20	9	60	2	28	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	50	100		
Forage	100	150		
Forage (maximum)	150	200		
Timber	Site Index			
~~Pien~~	45	60		
Pipos	45	60		
Psmeg	50	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Fair		
Wildlife Habitat Suit:				
Limitations For:				
Timber Harvest	Sev.	Sev.*		
Cutbank Stability	Sli.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Mod.		
Windthrow	Sev.	Sev.		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
	Abies concolor	Abco	5	5		
	Picea engelmanii	Pien	15	10		
	Picea pungens	Pipu	5	5		
	Pinus ponderosa	Pipos	20	15		
	Populus tremuloides	Potr5	20	20		
	Pseudotsuga menziesii glauca	Psmeg	10	5		
	Berberis repens	Bere	1	1		
	Holodiscus dumosus	Hodu	T	T		
	Juniperus communis	Juco6	1	3		
	Lonicera involucrata	Loin5	T	T		
	Pachystima Myrsinites	Pamy	1	1		
	Rubus strigosus	Rust	T	T		
	Sambucus glauca	Sagl	1	1		
	Symphoricarpos oreophilus	Syor2	.1	.1		
	Aquilegia coerulea	Aqco	T	T		
	Erigeron formosissimus	Erfo3	2	2		
	Fragaria ovalis	Frov	1	1		
	Geranium caespitosum	Geca3	.5	.5		
	Geranium richardsonii	Geri	.5	.5		
	Lathyrus arizonica	Laar	T	T		
	Mertensia Macdougalii	Mema2	T	T		
	Vicia americana	Viam	T	T		
	Blepharoneuron tricholepis	Bltr	T	T		
	Bromus ciliatus	Brci2	1	1		
	Carex	CAREX	3	3		
	Dactylis glomerata	Dagl	T	T		
	Lolium perenne	Lope	T	T		
	Muhlenbergia montana	Mumo	T	T		

* Severe rating is due to erosion hazard.

Remarks: This map unit is a seral stage developed under frequent fire conditions. This TES unit is the "dwarf forest" along FR 462, west of DeMotte Park. Current undisturbed areas are probably as productive as this unit will ever get.

1.0 Date 7/93 rev 8/95 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 612-Lithic Haploborolls, LSC, 6,-1, loamy-skeletal, mixed, gravelly fine sandy loams-Mollic Eutroboralfs, LSC, 6, -1, clayey-skeletal, montmorollonitic, gravelly fine sandy loams, complex: 16-40 percent slopes, Pipos/Quga/Potr/Abco

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple linear and concave elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 62 to 66 centimeters; mean annual air temperature ranges from 4 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 140 centimeters and the mean annual snow accumulation is 60 centimeters. The freeze free period is 100 days. The elevation ranges from 2400 to 2650 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Lithic Haploborolls,	---	LSC	Pipos/Quga/	Edaphic	MAP 64 cm	40%
---	gravelly	6	Potr5/Abco	Fire	ME 2600 m	
loamy-skeletal, mixed,	fine sandy loam	-1			MAST 5 C	
---	---				MSST 10 C	
2.2 Mollic Eutroboralfs,	moderately deep	LSC	Pipos/Quga/	Edaphic	MAP 64 cm	40%
---	gravelly	6	Potr5/Abco		ME 2600 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	-1			MAST 5 C	
---	---				MSST 10 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Mollic Eutroboralfs,	---	LSC	Pipos/Quga/	Edaphic	MAP 64 cm	10%
---	gravelly	6	Potr5/Abco	Fire	ME 2600 m	
fine, montmorillonitic,	fine sandy loam	-1			MAST 5 C	
---	---				MSST 10 C	
2.6 Rock Outcrops					MAP cm	10%
					ME m	
					MAST C	
					MSST C	

3.0 Management Implications.

3.1 Soil are less than 20" deep, are high in rock fragments, and have a low water holding capacity. The surface soils are easily eroded. The surface horizon is less than 3".

3.2 Soil has a low bearing strength when wet which causes road maintenance problems, compactions and surface displacement if vehicles are on it when it is wet. The surface horizon is less than 4". Operations which mix the clayey subsoil with the surface horizon will lower site productivity.

3.3

Map Symbol: 612

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
67.4	4.5	2.1	2.1	67.4	6.7	2.1	2.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	65	80	80	0	55	80	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
70	2	25	3	50	2	45	3								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	500		
Forage	200	250		
Forage (maximum)	1000	1500		
Timber	Site Index			
Pipos	55	60		
(Abco regen)				
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Mod.		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Wild Turkey	Ess.	Ess.		
Kaibab squirrel	Ess.	Ess.		
Northern goshawk	Ess.	Ess.		
Brown creeper	Ess.	Ess.		
Flammulated owl	Ess.	Ess.		
Limitations For:				
Timber Harvest	Mod.	Mod		
Cutbank Stability	Sli.	Mod.		
Unsurfaced Roads	Sev.	Mod.		
Trails	Sev.	Mod.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Mod.		
Mass Wasting	Sli	Sli		
Windthrow	Sev.	Mod.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.

Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Abies concolor	Abco	P	P		
Pinus ponderosa	Pipos	40	60		
Populus tremuloides	Potr5	25	15		
Pseudotsuga menziesii glauca	Psmeg	P	P		
Quercus gambelii	Quga	5	5		
Berberis repens	Bere	.3	.5		
Ceanothus fendleri	Cefe	.3	.3		
Juniperus communis	Juco6	1	1		
Quercus gambelii	Quga	5	5		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	2	2		
Symphoricarpos oreophilus	Syor2	P	P		
Achillea millefolium lanulosa	Acmil	1	1		
Antennaria parvifolia	Anpa4	1	1		
Arenaria abberans	Arab	T	T		
Erigeron speciosus	Ersp4	.5	.3		
Eriogomun racemosum	Erra3	T	T		
Gilia aggregata	Giag	.5	.3		
Lotus wrightii	Lowr	.1	.1		
Lupinus argenteus	Luar3	3	3		
Senecio multilobatus	Semu3	.5	.1		
Thalictrum fendleri	Thfe	.5	.3		
Blepharoneuron tricholepis	Bltr	.2	.2		
Carex	CAREX	10	8		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	2	3		
Poa fendleriana	Pofe	2	3		
Poa longiligula	Polo	2	3		
Sitanion hystrix	Sihy	2	2		
Stipa columbiana	Stco3	1	1		

Remarks: This map unit is a warmer and drier Abco site. When fire is kept out of this ecosystem, white fir and douglas fir come into the understory in small amounts.

1.0 Date 04-95 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 613-Eutric Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, gravelly fine sandy loam - Lithic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, very cobbly fine sandy loam, complex: 0-15 percent slopes, Abco/Psmeg/Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 November to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	60%
	---	gravelly	6	Pipos/Quga		ME 2700 m	
	clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 5 C	
	---	---				MSST 9 C	
2.2	Lithic Eutrochrepts,,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	20%
	---	very cobbly	6	Pipos/Quga		ME 2700 m	
	loamy-skeletal, mixed,	fine sandy loam	0			MAST 5 C	
	frigid	---				MSST 9 C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Dystric Eutrochrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
	---	gravelly	6	Pipos/Quga		ME 2700 m	
	loamy-skeletal, mixed,	fine sandy loam	0			MAST 5 C	
	frigid	---				MSST 9 C	
2.6	Lithic Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
	---	gravelly	6	Pipos/Quga		ME 2700 m	
	clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
	---	---				MSST 9 C	

3.0 Management Implications.

3.1 These soils have low bearing strength when wet and are prone to surface displacement. When the vegetative ground cover is removed, these soils are prone to accelerated sheet and rill erosion.

3.2 The shallow depth and rockiness will restrict management activities. These soils are prone to surface displacement. These soils are prone to accelerated erosion when the surface is bare.

3.3

Map Symbol: 613

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.2	4.5	.7	.3	8.2	2.2	.7	.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	15	70	80	0	30	70	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	2	58	10	30	2	58	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	300		
Forage	250	200		
Forage (maximum)	3500	3000		
Timber	Site Index			
Abco	75	70		
Psmeg	75	70		
Pipos	70	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Mod.	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Williamson sapsucker	Imp.	Imp.		
Red squirrel	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sli.		
Unsurfaced Roads	Mod.	Sev.		
Trails	Sli.	Sev.		
Campgrounds	Mod.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Abies concolor	Abco	30	25		
	Pinus ponderosa	Pipos	15	15		
	Populus tremuloides	Potr5	10	10		
	Pseudotsuga menziesii glauca	Psmeg	30	25		
	Berberis repens	Bere	1	1		
	Juniperus communis	Juco6	3	10		
	Lonicera involucrata	Loin5	P	P		
	Pachystima Myrsinites	Pamy	1	1		
	Quercus gambelii	Quga	3	3		
	Ribes cereum	Rice	T	T		
	Robinia neomexicana	Rone	1	1		
	Salix scouleriana	Sasc	T	T		
	Symphoricarpos oreophilus	Syor2	.5	.5		
	Allium geyeri	Alge	T	T		
	Aquilegia chrysantha	Aqch	T	T		
	Campanula rotundifolia	Caro2	T	T		
	Fragaria ovalis	Frov	1	1		
	Geranium caespitosum	Geca3	.5	.5		
	Geranium richardsonii	Geri	.1	.1		
	Lathyrus arizonica	Laar	.1	.1		
	Mertensia Macdougalii	Mema2	T	T		
	Vicia americana	Viam	T	T		
	Blepharoneuron tricholepis	Bltr	T	T		
	Bromus ciliatus	Brci2	1	1		
	Carex	CAREX	3	3		
	Dactylis glomerata	Dagl	T	T		
	Deschampsia caespitosa	Deca	T	T		
	Lolium perenne	Lope	T	T		
	Muhlenbergia montana	Mumo	.5	.5		

1.0 Date 04-95 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 614-Eutric Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, gravelly fine sandy loam - Lithic Eutrochrepts, LSC, 6, 0, loamy-skeletal, mixed, frigid, very cobbly sandy loam, complex: 16-40 percent slopes, Abco/Psmeg/Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to steep simple linear and convex elevated plains. Components formed in residuum and talus from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 November to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	60%
---	gravelly	6	Pipos/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 5 C	
---	---				MSST 9 C	
2.2 Lithic Eutrochrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	20%
---	very cobbly	6	Pipos/Quga		ME 2700 m	
loamy-skeletal, mixed,	fine sandy loam	0			MAST 5 C	
frigid	---				MSST 9 C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Dystric Eutrochrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
---	very gravelly	6	Pipos/Quga		ME 2700 m	
loamy-skeletal, mixed,	fine sandy loam	0			MAST 5 C	
frigid	---				MSST 9 C	
2.6 Typic Paleboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
---	gravelly	6	Pipos/Quga		ME 2700 m	
clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 5 C	
---	---				MSST 9 C	

3.0 **Management Implications.**

3.1 These soils have low bearing strength when wet and are prone to surface displacement. When the vegetative ground cover is removed, these soils are prone to accelerated sheet and rill erosion.

3.2 The shallow depth and rockiness will restrict management activities. These soils are prone to surface displacement. These soils are prone to accelerated erosion when the surface is bare.

3.3

Map Symbol: 614

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
51.7	4.5	2.2	1.6	51.7	2.2	2.2	1.6								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	60	75	80	0	75	75	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	2	58	10	40	2	48	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	300		
Forage	250	200		
Forage (maximum)	3500	3000		
Timber	Site Index			
Abco	75	70		
Psmeg	75	70		
Pipos	70	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Low.		
Reforestation	Mod.	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Williamson sapsucker	Imp.	Imp.		
Red squirrel	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Sev.*	Sev.		
Cutbank Stability	Sev.	Sli.		
Unsurfaced Roads	Mod.	Sev.		
Trails	Sli.	Sev.		
Campgrounds	Mod.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sev.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition				

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Scientific Name					
Abies concolor	Abco	30	25		
Pinus ponderosa	Pipos	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	25		
Berberis repens	Bere	1	1		
Juniperus communis	Juco6	3	10		
Lonicera involucrata	Loin5	P	P		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	3	3		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	1	1		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	1	1		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	1	1		
Carex	CAREX	3	3		
Dactylis glomerata	Dagl	T	T		
Deschampsia caespitosa	Deca	T	T		
Lolium perenne	Lope	T	T		
Muhlenbergia montana	Mumo	.5	.5		

* Erosion Hazzard on these soils is severe which gives the Timber Harvest a severe rating.

1.0 Date 04-95 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 615-Eutric Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, gravelly fine sandy loam - Lithic Glossoboralfs, LSC, 6, 0, clayey-skeletal, montmorillonitic, very cobbly sandy loam, complex: 0-15 percent slopes, Abco/Psmeg/Pipos/Quga.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 64 to 72 centimeters; mean annual air temperature ranges from 3 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold(LSC). Continuous snow cover normally occurs from 15 November to 15 April. Mean annual snowfall is 150 centimeters and the mean annual snow accumulation is 70 centimeters. The freeze free period is 90 days. The elevation ranges from 2600 to 2800 meters. Delineations are irregular in shape and vary in size from 50 to 500 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

	Soil	Phase	Climate	Vegetation	Climax		Comp
2.1	Eutric Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	60%
	---	gravelly	6	Pipos/Quga		ME 2700 m	
	clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 5 C	
	---	---				MSST 9 C	
2.2	Lithic Glossoboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 68 cm	20%
	---	very cobbly	6	Pipos/Quga		ME 2700 m	
	clayey-skeletal, montmorillonitic,	fine sandy loam	0			MAST 5 C	
	---	---				MSST 9 C	
2.3						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.4						MAP cm	%
						ME m	
						MAST C	
						MSST C	
2.5	Dystric Eutrochrepts,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
	---	gravelly	6	Pipos/Quga		ME 2700 m	
	loamy-skeletal, mixed,	fine sandy loam	0			MAST 5 C	
	frigid	---				MSST 9 C	
2.6	Typic Paleboralfs,	---	LSC	Abco/Psmeg/	Edaphic	MAP 56 cm	10%
	---	gravelly	6	Pipos/Quga		ME 2700 m	
	clayey-skeletal, montmorillonitic,	sandy loam	0			MAST 5 C	
	---	---				MSST 9 C	

3.0 **Management Implications.**

3.1 These soils have low bearing strength when wet and are prone to surface displacement. When the vegetative ground cover is removed, these soils are prone to accelerated sheet and rill erosion.

3.2 The shallow depth and rockiness will restrict management activities. These soils are prone to surface displacement, compaction, and when the surface is bare to accelerated erosion.

3.3

Map Symbol: 615

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.2	4.5	.7	.3	8.2	2.2	.7	.3								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	15	70	80	0	30	70	80								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	2	58	10	30	2	58	10								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	300		
Forage	250	200		
Forage (maximum)	3500	3000		
Timber	Site Index			
Abco	75	70		
Psmeg	75	70		
Pipos	70	65		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Mod.	Low		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Northern goshawk	Ess.	Ess.		
Blue grouse	Ess.	Ess.		
Williamson sapsucker	Imp.	Imp.		
Red squirrel	Imp.	Imp.		
Mule deer	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sli.		
Unsurfaced Roads	Mod.	Sev.		
Trails	Sli.	Sev.		
Campgrounds	Mod.	Sev.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3	6.4
Scientific Name					
Abies concolor	Abco	30	25		
Pinus ponderosa	Pipos	15	15		
Populus tremuloides	Potr5	10	10		
Pseudotsuga menziesii glauca	Psmeg	30	25		
Berberis repens	Bere	1	1		
Juniperus communis	Juco6	3	10		
Lonicera involucrata	Loin5	P	P		
Pachystima Myrsinites	Pamy	1	1		
Quercus gambelii	Quga	3	3		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	1	1		
Salix scouleriana	Sasc	T	T		
Symphoricarpos oreophilus	Syor2	.5	.5		
Allium geyeri	Alge	T	T		
Aquilegia chrysantha	Aqch	T	T		
Campanula rotundifolia	Caro2	T	T		
Fragaria ovalis	Frov	1	1		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lathyrus arizonica	Laar	.1	.1		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	1	1		
Carex	CAREX	3	3		
Dactylis glomerata	Dagl	T	T		
Deschampsia caespitosa	Deca	T	T		
Lolium perenne	Lope	T	T		
Muhlenbergia montana	Mumo	.5	.5		

1.0 Date10/91 rev 10/94 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 619-Typic Eutroboralfs, LSC 6,-1, clayey-skeletal, montmorillonitic-Eutric Glossoboralfs, LSC, 6,-1, clayey-skeletal, montmorillonitic, gravelly fine sandy loams, complex: 0-15 percent slopes, Pipos/Quga/Potr5/Abco

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately sloping simple concave and convex elevated plains. Components formed in residuum from limestone parent material. Mean annual precipitation ranges from 62 to 66 centimeters; mean annual air temperature ranges from 4 to 5 degrees Celsius. Approximately 50 percent of the annual precipitation occurs during the period of 01 October to 31 March and winters are cold (LSC). Continuous snow cover normally occurs from 01 November to 15 April. Mean annual snowfall is 140 centimeters and the mean annual snow accumulation is 60 centimeters. The freeze free period is 100 days. The elevation ranges from 2400 to 2650 meters. Delineations are irregular in shape and vary in size from 50 to 300 hectares. Ephemeral streams are present within this map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Eutroboralfs, --- clayey-skeletal, montmorillonitic, ---	--- gravelly fine sandy loam ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic Fire	MAP 64 cm ME 2600 m MAST 5 C MSST 10 C	40%
2.2 Eutric Glossoboralfs, --- clayey-skeletal, montmorillonitic, ---	--- gravelly fine sandy loam ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic Fire	MAP 64 cm ME 2600 m MAST 5 C MSST 10 C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Eutroboralfs, --- fine, montmorillonitic, ---	--- gravelly fine sandy loam ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic Fire	MAP 64 cm ME 2600 m MAST 5 C MSST 10 C	10%
2.6 Mollic Eutroboralfs, --- clayey-skeletal, montmorillonitic, ---	--- gravelly fine sandy loam ---	LSC 6 -1	Pipos/Quga/ Potr5/Abco	Edaphic Fire	MAP 64 cm ME 2600 m MAST 5 C MSST 10 C	10%

3.0 Management Implications.

3.1 & 3.2 These soils have low bearing strength when wet from snow melt in the spring and summer rains. When the vegatative ground cover is removed, these soils are prone to accelerated sheet and rill erosion on slopes over 8%. The argillic horizons are susceptible to compaction when wet.

3-3

Map Symbol: 619

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
10.6	6.7	.9	.1	8.5	6.7	1.0	.2								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	10	60	85	0	5	55	85								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
30	2	58	10	10	2	53	35								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	400	500		
Forage	250	300		
Forage (maximum)	3500	2500		
Timber	Site Index			
Pipos	65	70		
(Abco regen)				
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	Low	Mod.		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Poor		
Wildlife Habitat Suit:				
Wild Turkey	Imp.	Imp.		
Northern Goshawk	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Red squirrel	Imp.	Imp.		
Flammulated owl	Imp.	Imp.		
Limitations For:				
Timber Harvest	Mod.	Mod.		
Cutbank Stability	Sev.	Sev.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Sli.	Mod.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Mod.		
Mass Wasting	Sli.	Sli.		
Windthrow	Mod.	Sev.		
Plant Competition	Mod.	Mod.		

6.0 Composition of Plant Community.

Scientific Name	Symbol	6.1 % Canopy Cover	6.2 % Canopy Cover	6.3 % Canopy Cover	6.4 % Canopy Cover
Abies concolor	Abco	P	P		
Pinus ponderosa	Pipos	40	60		
Populus tremuloides	Potr5	25	15		
Pseudotsuga menziesii glauca	Psmeg	P	P		
Berberis repens	Bere	.5	.5		
Ceanothus fendleri	Cefe	.3	.3		
Juniperus communis	Juco6	1	1		
Quercus gambelii	Quga	10	10		
Ribes cereum	Rice	T	T		
Robinia neomexicana	Rone	3	3		
Symphoricarpos oreophilus	Syor2	P	P		
Achillea millefolium lanulosa	Achmil	.5	.5		
Antennaria parvifolia	Anpa4	1	1		
Arenaria abberans	Arab	T	T		
Erigeron speciosus	Ersp4	.3	.3		
Eriogomun racemosum	Erra3	T	T		
Gilia aggregata	Giag	.3	.3		
Geranium caespitosum	Geca3	.5	.5		
Geranium richardsonii	Geri	.1	.1		
Lupinus argenteus	Luar	1	1		
Mertensia Macdougalii	Mema2	T	T		
Vicia americana	Viam	T	T		
Blepharoneuron tricholepis	Bltr	T	T		
Bromus ciliatus	Brci2	1	1		
Carex	CAREX	3	3		
Koeleria cristata	Kocr	1	1		
Muhlenbergia montana	Mumo	.5	.5		
Poa fendleriana	Pofe	1	1		
Sitanion hystrix	Sihy	T	T		

Remarks: This map unit is a warmer and drier white fir site. When fire is kept out of this ecosystem, white fir and douglas fir come into the understory.

1.0 Date 01-90 MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS USDA-FS

Map Symbol and Name: 279 - Typic Ustochrepts, LSC, 4, 0, loamy-skeletal, mixed, mesic, moderately deep, gravelly fine sandy loam - Typic Haplustalfs, LSC, 4, 0, fine, montmorillonitic, mesic, moderately deep, gravelly loam, complex: 0-15 percent slopes, Artr2/Agcr/Stco4/Pied.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to moderately steep simple linear valley plains. Components formed in residuum and alluvium from limestone parent material. Mean annual precipitation ranges from 36 to 44 centimeters; mean annual air temperature ranges from 7 to 9 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LCS). Patchy snow cover normally occurs from 01 December to 01 April. Mean annual snowfall is 90 centimeters and mean annual snow accumulation is 20 centimeters. The freeze free period is 130 days. The elevation ranges from 2000 to 2200 meters. Delineations are irregular in shape and vary in size from 100 to 400 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Typic Ustochrepts, --- loamy-skeletal, mixed, mesic	moderately deep very gravelly fine sandy loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	50%
2.2 Typic Haplustalfs, --- fine, montmorillonitic, mesic	moderately deep very gravelly loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	40%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Haplustalfs, --- clayey-skeletal, montmorillonitic, mesic	moderately deep very gravelly loam ---	LSC 4 0	Artr2/Agcr/ Stco4/Pied	Edaphic zootic	MAP 40 cm ME 2100 m MAST 9 C MSST --- C	10%
2.6					MAP cm ME m MAST C MSST C	%

3.0 Management Implications.

3.1 These soils have a high pH in the subsurface horizons. Operations which mix these horizons with the surface will reduce the potential site productivity and lower revegetation success rates.

3.2 Operations which mix the clayey subsurface horizons with the soil surface will reduce potential site productivity and lower revegetation success rates.

3.3

Map Symbol: 279

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
7.8	4.5	3.4	0.6	7.8	4.5	3.4	0.6								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	15	20	65	0	15	20	65								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
35	5	15	45	35	5	15	45								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	300	300		
Forage	800	850		
Forage (maximum)	950	1125		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	High		
Reforestation	---	---		
Source Suitability:				
Topsoil	Fair	Poor		
Roadfill	Good	Poor		
Wildlife Habitat Suit:				
Vesper sparrow	Ess.	Ess.		
Mule deer	Imp.	Imp.		
Blk-tld jackrabbit	Imp.	Imp.		
Western meadowlark	Imp.	Imp.		
Commom poorwill	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Sli,	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Sli.	Sli.		
Wheeled O.R.V.	Sli.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	Sli.	Sli.		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
Scientific Name					
Amelanchier utahensis	Amut	T	-		
Artemisia frigida	Arfr4	T	-		
Artemisia tridentata	Artr2	20	20		
Atriplex canescens	Atca2	5	2		
Cercocarpus montanus	Cemo2	T	T		
Eurotia lanata	Eula5	5	-		
Gutierezia sarothrae	Gusa2	T	T		
Marrubium vulgare	Mavu	T	T		
Opuntia polyacantha	Oppo	1	1		
Purshia tricentata	Putr2	3	3		
Sphaeralcea parvifolia	Sppa2	.5	.5		
Yucca bacata	Yuba	1	1		
Calochortus	CALOC	T	T		
Castilleja linariaefolia	Cali4	.5	.5		
Erigeron flagellaris	Erfl	.5	.3		
Hymenoxys richardsonii	Hyri	T	T		
Lomatium leptocarpum	Lole	-	.1		
Penstemon caespitosus	Peca4	T	.1		
Phlox woodhousei	Phwo	.3	.5		
Senecio multilobatus	Semu3	.1	.1		
Verbascum thapsus	Veth	.3	.3		
Verbena ciliata	Veci	.3	.3		
Agropyron cristatum	Agcr	5	5		
Agropyron smithii	Agsm	15	15		
Bouteloua gracilis	Bogr2	20	20		
Koeleria cristata	Kocr	.5	1		
Oryzopsis hymenoides	Orhy	3	3		
Poa fendleriana	Pofe	.5	.5		
Sitanion hystrix	Sihy	3	3		
Sporobolus cryptandrus	Spcr	3	1		
Stipa comata	Stco4	5	-		

1.0 Date 08-91 MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS USDA-FS

Map Symbol and Name: 217 - Aridic Haplustalfs, LSC, 3, +1, fine montmorillonitic, mesic, loam - Lithic Haplustalfs, LSC, 3, +1, clayey-skeletal, montmorillonitic, mesic, very gravelly, sandy loam, complex: 0-30% slopes, Artr2/Bogr2.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on moderately steep to very steep convex and linear valley plains. Components formed in residuum from sedimentary parent material. The annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 percent of the mean annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover normally occurs from 01 December to 01 April. Mean annual snowfall is 70 centimeters and the mean annual snow accumulation is 10 centimeters. The freeze free period is 145 days. The elevation ranges from 1700 to 1830 meters. Delineations are irregular in shape and vary in size from 50 to 100 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 Map Unit Components, Characteristics and Composition.

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Aridic Haplustalfs, --- fine, montmorillonitic, mesic	--- --- loam eroded	LSC 3 +1	Artr2/Bogr2	Edaphic	MAP 32 cm ME 1760 m MAST 11 C MSST --- C	50%
2.2 Lithic Haplustalfs, --- clayey-skeletal, montmorillonitic mesic	--- very gravelly sandy loam eroded	LSC 3 +1	Artr2/Bogr2	Edaphic	MAP 32 cm ME 1760 m MAST 11 C MSST --- C	30%
2.3					MAP cm ME m MAST C MSST C	%
2.4					MAP cm ME m MAST C MSST C	%
2.5 Typic Ustochrepts, --- loamy-skeletal, mixed, mesic	--- gravelly sandy loam eroded	LSC 3 +1	Artr2/Bogr2	Edaphic	MAP 32 cm ME 1760 m MAST 11 C MSST --- C	10%
2.6 Lithic Ustochrepts, calcareous, loamy-skeletal, mixed, mesic	--- very gravelly sandy loam eroded	LSC 3 +1	Artr2/Bogr2	Edaphic	MAP 32 cm ME 1760 m MAST 11 C MSST --- C	10%

3.0 Management Implications.

3.1 The surface is moderately eroded over 75% of the area. The soils may be prohibiting plant growth due to high iron or salt levels

3.2 Approximately 1/2 of these soils are less than 10" in depth. The soils may be prohibiting plant growth due to high iron or salt levels.

3.3

Map Symbol: 217

4.0 Estimated Soil Loss Rates.

4.1 Sheet/Rill Erosion				4.2 Sheet/Rill Erosion				4.3 Sheet/Rill Erosion				4.4 Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
12.4	4.5	6.3	1.1	12.4	2.2	6.3	1.1								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	25	15	60	0	45	15	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
25	3	12	60	35	2	13	50								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	500		
Forage	300	250		
Forage (maximum)	600	500		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Low	Low		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Poor	Poor		
Wildlife Habitat Suit:				
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Mod.	Mod.		
Unsurfaced Roads	Sev.	Sev.		
Trails	Sev.	Sev.		
Campgrounds	Sev.	Sev.		
Wheeled O.R.V.	Sev.	Sev.		
Hazards:				
Erosion(Sheet & Rill)	Mod.	Sev.		
Mass Wasting	Sli.	Sli.		
Windthrow	---	---		
Plant Competition	---	---		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Artemesia tridentata	Artr2	20	20		
	Atriplex canescens	Atca2	5	5		
	Cowania mexicana stansburiana	Comes	.5	.5		
	Ephedra viridis	Epvi	.5	.5		
	Gutierrezia sarothrae	Gusa2	T	T		
	Opuntia polyacantha	Oppo	T	T		
	Opuntia whipplei	Opwh	T	T		
	Yucca baccata	Yuba	T	T		
	Castilleja chromosa	Cach7	T	T		
	Coryphanta vivpara	Covi	P	P		
	Echinocereus triglochidiatus	Ectr	P	P		
	Erigeron flagellaris	Erfl	.1	.1		
	Hymenoxys richardsonii	Hyri	T	T		
	Agropyron smithii	Agsm	T	T		
	Agropyron scribneri	Agsc	T	T		
	Bouteloua eriopoda	Boer4	5	5		
	Bouteloua gracilis	Bogr2	25	25		
	Hilaria jamesii	Hija	10	10		
	Oryzopsis hymenoides	Orhy	1	1		
	Sitanion hystrix	Sihy	.5	.5		
	Sporobolus cryptandrus	Spcr	1	1		
	Stipa comata	Stco4	.5	.5		
	Stipa neomexicana	Stne2	1	1		

1.0 Date 7/94 rev 10/94 **MAP UNIT DESCRIPTION, PROPERTIES, AND SELECTED INTERPRETATIONS** USDA-FS

Map Symbol and Name: 4 -Aridic Ustochrepts, LSC, 3, +1, loamy-skeletal, carbonatic, mesic, gravelly fine sandy loam - Aridic Ustochrepts, LSC, 3, +1, fine-loamy, carbonatic, mesic, fine sandy loam, complex: 0-15 percent slopes, Artr2/Bogr2/Stco4.

Setting: This map unit consists of multitaxa Terrestrial Ecosystem components. Components .1 and .2 occur in an intricate pattern and are not separable. It occurs on nearly level to gently sloping simple concave and convex elevated plains. Components formed in residuum from sedimentary parent material. Mean annual precipitation ranges from 28 to 36 centimeters; mean annual air temperature ranges from 9 to 11 degrees Celsius. Approximately 60 percent of the annual precipitation occurs during the period of 01 October to 31 March and the winters are cold(LSC). Patchy snow cover occurs from 01 December to 01 April. Mean annual snowfall is 70 centimeters and the mean annual snow accumulation is 10 centimeters. The freeze free period is 145 days. The elevation ranges from 1500 to 1900 meters. Delineations are irregular in shape and vary is size from 50 to 800 hectares. Ephemeral streams are present within the map unit. This map unit is characterized by a dendritic drainage pattern.

2.0 **Map Unit Components, Characteristics and Composition.**

Soil	Phase	Climate	Vegetation	Climax		Comp
2.1 Aridic Ustochrepts,	---	LSC	Artr2/Bogr2	Edaphic	MAP 32 cm	50%
---	gravelly	3	Stco4		ME 1800 m	
loamy-skeletal, carbonatic,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.2 Aridic Ustochrepts,	---	LSC	Artr2/Bogr2	Edaphic	MAP 32 cm	30%
---	gravelly	3	Stco4		ME 1800 m	
fine-loamy, carbonatic,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.3					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.4					MAP cm	%
					ME m	
					MAST C	
					MSST C	
2.5 Aridic Ustochrepts,	---	LSC	Artr2/Bogr2	Edaphic	MAP 32 cm	10%
calcareous,	---	3	Stco4		ME 1800 m	
fine-loamy, mixed,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	
2.6 Lithic Ustochrepts,	---	LSC	Artr2/Bogr2	Edaphic	MAP 32 cm	10%
calcareous,	gravelly	3	Stco4		ME 1800 m	
loamy-skeletal, mixed,	fine sandy loam	+1			MAST 11 C	
mesic	---				MSST --- C	

3.0 **Management Implications.**

3.1 & 3.2 These soils have a high pH with an 8.0 being common. This will limit most management activities.

3.3

3.4

Map Symbol: 4

4.0 Estimated Soil Loss Rates.

4.1				4.2				4.3				4.4			
Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion				Sheet/Rill Erosion			
Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.	Pot.	Tol.	Cur.	Nat.
Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr				Rate - t/ha/yr			
8.8	6.7	4.7	.8	8.8	6.7	4.7	.8								
% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover				% Veg. Ground Cover			
0	8	15	60	0	8	15	60								
% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.				% Cur. Surface Comp.			
RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil	RF	Veg.	Lit.	Soil
>2mm	BA			>2mm	BA			>2mm	BA			>2mm	BA		
16	1	5	78	12	1	9	78								

5.0 Interpretations.	5.1	5.2	5.3	5.4
Potential Productivity				
Grazing	lb/ac/yr - Dry Weight			
Herbaceous/woody	600	600		
Forage	400	400		
Forage (maximum)	1200	1200		
Timber	Site Index			
	---	---		
Fuelwood	cd/ac			
	---	---		
Potential for:	Rating			
Revegetation	Mod.	Mod.		
Reforestation	---	---		
Source Suitability:				
Topsoil	Poor	Poor		
Roadfill	Fair	Fair		
Wildlife Habitat Suit:				
Brewer's sparrow	Ess.	Ess.		
Sage sparrow	Ess.	Ess.		
Sage thrasher	Ess.	Ess.		
Pronghorn	Ess.	Ess.		
Blk-tld jackrabbit	Imp.	Imp.		
Limitations For:				
Timber Harvest	---	---		
Cutbank Stability	Sli.	Sli.		
Unsurfaced Roads	Mod.	Mod.		
Trails	Sli.	Sli.		
Campgrounds	Mod.	Mod.		
Wheeled O.R.V.	Mod.	Mod.		
Hazards:				
Erosion(Sheet & Rill)	Sli.	Sli.		
Mass Wasting	---	---		
Windthrow	---	---		
Plant Competition	Sli.	Sli.		

6.0 Composition of Plant Community.	Scientific Name	Symbol	6.1 % Canopy Cover	6.2	6.3	6.4
	Artemisia tridentata	Artr2	20	20		
	Atriplex canescens	Atca2	2	2		
	Chrysothamnus depressus	Chde2	3	3		
	Eurotia lanata	Eula5	2	2		
	Gutierrezia sarothrae	Gusa2	2	2		
	Opuntia polyacantha	Oppo	1	1		
	Opuntia whipplei	Opwh	1	1		
	Sphaeralcea parvifolia	Sppa2	.5	.5		
	Yucca baccata	Yuba	1	1		
	Castilleja chromosa	Cach7	.5	.5		
	Erigeron flagellaria	Erfl	.5	.5		
	Hymenoxys richardsonii	Hyri	.1	.1		
	Phlox stansburyi	Shst2	T	T		
	Agropyron cristatum	Agcr	1	1		
	Agropyron smithii	Agsm	5	5		
	Bouteloua gracilis	Bogr2	10	10		
	Oryzopsis hymenoides	Orhy	5	5		
	Sitanion hystrix	Sihy	2	2		
	Sporobolus cryptandrus	Spcr	3	3		
	Stipa comata	Stco4	10	10		
	Stipa neomexicana	Stne2	5	5		