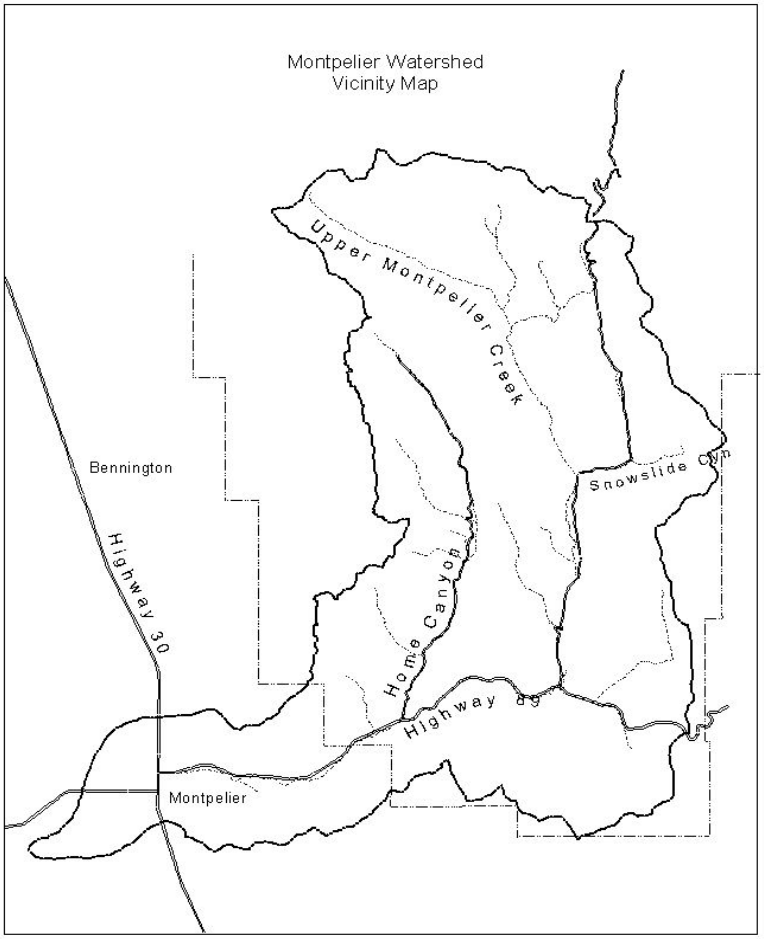
1.0 Characterization of the Watershed

1.1 Location & General Description

1.1.1 Geography

The Montpelier watershed is a 38,000-acre, 5th order Hydrologic Unit located in Bear Lake County, east of the city of Montpelier, Idaho. (See Figure 1.1-1) The drainage runs north and south except at the southern end where it turns sharply west to the Bear River. The watershed is comprised of two primary subwatersheds, Montpelier Creek and Home Canyon. There are a few named tributaries that feed into Montpelier Creek including Little Beaver, Whiskey Creek, Snowslide Canyon, Telephone Draw and Twin Spring Creek.



Prominent features within the watershed include the City of Montpelier, State Highways 30 & 89 and the Montpelier Reservoir.

1.1.2 Land Ownership & Administration

The Caribou-Targhee National Forest manages the majority of the watershed, but other land ownership is involved. Approximate acres by ownership are displayed in table 1.1-1 below.

	Caribou-Targhee	Bureau of Land	State of Idaho –	Private

	National Forest	Management	Dept. of Lands	
Acres	30491	554	2780	4579
Percent	80	1	9	12

1.2 Hydrologic and Stream Processes

1.2.1 Climate

The Montpelier Watershed is characterized by mild, mostly dry summers and cold, moderately moist winters. The average maximum temperature is 56 degrees, the average minimum is 26. The average precipitation is 14 inches with most of that falling as snow.

1.2.2 Hydrology

Snowmelt runoff and snowmelt quickflow are the dominant streamflow producing processes. At the lower elevations, several smaller melt events generally occur each winter, usually caused by warm fronts originating in the Mid and lower latitude Pacific Ocean. Most extreme runoff events result from late summer tropical rainstorms. Annual peak runoffs on tributary streams vary from early April (Leffert) at the lower elevations to June at the higher elevations. Montpelier Reservoir, held back by a rolled earth fill dam with a maximum height of 82 feet and a crest 880 feet long was completed in 1973. At completion, it provided 3,850 acre-feet of storage for water supply and an additional 200 acre-feet above that for flood control. The minimum flow from the reservoir and nearby springs is set at 4 cfs to maintain fisheries values. Maximum controlled outflow is 225 cfs, with an additional 2,200 cfs outflow capability from an ungated, concrete lined emergency spillway. Peak daily flow at the "Montpelier Creek near Montpelier" USGS Gage 10047000 during the period of record starting in late October 1939 and lasting to September 1944 occurred in the last week of April. Peak daily flow for that period was 122 cfs on April 24, 1943. Flows generally subside to baseflow conditions at the gage by the end of July, lasting to late March. Small tributary streams not fed by springs and seeps generally are dry during most of that period.

1.2.3 Water Quality

Water quality is variable due to a variety of factors that are not uniform within the watershed. Suspended sediment from nonpoint pollution and natural processes is the dominant water quality issue in the watershed. Extensive areas of naturally low productivity soils are present that can support only sparse ground cover. Intense rain events on these areas can cause significant soil erosion without or with little current human disturbance. Previous overgrazing has depleted soils in other areas
Roads, particularly in riparian areas and previous grazing practices are the major sources of accelerated erosion and stream sedimentation.

Oxidation and leaching of Selenium from shales exposed by mining has been studied in several adjacent watersheds and is known to be a significant problem in those locales. Two mines near the bottom of Montpelier Canyon have disturbed about 200 acres, much of which has exposed seliniferous materials at the surface. While leaching of Selenium has been shown not to be affecting the stream at the present time, it is possible that it is now in subsurface transport and may impact the stream at some future date.

1.3 Geology and Soils

1.3.1 Geology & Soils

The majority of the Montpelier Watershed falls into the Preuss Ridges and Hills Subsection. Unstable mountain slopes characterize this subsection. Bedrock geology formed in sedimentary rock of the Mesozoic Era. The climate also differs from other subsections, which along with the different soils, creates different vegetation patterns.

Below is a summary of the land types or soil types and the associated landforms found within this watershed.

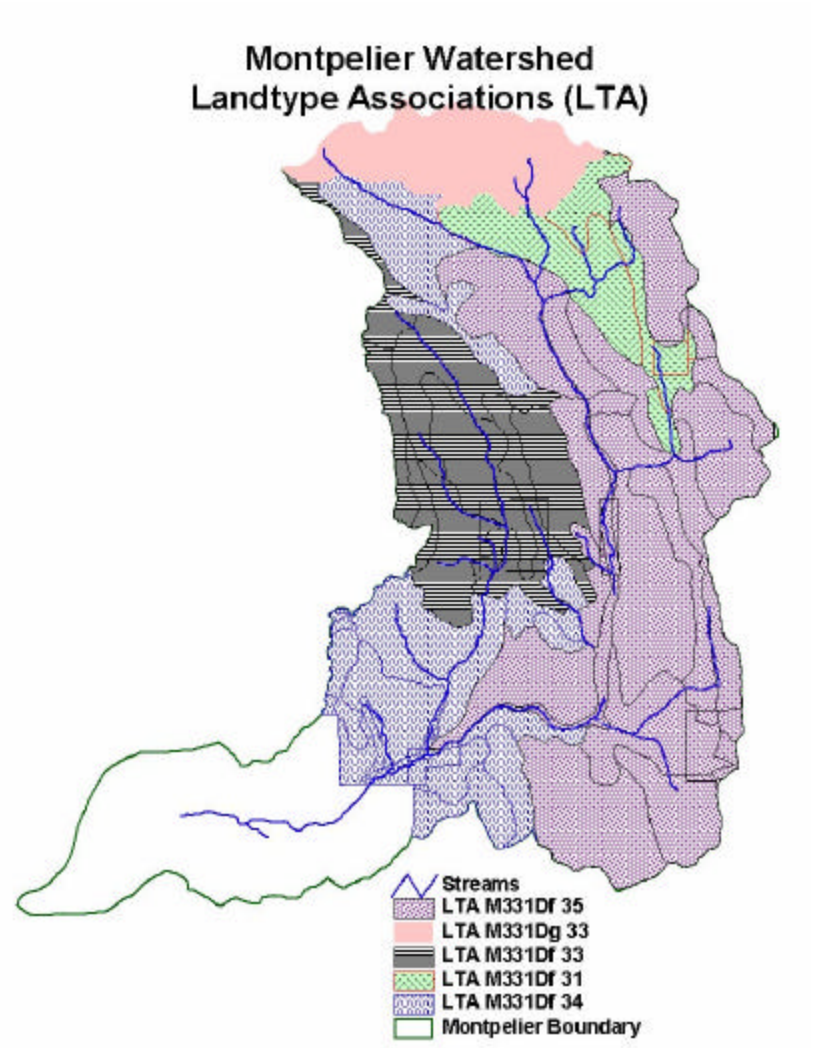
Whiskey Basin and Toeslopes/Sagebrush Landtype Association (M331-Df-31)

The principal landforms of this landtype are upland basins, toeslopes and foothills in the Montpelier Creek Drainage. This LTA is moderately dissected by streams. The principal geomorphic processes responsible for its formation are fluvial and gravitational transfer followed by alluvial deposition. A series of nearly parallel synclines and anticlines are located in this LTA

Parent Materials consist of sandstone, mudstone, siltstone and limestone associated with the Wayan Formation. These rocks weather into clay loams, silty clay loams and loams and classify as Argic Cryoborolls. Whiskey Creek is the drainage in this LTA.

Preuss Stable Mountainsides / Aspen-Douglas-fir-subalpine fir Landtype Association (M331Df 33)

This LTA consists of mountainsides, ridges and valley sideslopes on the Preuss Mountain Range. A combination of uplift, block faulting, fluvial and residual geomorphic processes have helped shape these moderately dissected landforms occurring along Montpelier Creek and Home Canyon.



Other landforms that are included in this LTA are scarp-dip sideslopes and benches.

Parent materials are sedimentary rock such as sandstone, limestone, siltstone, mudstone and dolomite. Metamorphosed sedimentary rocks such as quartzite and shale are also found. These rock formations weather into Mollic Cryoborafts and Argic Cryoborolls, both with a loamy and gravelly loam texture. The geologic formations forming these soils are Wells, Phosphoria and Dinwoody.

Aspen Range Canyons and Foothills/Douglas-fir-subalpine fir-Mountain Mahogany-Sagebrush Landtype Association (M331-Df-34)

This LTA consists of canyons, canyon sides, and foothills on the west slope of the Aspen and Preuss Mountain Ranges. Toeslopes and fans are also present along the lower slopes. Fluvial processes have created a moderately to strongly dissected landscape. This LTA has the highest potential rates of erosion of any other landtypes in the watershed.

The Aspen Range occurs along the transition between the Basin and Range and Overthrust Physiographic Provinces. Thrust faulting, folding and normal faulting coexists. Overall erosion rates are high. Sandstone, limestone, dolomite and shale compose the parent material for soils. These soils are classified as Typic Cryoborolls, and Mollic Cryoboralfs, both with loamy-skeletal (rock fragments) profiles. Geologic formations are similar to the other landtype Associations within the Preuss Ridges and Hills subsection; Wells, Phosphoria, Dinwoody and Twin Creeks Formation.

Preuss Unstable Canyons, Mountainsides and Foothills/Douglas-fir, Aspen-Sagebrush Landtype Association (M311-35)

Folding and low-angle thrust faulting associated with the development of the southeast Idaho overthrust belt, formed this LTA. Fluvial dissection and slope failure helped create the low relief mountains and broken or hummocky mountain slope landforms. The area is moderately dissected by streams and has a series of more or less parallel synclines and anticlines

Parent materials are formed by Cretaceous Era soft sediments, forming sandstone, mudstone, limestone and shale. The soils range from shallow (less than 20 inches) to very deep (greater than 60 inches). Surface textures are typically gravely loam, sandy loam and loam and are classified as Argic Pachic Cryoborolls, fine-loamy, mixed; Argic Cryoborolls, fine, montmorillonitic; Argic Pachic Cryoborolls, fine, montmorillonitic. These soils have a high sediment loading potential.

A small portion of the Montpelier Creek watershed falls in the Webster Ridges and Valleys subsection. This subsection divided the Salt River and Blackfoot River basins. The ridges and valleys were formed from the late Paleozoic to Mesozoic age sedimentary rock. It is very similar in many ways to the rest of the watershed area in the Preuss Ridges and Hills Subsection with the main exception being the presence of large Phosphoria deposits.

Webster Mountainsides, Canyons and Basins/subalpine fir – Douglas-fir – Mountain mahogany – Sagebrush Landtype Association. Landtype Association (M331Dg 33)

This landtype occurs in the northern portion of the watershed, upper Montpelier Creek (see map). It is a mountainous landscape with narrow canyons and uplands. It is influenced by a large thrust fault occurring between the head of Montpelier Creek and Whiskey Creek. The basic geomorphic processes forming the landscape are fluvial and gravitational, similar to the processes forming the other LTA's in the watershed. This LTA is moderately dissected by streams having dendritic and parallel stream patterns

The parent materials are sandstone, limestone, chert and shale from the Wells, Phosphoria, Dinwoody and Thaynes Formation. These form soils that classify as Mollic Cryoboralfs and Argic Cryoborolls. These soils have a loamy-skeletal profile with mixed mineralogy. They range from shallow (0 – 20 inches) on the sideslopes and canyons, to very deep (greater than 20 inches) in the basins. These soils are well drained except for some areas in the basins.

Factors that can affect soils

Natural disturbance processes affecting soils are fire, flooding, insect and disease and windthrow. Human caused soil disturbances are livestock grazing, logging, road construction and recreation, including the unauthorized use of ATV (all terrain vehicle) or other ORV (off road vehicle).

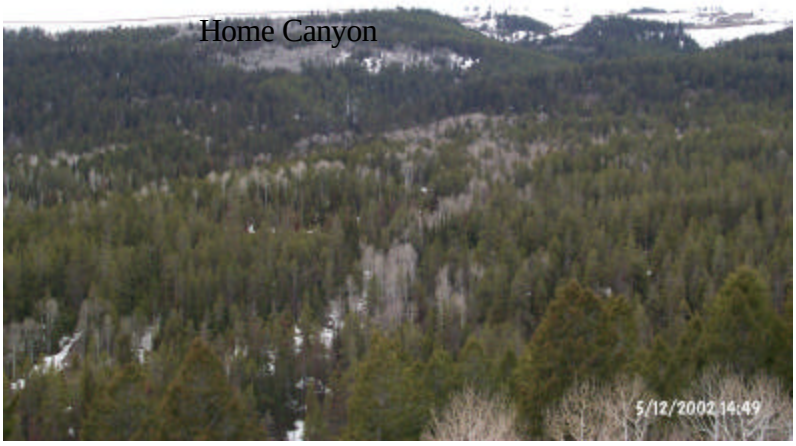
1.4 Vegetation

1.4.1 Forest Vegetation

The forested vegetation in the Montpelier watershed can be characterized as typical for the intermountain west exclusive of Ponderosa pine. The existing types include Douglas-fir, lodgepole pine, Engelmann spruce-subalpine fir, and aspen. Limber pine exists as a component in some stands. Aspect and elevation are determinants of vegetative pattern on the landscape. Forested vegetation is predominantly on east, north and west aspects, although on gentle slopes with deeper soils and sufficient moisture, all species may exist. Soils and precipitation are also determinants of vegetative pattern. For example the extent and diversity of forested vegetation varies fairly dramatically from east to

Headwaters of Montpelier Creek

west and from north to south, in direct correlation with the 27-inch precipitation line. Lodgepole pine is almost exclusively confined to a specific soil type in Home Canyon.



Home Canyon

The east and south portions of the watershed (east and south of Montpelier Creek) have few extensive patches of forested vegetation. The scattered forested vegetation is dominated by Douglas fir with subalpine fir and limber pine as a minor component in a few stands. Aspen also exists, but in relatively small patches in draws. The west and north portions of the watershed, primarily Home Canyon, but including some of upper Montpelier Creek, has much more extensive forested vegetation and contains a mix of all the species listed above.

1.4.2 Range Land Vegetation

Snowslide Canyon looking east

The primary rangeland vegetation in the Montpelier watershed is sagebrush and mountain brush communities. Mountain mahogany is also present in scattered stands up to 50 acres. As mentioned above, precipitation, soils, and aspect are the primary determining factors for where vegetation types dominate. In the Home Canyon and upper Montpelier Creek areas of the watershed, rangeland vegetation is limited primarily to high elevation basins and southwest aspects. In the remainder of the watershed, rangeland types dominate on almost all aspects except north-facing slopes with deep soils.

1.4.3 Disturbance Agents

Wildfire has been the dominant historic disturbance that has determined the age and mix of species within the watershed. A mix of non-lethal and lethal fires controlled forested vegetation distribution prior to European settlement. The absence of fire, except prescribed fire in sagebrush communities, over the last 150 years has altered the patterns and species mix within all of the vegetation types. Succession to more shade tolerant

species, primarily subalpine fir but also Engelmann spruce, is the result in forest vegetation types. Succession to tree species, primarily Douglas-fir and aspen is occurring in the rangeland types due to this lack of disturbance.

Multiple fire scars

Timber harvest has affected structure and composition within the watershed. Selective harvest of Douglas-fir prior to 1940 is evident and had the limited effect of decreasing genetic quality and increasing succession to shade tolerant species. Clearcut and seed-tree harvesting of lodgepole pine in Home Canyon has created early and mid seral conditions in 21 percent of that type. Firewood, post and pole gathering has reduced snag and down woody debris within relatively narrow bands along roads.

Insects and disease have also played a role in shaping stand composition and structure. Insects that have played a role include mountain pine beetle, Douglas-fir bark beetle, spruce budworm, and fir engraver. The effects of these insects can range from small pockets of mortality to mortality across multiple subwatersheds. The diseases that exist include mistletoe, various rusts and root diseases, and many forms of cankers. The effects of these diseases tend to be limited in scope, effecting growth rather than causing mortality.

1.5 Wildlife Species and Habitats

1.5.1 Fish

The Montpelier Creek Watershed provides habitat for a diverse community of native and non-native fish. Documented native fish include Bonneville cutthroat trout (*Oncorhynchus clarki utah)* and mottled sculpin (*Cottus bairdi*). Mountain whitefish (*Prosopium williamsoni*), longnose dace (*Rhinichthys cataractae*), mountain sucker (*Catostomus platyrhynchus*), Utah sucker (*Catostomus ardens*), Utah chub (*Gila atraria*), leatherside chub (*Gila copei*), and redside shiner (*Richardsonius balteatus*) may also occur in the watershed, but have not been documented. Documented non-native fish include brown trout (*Salmo trutta*), yellow perch (*Perca flavescens)*, kokanee (*Oncorhynchus nerka)*, brook trout (*Salvelinus fontenalis*), and rainbow trout (*Oncorhynchus mykiss*). Key fish species and habitat characteristics are discussed below.

Bonneville cutthroat trout are a Regional Forester Sensitive Species and listed as a Species of Concern in the State of Idaho. U.S.

Fish and Wildlife Service received a petition to list Bonneville cutthroat trout as Threatened in February 1998. The agency responded the petition presented substantial information indicating that listing this species may be warranted. They initiated a status review of the subspecies. On 9 October 2001, US Fish and Wildlife Service found the Bonneville cutthroat trout to not be warranted for listing.

Two life history patterns of Bonneville cutthroat trout occur in the Montpelier Creek Watershed; resident and adfluvial (lake dwelling). While resident fish spend the majority of their lives in a relatively short segment of stream, adfluvial fish migrate into tributaries to spawn, returning to the reservoir for the remainder of the year. The offspring of adfluvial fish spend a year or two in the nursery streams and eventually migrate downstream to larger water. These fish were forced into an adfluvial life history pattern with the construction of Montpelier Reservoir and probably used to exhibit a fluvial (river dwelling) life history pattern that included habitat in the Bear River.

Disconnectivity between fish populations is a common theme in Montpelier Creek and its tributaries, affecting the ability of fluvial fish to migrate and interact with other populations. These barriers to migration are associated with irrigation diversion structures (including Montpelier Dam), drainage structures (including the drainage conduit under the town of Montpelier), and stream dewatering. The Bonneville cutthroat trout in Montpelier Creek and its tributaries are part of the overall Bear River East Metapopulation, as described in the Caribou Forest Plan Revision DEIS (Caribou-Targhee National Forest 2001). All metapopulations of Bonneville cutthroat trout in Idaho are considered by the Caribou-Targhee National Forest as being at a high risk of extinction.

The Bear River East Metapopulation of Bonneville cutthroat trout are genetically isolated from other Bonneville cutthroat trout metapopulations in Idaho by the dam at Alexander Reservoir. Irrigation diversion structures within the metapopulation area, including within the analysis area, are barriers to upstream and downstream migrating fish.

Rainbow trout have been introduced to the Bear River and Montpelier Creek/Reservoir periodically. Some hybridization between rainbow and cutthroat trout has been documented. Rainbow trout also compete with Bonneville cutthroat trout for habitat and food.

Brown trout were introduced into the Bear River System, including the Montpelier Creek, in the 1940's. Although they don't interbreed with native cutthroat trout, they are voracious predators that likely prey upon their young.

Brook trout have been stocked in Montpelier Creek, its tributaries, and Montpelier Reservoir for years. Although this stocking has been discontinued, naturally reproducing populations remain. These fish have displaced native Bonneville cutthroat trout populations in many Montpelier Creek tributaries and, in combination with brown trout, are probably the dominant salmonid in the analysis area.

In addition to the effects of full spanning irrigation weirs upon upstream fish migration, other human impacts upon fish habitat in the analysis watershed include irrigation withdrawals diverting fish from the river and

streams into fields, stream desiccation from irrigation withdrawal, impacts to riparian and aquatic habitat from livestock use, roads constructed in and near floodplains, and sediment delivery from agricultural practices and grazing.

Generally, the last decade is considered current conditions in the Fisheries write-ups. Prior to 1990 is considered reference conditions. This is primarily due to the data that was available for this analysis and changes in resource management that occurred in the 1990's. The Fisheries sections in each chapter are organized by stream, beginning with a part on the mainstem Montpelier Creek and continuing with the tributaries that occur on the Caribou-Targhee National Forest.

Although the fisheries resource write-up focuses more intensely on habitat within National Forest Lands, there has been an effort to consider all aquatic habitat within the Montpelier Watershed where data existed. The need for this holistic watershed perspective hinged upon the migratory nature of some of the fish species within the watershed and the need to consider the well being of all populations in the watershed to maintain long term population viability.

Data sources include scientific publications, interagency planning reports, interviews with individuals who live and work in the watershed, past internal and interagency letters and memos, and stream, fish, and riparian surveys by USDA Forest Service, Idaho Department of Fish & Game, and Idaho Department of Environmental Quality.

1.5.2 Wildlife

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Threatened and endangered species that may occur in the Montpelier watershed include wolves, lynx, and bald eagle (USDI 2002).

Gray wolf (*Canis lupus*) (USDI 1994a, 1994b) – The Montpelier watershed is within the Yellowstone nonessential experimental population area that currently has 13 breeding pairs (exceeding the 6 pair minimum). Thirty breeding pairs of wolves, with an equitable and uniform distribution throughout the three states for three successive years would constitute a viable and recovered wolf population (USDI and others 2002).

Canada lynx (*Lynx canadensis*) - Primary vegetative types (lynx habitat), as described in the Lynx Conservation Assessment Strategy (LCAS) (Ruediger and others 2000) (USDI 2000) are patchy and disjunct on the Caribou national Forest and do not provide suitable lynx habitat. Caribou National Forest lands located in the Soda Springs and Montpelier Ranger Districts may provide linkage habitat for lynx.

Bald eagle (*Haliaeetus leucocephalus*)– The watershed is on the southwest corner of the Greater Yellowstone Ecosystem (GYBEWG 1996) and in Idaho bald eagle management zone 19 the southeast corner of Idaho (Beals and Melquist 2001, 5).

The Montpelier watershed may provide habitat for several Forest Service sensitive species including Townsend's (Western) big-eared bat (*Corynorhinus townsendi*i), Wolverine (*Gulo gulo*), Boreal owl (*Aegolius funereus*), Flammulated owl (*Otus flammeolus*), Great gray owl (*Strix nebulosa*), Northern goshawk (*Accipiter gentilis*), Three-toed woodpecker (*Picoides tridactylus*), Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*), and Starveling milkvetch *(Astragalus jejunus var. jejunus)*. Sensitive species that do not exist because of lack of habitat include the spotted bat, harlequin duck, trumpeter swan, Cache beardtongue, slickspot peppergrass and Payson's bladderpod (Groves and others 1997, Spahr and others 1991, and USDA 2001a, 3-79).

1.5.3 Other wildlife species

The watershed provides summer and some critical winter range for mule deer and elk. Montpelier Creek, Little Beaver Creek, and Snowslide Creek contain viable populations of beaver. Western boreal and Northern leopard frog may occur in the watershed.

Riparian, Non-riverine wetlands, and sagebrush shrublands are the highest priority habitats for birds found in the Montpelier watershed. Riparian habitat with dense grasses/shrubs (60-80% crown cover, 6' tall, 20 acres with scattered openings), open tree canopy with balanced age classes (snags), and abundant flowers are important habitat features. Obviously, no net loss of acres is also important. Sage grouse was chosen as the umbrella species for sagebrush shrublands.

1.6 Human Uses

Historic and existing human use patterns influence the appearance, condition, and management opportunities within the watershed.

1.6.1 The First Inhabitants

The entire Bear River Valley is thought to have been occupied by Shoshone bands. A group which has been labeled, "Cache Valley Shoshoni" is known to have ranged along the Bear River. After the tribes had acquired horses, they sometimes traveled to Bear Lake, which was a common meeting place for Shoshone from various regions. Along with collecting plant foods, and fishing in the area, the tribe utilized rabbit drives, hunted buffalo, mountain sheep, antelope, deer, and elk . Early trappers mention the Tribes in their journals, for instance, in his journal of August 1842, Fremont reported seeing a large village of horse Shoshoni near the head of the Bear River where "They had come to hunt antelope and to gather service berries and bitteroot" (1887, vol 1, p. 206).

Ethnographic sources indicated that at least one specific band is known to have wintered in the area somewhere along the Logan River above its junction with the Little Bear River and along Battle Creek. Although only a few specifics are known, there is no question that previous to the Bear River Massacre of Shoshone in 1863, the population had been more numerous and probably occupied more winter villages in the area.

The earliest inhabitants of European decent were mountain men and beaver trappers. Annual summer rendezvous were held around Bear Lake. The Oregon/California Trail passes through the lower part of the Watershed along what is now Highway 30.

1.6.2 Mining

The SE Idaho region, including the area of the Montpelier watershed, has long experienced mining exploration and production activity. The first wave of prospectors were looking for gold, but phosphate has so far turned out to be the principal mineral resource of the region. The Permian Phosphoria Formation holds these phosphates, and its ore zones caught the attention of some of the early prospectors, often for the wrong reasons. The first claims staked on the phosphatic rock units were mistakenly made for coal and a type of copper ore mineral (chalcocite) (USGS OFR 00-425). However, it wasn't long before the true nature and potential of the phosphate zones became known, and an early problem had to be overcome. That was the lack of local plants to process ore into fertilizer and the lack of economical transportation to existing processing facilities located in the east and the west.

In the early 1900's there were some complications involving SE Idaho phosphates due to legal wrangling about lode versus placer claims. Also, there was a temporary Federal "withdrawal" of western phosphate lands as a measure to protect them from acquisition and exploitation by foreign companies. As an offshoot of the "withdrawal" issue, and then continuing on in order to classify "Known Phosphate Leasing Areas", the US Geological Survey began a task of determining the extent and potential of the phosphate resources in the region. This involved the creation of numerous trenches, pits, tunnels and drill holes by USGS geologists over a period extending from the 1920's to the 1980's. A number of these (appx. 15), are documented within the Montpelier watershed (USGS OFR 00-425). It's likely that numerous similar features were put in by prospectors over the years, but with little or no remaining documentation.

Montpelier watershed has the site of the first phosphate mine to have been developed in the entire western phosphate field region (which is comprised of portions of Idaho, Utah, Montana and Wyoming). In 1903, a claim was made for phosphate at the site of what was to become known as Waterloo mine, about three miles east of the city of Montpelier. Actual mining began in 1907 with production from pits and tunnels. This

Waterloo Mine

phase of mining ended in 1920. The mine was re-opened in 1945 with surface mining operations (creating more land disruption than underground mining), which continued intermittently until 1960, when mining there ended permanently. At that point, about 212 acres of surface disturbance had been created. In 1971, the owner (Stauffer Chemical Co.) donated this disturbed area (and additional acreage to a total of 400 acres of patented land) to the Idaho Fish and Game Dept, which deeded it to Bear Lake County in 1997. Part of the donated area is currently used as a landfill.

Unfortunately, Waterloo was not mined and reclaimed in a manner conforming to modern standards. Mine waste piles exist with some slopes apparently left at the angle of repose. Much of the disturbed area remains unvegetated more than forty years after cessation of operations.

The other inactive mine in Montpelier watershed is the Home Canyon mine. It lies just north of Waterloo mine, about one mile SW of the geographic Home Canyon. Underground mining, and milling operations, occurred there from 1916 to 1924, but with far less surface disturbance than compared to typical surface mines. About 2,000 feet of drifts and adits were created (USGS OFR 00-425). The still open portal of Home Canyon mine adit shows no sign of drainage.

MINERAL AND PETROLEUM POTENTIAL

Montpelier watershed lies in an area of continuing mineral and petroleum potential. New areas may become economic for phosphate mining in the future. Other types of mineral accumulations may be explored for, discovered and developed in the years ahead.

The watershed lies in a geologic province known as the “Overthrust Belt”. This province is known to have occurrences of economic accumulations of petroleum in Wyoming to the east. The immediate area of the watershed has seen episodes of petroleum exploration activities, including exploratory (or “wildcat”) well drilling not far from its boundary.

SELENIUM

In 1996, an incident occurred which would make evident that a contaminant was being released to the environment due to phosphate mining in the SE Idaho region. Some horses pastured in an area near prior mining activity near Soda Springs became sick. It was subsequently determined that the cause was due to intake of elevated levels of selenium ultimately derived from nearby mine waste rock. Results from data collected at mine sites, indicate that the ore rich Meade Peak member of the Phosphoria contains anomalously high levels of the element selenium. The disturbance of the rock of the Meade Peak Member during mining operations causes it to be exposed to air and water, promoting chemical oxidation. Oxidation results in the previously insoluble selenium becoming chemically mobile. It then gets incorporated into soil, water, vegetation, and eventually animals - where it can do harm. There is no evidence that human health has been adversely affected in the region.

Results of sampling and chemical analysis programs carried out in recent years (USGS OFR 01-411 and other unpublished work) indicate that the mining waste rocks associated with Waterloo and Home Canyon mines do have elevated levels of selenium. Also, elevated levels were found in some soil and plant samples taken in these mine areas. However, to date, there have been no documented instances of selenium related damage to animal life in the vicinity of the two inactive phosphate mines in the Montpelier watershed.

1.6.3 Livestock Grazing

Cattle are the only livestock that graze public lands within the watershed except for a few bands of sheep that 'trail' through on the way to their allotments. The watershed is wholly within the Montpelier/Elk Valley allotment. All of the land is grazed except for a corridor on both sides of Highway 89 and around the Montpelier reservoir.

1.6.4 Roads

The road system within the watershed includes every type and condition from State Highways and city streets to gravel and dirt forest roads. Road densities on National Forest lands very considerably, from the relatively dense system in Home Canyon and in the southeast corner of the watershed (both system and non-system roads) to non-existent in the upper third of the Montpelier Creek subwatershed.

The Crow Creek road bisects the Montpelier Creek subwatershed and follows the old wagon haul road from Montpelier to Afton, Wyoming. Four poor quality roads provide additional access within this subwatershed to Whiskey Flat, Little Beaver Creek, Snowslide Canyon, and the Muddy Pockets area.

Home Canyon Road accesses Home Canyon with secondary roads providing access to Right Fork, Bunny Gulch, Fisher Hollow, and Fox Flat.

1.6.5 Timber Harvest and Personal Use Forest Products

Scattered stumps throughout the watershed indicate that timber removal has been occurring probably back to the turn of the 20th century. Stumps have been noted all the way to the head of Montpelier Creek and often at the rocky margins of existing stands. This indicates that 100 years ago, many of the conifer stands were young and not suitable for harvesting. Only the older, larger trees that survived the last fire were large enough to produce lumber. A charcoal kiln located in Aegetter Hollow suggests a more intensive harvest but no evidence of clearcutting to feed the kiln exists.

Charcoal Kilns

Harvesting on a commercial basis has been limited to Home Canyon and didn't occur in the watershed

until the 1970's. Approximately 253 acres have been harvested for lumber in two sales, one in the mid 1970's and the other in the mid 1990's.

Post and poles have been removed from many of the dense stands of lodgepole pine. Firewood has been and continues to be removed along all roads in the Home Canyon subwatershed. Virtually no tree harvest, for any type of product, is occurring in the remainder of the watershed.

1.6.6 Recreation

All forms of recreational activities are available in the watershed. Historically, there were several small, developed campgrounds along Highway 89, including Home Canyon and Whitman Hollow. Only the Montpelier Creek Campground and picnic area remain. Dispersed camping is very popular at the base of Montpelier Reservoir during the summer. Many places are popular dispersed camping areas during the fall hunting season.

Fishing is very popular at the reservoir, the small rearing pond, and along the length of Montpelier Creek, below the reservoir.

The watershed lies within the State of Idaho Fish and Game Big Game Management Area #76. This management area provides deer and elk hunting opportunities through several different draw and general hunts. A mix of weapon and season choices extends the hunting season from September 1 through late November. Forest Grouse are also plentiful in the watershed.

Recreational trails provide access to all parts of the watershed. Some trails restrict users to foot or horseback while others are restricted to two-wheel motorbikes. Trails in Joes Gap, Aegetter Hollow, Maple, Pine and Snowslide Canyons provide four-wheel ATV trail experiences.

1.7 Caribou NF Land Management Plan

The Land Management Plan identifies goals and objectives for management of the Forest. These goals and objectives are further refined into standards and guidelines for prescription areas. In the current (1985) plan, these prescription areas are mapped to the stand level. In the Forest Plan Revision (due to be signed in the fall of 2002), prescription areas are relatively large blocks of National Forest land that a common theme of management can be applied to. Table 1.6-1 displays the prescriptions within the watershed as portrayed in the preferred alternative of the Forest Plan Revision.

Prescription 2.1.2	Visual Quality Maintenance; This prescription emphasizes maintaining the existing visual quality within major travel corridors.
Prescription 2.7.1 Prescription 2.7.2	Elk and Deer Winter Range – Critical & Non Critical; These prescriptions emphasize management actions and resource conditions that provide quality elk and deer winter

	range habitat.
Prescription 5.2	Forest Vegetation; The emphasis in this prescription is on scheduled wood-fiber production and use and other compatible commodity outputs.
Prescription 6.2	Rangeland Vegetation; The purpose of this prescription is to achieve and maintain healthy rangelands for livestock forage production and good watershed condition.