West Bear Allotment
Chino Valley Ranger District
Prescott National Forest

Allotment Management Plan

Alan Kelso 9/22/99

Prepared by: Alan Kelso, CVRD, with Almida Land and Cattle Co. Date

This Allotment Management Plan is hereby made a part of the Term Grazing Permit issued to the following permittee, in accordance with Terms and Conditions 8(a) on page 2 of the Term Permit.

David R. Gipe 1-04-00

Reviewed by: David R. Gipe, Almida Land and Cattle Company Date

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Mark L. Johnson 12/29/99

Approved by: Mark L. Johnson, Chino Valley District Ranger Date

Note: to facilitate use, attachments such as EA Appendices are inserted after associated AMP text, with a reference given. These attachments are shown in bold print in the Table of Contents. Regular print indicates text. Therefore, no Appendix exists for this AMP.

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I. INTRODUCTION

The purpose of this plan is to:

- Implement selected Alternative 2 from West Bear Canyon and Del Rio Allotments Environmental Assessment and Decision Notice
- Describe desired conditions for the combined West Bear Canyon and Del Rio Allotments, hereafter known as West Bear. Source: EA p. 1.
- Describe holistic management practices to move rangeland resources toward desired conditions where they don't already exist.
- Describe monitoring to determine resource changes so proper management adjustments can be made if needed to progress toward desired conditions.
- Provide for permittee involvement in management of the allotment
- Describe roles and responsibilities of West Bear Strategic (Holistic Management) Team and Management Team, including participation by other agencies and interested public.

This AMP is intended for use by the permittee, strategic and management teams for West Bear, and the Forest Service. This use will include later decisions made through the Adaptive Management Unit (AMU). This first version of the AMP is made within the confines of the EA and Decision Notice and is made "up front" to allow formal initiation of Holistic Management and issuance of the appropriate term grazing permit. Revisions are expected and desirable so long as they follow the intent of the EA and Decision Notice and any later decisions.

The EA and AMP do not discuss grazing of the Verde River riparian area. However, a later Decision Notice or Record of Decision may authorize such grazing without conflicting with the upland grazing plan covered by the original EA and this AMP.

II. DESIRED CONDITIONS (FROM EA P. 1)

- Provide habitat for riparian and aquatic wildlife and native fish species, (including the threatened spikedace and endangered razorback sucker), by maintaining PFC *(Proper Functioning Condition)* of riparian-wetland areas of the Verde River.

- Retain or increase VGC *(Vegetative Ground Cover)* in order to improve the soil and watershed condition of uplands that affect the Verde River. This includes:

  - Hills ELU *(Ecological Land Units)* (Figure 1): Maintain VGC where it exists at potential, and increase VGC by 5% in areas currently below potential within 10 years of full implementation of the decision.

  - Plains #1 and #3 ELUs: Maintain VGC at 20%.

  - Plains #2 ELU: Increase VGC by 5% within 10 years of full implementation of the decision.

- Maintain *pronghorn* habitat in Plains #2 ELU. This includes maintaining the extent and quality of existing grasslands, and providing sufficient quantity and quality of herbaceous vegetation. This is necessary for fawning cover during April - May and to provide food.

- Provide habitat (cover and forage) for small mammals.

Almida Land and Cattle Company Goals, 7-9-93, EA Appendix I, are attached. While these goals in themselves are not required of any subsequent permittee, the Forest Service feels they are compatible with the ones stated above from the EA.

APPENDIX I - ALMIDA LAND AND CATTLE CO. GOALS - 7/9/93

QUALITY OF LIFE STATEMENT

To have a stable and prosperous operation which is a functioning part of a community of people who are free to structure their own lives in the areas of family, religion, education and recreation. The ranching operation is to be profitable as well as being aesthetically pleasing to the environment.

PRODUCTION GOALS

To use the whole of the resource under our stewardship in such a way so as to compliment all of the individual parts and vice versa.

To have a profitable, sustainable business.

To have a high quality, healthy product through the conversion of solar energy.

To provide for sustainable habitat for diverse and abundant wildlife populations.

To maintain and enhance a pleasant landscape where the public and the ranch family can enjoy recreational opportunities.

LANDSCAPE GOALS

The ranch contains a wide variety of topography ranging from open grasslands to steep sloped canyons and heavily wooded hills and mesas. Each of these areas demonstrate varied degrees of potential.

a. To have high successful rangelands with diverse species of warm and cool season forage plants including grass, forbs, half-shrubs and browse. These areas should provide for diverse habitat for soil mycorrhizae, insects, reptiles, amphibians, small mammals, birds, large game animals and predators.

b. Recognizing the periodic high flows originating upstream from the ranch, to the extent possible have the river system and associated slopes in a high successional condition with a properly functioning hydrologic cycle. This will allow for interception of precipitation, acceptable infiltration of overland flow with accompanying sediment yields, and also sustained discharge of ground water into the river channel. Upland slopes and benches will have a high successional browse/perennial grass/forb community. The more brittle floodplain areas will have a well developed diverse plant community that provides for channel stability. The wetter non-brittle zones will have a well developed riparian community of sedges, rushes, perennial grass/forbs and deciduous tree species. Overall this will provide for the diverse mix of terrestrial and aquatic plant and animal life occurring in this reach of the Upper Verde River.

III. MANAGEMENT PRACTICES (From EA p. 11-13, with edits in italics. The Strategic Team--AK also did some format editing to make this section similar to a checklist)

Allotment management is designed to give the permittees the flexibility needed to meet the desired conditions for the allotment. It will additionally aid the permittees in meeting their goals for production, quality of life, and the landscape, as part of Holistic Management.

The holistic management approach assesses the use of various tools, including animals, to achieve resource management objectives. This includes the principle of using livestock impact to influence vegetation. Environmental goals *(landscape goals)* will be set *initially* for each pasture *and reviewed periodically*, then a grazing strategy will be developed to meet those goals. The grazing year will be broken into two seasons; the dormant season (November through March), and the growing season (April through October). Livestock distribution will be varied based on the different pastures used during these two seasons, and the different goals to be achieved. *Landscape goal setting is a function of the strategic team.*

GROWING SEASON GRAZING PLAN

During the **growing season**, approximately 25 summer pastures will be used for livestock rotation. These smaller pastures will have the effect of creating some improvement of livestock distribution and concentration in the pasture. Livestock movement through these pastures will be based on recovery rest. Through this method, the fastest growing preferred plant species will be monitored until they are bitten once, signaling that cattle should be moved. Livestock will be rotated to the next pasture before enough regrowth has occurred on the grazed plant to cause it to be grazed again. This will usually occur after a fairly short period of time; the average grazing period per pasture will be approximately three days. The intent in this timing will be to reduce the potential for plant stress from recurrent grazing during the same growing season. Rest periods following pasture use will be based on the climatic conditions. *Requirements follow:*

- If the climate was favorable and growth was fast, the minimum recovery rest period will be 60 days.
- The minimum recovery rest period will be 90 days for climatic conditions where plant growth was slow.
- Pastures may be used twice in the growing seasons; once in the spring and again in the summer.
- These pastures will not be used during the dormant season, unless conditions in a pasture specifically warranted it. This will be based on the need to remove a build-up of cured forage and stimulate plant growth.
- The total days of pasture use will be an average of three to six days.
- The dates of pasture use will be rotated each year to vary the dates of use such that species will not be grazed at the same time from year to year.

DORMANT SEASON GRAZING PLAN

Approximately 15 pastures will be used for livestock grazing in the **dormant season**. The holistic approach for grazing during this season will focus on management feasibility and animal performance. *Requirements follow:*

- Continuous grazing, without the need to have pasture moves during inclement weather, will be the most feasible operation method in this steep, rough country.
- Cattle will be distributed throughout the pastures and will graze for the entire dormant season.
- The stocking rate will be at the minimum so as to maintain animal performance and not have negative effects on vegetation.
- Half of the pastures used in the winter (the larger pastures) will not be used during the growing seasons; thereby these pastures will receive continuous growing season deferment. These are the larger sized pastures.
- The other half of the winter pastures will be scheduled in some years for growing season use, as described in the previous paragraph. These are the smaller sized pastures, which will provide some level of cattle concentration.

NEW TERM GRAZING PERMIT

A new 10-year term grazing permit will replace the existing permit for 650 livestock yearlong. The time-control permit will provide for using HM and will cover both livestock and the 10 horses needed to manage the allotment. The two existing allotments will be combined into the West Bear Allotment. *THIS AMP IS PART OF THE NEW TERM GRAZING PERMIT.*

The permit will be issued for a range of 650 to 850 CYL *(Cattle Year Long).* (Season of use is yearlong for the allotment, not for the individual pastures.) The lower number is based on the 1993 Range Analysis, which does not consider the fencing and water developments. The higher number reflects the additional flexibility and distribution from the proposed improvements. Previous stocking levels that the allotment has supported during a variety of climatic conditions further substantiate this number. The higher number designates the highest level of stocking that will be permitted. This level of use will be associated with available productivity, climatic conditions, and vegetative conditions. Initial stocking will not exceed 650 head. Actual stocking levels will be determined for both the dormant and growing seasons based on forage monitoring.

BIOLOGICAL PLANNING AND CONTROL CHART REQUIREMENT

A Biological Chart will be developed by the permittee and approved by the District Ranger in advance of each growing and dormant season. *A minimum of two 6-month Bio Charts per running year will be submitted. The permittee's Management Team is responsible for preparing the Bio Charts. The Management Team may delegate this duty to the permittee.* The permittee will keep the chart up-to-date. On the Biological Chart, permittee will keep an actual use record and a record of general overall ocular estimate of forage utilization (light, moderate, high) by

livestock for each pasture. *This is done at the end of the use period.* Permittee will keep the chart current within 30 days *and submit to the District Ranger at least twice yearly.*

The current protocol of submission is acceptable. The October-March chart is actually finalized after fall roundup and pregnancy checks in October. Actual cattle numbers are better known then. Similar delays in final planning sometimes occur in wet springs so that spring growth may be factored into April-September schedule. Delays of submitting the chart past the times described above require notification of the permit administrator.

RANGE IMPROVEMENT SUMMARY

The proposal will develop twenty new grazing pastures, for a total of 40. Design specifications for construction of all ***structural* range improvements** are listed in **EA Appendix D** (attached). The proposed amount of structural improvements are listed in **EA Appendix E** (attached). Figures E1 - E4 in EA Appendix E (attached) show the existing and proposed improvements for fencing and waters. The **economic analysis for Alternative 2** (attached) shows the planned schedule for structural improvements plus estimated costs to the Forest Service or other agencies. Columns 1-4 are of use in the AMP. The others were amortized cost figures for calculating long-term costs and benefits.

VERDE RIVER GRAZING AND RELATED ADJUSTMENTS ON UPLAND GRAZING

The entire reach of the Verde River on NFS land within this grazing allotment, approximately 9.5 miles, will not be grazed by livestock. River crossings will be allowed in the winter season as described in Section 3.3.5. Additional water sources in adjacent upland pastures will be constructed to provide livestock water that is currently only available at the Verde River. FS funding to accomplish riparian area protection will be limited to $11,630. This amount, together with permittee contributions, will be used to generate matching cost-share funds from potential partners. Riparian area protection includes fencing out the river corridor from pastures and developing water sources away from the river. FS funds for work on the other improvements will be limited to an additional $21,900.

THE BACKUP PLAN IN CASE HOLISTIC MANAGEMENT IS ABANDONED is shown as alternative 3 in the 1998 West Bear Canyon and Del Rio Allotments Environmental Assessment and is not repeated here.

The following section retains its EA index numbers for identification with the EA. ITALICS IDENTIFY TERMS IN THE GLOSSARY, NOT EDITS FOR THE AMP.

3.4 ELEMENTS COMMON TO **ACTION** ALTERNATIVES:

3.4.1 Common to Alternatives 3 (backup) and 4. Measuring utilization by weight on key species in key areas would follow utilization guidelines. These would be monitored to reach proper-use levels. If proper use levels were approached or exceeded, the range permittee would be required to change management of a unit to avoid additional areas of over-utilization, shift livestock between units to keep

utilization below proper-use levels, reduce numbers, and/or remove livestock early from the allotment depending on the individual situation. Key areas would be established per Forest Plan direction.

The grazing permit would require utilization monitoring by the permittee. The FS would assist when possible. In the case of disagreement on utilization levels, FS monitoring would take precedence.

3.4.2 Common to Alternatives 2 (selected) and 5. Pasture movements would be assessed through HM. This is based on recovery rest (See Appendix C).

3.4.3 A site-specific monitoring plan would be implemented to assess accomplishment of environmental objectives. Parameters monitored would include but not be limited to; PFC, VGC, pronghorn and small mammal cover, and forage utilization.

3.4.4 Grazing units dominated by clay soils (TES *[Terrestrial Ecosystem Survey]* unit 472) may require changes in planned use by livestock during extended periods of winter precipitation, if soil becomes saturated. This would help to prevent excessive trampling of wet, clay soils.

3.4.5 Crossings of the Verde River by livestock on NFS land would be restricted to sites, which are designated by a FS fish biologist, and would occur only during the winter season (November through mid-February). Sites would be those reaches where the dominate substrate was cobble both in the water and on transverse bars. Where the dominate substrate in the river was smaller than cobbles, water quality samples for turbidity would be taken before, during, and after downstream of the cattle crossing on the Verde River. All activity would cease if the standard for turbidity was exceeded and would be resumed again when the concentration returned to baseline.

3.4.6 A watering point would be maintained at the confluence of Hell Canyon with the Verde River by a fence across an area of backwater near the mouth of Hell Canyon. Livestock would not have direct access to the Verde River.

3.4.7 Individual grazing units in the Plains #2 ELU might include pronghorn fawning areas. As fawning areas are identified, cover evaluations might require retention of adequate amounts of residual herbaceous cover to meet fawning cover needs during the fawning period (April and May). This might require retention of 6-8" residual cover after the last growing-season grazing period in those units prior to the fawning period.

3.4.8 A livestock trail crossing would be constructed at King Springs across Hell Canyon, (T. 18 N., R. 1 W. , Sec. 14, NE 1/4). This trail would be approximately .75 miles long, and built to FS design specifications. It would improve an existing trail.

3.4.9 All action alternatives would comply with the Forest Plan.

3.4.10 Grazing plans or biological control charts would be developed in order to minimize negative impacts on cool season species. This would include developing rotations or recovery rest systems that would promote adequate periods of rest for each pasture during the cool growing season.

3.4.11 Consideration of heritage resources would be done such that compliance would be reached under Section 106 of the National Historic Preservation Act on all actions to take place on the allotment. This would include the construction of any range improvements, as well as the action of grazing in general.

3.5.1 Common to Alternatives 2, 3, and 4. Fire (natural or prescribed) would be used to maintain the existing grassland in the early successional stages in the Plains #2 ELU. An increase in woody plants from the establishment of juniper and desert shrubs, or an accumulation of dead tobosa grass would be the indication that fire was needed to maintain the grassland successional stage and replenish herbaceous forage and cover for pronghorn. Prescriptions for prescribed fires would be planned to minimize impacts to wildlife. This would include varying the timing of the burn to avoid impacts during pronghorn fawning and juvenile mammals. The amount of area to be treated at one time would be managed to retain sufficient cover and forage across the landscape for pronghorn and small mammals.

3.5 ELEMENTS COMMON TO **ALL** ALTERNATIVES:

3.5.1 BMPs (Best Management Practices) would be used in all areas of the project, including planning, implementation, and monitoring. BMPs are preventative practices to protect soil and water resources. BMPs include, but are not limited to, structural and non-structural controls, operations, and maintenance procedures. BMPs can be applied before, during, and after pollution producing activities to reduce or eliminate the introduction of pollutants into receiving waters (40 CFR 130.2 - EPA Water Quality Standards Regulation). Usually BMPs are applied as a system of practices rather than a single practice. Applicable design feature practices specifically used in the design of alternatives are found in the FSH (Forest Service Handbook) 2509.22 "Soil and Water Conservation Practices Handbook." BMPs applicable to this project are listed and described in *EA* Appendix G (see page 11).

APPENDIX G - SOIL AND WATER CONSERVATION HANDBOOK

Best Management Practices

The Verde River from Granite Creek to Hell Canyon, reach 15060202-052, extends for sixteen miles. Currently, the reach is being proposed for de-listing for arsenic and turbidity, bringing this section in full support. Designated uses for this reach are warm water fisheries, full body contact, fish consumption, irrigation, and livestock.

FSH 2509.22, CHAPTER 22 - Range Management.

The use of NFS lands for grazing in the Southwestern Region generally predates the establishment of individual Forests. Grazing continues as a recognized tool for vegetation management on NFS lands and is considered a compatible use of public lands. Designated ranges are managed to accommodate grazing along with other uses.

Range vegetation management involves such activities as range analysis, allotment management planning and improvement, and grazing permit use, livestock distribution, constructing structural and non-structural improvements, maintaining or enhancing diverse landscapes for the benefit of the overall biological aspects of the ecosystem including fish and wildlife and other resources, and restoration of deteriorated rangelands. Physical activities may include grazing, trampling, salting, fencing, creating stock ponds, site preparation, seeding, etc. Livestock can be an effective tool in managing vegetation.

Successful range vegetation management is measured by the results on the ground through conducting range inspections, monitoring vegetative ground cover, comparing to the environmental protection attainment identified, and addressing vegetation in range analyses and allotment plans.

Water and soil management concerns can be effectively included into the Range Management Planning Process when the Allotment Management Plan is written or revised. Allotment planning is accomplished through NFMA (National Forest Management Act) and NEPA, and must be consistent with the Prescott National Forest's Land Management Plan.

The following are BMP's that have been are a part of the action alternatives. Alternatives were developed in consideration of water and soil concerns, and these practices were developed to mitigate concerns. They have been incorporated into the alternatives.

22.1 Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan.

1. Objective. To manage rangelands through NFMA and NEPA, ensuring the Forest Plan objectives are being met.

2. Explanation. An analysis of the West Bear/Del Rio AMP has been conducted by an

interdisciplinary team to evaluate the effects of range vegetative management on soils, vegetation, wildlife, economics, and uses for the purpose of meeting the Forest Plan. Following this analysis, the Chino Valley Ranger District, Prescott National Forest, in cooperation with Almida Cattle Company, prepares a written allotment management plan and authorizes livestock grazing as per stipulations in the management plan. These documents include measures to protect those resource values mentioned above and water quality, riparian areas, and to coordinate livestock grazing with other resource uses. Specific methods for controlling when, where, and numbers of livestock to be grazed are covered in the plan. Also included are needed rangeland improvements, such as barbed wire and electric fence and water developments, monitoring methods, and an implementation schedule.

A permittee operating plan is prepared, reviewed, and revised annually to reflect direction in the allotment management plan.

The amount of livestock use is determined for both the dormant and growing seasons based on forage monitoring. Livestock are rotated to the next unit when uniform distribution has occurred but plants have not regrown enough to cause the same plant to again be grazed. When forage plants are dormant the livestock will graze longer.

Allowable use is set to meet the objectives of the Forest Plan and the ecological land units on the allotment. The maintenance of soil productivity and stability is considered in determining allowable use.

3. Implementation. The District Ranger, Mark Johnson, is the deciding officer, and is responsible for the analysis of the West Bear/Del Rio Allotments and processing the grazing application. Upon the decision, a ten year term grazing permit is issued replacing the existing permit.

Annually prepare an operating plan with the permittee to allow for current allotment conditions. The permittee carries out the plans under the immediate direction and review of the Chino Ranger District. Take corrective action if a permittee does not comply with grazing permit conditions designed to protect soil and water resources.

22.11 - Controlling Livestock Numbers and Season of Use

1. Objective. Safeguard water and soil resources under sustained forage production. Managed forage utilization by livestock to maintain healthy ecosystems for all resources objectives.

2. Explanation. In addition to proper stocking rate and season of use specified in the grazing permit, periodic field checks are made to identify needed adjustments in season and livestock numbers. Checks include:

a. Range readiness evaluations to assure that the soil is not too wet and sufficient forage growth has occurred.

b. Stock counts to assure that only permitted livestock enter the allotment.

c. Forage utilization measurements to provide data, for grazing use pattern, improved livestock distribution, and stocking.

d. Assessment of rangeland to verify soil and vegetative condition and trend.

When standards for allowable utilization are established they are incorporated into the allotment management plan.

3. Implementation. Allotments are administered by the District Ranger. Provisions are carried out by the grazing permittee as permit requirements. Field check and measurements are made periodically by the Forest Service. Livestock numbers and seasons of use may be changed annually to reflect current climatic condition.

22.12 - Controlling Livestock Distribution

1. Objective. To manage sustained forage production and utilization by livestock while protecting soil and water resources. Maintaining healthy ecosystems for wildlife and other resources.

2. Explanation. Livestock use with the West Bear/Del Rio Allotment is typically not uniform due to variations in topography, water availability, vegetation type and condition. Several techniques are used to achieve uniform distribution under the holistic management strategy, or lessen the impact on areas, such as the Verde River, which are sensitive or which would naturally be overused. These techniques include:

a. Construction of barbed wire and electric fences to concentrate livestock through use of smaller pastures or exclusion of pastures, such as the Verde River.

b. Rotation of cattle is dependent on the season of use whether it is the growing season or the dormant season.

c. Using salt or supplement feed as tools to gain proper distribution of livestock.

d. Construction of new water developments.

e. Prevention of intensive livestock grazing or concentrated use on soils that have low bearing strength and are wet.

Open herding, limiting trailing, and use of new bed grounds are additional techniques. Developing sufficient watering places is one way to limit the amount of trailing. Livestock distribution needs are determined through evaluations of range conditions and trends, including watershed condition assessments of vegetative ground cover, and forage monitoring.

3. Implementation. Livestock distribution practices are carried out by the permittee under direction and review of the Chino Valley Ranger District. Direction is incorporated in the allotment management plan and the annual operating plan, which are integral parts of the grazing permit and provides current Forest Service instructions. The instructions reflect current allotment conditions and vegetative trends.

22.13 - Rangeland Improvements

1. Objective. To improve, maintain or restore range resources, including soil and water, through the use of rangeland improvements.

2. Explanation. Rangeland improvements are intended to enhance forage quality, quantity, and availability, and to provide protection to other resources, such as the Verde River. Building fences to concentrate cattle and control movement and develop watering sites are to be implemented by the permittee with assistance from the Chino Valley Ranger District. If a structure is causing soil erosion or water quality degradation the annual operating plan will identify it and state corrective measures.

Construction and maintenance of rangeland improvement structures will occur under the following guidelines:

a. All range improvements would be constructed/maintained/operated to FS wildlife standards. Barbed wire fences would have no more than 4 strands with the bottom wire smooth. These fences would have a maximum height of 42 inches.

b. All fences that are currently non-conforming to wildlife standards would be modified as time and money allowed. The non-conforming fences surrounding waters would be considered highest priority for compliance.

c. New water developments on the alluvial plains and elevated plains would be placed in openings with minimal surrounding cover wherever possible. The maximum height of the drinking troughs would be 20 inches. Each drinking trough would be equipped with a small animal escape ramp and access ramp. Range improvement waters would be made available to pronghorn in every pasture and every 3 miles (regardless of pasture) during the months of April through August. Gates around waters would be left open, whenever possible, relative to need to control planned livestock locations, to corral strays, etc.

d. Water storage tanks would be painted to match the color(s) of the surrounding dominant vegetation during the dormant season. The water storage tanks would be located outside the view of Yavapai County Road 72 (Drake-Perkinsville Road). The area cleared for the tanks would be the minimum amount needed.

e. Fence corridors would be cleared by hand using various hand tools unless heritage clearance has been obtained for machine clearing. Pipelines may be installed with mechanized equipment. Fence and pipeline corridor widths would be minimized to the area actually needed for construction and maintenance activities. Stumps would have a maximum height of 12 inches. Disturbed ground would be contoured back to original ground shape.

Waterbars would be used on slopes at the following installation rate: maximum spacing of 150 feet on 8% grades, 200 feet on 6% grades, 350 feet on 4% grades, and 500 feet on 4% grades. Additionally, disturbed areas would be broadcast seeded and mulched in the fall or early spring. Cleared vegetation would be lopped and scattered over the disturbed areas.

The site shall be acceptable when planted grass/forbs cover the area leaving five or less 2 foot by 2 foot patches open in the reclaimed area. The following prescription would be used: Side-oats grama @ 3.5 lbs/acre; sand dropseed @ 5 lbs/acre; globemallow @ 0.75 lbs/acre; and clearing slash scattered over seeded areas, where available.

f. Stock tank dredge material would be spread on 1 foot lifts on the crest and lee (downstream) side of the dam. Seed would be worked into soil once all material has been put in place (refer to seed/slash prescription for pipeline installations. All maintenance activities would be limited to existing disturbed areas unless heritage clearance is done on larger area.

g. The placement of waterbars on the stock trail located in T. 17 N., R. 2 E., Sec. 9, would be at the installation rate prescribed for pipelines.

h. Access for vehicles, to range improvements and project areas would be along system roads or trails. If a road/trail is not present, then access would be on a designated cross-country route. No new roads would be constructed. Some brush clearing or crushing may be necessary for access. Disturbed areas would be repaired where Forest Service deems it necessary to protect resources or to discourage further cross-country vehicle use.

3. Implementation. The permittee is involved as a cooperator in rangeland improvements and may actually complete the work under Forest Service direction. Implementation may also be done by Forest Service Crews or contractors. Range improvement needs are recognized in the range allotment planning process and are scheduled for implementation in the allotment plan and the 10-year Forest Plan Implementation Schedule.

22.14 - Determining Grazing Capability of Lands

1. Objective. To maintain or improve soil stability, soil productivity, and water quality by grazing the land within its capability.

2. Explanation. This practice is an administrative and preventative control. Soil condition classes, based on relationship of current and natural soil loss tolerances, are used to determine grazing capability. Only land with soils in stable condition are considered as "full capability" range. Grazing capability ratings are then used in conjunction with other grazing considerations to determine the actual grazing capacity of an area.

3. Implementation. Soil condition class is determined using TES. The soil condition class was used in determining the grazing capacity in the Grazing Capability Analysis, Appendix K.

22.15 - Revegetation of Areas Disturbed by Grazing Activities

1. Objective. To establish vegetation cover on disturbed sites to prevent accelerated erosion and sedimentation.

2. Explanation. Where soil has been disturbed by rangeland improvements, the establishment of vegetation is needed to minimize erosion. Appropriate measures shall be taken to establish an adequate cover of grass. The following prescription would be used: Side-oats grama @ 3.5 lbs/acre; sand dropseed @ 5lbs/acre; globemallow @ 0.75 lbs/acre; and clearing slash over seeded areas, where available. This measure is applied where it is expected that disturbed soils in part of the area will require vegetative cover for stabilization and the problems will not be mitigated by other management plan revisions.

3. Implementation. The FS shall identify on-the-ground disturbed areas that must be treated. The FS shall provide instruction as to soil preparation and the application of suitable seed mixtures and mulch and the timing of such work. It is the responsibility of the District Ranger to make sure that revegetation work is done correctly and in a timely manner.

IV. RANGE IMPROVEMENTS

APPENDIX D – DESIGN SPECIFICATIONS FOR CONSTRUCTION OF RANGE IMPROVEMENTS

The following design specifications are specific to the construction of range improvements in Alternative 2. These measures will also apply to any improvements constructed through Alternative 3, if it is implemented as a backup plan to Alternative 2. These specifications have been used on previous projects and are considered to be effective in reducing environmental impacts.

1. All range improvements will be constructed/maintained/operated to FS wildlife standards. Barbed wire fences will have no more than 4 strands with the bottom wire smooth. These fences will have a maximum height of 42 inches.

2. All fences that are currently non-conforming to wildlife standards will be modified as time and money allow. The non-conforming fences surrounding waters will be considered highest priority for compliance.

3. New water developments on the alluvial plains and elevated plains will be placed in openings with minimal surrounding cover wherever possible. The maximum height of the drinking troughs will be 20 inches. Each drinking trough will be equipped with a small animal escape ramp and access ramp. Range improvement waters will be made available to pronghorn in every pasture and every 3 miles (regardless of pasture) during the months of April through August. Gates around waters will be left open, whenever possible, relative to the need to control planned livestock locations, to corral strays, etc.

4. Water storage tanks will be painted to match the color(s) of the surrounding dominant vegetation during the dormant season. The water storage tanks will be located outside the view of Yavapai County Road 72 (Drake-Perkinsville Road). The area cleared for the tanks will be the minimum amount needed.

5. Fence corridors will be cleared by hand using various hand tools unless heritage clearance has been obtained for machine clearing. Pipelines may be installed with mechanized equipment. Fence and pipeline corridor widths will be minimized to the area actually needed for construction and maintenance activities. Stumps will have a maximum height of 12 inches. Disturbed ground will be contoured back to original ground shape.

   Waterbars will be used on slopes at the following installation rate: maximum spacing of 150 feet on 8% grades, 200 feet on 6% grades, 350 feet on 4% grades, and 500 feet on 4% grades. Additionally, disturbed areas will be broadcast seeded and mulched in the fall or early spring. Cleared vegetation will be lopped and scattered over the disturbed areas.

The site shall be acceptable when planted grass/forbs cover the area leaving five or less, 2 foot by 2 foot patches open in the reclaimed area. The following prescription will be used: Side-oats grama @ 3.5 lbs/acre; sand dropseed @ 5 lbs/acre; globemallow @ 0.75 lbs/acre; and clearing slash scattered over seeded areas, where available.

6. Stock tank dredge material will be spread on 1-foot lifts on the crest and lee (downstream) side of the dam. Seed will be worked into soil once all material has been put in place (refer to seed/slash prescription for pipeline installations. All maintenance activities will be limited to existing disturbed areas unless heritage clearance is done on larger area.

7. The placement of waterbars on the stock trail located in T. 17 N., R. 2 E., Sec. 9, will be at the installation rate prescribed for pipelines.

8. Access for vehicles, to range improvements and project areas will be along system roads or trails. If a road/trail is not present, then access will be on a designated cross-country route. No new roads will be constructed. Some brush clearing or crushing may be necessary for access. Disturbed areas will be repaired where FS deems it necessary to protect resources or to discourage further cross-country vehicle use.

The attached maintenance standards apply to the new 10-year term grazing permit. They are from the 1996 permit and reflect agreements made at that time between CVRD and permittee.

Attached EA Appendix E shows the planned summary of improvements. Some changes of actual costs and quantities occurred between time of approval and completion of the AOP. These are reflected in the 2240 records.

Maps of planned range structures follow the list. The economic analysis serves as a schedule. To date, this schedule has been accelerated.

1. Maintenance of Range Improvements. The permittee is responsible for his proportionate share of the maintenance of all structural range improvements listed on page 9 of this permit and all new improvements as they are constructed. They are further identified on the two maps which accompany this permit. Not included are improvements where RAMIS listing shows another entity as being responsible for maintenance. "NA" indicates not applicable.

   a. Maintenance standards for water developments follow:

   (NA) (1) All spring-source facilities shall be adequately protected or fenced and fences made to prevent livestock from getting into the source or the head box.

   (NA) (2) Head box lids or covers shall be in place to prevent dirt, rodents or refuse from entering the head box.

   (NA) (3) All outlet pipes and valves from head boxes shall be functioning and any leaking shall be kept to minimum.

   (4) Water troughs shall be kept at heights that make them usable to livestock. Troughs which have soil loss from trampling livestock shall be periodically backfilled to maintain a usable height.

   (5) Troughs which become uneven due to settling shall be reset and leveled.

   (6) Bottom of steel trough shall be at least two to four inches clear of the ground to prevent rusting. (Applies to new installations only)

   (NA) (7) Water shall not be allowed to overflow the sides of the troughs. Overflow water shall be piped away from troughs at least 50 feet. The end of the overflow shall be protected from trampling by livestock. Water from the overflow pipe must be directed away from the area.

   (8) Inlet and outlet pipe shall be protected by anchoring to the trough with a single post wired to the inlet pipe and a brace or pole supporting the outlet pipe. Inlet and outlet pipeline shall be secured as needed for their protection.

   (9) All troughs shall be equipped with a wildlife escape ramp.

   (10) Troughs, storage tanks, and pipelines shall be drained and cleaned periodically to prevent algae buildup and damage from freezing.

   (11) Poles, posts and trough-framing materials used in the construction of the water trough shall be maintained, repaired or replaced as needed.

   (12) All above-the-ground pipeline structures shall be maintained.

   (13) Pipelines with air and drain valves shall need to be covered with fine screen to prevent dirt from entering the pipe. Screens shall be replaced as needed.

Special Terms and Conditions

(14) Pipeline leaks shall be repaired or the damaged section replaced with materials similar to construction materials.

(15) Pipelines with valve cover-boxes shall be kept covered and repaired when needed.

(16) Stock tanks shall be kept clear of debris, floating logs, dead animals, etc. Spillways shall be maintained to prevent washing out or becoming plugged. Rodent damage shall be reported to the Forest Service.

b. Range Fences and Corrals

(1) All broken wires shall be spliced and repaired in such a manner than tension on a wire is maintained. Wire splices shall be made with 12 gage size tie wire or type of wire used in initial construction.

(2) Broken or rotten posts, broken braces and missing staples shall be replaced where and when needed to make the fence functional.

(3) Wires shall be re-stretched where needed.

(4) Broken or missing stays shall be replaced where needed.

(5) The top wire on all range fences shall be kept under 44 inches high.

(6) Staples shall not be driven so deep into the post that they scar or create a weak spot in the wire.

(7) All gates shall be closed before livestock enter the grazing units.

(8) Wire gate tension shall be sufficient to prevent the gate from sagging and still be closed. Gate loops shall be made from smooth wire, not barbed wire.

(9) Trees which fall on fences shall be cut and removed, wire re-stretched, and stays replaced.

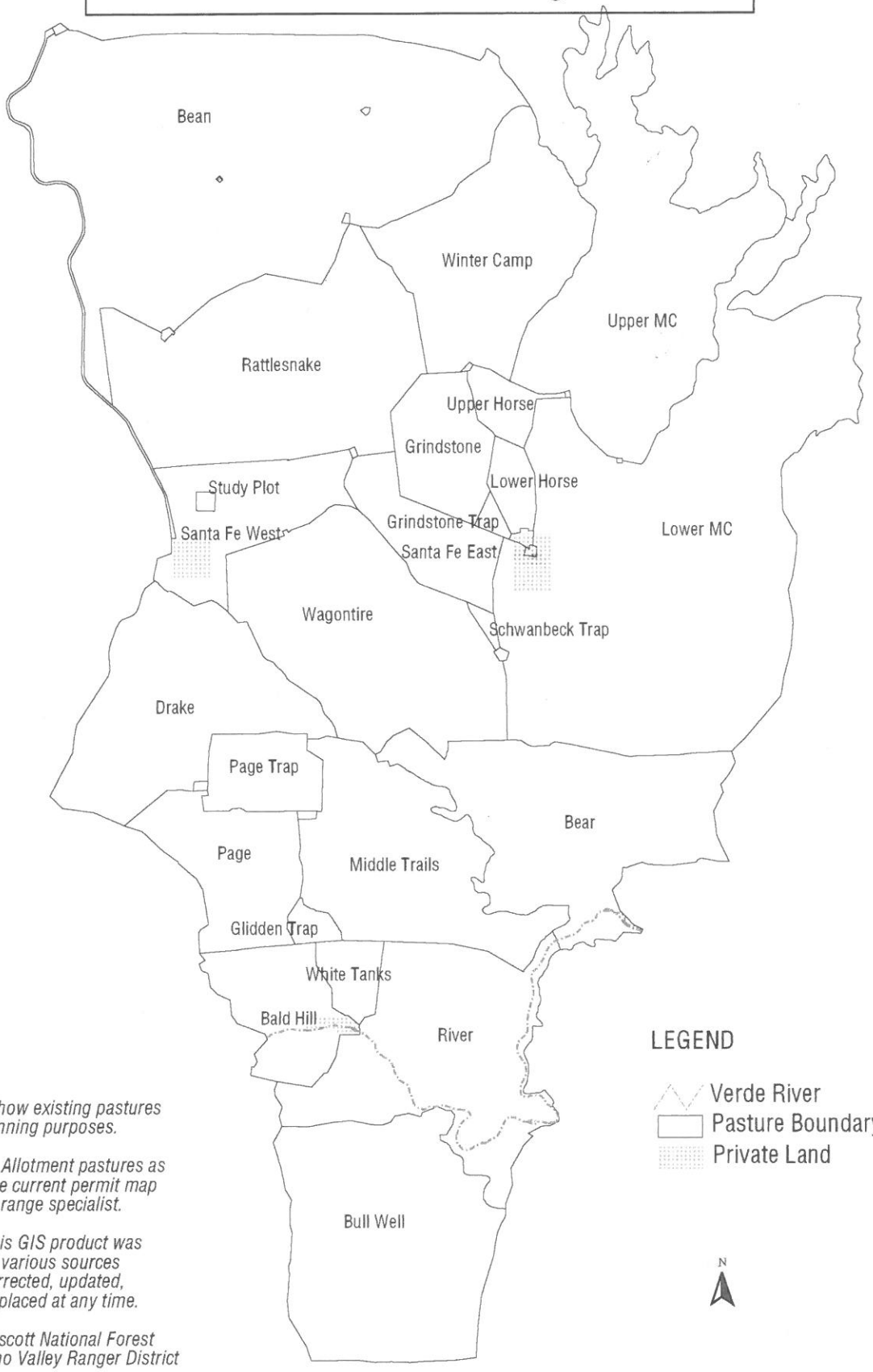
(10) Broken or rotten sections of log or pole fences and corrals shall be replaced as needed.

(11) Corrals shall be kept clean of litter, in good repair, and in usable condition.

APPENDIX E - RANGE STRUCTURAL IMPROVEMENTS LIST

PROJECT	TOTAL COST
Electric Fence (37 miles)	48,100
River Corridor Fence	
▪ River Unit	
Barbed Wire, 0.75 mi	3,750
Electric, 6 mi	7,800
Watering System	
▪ Pipeline - 7 miles	
▪ Drinkers (troughs)	
▪ Water Storage Tanks - 40,000 gallon(1), 20,000 gallon (1)	22,900
Well (1) with pipeline and troughs	18,300
Stock Trail (0.75 miles)	2000
Fence Removal (5.5 miles)	

West Bear/Del Rio Existing Pastures



Purpose: To show existing pastures for general planning purposes.

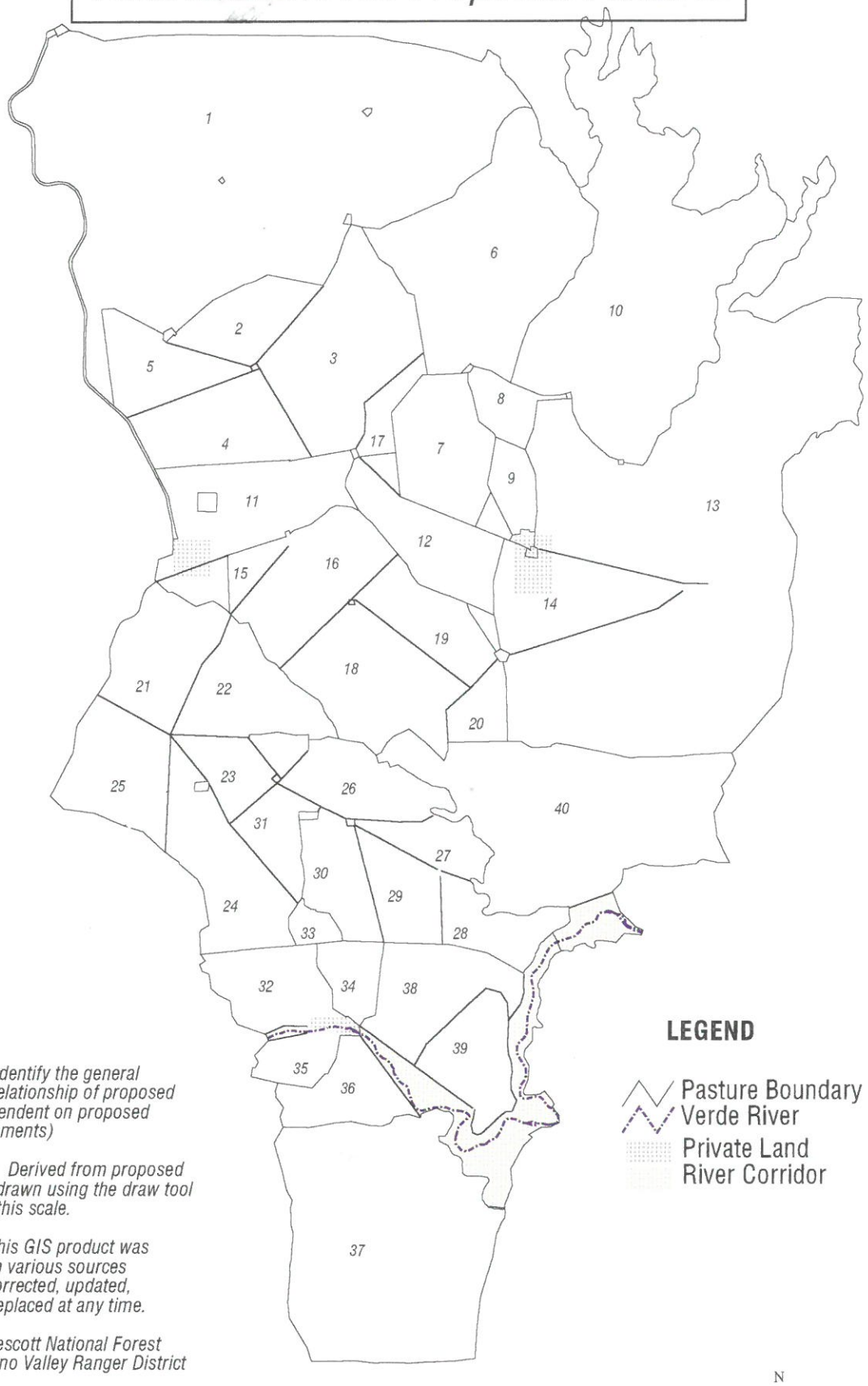
Data Sources: Allotment pastures as identified by the current permit map and the Forest range specialist.

Disclaimer: This GIS product was compiled from various sources and may be corrected, updated, modified, or replaced at any time.

Publisher: Prescott National Forest
Chino Valley Ranger District

Publish Date: December 15, 1997
Plot Name: /plots/e_apa_8x11.ps

West Bear/Del Rio Proposed Pastures



LEGEND

Pasture Boundary and #
Verde River
Private Land
River Corridor

Purpose: To identify the general location and relationship of proposed pastures (dependent on proposed fence improvements)

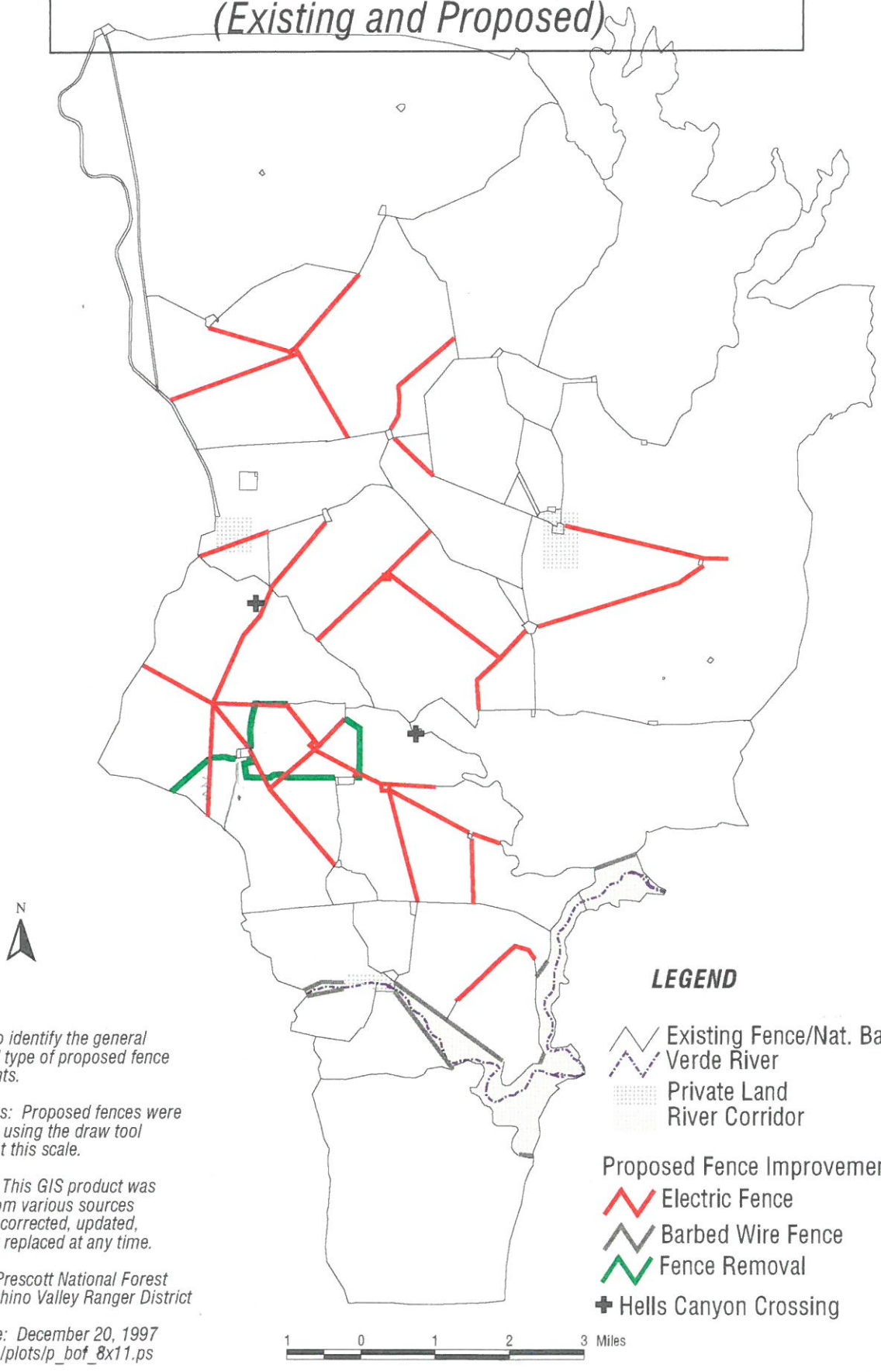
Data Sources: Derived from proposed fences, hand-drawn using the draw tool for display at this scale.

Disclaimer: This GIS product was compiled from various sources and may be corrected, updated, modified, or replaced at any time.

Publisher: Prescott National Forest
Chino Valley Ranger District

Publish Date: December 20, 1997
Plot Name: /plots/p_apa_8x11.ps

West Bear/Del Rio Fence Improvements (Existing and Proposed)



Purpose: To identify the general location and type of proposed fence improvements.

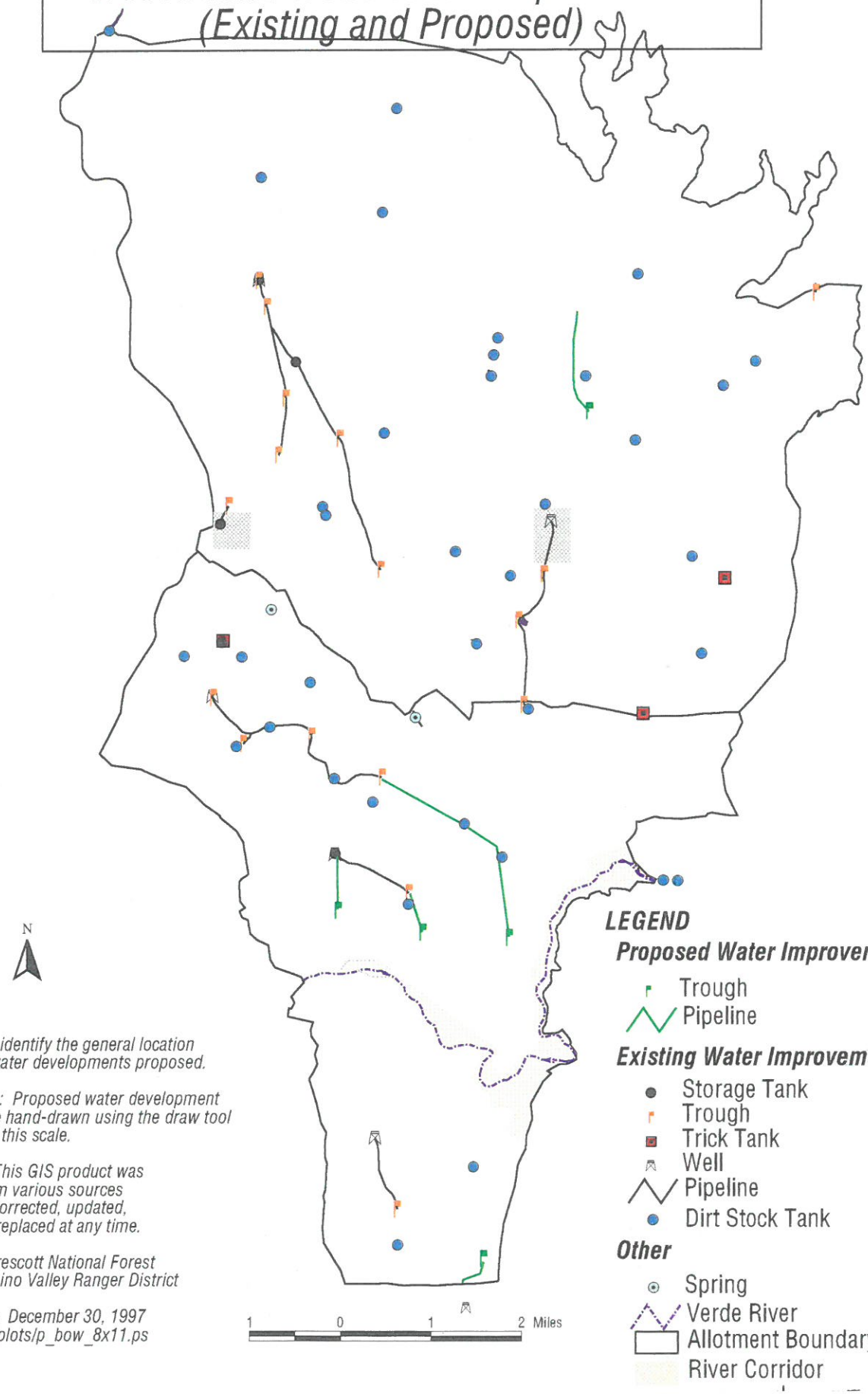
Data Sources: Proposed fences were hand-drawn using the draw tool for display at this scale.

Disclaimer: This GIS product was compiled from various sources and may be corrected, updated, modified, or replaced at any time.

Publisher: Prescott National Forest
Chino Valley Ranger District

Publish Date: December 20, 1997
Plot Name: /plots/p_bof_8x11.ps

West Bear/Del Rio Water Improvements (Existing and Proposed)



Purpose: To identify the general location and type of water developments proposed.

Data Sources: Proposed water development features were hand-drawn using the draw tool for display at this scale.

Disclaimer: This GIS product was compiled from various sources and may be corrected, updated, modified, or replaced at any time.

Publisher: Prescott National Forest
Chino Valley Ranger District

Publish Date: December 30, 1997
Plot Name: /plots/p_bow_8x11.ps

7-15-98 1300 West Bear/Del Rio Alternative 2 and backup plan Alt. 3 Direct Costs associated with management using grazing as a tool															
Revenue or cost, for USDA-FS/other gov't	**Unit cost, gov't only**	**Units**	**Col. 2x3, $**	**Amortization factor, at 8% int.**	**Year 1 Col 4x5**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year10**	**Total $**
Year one costs:															
H2O for River Pasture (new Prospect Pasture) by FS or State H2O Protection Fund:															
Pipeline, Page Well to (new)Prospect Pasture	4800	5. 5 mi	26,400	0.1490	3934	3934	3934	3934	3934	3934	3934	3934	3934	3934	39,336
water troughs	500	8	4000	0.1490	596	596	596	596	596	596	596	596	596	596	5960
storage tank	5000	1	5000	0.1490	745	745	745	745	745	745	745	745	745	745	7450
Pipeline, White Tanks to Prospect Pasture	4800	.75 mi	3600	0.1490	536	536	536	536	536	536	536	536	536	536	5364
water troughs	500	2	1000	0.1490	149	149	149	149	149	149	149	149	149	149	1490
Pipeline, Glidden Well to Bald Hill Pasture	4800	.75 mi	3600	0.1490	536	536	536	536	536	536	536	536	536	536	5364
water troughs	500	2	1000	0.1490	149	149	149	149	149	149	149	149	149	149	1490
storage tank	2000	1	2000	0.1490	298	298	298	298	298	298	298	298	298	298	2980
Barb/elec fences, River Pasture, by FS or State	elec: 1300, barb: 5000	6 mi .75 mi	7800 3750	0.1490 0.1490	1162 559	1162 559	1162 559	1162 559	1162 559	1162 559	1162 559	1162 559	1162 559	1162 559	11,622 5588
Tot. Yr 1 direct FS/ State			*58,150*		*8664*	*8664*	*8664*	*8664*	*8664*	*8664*	*8664*	*8664*	*8664*	*8664*	*86,644*
Limit on FS RBF, Alt. 2			*11,630*												*NA*
Amt needed from State			*46,520*												*NA*
FS remaining RBF, Alt. 2			*21,900*												*NA*
Year two costs:	**FS Unit cost**	**Units**	**2x3**	**Am. fct**	**Year 1**	**Year 2**	**Year3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**	**Year 9**	**Year10**	**Total $**
Elec fence, Rattlesnake 1	0	1.00		0.1601											0
Elec fence, Rattlesnake 2	0	1.25													0
Elec fence, Wagontire 1	0	2.25													0
Elec fence, Wagontire 2	0	1.75													0

Revenue or cost, for USDA-FS/other gov't	Unit cost, gov't only	Units	Col. 2x3, $	Amortization factor, at 8% int.	Year 1 Col 4x5	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total $
Elec fence, Wagontire 3	0	1.00													0
Elec fence, Lower MC	0	2.00													0
Elec fence, Lower MC	0	2.50													0
Elec fence, Drake-Page 1	0	1.25													0
Elec fence, Drake-Page 6	0	1.75													0
Tot Yr 2 direct FS costs:			*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
FS remaining RBF, Alt.2			*21,900*												
Year three costs:															
Elec fence, Rattlesnake 5	0	1.75		0.1740											0
Elec fence, Drake-Page 5	0	1.75													0
Tot Yr 3 direct FS costs			*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
FS remaining RBF, Alt.2			*21,900*												NA
Year four costs:															
SP Well, 50-50 cost split	w/permittee														
$10,000 drilling	5,000	1	5,000	0.1921				955	955	955	955	955	955	955	6685
$4800 pipeline	2400	1	2400	0.1921				461	461	461	461	461	461	461	3227
$500 troughs	250	4	1000	0.1921				192	192	192	192	192	192	192	1921
$3000 storage tank	1500	1	1500	0.1921				288	288	288	288	288	288	288	2882
Elec fence, Rattlesnake 3	0	1.75													0
Elec fence, Rattlesnake 4	0	1.25													0
Elec fence, Rattlesnake 6	0	0.75													0
Elec fence, Middle Tr 2	0	1.75													0
Elec fence, Middle Tr 4	0	1.75													0
Elec fence, Middle Tr 5	0	0.75													0
Tot Yr 4 Direct FS costs			*9900*					*1896*	*1896*	*1896*	*1896*	*1896*	*1896*	*1896*	*14,715*
FS remaining RBF, Alt.2			*12,000*												NA

Revenue or cost, for USDA-FS/other gov't	Unit cost, gov't only	Units	Col. 2x3, $	Amortization factor, at 8% int.	Year 1 Col 4x5	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year10	Total $
Year 5 costs:															
Elec fence, Drake-Page 2		1.50		0.2163											0
Elec fence, Drake-Page 3		1.25													0
$2000 Hell Can stk trails	1000	2	2000	0.2163					433	433	433	433	433	433	2596
Tot Yr 5 direct FS costs			*2000*		*0*	*0*	*0*	*0*	*433*	*433*	*433*	*433*	*433*	*433*	*2596*
FS remaining RBF, Alt.2			*10,000*												*NA*
Year 6 costs:															
Elec fence, Wagontire 4	0	1.25		0.2505											0
Elec fence, Wagontire 5	0	1.0													0
Elec fence, Drake-Page 4	0	1.5													0
Elec fence, Drake-Page 7	0	1.0													0
Elec fence, Middle Tr 1	0	0.5													0
Elec fence, Middle Tr 3	0	1.5													0
Elec Fence, Prospect	0	1.25													0
Tot Yr 6 direct FS costs			*0*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
FS remaining RBF, Alt.2, for future West Bear Allot. projects not covered by this EA			*10,000*												*NA*
Total direct costs, FS RBF and state	***NA***		***70,050***		***8664***	***8664***	***8664***	***10,560***	***10,993***	***10,993***	***10,993***	***10,993***	***10,993***	***10,993***	***103,955***

V. MONITORING

Attached EA Appendix C describes Holistic Management requirements. While long-term monitoring plans will involve many players and details, short term monitoring has several more basic tenets:

Monitoring must be documented and filed in the Forest Service 2210 Range Management Planning file at the District office. Timely sharing and duplicating of information is critical for the Forest, permittee, and strategic and management teams.

Photos need to be dated, located, and described, especially with herbaceous species' standard common or Latin names or abbreviations. Double copies of photos are required.

Actual use records must include numbers, class, season, and duration as well as any special management techniques used to concentrate or disperse use. Weather observations, including location of precipitation measurements, are important to record.

Flood depth measurements or observations on the Verde River and major tributaries will help evaluate riparian response and vegetative recovery from major events.

Actual initial monitoring requirements follow to assess progress toward desired conditions at the top of this report. **Regular print below is from the EA, except for italics on terms. Italicized paragraphs are the initial monitoring techniques intended to initiate a new term grazing permit. They are subject to addition or deletion as the plan evolves through future action by Forest Service Research and National Forest administration. The Strategic Team for West Bear may also make changes to meet the stated conditions.** Requirements are:

1. Provide habitat for riparian and aquatic wildlife and native fish species, (including the threatened spikedace and endangered razorback sucker), by maintaining PFC (*Proper Functioning Condition*[3]) of riparian-wetland areas of the Verde River.

    ✓ *The permittee's role in maintaining PFC is initially to ensure cattle are kept out of pastures with Verde River riparian areas. The area restricted from grazing will reduce as riparian pastures are created by fencing and upland water development. It is possible that monitoring may indicate a need for disturbance, which can be provided by a specified level of grazing.*

2. Retain or increase VGC[2] (*Vegetative Ground Cover*) in order to improve the soil and watershed condition of uplands that affect the Verde River. This includes:

    a. Hills ELU (*Ecological Land Units*) (Figure 1): Maintain VGC where it exists at potential, and increase VGC by 5% in areas currently below potential within 10 years of full implementation of the decision.

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[3] Definitions of *italicized* words may be found in EA Appendix L – Glossary.
[2] Source: Terrestrial Ecosystem Survey, Prescott National Forest.

b. Plains #1 and #3 ELUs: Maintain VGC at 20%.

c. Plains #2 ELU: Increase VGC by 5% within 10 years of full implementation of the decision.

✓ *VGC will be measured using Parker 3-step clusters compared to pre-decision cluster readings. Other methods may be used, using baselines established early in the implentation of the AMP. Almida suggests in their 2/99 "Outline of Monitoring Plans" that plant-frequency transects be used to focus on soil-surface conditions, plant density, and plant diversity.*

3. Maintain *pronghorn* habitat in Plains #2 ELU. This includes maintaining the extent and quality of existing grasslands, and providing sufficient quantity and quality of herbaceous vegetation. This is necessary for fawning cover during April and May and to provide food.

✓ *Key fawning areas are to be located through cooperative action of the permittee, District or Forest Wildlife Biologist, and possibly the Arizona Game and Fish unit manager. Guidelines from literature and observations will both be used.*

✓ *The intent is to manage growth so that key areas enter the dormant season with adequate stubble height for fawning cover and that dormant-season use does not reduce cover below the minimum.*

✓ *Consider juxtaposition of fawning areas to determine where management flexibility may exist in meeting stubble-height guidelines.*

✓ *Consider diversity of plant species or plant communities and resultant mosaics.*

✓ *Annual evaluation of fawning success and the role played by vegetation management including grazing, rest, and prescribed or wildland fire will be part of the Annual Operating Plan meeting and Strategic Team meetings. Permittee's ability to maintain or improve fawning cover will increase, as pastures are periodically subdivided. Until full development is reached, there will be some balancing needed between optimum pronghorn conditions and continued grazing, to avoid shifting the cover problem elsewhere on the allotment.*

✓ *Quantity of residual herbaceous vegetation will be measured using the FS/BLM Stubble Height Method or equivalent. Further investigation should occur on the most appropriate method for measuring stubble and/or cover heights.*

✓ *Quality (species mix) changes will be based on observations interpreted by a Forest Service Wildlife Biologist. Generally, a diversity of perennial grasses and taller forbs will be judged to be of more value than a monoculture of a single*

species, pending further research. Standing cover may be live or dead (cured) at the time of pronghorn use.

- ✓ *Six inches of stubble, or equivalent cover, in key areas is the minimum requirement. Stubble 6-12 inches is* ***currently*** *considered more desirable to provide adequate pronghorn habitat in grazed areas. The hiding cover provided by snakeweed, prickly pear, grass, forbs, juniper carcasses, etc. should be evaluated as cover when determining the amount of grazing to be done.*

4. Provide habitat (cover and forage) for small mammals.

   - ✓ *Pending further published research, the District or Forest Wildlife Biologist, or people trained by her/him will assess small mammal habitat, based partly on results of cover evaluations for pronghorn and/or on informal monitoring of other areas.*

APPENDIX C - HOLISTIC MANAGEMENT

Alternative 2 uses the Holistic Management model, decision-making process to manage the West Bear Canyon and Del Rio allotments as the West Bear Allotment. A collaborative strategic team would be formed consisting of permittees, public-agency representatives, and public stakeholders. The team would monitor the progress of the proposal toward the temporary holistic goal, refine the holistic goal and land-development plan as needed, and provide annual strategic direction. The District Ranger would retain the authority to review and approve team plans and biological charts (biological plan and control charts).

Biological planning would be completed annually by the permittee's management team, usually a smaller core team from the strategic team. The management team would determine appropriate current actions that would lead toward the holistic goal, consistent with the long-range land-development plan. Each potential action would be tested against seven guidelines to assure that selected actions are ecologically, economically and socially sound (Savory, 1988). Financial planning is described in detail in the Comprehensive Guide to Financial Planning (Center for Holistic Management, 1996).

The biological chart would be submitted biannually by the permittee. One is due prior to the beginning of the growing season (April through October). The other is due prior to the beginning of the dormant season (November through March). Charts are approved by the District Ranger.

The growing-season plan charts each day of planned grazing for each pasture while allowing for any special conditions affecting grazing use and assuring adequate recovery rest. The growing-season plan conservatively assumes growth would be slow. It uses a minimum 90-day recovery rest period for slow growth and a minimum 30-day recovery rest period for fast growth. At full development, the average grazing period per pasture would be 3 days for slow and fast plant growth conditions. The effect would be a light to moderate graze for each pasture.

The dormant season plan allocates the forage remaining at the end of the growing season after considering reserve needs for other uses and a drought reserve of at least 30 days. This use will occur in pastures that are typically only used in the dormant season. Planned use periods are marked on the biochart while allowing for any special conditions affecting grazing use during the dormant season. Annual biological planning is described in detail in the Aide Memoire for Holistic Grazing Planning (Center for Holistic Resource Management, 1995).

Operational monitoring by the permittee would begin as soon as plans are implemented. This includes observing the daily growth rate of plants throughout the growing season in order to adjust the periods of exposure and re-exposure of the plants to grazing. The goal is to minimize overgrazing of plants. This principle is referred to as recovery rest. Movement of livestock will be keyed to observing when the fastest growing, preferred plants start to get bitten for a second time.

Rather than focusing on a utilization limit (see Backup Grazing Plan) HM uses the principle of avoiding repeated grazing without full regrowth of plants. A typically grazed area in a grazing unit is examined. Using small wire flags, the permittee marks the height of grazed and ungrazed plants. When one of the frequent field checks shows that growing plants are starting to be grazed again, livestock are moved to the next unit. This may be before or after the planned move date.

Operational changes and any necessary replanning are documented on the grazing chart. Strategic monitoring of effects on the four ecosystem foundation blocks is accomplished by the permittee at least annually as described in the Guidelines for Early Warning Biological Monitoring (Center for Holistic Management, 1995a). Charts showing both planned and actual use are submitted to the District Ranger biannually.

The time-control alternative accounts for the wide variation in weather and vegetation conditions. This is because it incorporates the HM model, which requires the practitioner to continuously plan, monitor, control, and re-plan. It places responsibility for management of livestock numbers on a diversely representative strategic team, and overall allotment management on a core management team.

[The following is an **exact** reprint, retyped for legibility and duplication]

Donald T. Verner
Almida Cattle Co.
Short Term Monitoring
1-26-96

GROWING SEASON MONITORING

The objective of monitoring during the growing season is to manage the vegetation toward our Landscape Goals. Our Landscape goals are "to have high successional rangelands with diverse species of warm and cool season forage plants including grass, forbs, half shrubs, and browse. These areas should provide diverse habitat for soil microrhizca, insects, reptiles, amphibians, small mammals, birds, large game animals, and predators."

Grazing in the three pastures that include the Verde River are not normally grazed during the growing season. Monitoring of riparian areas will not be discussed here.

Our Landscape Goals require more vegetative ground cover. Basically, more perennial grasses, less bare ground, more diversity of species. These goals, along with immediate livestock and wildlife need, are the driving force for both Biological Planning and re-planning. Grazing each year will be planned, replanned, and then documented on a Holistic Resource Management Biological Planning and Control Chart. The intent is that this level of planning will lead toward our landscape goals.

Grazing, rest, and animal impact are the primary tools available to us. Stocking rate and time (grazing period and recovery period) are the guidelines that monitoring influences.

Over-grazing occurs when an animal bites off a plant before it has recovered from the last severe bite. Overgrazing only occurs during the growing season. Overgrazing by livestock happens when 1) the grazing period is too long during fast growth and 2) livestock return too soon during slow growth.

Monitor only species of perennial grass plants that the cattle are eating.

When observation indicates that the growing season has begun, closely observe the cattle to see what and how they are grazing. Mark several grazed plants.

Choose a site unavailable to the cattle (of a similar soil type, aspect, etc) and manualy 'graze' a plant severely. Mark and measure 'grazed' plant. By comparing the growth rate of the grazed plant in the control area to plants where the cattle are grazing will indicate when overgrazing begins to occur. After the first move during the growing season, the best control area is the pasture the cattle just left.

<u>The following concepts guide our planning</u>:

1. When observation indicates overgrazing from too long a grazing period has occured we first evaluate the extent. If we estimate only a few of the plants were bitten a second time, it is probably insignificant. If, for some logistical reason, we were forced to stay long enough for overgrazing to become extensive, we plan a grazing sequence for the next growing season where a long grazing period is unlikely to happen.

2. During slow growth, longer grazing periods are the rule. It is better to stay too long than to come back too soon.

3. Recovery periods. We try not to return to a pasture sooner than ninety days. This is sometimes unavoidable dur to our present pasture configuration. Extra close monitoring of these areas is essential.

4. Partial recovery. Often we have observed that plants grazed during the later part of growth do not recover to full height. They often, however, go ahead and seed. We believe these plants are recovered. If they do not recover enough to make seed, they may have been damaged. Adjustments in future planning will be made. Our long term transect monitoring will tell us if we are heading in the right direction.

ALMIDA

OUTLINE OF MONITORING PLANS

IN CONNECTION WITH IMPROVEMENTS PLACED THROUGH AWPF

OBJECTIVES OF PROJECT

The completion of the fencing and water development will allow for more flexible management of the entire ranch. More specifically, the change from 18 to 22 pastures will allow for better timing of both the grazing and rest periods. This will help toward our goals of increased frequency and diversity of perennial grass plants, decreased bare soil, better infiltration of precipitation and improved conversion of solar energy.

MONITORING OBJECTIVE

The Ranch currently has two monitoring strategies in place. A short term growing season plan is used to make day to day decisions during the growing season. A long term plan that includes photo points and plant frequency transects focuses on soil surface conditions, plant density and diversity. The purpose of these two strategies is to evaluate our past management, make adjustments and plan the future management.

Photo sites and transects will be established in upland areas most affected by the project.

RIPARIAN MONITORING

Extensive ongoing monitoring is being conducted on the River by the Rocky Mountain Research Station. It is important to note that the baseline monitoring at project completion, Spring 1999, will be of a riparian area that has had two years rest from cattle grazing, after it had recovered to Proper Functioning Condition (RMRS and USFS judgment, 9/97).

This was accomplished with a holistic grazing strategy using cattle. The future plan is that RMRS, in cooperation with us, will do the riparian monitoring.

Upland Sites

a) In the short term (three year contract length) predicting much change is difficult. Large reduction mature capping and a 5% reduction of bare ground can be expected.

b) Long term trend, we expect to see a 20-30% decrease in bare ground and significant improvement in forage plant diversity, condition and frequency.

MONITORING STRATEGY

A) Both short term (contract length) and long term monitoring objectives can be met by monitoring the following:

1) Perennial grass - type (cool, warm season), frequency, age class and condition

2) Condition of soil surface (degree of capping and flow patterns)

3) Condition of browse plants

B) Data will be influenced by the amount of precipitation, management of the livestock and wildlife, especially the growing elk herd in the area.

C) New monitoring sites will be established in areas most affected by the new improvements.

D) Monitoring will let us know the effects of our management on the ecosystem. The amount of bare ground, the species composition and age class of the plants, the amount and type of litter, the changes in overland flow patterns and the condition of forage plants will tell if we are moving toward our landscape goal.

DATA COLLECTION METHOD

See attached HRM Monitoring Guidelines starting on page 40.