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# *Environmental Assessment for a Proposal to Amend the Redding Resource Management Plan Regarding the Horseshoe Ranch Wildlife Area*

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## I. BACKGROUND

In 1993, the Bureau of Land Management (BLM) approved the *Redding Resource Management Plan* (RMP) which provides guidance for managing public lands scattered throughout Butte and Tehama Counties as well as the majority of Shasta, Siskiyou and Trinity Counties. The RMP identified public lands for retention and lands available for disposal from federal management. When fully implemented, the pattern of BLM public land ownership will change from over 1,000 scattered parcels to a few manageable blocks of public land. One of those areas for consolidation of public land is the Horseshoe Ranch Wildlife Area (HRWA) in northern Siskiyou County (see Location Map, Map 1). The decisions made in the RMP for the HRWA include the following objectives:

- *Improve the existing public administered deer winter range habitat and afford long-term protection for additional privately owned deer winter range habitat in cooperation with California Department of Fish and Game, Oregon Department of Fish and Wildlife and Ashland Resource Area BLM.*

- *Allow long-term natural restoration of riparian zones to Class 2 or better.*

- *Offer semi-primitive, non-motorized recreation opportunities.*

Land use allocation, or use restriction, decisions for the HRWA in the RMP include:

- *Area is closed to motorized vehicles.*

- *Manage as semi-primitive, motorized.*

- *All Animal Unit Months (AUMs) are available for wildlife unless BLM determines that domestic livestock grazing management would be beneficial to enhance wildlife habitat.*

- *Acquire available, unimproved privately owned land between Interstate 5 and the existing public lands. Acquire the eastern one-half of Section 20, T. 48 N., R. 5 W.*

- *Seek administrative transfer of three parcels totaling 720 acres from the Klamath National Forest.*

- *Area is closed to mineral leasing.*

- *The available commercial forest land would be managed for the enhancement of other resources.*

Rationale offered in the RMP for the management decisions for the HRWA is found on page 37 of that document:

> *"BLM and the California Department of Fish and Game have a successful cooperative management relationship at Horseshoe Ranch which protects the natural values while minimizing taxpayer costs. This relationship is mirrored by BLM and Oregon Department of Fish and Wildlife on the north side of the state boundary. Expansion of public land*

*administration westward to Interstate 5 would complement public management (Pacific Crest Trail, Soda Mountain Wilderness Study Area, existing public land ownership, etc.) In Oregon, enhance public accessibility, and provide more effective long term protection of the interstate deer herd."*

In 1995, BLM started processing a land exchange proposed to BLM by Jerry E. Tucker, et al. This exchange conformed with the RMP and involved several parcels of Tucker-owned property in Siskiyou and Shasta Counties, including two parcels encompassing approximately 1,200 acres within the HRWA boundary established in the RMP. Opposition to the exchange arose in December 1998 through the concerns of an adjoining landowner. The adjoining landowner was allowing his cattle to graze the two parcels being offered to BLM through "open range" rules, without compensation to the private property owner. The adjoining property owner feared that if BLM were to take title to the two private parcels, his cattle would be prohibited from grazing, as the land would be managed by BLM and their cooperators for deer winter range. Additional concerns included possible changes to the custom and culture of the area, water rights, access, and impacts to the tax base should BLM acquire title to the offered private land parcels.

BLM met with the Siskiyou County Land Exchange Review Committee in an attempt to address the concerns. In the meantime, the two parcels within the HRWA were withdrawn from the exchange by the Tuckers and sold to a private party. The withdrawal of these parcels from the land exchange did not ease the concerns of some people regarding the Federal government acquiring private land. Some citizens, Congressman Wally Herger and the Siskiyou County Board of Supervisors requested that the western boundary of the HRWA should be moved eastward from Interstate 5 to conform with an earlier, circa 1977, boundary. Based on that recommendation, BLM's Redding Field Manager, Charles M. Schultz, agreed to consider amending the RMP to reduce the size of the HRWA.

Parallel with these discussions, the Medford District Office of BLM analyzed future management for a special area named the Cascade - Siskiyou Ecological Emphasis Area, for an expansive region including significant public land acreage within Oregon immediately north of the HRWA. This study area was designated as the Cascade - Siskiyou National Monument by President Clinton in July of 2000. The Medford District Office of BLM is currently preparing a management plan for this new Monument. Since the Monument adjoins the area being addressed in this proposed planning amendment, a Memorandum of Understanding between the two BLM offices and the California Department of Fish and Game (CDF&G) has been completed and will coordinate future management actions on the California side of the region.

This proposed plan amendment is being conducted in accordance with BLM planning regulations at 43 CFR 1610.4-9 and regulations at 40 CFR 1500, et. seq., designed to meet the requirements of the National Environmental Policy Act of 1970.

## II. PURPOSE OF THIS PROPOSED AMENDMENT

Following BLM's decision to consider amending the RMP boundary for the HRWA, BLM received over 1600 comments (700 pieces of written correspondence) from agencies, organizations and individuals covering a broad spectrum of concerns including land exchanges, perceived loss of tax base, a lack of adequate environmental protection, threats to local ranching practices and a general distrust of government. On one hand are those who wish less government presence in Siskiyou County. On the other hand are those who want to see BLM implement the land use management decisions of the RMP including the acquisition of private parcels, willingly offered, within the boundary of the HRWA. Some even suggested that BLM increase the size of the HRWA to include sensitive areas adjoining the management area (as designated in the 1993 RMP). This was seen to be necessary to some degree since BLM has disposed of 16,928 acres of public land and acquired only 1,657 acres of private land in Siskiyou County since the approval of the RMP (see Appendix A). It is the purpose of this document to decide if BLM should maintain the existing RMP boundary of the HRWA or amend the RMP to reduce or, alternatively, increase the size of the HRWA (See Management Alternatives, Map 2). The need to analyze a full range of alternatives is a requirement of the National Environmental Policy Act (NEPA). The BLM preferred alternative is Alternative 2, Modify the HRWA to a Core Area. The CDF&G and BLM would concentrate active management on the HRWA, enhancing deer habitat and opportunities for public recreation. Any lands willingly offered to the federal government for acquisition in the surrounding area would be evaluated for opportunities for improving deer habitat and the chance to increase public access to the HRWA.

### ISSUES DISMISSED FROM FULL ANALYSIS

BLM staff reviewed all input received from agencies, organizations and individuals relating to the proposal to amend the HRWA boundaries in the RMP. This review included staff input, oral comments and, especially, the more than 700 pieces of written correspondence received by BLM. All comments were grouped as feasible to facilitate consideration and responses by BLM. The comments can generally be categorized as (1) beyond the scope of the proposed undertaking, (2) dismissed from full analysis with rationale, or (3) issues deemed central to the proposed undertaking which will be fully analyzed in this document.

Many of the comments received were deemed beyond the scope of the undertaking for a variety of reasons. Several, for instance, offered personal opinions which did not assist BLM in making a decision regarding the placement of the management boundary of the HRWA. Abbreviated examples of these comments include: agencies provide poor land management; lands should be privately owned; private parties care for land better; too much government control; BLM needs to maximize public ownership to protect resources; stop runaway government; BLM, the Forest Service, and the CDF&G have enough (or too much) land to manage; enough land is set aside for wildlife; the public needs more public land to protect wildlife from private land uses; residents have suffered enough from government; BLM is responding to the demands of an anti-government fringe; the RMP was completed without public input; the RMP did not provide analysis to justify management decisions; proper cutting of timber should prevail; BLM will shut down the area; and the government wastes timber and/or grazing forage.

Other comments went beyond the authority of BLM to address, including: public lands should be returned to private ownership; don't force owners to sell (BLM has no power of eminent domain for the purchase of private lands and only acquires from willing sellers); grazing fees on public land should be reduced; change the Endangered Species Act; and discontinue special deer hunts.

Some of the comments focused on specific management practices. These practices are considered in the development of "implementation plans", i.e. they are not related to RMP-level decision making. Examples of these comments include: keep roads open for fire protection; keep boundary fences straight; lessen fire hazards; burn more brush; and improve more springs.

Lastly, some comments went beyond the geographic scope of the undertaking, i.e. HRWA and the immediate environs: the HRWA should be included in the Cascade-Siskiyou National Monument; expand the study area to the Klamath River at its crossing of the Oregon border; and, expand the study area west of Interstate 5 (this would not conform with adjoining public land management units).

Some comments deserved consideration and rationale why they should not be brought forward in this document as a major issue to be fully analyzed. Examples of these comments include:

- **Cultural Resources and Native American Traditional Cultural Properties (TCPs).** Archaeological sites, historical sites and TCPs are not considered at risk, based on the continued low-intensity land uses expected during the next seven years of the RMP life span under any management alternative. The levels of future disturbance due to grazing are not expected to further exacerbate the existing amount of disturbance in the upper levels of the soil, which may contain artifacts or other cultural material. A discussion of cultural resources and TCPs is found in the "Affected Environment" section of this document.

- **Custom and Culture.** This concern was identified by several residents. BLM's interpretation of this concern is "an erosion of the traditional lifeways of residents within Siskiyou County in general and the HRWA specifically." BLM has determined that consideration of the economic impacts to agricultural operations within the HRWA is an appropriate means to address this more generalized concern.

- **Horses**. Horses have historically been documented utilizing the HRWA for many years and continue to do so up to the present. The study area was never designated as a Herd Management Area (HMA), so the Redding RMP didn't assign any AUMs for horses. Their presence is in conflict with current management objectives for the HRWA, and removal will be necessary in the future. Since horses were not identified through public scoping as a concern, are not a management unit objective of any existing land use plan, and their removal is appropriate under all management alternatives, the management of horses is dismissed from full analysis.

  A discussion of horses is found in the "Affected Environment" section of this document.

- **Loss of Tax Base.** This issue was analyzed specifically for Siskiyou County in the development of the RMP and found to be insignificant. Moreover, BLM has disposed of public lands exceeding 10 times the amount of acquired private lands in Siskiyou County since approval of the RMP. Hence, there was a significant increase of tax base (see RMP Appendix H, RMP "Siskiyou County Economic Impact Assessment).

- **Minerals (Withdrawal)**. BLM received many comments (all on identical form-type postcards) from members of the public recommending the withdrawal of the public lands within the HRWA from mineral location. Rationale was to protect the public lands from the impacts of mineral development and to conform with a similar mineral withdrawal initiated by BLM on the adjoining Cascade-Siskiyou National Monument in Oregon.

  Lands within the HRWA study area are not considered mineral in character. As an example, no mining claims exist on the public lands. Although portions of the Cascade-Siskiyou National Monument in Oregon may be considered mineral in character, necessitating a withdrawal of the public lands from mineral location, a withdrawal of the public lands within the HRWA from mineral location would seem unnecessary. A description of the geology and mineral history of the HRWA study area is located within the "Affected Environment" section of this document.

- **Other Critical Elements.** BLM is obligated to consider impacts to certain critical elements of the human environment. Cultural resources, Federal candidate or listed threatened or endangered species (refer to "Special Status Species") and riparian zones (includes wetlands) are addressed separately in this document. The remaining critical elements are found to be irrelevant to this analysis since they are not located within the study area or will not be affected by decisions made in this undertaking: air quality, Areas of Critical Environmental Concern, environmental justice, farm lands (prime or unique soils), floodplains, Native American religious concerns, public health and safety, hazardous wastes, Wild & Scenic Rivers and Wilderness, invasive exotic species.

- **Protection of Interstate Corridor for Future Development.** The RMP considered existing land uses to ensure compatibility to the degree possible. The lands along the eastern side of Interstate 5 were and still are zoned for non-intensive land uses. Moreover, substantial tracts of lands more suitable for development remain along Interstate 5 immediately south of the HRWA.

- **Riparian Habitat Condition.** The general trend throughout the region is an improvement of riparian vegetation. Once negatively impacted due to overgrazing, these areas appear to be healing. Since the HRWA was established, comparative data on public/private lands have not been developed to determine if recovery rates have accelerated in comparison to nearby private lands. A discussion of riparian areas is found in the "Affected Environment" section of this document.

- **Special Status Species.** Few special status species are located within the HRWA boundaries under any of the management alternatives. Moreover, these species are not considered under risk, based on the continued low-intensity land uses expected during the next seven years of the RMP life span. A discussion of special status species is found in the "Affected Environment" section of this document.

- **Wildlife.** No specific concerns were received regarding the health of general wildlife populations. Deer winter range management actions will have effects, to some degree, on specific wildlife habitats. However, implementation of the alternatives is not expected to have significant impacts during the remaining life span of the RMP.

## ISSUES ANALYZED

These are the major planning issues brought forward for more thorough analysis in this document. Management alternatives are designed to address these issues. Background information is contained in the "Affected Environment" section of this document. The effects or impacts to these planning issues are evaluated in the "Environmental Consequences" section of this document.

- **Deer Winter Range Habitat**. The primary objective of the RMP is to improve this deer winter range habitat. What would be the condition trend of this habitat under the management alternatives considered?

- **Grazing**. Livestock grazing was originally perceived to be a greater issue of concern to the responding public before the scoping process took place; it now appears to be of a lesser concern than thought. Of the 1628 comments, only 8%, or around 127 comments, addressed grazing. Approximately two-thirds of the 127 comments expressed that any expansion occurring to HRWA by the Federal government threatens the existence of local ranches and grazing leases, as well as their "custom and culture." Approximately one-third of the 127 comments expressed that the environment was being negatively impacted and jeopardized by livestock grazing in this area.

  Grazing is consistent with the RMP on public lands insofar as that use enhances natural habitat management. Acquisition of private lands could alter the current livestock use patterns on existing private lands should they be purchased. What will be the impact to people dependent on those ranching operations?

- **Recreation**. The third objective of the RMP is to improve semi-primitive non-motorized recreation opportunities within the HRWA. How would implementation of the management alternatives affect access for these opportunities?

## III. ALTERNATIVES CONSIDERED

### Proposed Management Guidance Common to All Alternatives

Free-ranging horses would be removed from the HRWA by their private owners and/or public agencies to protect riparian and deer winter range habitats.

Prior or existing land uses, and applications for new uses, such as private administrative access authorizations, would be considered for approval by BLM on a case-by-case basis. Access to a privately-owned inholding could be permitted through BLM's right-of-way process.

To correct an inconsistency in the 1993 RMP, the off-highway vehicle designation would be changed from "closed" (closed to motorized vehicles) to "limited" (motorized use limited to designated roads and trails). Under this designation, some motorized access would be allowed from additional roads on future acquired public lands along the Interstate 5 corridor, and in the Hornbrook-Copco Road area. Resource condition objectives would be modified to allow for a semi-primitive, motorized recreation opportunity. Administrative access is allowed for land management.

Each management alternative would affect areas of low land development density. Most of the lands in the Horseshoe Ranch area are zoned Rural Residential and Non-Prime Agricultural 2, 40-acre minimum according to the Siskiyou County Planning Department. Flat lands are zoned Agricultural 1, 40-acre minimum. Subdivisions like Iron Gate Lake Estates and Klamath River County Estates (which adjoin the planning area) are zoned 2-1/2 acre minimum. Lands west of Copco are zoned 80-acre minimum.

### Alternative 1: Limit the HRWA to the Original 1977 Boundary. Map 2a.

The HRWA boundary would be restricted to the original 1977 Horseshoe Ranch Wildlife Area boundary. This boundary is mostly fenced and encloses the public lands included within the HRWA when it was originally established. Management objectives would remain as stated in the Redding RMP, to enhance conditions of deer winter range habitat and provide a semi-primitive recreation experience to the public. The HRWA would be reduced by approximately 43 percent in size compared to the No Action Alternative. The boundary would include 2,395 acres of BLM- administered public land and 5,067 acres of public land administered by CDF&G. No private lands are included in this boundary. Public lands west of the retracted boundary would be available for disposal via exchange to the private sector. Those same surplus public lands would be segregated from mineral location to facilitate their eventual disposal. Non-motorized access would be allowed from the HRWA entrance and points along the Oregon border. To further reduce federal presence in the area, public lands would be available for transfer to the State of California (CDF&G).

**Alternative 2: The preferred alternative. Modify a Core Area HRWA Boundary. Map 2b.**

The HRWA boundary would enclose a core area for collaborative management by CDF&G and BLM. The public lands of M.D.M., T48N, R6W, Sections 21, 22 and Section 34 would be included in the HRWA core boundary. This would add an additional 1440 acres of public land**.** Management objectives would be protection of resource values and enhancement of critical deer winter range habitat. The boundary would include 2,395 acres of BLM-administered public land and 5,067 acres of land administered by CDF&G. The outer boundary of the HRWA would be fenced to better manage the resources. Should private lands outside the HRWA become available for acquisition through voluntary offers, the BLM would consider purchase or exchange of properties as part of the balance of private-federal exchange acreage in Siskiyou County. A process would be determined for the BLM to evaluate the suitability of any private lands offered for sale to the federal government. Evaluation criteria would focus on lands that provide existing or potentially suitable deer winter range habitat. A second criterion would be the potential to provide public access to public lands from the west or the south sides of the HRWA. Existing public lands in the area would be evaluated for retention or disposal in the future.

Proposed federal land acquisitions would be disclosed to the public and open to planning process participation. Collaboration between the BLM and CDF&G, the public, private landowners and local government agencies would be welcomed and encouraged. Acquired land would be actively managed to maintain or improve deer winter range values, while increasing public access for outdoor recreational activities. The area considered in this management alternative lies between Interstate 5 to the west, the Klamath River to the south, Camp Creek and Iron Gate Reservoir to the east, and the State Line to the north. Developed lands (those lands that contain improvements which represent more than 20 percent of the total value of the land) would not be accepted for acquisition. The BLM may allow continued livestock grazing on acquired lands if compatible with the management objectives of the HRWA.

**Alternative 3: The No Action Alternative; Implement the Redding RMP. Map 2c.**

Implementation of the 1993 Redding Resource Management Plan would continue. The HRWA boundaries established as the 1993 RMP states, "Expansion of public land administration westward to Interstate 5 would complement public management. . .in Oregon, enhance public accessibility, and provide more effective long-term protection of the interstate deer herd." With respect to deer winter range, the boundaries established in the 1993 RMP included the majority of "critical deer winter range" identified by CDF&G at that time. These boundaries would include 3,843 acres of BLM-administered public land, 5,067 acres of public land administered by CDF&G, and 732 acres of public land administered by the USFS. Within this boundary are located 7,766 acres of private lands. Any of these private properties voluntarily offered could be acquired. If private lands offered by willing sellers were acquired, grazing could be restricted or eliminated.

The Land Parcel Density Map (Map 3) shows the degree of development of the lands in and around the Horseshoe Ranch area. As illustrated, the lands within the three alternatives listed above are in areas of low density and are confined to areas that have not been developed.

CASCADE-SISKIYOU NATIONAL MONUMENT

Oregon
California

Public Access
Parking Area
P

Camp Creek

Iron Gate Reservoir

Interstate 5

Hornbrook

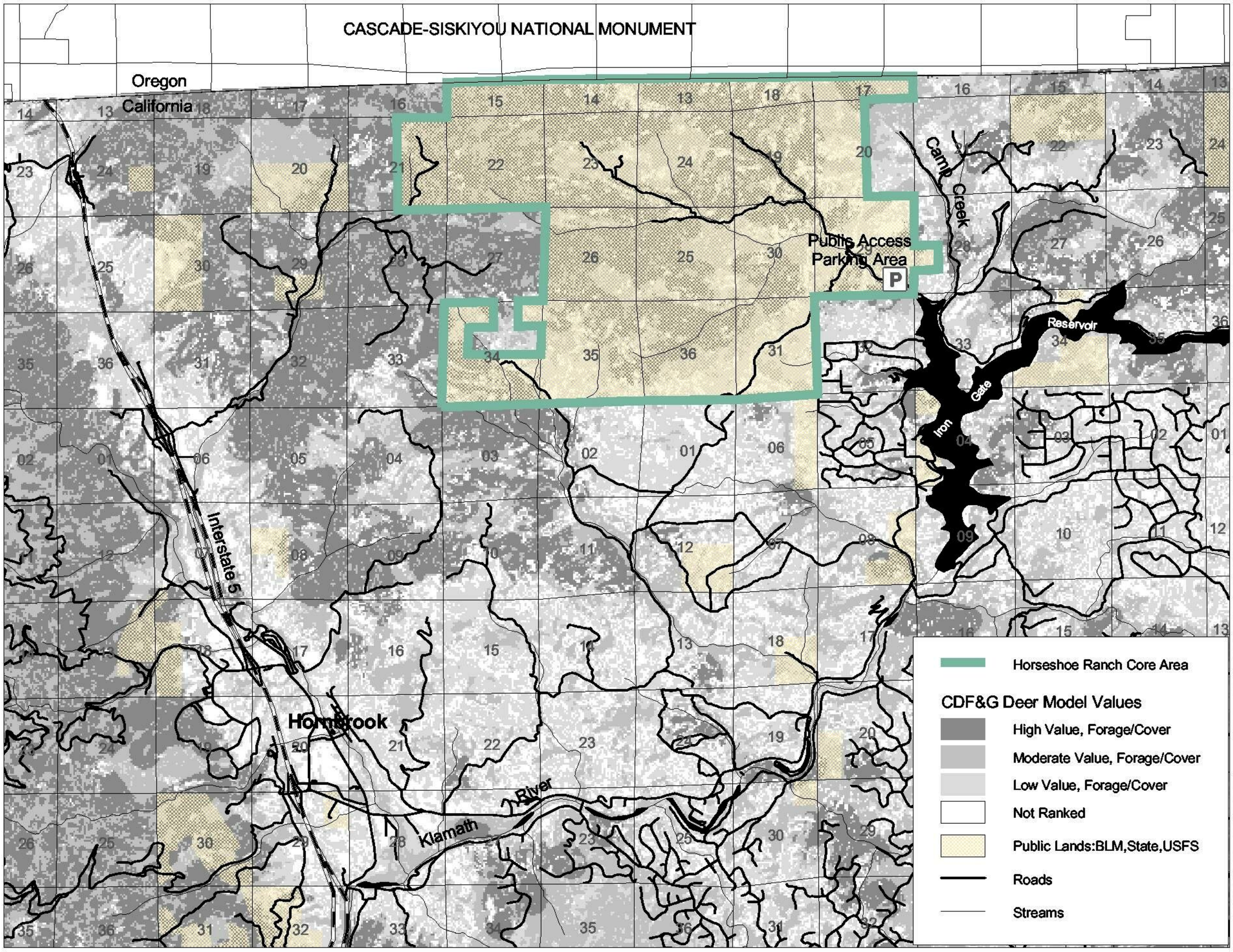
Klamath River

1977 HRWA Boundary
BLM Public Lands
State Lands
USFS Lands
Private/Other
Roads
Streams

Map 2a - Alternative 1.
Limit the HRWA to Original 1977 Boundary

N
1 0 1 Miles

CASCADE-SISKIYOU NATIONAL MONUMENT




Map 2b - Alternative 2.
Modified Core Area HRWA Boundary

N

1 0 1 Miles

CASCADE-SISKIYOU NATIONAL MONUMENT

Oregon
California

Camp Creek

Public Access
Parking Area
P

Reservoir

Iron Gate

Interstate 5

Hornbrook

Klamath River

Redding RMP Boundary
BLM Public Lands
State Lands
USFS Lands
Private/Other
Roads
Streams

Map 2c - Alternative 3. The No Action Alternative.
Implement the Redding RMP

N
1 0 1 Miles

CASCADE-SISKIYOU NATIONAL MONUMENT

Oregon

California

Camp Creek

Public Access
Parking Area
P

Reservoir

Iron Gate

Interstate 5

Hornbrook

Klamath River

Land Parcel Density

- Public Lands, State, USFS
- 1 - 2 Owners per Section
- 3 - 4 Owners per Section
- > 4 Owners/Subdivided
- BLM/USFS Grazing Allotments
- Roads
- Streams

N

1 0 1 Miles

Map 3 - Land Parcel Ownership and Density

## IV. AFFECTED ENVIRONMENT

This section provides information relevant to the major planning issues, i.e. deer winter range habitat, grazing and recreation. It also provides background information on certain elements of the environment which have been dismissed from fuller analysis as a planning issue, i.e. cultural resources, minerals, riparian habitat, special status species plants and animals, and horses.

### Background Information Regarding Ecological Section

The HRWA falls predominantly within the lower foothills of the Southern Cascades ecological section. It comprises about 88% of the total area, with the exception of a thin corridor along the western boundary. The Southern Cascades ecological section is composed of Tertiary volcanic materials that are dominated by Eocene and Miocene andesite flows. Quaternary alluvial and lacustrine basin-fill has accumulated in some areas. Moderately steep foothill slopes predominate in this section. The elevation ranges from 2200 feet along the Klamath River, to about 4300 feet. Soils are Lassen-Kuck-Mary, which are moderately deep, gently sloping to steep, well-drained clays, clay loams, and stony loams. Vegetation is predominantly natural plant communities consisting of big sagebrush series, Oregon white oak series (the most extensive), ponderosa pine series, and mixed conifer series occurring on north-facing slopes at higher elevations, plus wedgeleaf ceanothus series. Grassland communities are common on south-facing slopes at lower elevations.

The remaining ecological section is associated with the Klamath Mountains and makes up about 12% of the total area. It is situated along the extreme western boundary, lying east of Interstate 5 in a thin corridor that is approximately a mile in width. The Klamath Mountain ecological section is composed of Upper Cretaceous marine sedimentary materials of the Hornbrook Formation. Soils are Marpa-Kinkel-Boomer, which are moderately deep to very deep, gently sloping to very steep, well-drained gravelly loams, and very gravelly loams. Since this narrow corridor is more of a transition zone between these two sections, it is more geomorphologically and vegetatively similar to the above adjoining ecological section.

Even though some invasive, exotic plants, i.e. medusa-head and yellow star-thistle can be found in some of the lower elevation communities that have historically received a lot of use, still much of the higher elevation and lightly used communities remain unaffected.

The area of the HRWA is fairly uniform geomorphologically, vegetatively, climatically, and topographically throughout. Even though it has unique ecological qualities, it can't compare to areas with greater differences and more diverse ecological sections, such as the neighboring Oregon lands to the north, that incorporate the Cascade-Siskiyou National Monument.

- **Cultural Resources**

Cultural resources are generally divided into (1) those historic sites dating between contact between Euroamericans and Native American Indians (ca. 1820s) and 50 years ago, (2) prehistoric Native American Indian sites, and (3) Native American Indian sites related to traditional uses, including sacred locations and food and other products' gathering locales. All three resource categories are found in the greater Horseshoe Ranch vicinity (see Appendix C for details).

Historic Resources. During the ranching period (1850s-1930s), limited irrigation work began to move water about the more gentle landscape. Hunters depleted game, and brought local extinction to various animal species such as wolves, antelope, mountain sheep and grizzlies.

The cattle and sheep industry during this ranching period was spread throughout the study area, both on an official and unofficial basis. The memoirs of range rider George Wright, on file with BLM, Medford and Redding, provide a vignette of conditions historically within at least portions of the study area:

> "*During the spring of 1889 and 1890 . . . hundreds of cattle had just been loosed on the rangeland to graze the southward slopes of hillsides between Hornbrook and the Pilot Rock area . . .*"

Unregulated grazing by sheep and cattle was initiated shortly after the Gold Rush and prior to most homesteading activities (the Homestead Act was established in 1862). By the early 20th century many of the pastures, rangelands and riparian communities had been badly damaged by overgrazing and indiscriminate burning. Recovery is continuing to this day.

Recreation uses began following World War II.

Prehistoric Resources. The prehistoric sites (found during prior inventories) appear to be mainly late prehistoric judging from the projectile points recovered. Major villages are known to occur along the Klamath River and within the lower stretches of perennial secondary streams. As one moves further away from the Klamath and lower stream stretches, occupation seems more ephemeral, probably special use sites related to seasonal hunting and foraging, as in bulb, tuber and root collecting in meadows. Additionally, there are scattered concentrations of quartz-related cryptocrystalline silicate materials including chalcedony and chert/jasper. These materials appear to have weathered out in places from the basic igneous rocks, primarily occurring in colluvial deposits and stream beds difficult to predict in terms of occurrence. Such materials facilitated expedient flaked stone tool production. Minor prehistoric quarrying/prospecting appears to be present in the area and such siliceous materials were locally used for various cutting/scraping tools. Better materials in biface and core/tool form may have been exported to other areas which, along with materials testing, has left behind flaked stone by-products.

Traditional Use Site Resources. Written inquiries to the various tribes within the greater region regarding Traditional Cultural Properties of concern within the greater study region elicited no response. An examination of an earlier sacred lands' study completed for BLM by Theodoratus Cultural Research in 1985 was examined (*Mapping Project Ethnographic Inventory Shasta-Trinity*

*National Forest, Mendocino National Forest [Corning and Stonyford RD],* Redding *Resource Area, Bureau of land Management).* This report and maps are on file with BLM in Redding. The record shows two Shasta villages located adjoining the study area, *Ekwik',* along Camp Creek, and *Id-doo-kwi,* along the Klamath River near the mouth of Camp Creek.

- **Deer Winter Range Habitat**

California's mule and black-tailed deer are one of the state's most widespread and visible species. They are distributed across many habitats and their value as a wildlife resource in the state is high. Deer are enjoyed by the public for viewing and other forms of recreation including hunting. They are an integral part of the food chain as grazers/browsers of wildlands and as prey species (Loft, et al. 1988).

In California, deer are the most popular game mammal and attract between 165,000-200,000 hunters annually. Most of this hunting opportunity occurs on public lands and contributes substantially to the economies of the state and local communities. It has been estimated that expenditures by the public for deer hunting and viewing results in a total of $180 million in personal and business income in California annually (Loomis, et al. 1989).

Deer populations in California likely peaked in the late 1950's and 1960's and have declined substantially since that time. Factors contributing to these population declines are complex and are likely interrelated. However, the primary factor appears to be long-term declines in habitat quality. Much of the early seral vegetation that was comparatively abundant in the 1950's has been replaced by decadent shrub fields and exotic annual plants which provide low quality forage.

The HRWA and surrounding lands provide winter habitat for several deer herds. Although deer reside on the HRWA year round, most are migratory with the bulk of the population summering in Oregon. The quality and extent of deer winter range habitats on the HRWA and surrounding lands is critical to the persistence and health of deer herds in this region. Considerable opportunities exist on the HRWA and surrounding lands to increase both the quantity and quality of forage available to deer through the management of vegetation on these lands.

CDF&G has mapped the distribution and relative quality of deer habitat within portions of northern California using, in part, a habitat classification developed from Landsat Thematic imagery by the Spatial Analysis Laboratory at Humboldt State University. This deer habitat map (habitat model) was based primarily on an assessment of the value of habitats characterized by Landsat imagery as cover and forage as well as their juxtaposition. For example, early seral shrublands were rated highly as deer forage and were assigned the highest rating if they occurred near high quality cover.

The HRWA and surrounding lands contain a relatively high percentage of high quality forage (approximately 30%) based on CDF&G's habitat model. Almost half of this area was rated as either low or moderate quality forage. Many sites on the HRWA and surrounding lands currently providing low or moderate quality forage could be improved for deer by implementing management activities designed to establish early seral shrubs, reduce the prevalence of exotic annual plants, reduce the encroachment of juniper on rangelands, and enhance the distribution and health of oak

woodlands.

Refer to the Deer Habitat - Forage and Cover Values Map, Map 4.

- **Grazing**

Currently, no authorized grazing occurs within the fenced portion of the HRWA, i.e., within the circa 1977 HRWA boundary. Additional lands assigned to the HRWA in 1983 through the Horseshoe Ranch Habitat Management Plan could also be fenced, with a similar management prescription as discussed in the 1989 Agreement for Administration of Livestock Grazing Within the Horseshoe Ranch Habitat Management Area. The 1989 Agreement states that "Livestock grazing within the boundaries. . .will not be allowed, unless both parties identified in this agreement (i.e., BLM and CDF&G) agree to allow grazing to benefit wildlife resources."

Horseshoe Ranch, as outlined in the RMP, is predominately used by one operator. This operator has two small federal grazing leases along with his own 2,900 acres located on the west side of the existing HRWA, and within the Hutton Creek drainage. These two federal leases are:

(1) Hutton Creek (FS lease) encompasses 720 acres for seven cattle. The period of use runs from April 15 to June 30.
(2) Upper Brushy Gulch (BLM lease) encompasses 640 acres for 25 cattle. The period of use runs from April 16 to June 16. This lease was put into a "non-use" status between 1991 and 1998, and again in 2000.

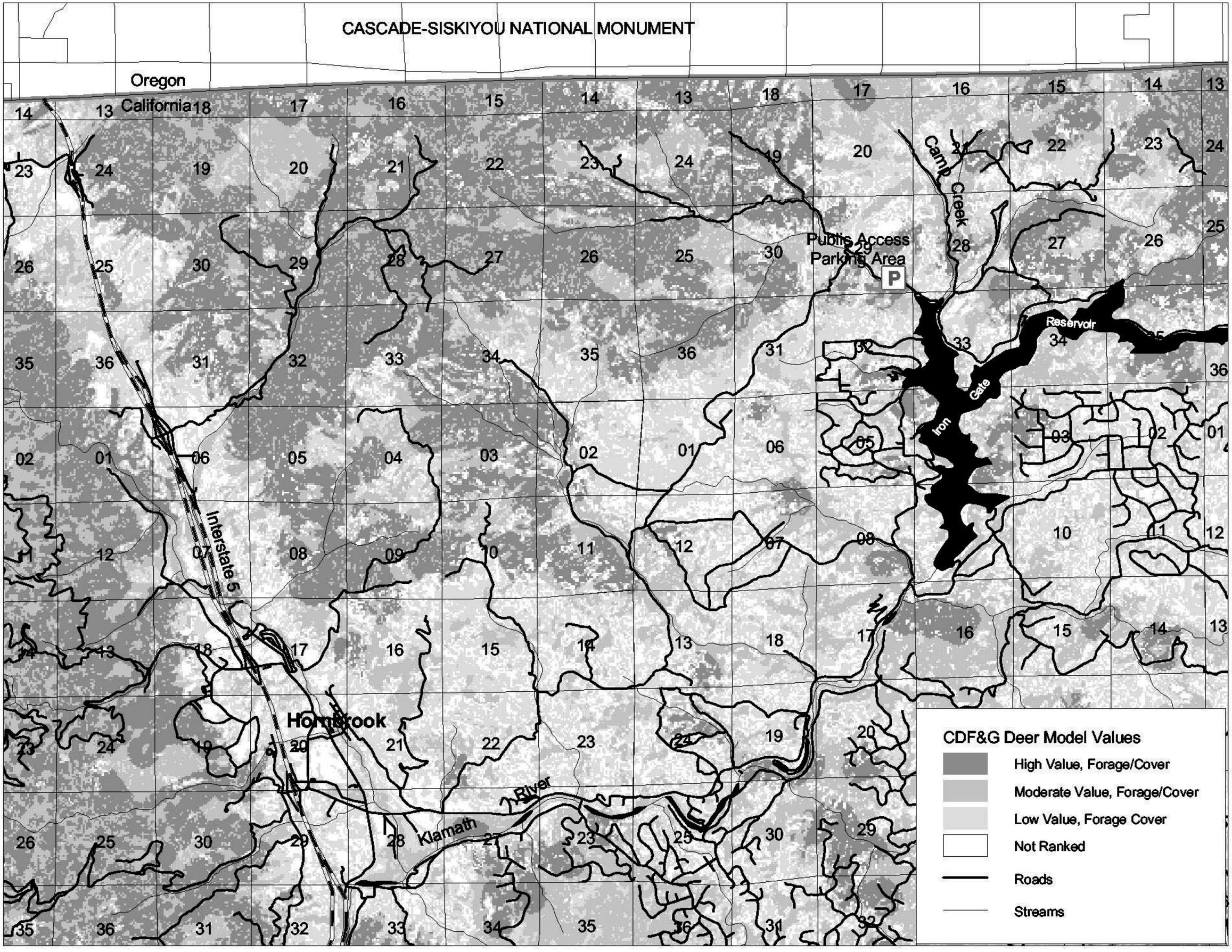
One 480-acre parcel of public land at the head of Dry Creek is receiving some unauthorized use by an adjacent landowner, who has applied for a 125-head permit.

The complex land ownership pattern west and south of the 1977 HRWA boundary and the lack of adequate fencing, have resulted in an increase in grazing-related problems in recent years. Historically, this area has incurred unauthorized livestock grazing. Over the years, major range improvements in the form of fencing have been built to alleviate these problems, e.g., the state line fence and the 1977 HRWA boundary fence. In more recent years, some major landowners have changed their land uses, finding livestock grazing not compatible with their activities, thus coming in direct conflict with those who historically have used these lands under the "open range laws" for grazing.

- **Horses**

Horses have historically been documented utilizing the HRWA for many years and continue to do so up to the present. Approximately 30 horses were recently observed within the HRWA. These animals were in two distinct bands located in lower Scotch Creek and at the juncture of Slide and Brushy Creeks. Previous visits have documented horses at the head of Dry Creek and other locations. Many of these animals exhibit no visible signs or marks of domestication, even though in the past such evidence of domestication was present on a number of horses. It is BLM's belief that at least some of these animals may be "wild, free-roaming horses." Over several decades, these animals have been claimed by adjoining private landowners; however,

CASCADE-SISKIYOU NATIONAL MONUMENT




Data Source: California Department of Fish and Game.
1998 Deer Model of Habitat Forage and Cover

Map 4 - Deer Habitat - Forage and Cover Values

N 1 0 1 Miles

the horses continue to persist. Even though numbers and geographic range have fluctuated over the years in relation to gathering and other factors, it is anticipated that the number of horses will increase without some type of intervention, as affirmed by the numbers of foals seen attached to recently observed bands.

Management of "wild, free-roaming horses" falls under the authority of the Wild Free-Roaming Horse and Burro Act of 1971 (Public Law 92-195), and other pertinent Federal laws and regulations. There is historical documentation (Wright, 1953 and 1954) that horses were in the Hutton and Scotch Creek drainages before this Act came into effect. There may have been unbranded and unclaimed horses that used public lands in this area as part of their habitat when this Act was established, thus making it a possible "herd area." If some of these animals are proven to be "wild, free-roaming horses," they would be under the jurisdiction of the Secretary of the Interior for the purposes of management and protection, in accordance with the provisions of the Act.

Recent riparian surveys have indicated negative impacts in lower Scotch Creek as a result of horses. As band size increases, so will the riparian degradation and negative impacts to the critical deer winter range habitat. CDF&G has expressed that the horses are not compatible with management goals for the subject area, and they desire that all horses be removed.

- **Minerals**

The subject lands are located in the Cascade Range geologic province. The geology of these lands consists of Cenozoic in age volcanic rock types identified as lava flows and pyroclastic deposits, primarily of andesite and basalt composition. Cretaceous in age, or younger, sediments are likely to be present at depth beneath some of these lands. Volcanically derived sediments and soils are abundant on the surface on some of the parcels, while others contain bare rock from recent lava flows.

There are presently no Federal mineral leases, mining claims, or authorized mineral material disposals on any of the parcels. The subject land is historically and currently lacking in any mineral development activity, with the exception of a reported very small gold (?) prospect located in the west half of Section 24. All of the subject lands have a mineral potential rating of low, with the lowest level of certainty (LA), for gold, silver, and mercury in hot spring-type deposits. No other locatable mineralization is known to occur in the geologic environments present on or beneath these lands.

The potential for the occurrence of oil and gas beneath all of these parcels is low (LB), based on the probable existence of Cretaceous strata beneath the surface.

The potential for the occurrence of geothermal resources beneath all of these parcels is low (LB), based on the existence of volcanic rock types on the surface.

The land has a low (LB) potential for common mineral materials, the type which could be used in local construction projects for purposes such as fill material.

No mineral development is foreseen in this area.

- **Public Recreation**

The RMP resource condition objectives call for the Horseshoe Ranch area to be managed for semi-primitive, non-motorized recreation opportunities. The land-use allocations call for the area to be managed for a semi-primitive, motorized recreational experience under the Recreation Opportunity Spectrum (ROS) classification system. In addition, the off-highway vehicle designation for the same area is "closed to motorized vehicles" (see below for definitions). The resource condition objectives and land-use allocations are in conflict with each other at this time.

CDF&G has similar off-highway vehicle regulations for state lands. Currently, they do not allow motorized vehicles on state lands within the HRWA.

Recreation Opportunity Spectrum (ROS) Classification Definitions

ROS - A continuum used to characterize recreation opportunities in terms of setting, activity, and experience opportunities. The spectrum contains six classes.

Semi-Primitive Motorized - An area that is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is permitted.

Semi-Primitive Non-Motorized - An area is characterized by a predominantly natural or natural-appearing environment of moderate-to-large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but are subtle. Motorized use is not permitted.

Recreation Experience Opportunity - The opportunity for a person to realize predictable psychological and physiological outcomes from engaging in a specific recreation activity within a specific setting.

Off-Highway Vehicle (OHV) - Any motorized track or wheeled vehicle designed for cross-county travel over any type of natural terrain.

Off-Highway Vehicle Designations (BLM specific):

Open - An area where all types of vehicle use is permitted at all times including cross-county travel.

Limited - An area restricted at certain times, in certain areas, and/or to certain vehicular use. Restrictions may be of any type, but can generally be accommodated within the following type of categories: number of vehicles; types of vehicles; time or season of vehicle use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other

restrictions.

Closed - An area where off-road vehicle use is prohibited. Use of off-road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the Authorized Officer.

Recreational Visitor Use

Currently, the HRWA and adjacent public land receives relatively low use by recreationists partly due to its location and limited public access. Off-highway vehicles and/or motorized vehicles are prohibited from entering the area, but visitors may walk in from the CDF&G Horseshoe Ranch administrative entry point at the southeast corner (See Map 2). No other public access is available due to the lack of public roads adjacent to the HRWA.

CDF&G estimates put visitor use at approximately 2000 visitor days for the year 2000. Statistics are as follows:

| Number of Visits | Type of Visit |
|---|---|
| 1050 | Nature study |
| 450 | Upland game hunting |
| 300 | Deer hunting |
| 200 | Equestrian |

- **Riparian Habitat**

Background: (Adapted from: *A User Guide to Assessing Proper Functioning Condition and Supporting Science for Lotic Areas* TR 1737-15 1998; *Process for Assessing Proper Functioning Condition* TR 1737-9 1993)

BLM depicts natural riparian areas as resources whose capability and potential is defined by the interaction of three components: (1) vegetation, (2) landform/soils, and (3) hydrology. Standard BLM riparian assessment protocol places streams into three categories: proper functioning condition (PFC), functional-at risk (FR), and nonfunctional (NF).

Proper Functioning Condition: Riparian areas are functioning properly when adequate vegetation, landform, or large woody debris is present to dissipate stream energy associated with high flows, thereby performing the following functions: erosion reduction, water quality improvement, sediment filtration, bedload capture, floodplain development, flood water retention, ground water recharge, and development of diverse water depths and water temperature regimes. Succinctly, PFC is a state of resiliency that will allow a riparian area to maintain ecological integrity (hold together) during high-flow storm events with a high degree of reliability. This resiliency allows an area to then produce desired values, such as fish habitat, neotropical bird habitat, or forage, over time. Riparian areas that are not functioning properly cannot sustain these values.

Functional-At Risk: FR riparian areas are in functional condition but a soil, water or vegetation attribute makes them susceptible to degradation during high flow events.

Nonfunctional: NF riparian areas are those that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows. The absence of certain physical attributes, such as a floodplain where one should be, are indicators of NF conditions.

Condition assessments were conducted between April 30 and May 3, 2001 by Dan Dammann, Hydrologist, and Doug Morical, Stream Survey Assistant, from Medford District BLM. Riparian functional assessments were made for Scotch Creek, Slide Creek, Brushy Gulch, and Wildcat Gulch in the HRWA. Overall, these streams are PFC. Only the lower portion of Scotch Creek was determined to be FR with an upward trend, due to a concentration of impacts at the main ranch site (spring house) location. All other stream reaches were determined to be PFC. Comments explaining the condition assessment ratings for each stream are contained in Attachment B.

- **Special Status Species**

Special Status Flora

There is one Special Status Plant (SSP) species known to occur within the HRWA. This is Greene's mariposa lily (*Calochortus greenei*), which is a California Native Plant Society List 1B plant (plants that are rare, threatened, or endangered in California and elsewhere). It is an attractive lily with erect bell-shaped lilac flowers on foot-long stems, which grows only in southern Jackson County, Oregon, and northern Siskiyou County, California. Its habitat is associated with open thickets of Oregon white oak and western juniper, within grasslands and dry meadows. Soils ranging from clay to light loam, which are generally cobbly or stony, and often associated with rock outcrops, support *Calochortus greenei.* This species is at risk from horticultural collection and grazing pressure from deer, rabbits and livestock. Cattle grazing, when properly managed, does not appear to be a threat; however, uncontrolled grazing can severely impact the species (Brock, 1988). Currently, only five occurrences of this species is known within the planning area, but the potential for more occurrences is high.

There are also two SSP species that are suspected to occur with the HRWA. One is Gentner's fritillary (*Fritillaria gentneri*), which has been Federally listed as endangered. This species is currently known only in southwestern Oregon, being found in scattered localities in the Rogue and Illinois drainages, and recently in the Klamath River drainage in Josephine and Jackson Counties. Plants have bright scarlet, nodding, bell-shaped flowers that are spotted with yellow, on nearly two-foot tall, stout stems with whorls of leaves about its middle. It typically grows in or on the edge of open woodlands of oak, mixed oak, and coniferous forests as well as chaparral/grassland habitat. Since HRWA could have habitats that are suitable, and since this species has been recently found approximately three miles to the north, it has a fair possibility of occurring within the planning area. This plant often grows in places that experienced human disturbance and eventually became revegetated. Surveys so far have not established this species within this area.

The other species that is suspected to occur within the HRWA is Bellinger's meadowfoam (*Limnanthes floccosa ssp. bellingeriana*), a California Native Plant Society List 1B species. It is known from a few occurrences in southwestern Oregon and a few occurrences in Shasta County, California. This plant is a low-growing annual with several stems three to six inches long, with small, white, urn-shaped flowers borne on slender stalks. It is associated with standing water and highly saturated soils such as vernal pools, drainages, and moist meadows in open pine/oak woodlands. There is a low potential for this habitat within the planning area.

Survey and Manage Flora

The study area lies within the Northwest Forest Plan (NFP) area. This group includes the vascular plants, bryophytes, lichens, and fungi. While lichens and fungi are no longer considered members of the plant kingdom, they have traditionally been classified as plants and are therefore addressed here. The HRWA does not contain known sites of any of these plant species to date. Three species are suspected to occur there because the area is within their range, and there is possibly isolated patches of suitable habitat. Two are vascular plants that are both of the orchid family: *Cypripedium fasciculatum* and *Cypripedium montanum*. These plants require canopy closures of over 60% in conifer forest and mixed evergreen/oak woodland plant communities. It is suspected that mid- to late-successional communities may be necessary for these species. The other species is a fungi called *Sarcosoma mexicanum*, which also requires conifer forest habitat. Since suitable habitats for these above-listed species make up a small portion of HRWA, the potential of occurrence would also be low, based on current surveys.

Survey and Manage Fauna

The NFP indicates that the FS and BLM will survey and manage for a host of faunal species, including several terrestrial and aquatic mollusk species. Surveys are required prior to ground-disturbing actions within suitable mollusk habitat. Suitable habitat typically includes talus slopes, mixed conifer habitat with multi-storied and closed canopies, dense riparian areas, and springs and streams. The following species could occur in the study area. The potential for their occurrence is low in most instances due to limited suitable habitat. These species include Oregon shoulderband, Klamath shoulderband, Siskiyou sideband, Church's sideband, Klamath sideband, Tehama chaparral, Klamath pebblesnail, and Klamath Rim pebblesnail.

While occurrence of any of these species in unlikely, if suitable habitat exists within the boundaries of a ground-disturbing project area, surveys would be required. If survey and manage species are found, a proposed ground-disturbing action would be modified so there would be no significant damage to the species and its critical habitat.

Special Status Fauna

The California Natural Diversity Data Base (CNDDB) is a database depository for sightings and records of special status animal and plant species, including federal endangered and threatened species. Records for the U.S. Geological Survey (USGS) topographical maps that encompass the HRWA were retrieved from CNDDB. This search indicated past sightings or collections of

the following special status faunal species in the vicinity of HRWA:

| SPECIES | STATUS | HABITAT ASSOCIATION | OCCURRENCE IN THE HRWA |
|---|---|---|---|
| Bald Eagle (Haliaeetus leuccocephalus) | FE, SE | Lake margins and river courses for nesting and wintering. Most nests are within 1 mile of water. Nests in large, old-growth or dominant live trees with open branches, especially ponderosa pine. Nests communally in winter. | Not known from HRWA. Limited suitable habitat. Known to nest in stream corridor east of the study area |
| Northern Goshawk (Accipiter gentilis) | CFGSC | Summers within and in vicinity of coniferous forest. Uses old nests and maintains alternate nest sites. Usually nests on North slopes near water. Conifers are typical nest trees. | Not known from HRWA, Large tracts of continuous coniferous forest lacking. Known from forested area southwest (and outside) of the study area. Also known from Oregon just northeast of HRWA. |
| Prairie Falcon (Falco mexicanus) | CFGSC | Inhabits dry, open terrain, either hilly or level. Breeding sites located on cliffs. Forages far afield | Known from area encompassed by RMP HRWA boundaries and from cliff sites east of the study area. |
| Klamath Largescale Sucker (Catostomus snyderi) | CFGSC | Native to the Klamath River and Lost River-Clear Lake systems of OR and CA. Inhabits both lentic and lotic habitats, but primarily riverine. Migrates upstream to spawn in the spring | Collected from Iron Gate Reservoir |
| Shortnose Sucker (Chasmistes brevirostris) | FE, SE | Native to the Klamath River and Lost River-Clear Lake systems of OR and CA. Spends most of year in open waters of large lakes. Feeds on plankton. Spawns in tributary streams. | Collected from Klamath River upstream of Copco, and from Copco Reservoir. |
| Lost River Sucker (Deltistes luxatus) | FE, SE | Native to the Lost River system of OR and CA. Primarily a deep water species. Adults spawn in tributaries in the spring | Collected from Copco Reservoir and upstream portions of Klamath River (not native to the Klamath). Also from Irongate Reservoir. |

FE= federal endangered, SE= state of CA endangered, CFGSC=CA Dept. of Fish & Game Species of Concern

- **Wildlife**

  The HRWA contains seven types of wildlife habitat. The CWHR System contains life history, habitat relationships, and management information for 675 species of amphibians, reptiles, birds, and mammals that are considered to be regularly occurring in California. The computerized database of predictive models can produce several types of reports listing wildlife species that are projected to occur in a given location and set of habitat conditions. The model predicts that 132 species could occur in the analysis area: 16 amphibians, 72 birds, and 44 mammals.

## V. ENVIRONMENTAL CONSEQUENCES

This section defines the key impact topics to be analyzed in this document. It also identifies what will be measured to provide an assessment of the impacts to those key impact topics. It provides assumptions to help shape the assessment of impacts. Finally, an assessment of those impacts is provided for each of the three management alternatives considered in this analysis.

Key Impacts Defined

- Deer Winter Range Habitat - What are the likely impacts to the deer winter range if livestock grazing is eliminated on private lands upon transfer to public ownership within the HRWA?

- Grazing - What are the anticipated impacts to individuals dependent on livestock grazing on lands within the HRWA, if lands are acquired by BLM (willing sellers) and grazing is discontinued?

- Public Recreation - What are the likely impacts to non-motorized recreation opportunities if private lands are transferred (or not) to public ownership within the HRWA?

What Will Be Measured

- Deer Winter Range Habitat (acres)
- Grazing (AUMs and/or acres)
- Public Recreation (access sites)

Assumptions for Analysis

To provide consistency in the development of the assessment of the key impact topics, the following assumptions are provided:

- The time span for analysis is ten years, i.e. just beyond the time limits of the RMP.
- All private lands, willingly offered, would be acquired by BLM or a cooperator.
- RMP decisions, such as land use allocations, would remain consistent among all alternatives.
- Rural residential development near Iron Gate Reservoir would continue at the present rates of development.
- Land uses on other adjoining private lands would remain non-intensive.
- CDF&G would continue to manage deer winter range.

**Environmental Effects of Management Alternatives**

State and BLM Acreage Comparisons of the Alternatives

| Alternative 1 | Alternative 2 | Alternative 3 |
|---|---|---|
| 7,458 acres | 8,914 acres | 17,408 acres |

**Alternative 1: Retract HRWA Boundary to Original 1977 Horseshoe Ranch**

- **Deer Winter Range Habitat**

  Under this alternative, the RMP would be amended to recognize only the 7,458 acres of original CDF&G Horseshoe Ranch Wildlife Area as the HRWA. Management of the public lands would continue to emphasize deer winter forage enhancement. Because the HRWA would comprise a limited acreage of the local available winter range, enhancing winter deer forage and improving migratory corridors would be more difficult over the smaller area. This alternative could eventually result in fewer winter deer, reduced vigor, and less fawn survival and recruitment if current deer population trends remain unchanged.

- **Grazing**

  Under this alternative, livestock grazing would be affected. Grazing within the fenced portion of the Horseshoe Ranch Habitat Management Area is currently not allowed, unless BLM and CDF&G agree to allow grazing to benefit wildlife resources (see Agreement for Administration of Livestock Grazing Within the Horseshoe Ranch Habitat Management Area, 1989). A positive impact for some would be the removal of the 1993 RMP boundary line that some individuals have perceived to be a threat to their present and future grazing operations.

- **Public Recreation**

  Pedestrian public access would not increase due to private property surrounding the HRWA. A loss of public access would occur if land west of the HRWA boundary were disposed. A loss of public access may occur if lands are transferred to CDFG and additional use restrictions are implemented. Motorized public access would not increase with the change from current off-highway vehicle designation of "closed" (closed to motorized vehicles) to "limited" (motorized use limited to designated roads and trails) since no additional roads will be designated by this alternative.

**Alternative 2: Modify the HRWA Boundary to a Core Area for Deer Habitat**

- **Deer Winter Range Habitat**

  Approximately 8,914 acres of "core" deer winter range would be managed as the HRWA primarily to enhance the deer population. This alternative would provide more public land acreage for habitat management than Alternative 1. Additional opportunity would be implemented to improve deer populations by managing winter forage conditions. This alternative would use predictive models of the watershed to assess deer habitat quality and potential for acquisition. Various ecological modification techniques would be utilized to benefit species dependant upon seral succession processes. This approach would be applied to achieve a landscape mosaic of thermal and escape cover and winter forage. The result would be a larger and healthier herd with an expectation for increased fawn survival and recruitment.

- **Grazing**

  Under this alternative, there could be negative impacts to individuals dependent on open-range ranching operations, if private lands are acquired by BLM through willing sellers and determinations are made to eliminate domestic livestock grazing. These impacts, if considered in relation to the actual amount of lost grazing opportunities and the current conditions and trends, would become cumulatively less significant to this County as a whole.

  Under this alternative, assuming that all parcels of land with four owners or less (see Map 3) have willing sellers, and assuming that all of the parcels also meet the criteria that BLM has set for acquisition, there could be 35 landowners with voluntary offers of land (approximately 22,000 acres). Even though we know this to be highly unlikely, the projected impacts based on this alternative would still have limited effects on people dependent on grazing operations. This is because half of these landowners own 160 acres or less, which usually is not a viable economic unit size since this area requires at least ten acres to produce one AUM. It is the larger blocks of land (2000 or more acres) that are more economically desirable for cattle production, and are the ones currently receiving much of the use. Of these larger private land parcels, sixty percent of the private land acres are owned by only four landowners! Of these, it

is known that one owner is not utilizing his lands for grazing and several of the others have not fully utilized their lands for grazing on a yearly basis.

The severity of these impacts can be further lessened when considered and weighed in relation to current local and national conditions and trends. Current local conditions and trends would include: the lack of willing sellers due to the local anti-federalism sentiment; the fact that the type of determinations that BLM would be making with respect to domestic livestock grazing would not always be negative; and the fragmentation of pasture lands as a result of traditional land uses changing to exclude grazing, and the increased land sales and development occurring due to the influx of new residents to Siskiyou County. Current national conditions and trends would include: recent changes to federal procedural requirements for exchanges and acquisitions that are more complicated and have remarkably slowed down these processes; and an already declining livestock industry resulting from economic factors due to increased production costs and declines in beef consumption.

- **Public Recreation**

The acquisition of land, voluntarily offered, in and around the HRWA would enhance public access primarily due to increased roaded access points. If public ownership included lands along Interstate 5, the Oregon border, and the Hornbrook-Copco Road area, numerous points of access may be possible. Developed trailheads and facilities would be possible if additional lands were acquired, which would enhance public access. This alternative would be dependent on changing the off-highway vehicle designation from "closed" (closed to motorized vehicles) to "limited" (limited to designated roads and trails).

Due to the scope and complexity of land acquisition involved, it would be difficult to forecast which willingly offered lands would be available for inclusion in the HRWA. Activity planning would be necessary to finalize specific access points and determine the impacts that they would have on the existing resources.

**Alternative 3: No Action Alternative; Implement the Redding RMP**

- **Deer Winter Range Habitat**

In this alternative, a larger area of habitat would be included than the areas proposed under Alternatives 1 or 2. It is comprised of additional drainages which are beneficial for deer migration, forage and cover. As such, it also offers greater opportunity to provide early seral successional habitat enrichment. Increased vigor, fawn survival and recruitment would be the expected result.

- **Grazing**

Under this alternative, there could be negative impacts to individuals dependent on open-range ranching operations, if private lands are acquired by BLM through willing sellers and

determinations are made to eliminate domestic livestock grazing. These impacts, if considered in relation to the actual amount of lost grazing opportunities and the current conditions and trends, would become cumulatively less significant to this County as a whole.

Less than half of the total area within this alternative, or 45% (7,766 acres), are in private ownership. Of these acres, only one or two landowners currently utilize their property for the purpose of livestock grazing, or have done so in the last couple of years. It is these lands that could be affected, which equates to 39% (3,040 acres) of the private acres, or only 17% of the total acres in this alternative.

The severity of these impacts can be further lessened when considered and weighed in relation to current local and national conditions and trends. Current local conditions and trends would include: the lack of willing sellers due to the local anti-federalism sentiment; the fact that the type of determinations that BLM would be making with respect to domestic livestock grazing would not always be negative; and the fragmentation of pasture lands as a result of traditional land uses changing to exclude grazing, and the increased land sales and development occurring due to the influx of new residents to Siskiyou County. Current national conditions and trends would include: recent changes to federal procedural requirements for exchanges and acquisitions that are more complicated and have remarkably slowed down these processes; and an already declining livestock industry resulting from economic factors due to increased production costs and declines in beef consumption.

- **Public Recreation**

The acquisition of land, voluntarily offered, in and around the HRWA would enhance public access primarily due to increased roaded access points. If public ownership included lands along Interstate 5, the Oregon border, and the Hornbrook-Copco Road area, numerous points of access may be possible. Developed trailheads and facilities would be possible if additional lands were acquired, which would enhance public access. This alternative would be dependent on changing the off-highway vehicle designation from “closed” (closed to motorized vehicles) to “limited” (limited to designated roads and trails).

Due to the scope and complexity of land acquisition involved, it would be difficult to forecast which willingly offered lands would be available for inclusion in the HRWA. Activity planning would be necessary to finalize specific access points and determine the impacts that they would have on the existing resources.

## VI. CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Implementation of Alternative 2 would concentrate active management, such as prescribed fire and other vegetation management tools to improve deer habitat, within the core HRWA boundary. The effects of management would add to the acreage of high quality habitat that would improve hunting and other recreational experiences within the HRWA.

Land acquisitions that would serve the public purposes of improving deer and other wildlife habitat and improving access to public lands would be considered case-by-case, but would not be actively solicited. No commitments of resources would be made that are irreversible or irretrievable.

## VII. CONSULTATION AND COORDINATION

Interdisciplinary Team

A team of interdisciplinary specialists completed this analysis and document. Their respective responsibilities included:

| TEAM MEMBER | PLAN AMENDMENT RESPONSIBILITY |
|---|---|
| Francis Berg | Team Leader |
| Glen R. Miller | Planning and Environmental Coordinator |
| Richard Callas | Deer winter range habitat |
| David Cook | GIS data development/analysis, map production |
| Patricia Cook | Writer/Editor |
| Ilene Emry | Realty, land ownership, administrative assistant |
| Jeff Fontana | Public information |
| Keith Hughes | Wildlife, riparian habitat, special status fauna |
| Daniel Weinberg | Deer winter range |
| Bill Kuntz | Recreation |
| Joe Molter | Botany, range management, special status flora |
| Eric Ritter | Cultural resources, Native American Indian coord. |

Public Participation

BLM has already received more than 700 pieces of written correspondence as part of the scoping for this undertaking. Additional scoping was not considered to be necessary. The draft EA will be posted on the Redding Field Office web site as part of the 30-day public review process**.** BLM will hold one public presentation to announce the availability of the draft EA prior to execution of a Decision Record.

## APPENDIX A

# LAND TENURE STATISTICS BY COUNTY

| County | Acquired Fee | | Acquired Easements | | Total Acquired | | Patented | |
|---|---|---|---|---|---|---|---|---|
| | Acres | Value | Acres | Value | Acres | Value | Acres | Value |
| Butte | 141.060 | $785,000 | 0.00 | $0 | 141.060 | $785,000 | 1924.180 | $4,027,540 |
| Shasta | 14598.645 | $20,984,203 | 250.58 | $1,449,978 | 14849.225 | $22,434,181 | 6061.780 | $12,991,121 |
| Siskiyou | 1657.000 | $321,550 | 0.00 | $0 | 1657.000 | $321,550 | 16928.270 | $6,631,673 |
| Tehama | 9459.990 | $13,792,051 | 723.20 | $1,758,270 | 10183.190 | $15,550,321 | 10507.390 | $3,099,050 |
| Trinity | 15969.350 | $9,592,295 | 0.00 | $0 | 15969.350 | $9,592,295 | 4420.070 | $10,331,800 |
| **Total** | **41826.045** | **$45,475,099** | **973.78** | **$3,208,248** | **42799.825** | **$48,683,347** | **39841.690** | **$37,081,184** |

| County | In an Exchange | | Not in an Exchange | | Remaining to be Patented | |
|---|---|---|---|---|---|---|
| | Acres | Percent of Remaining Total | Acres | Percent of Remaining Total | Acres | Percent of RMP Total |
| Butte | 0.00 | 0.0% | 12346.38 | 100.0% | 12346.380 | 86.5% |
| Shasta | 545.71 | 1.7% | 31964.85 | 98.3% | 32510.565 | 84.3% |
| Siskiyou | 18.00 | 0.1% | 27040.67 | 99.9% | 27058.670 | 61.5% |
| Tehama | 0.00 | 0.0% | 24304.45 | 100.0% | 24304.450 | 69.8% |
| Trinity | 3482.81 | 26.5% | 9672.44 | 73.5% | 13155.250 | 74.9% |
| **Total** | **4046.52** | **3.7%** | **105328.79** | **96.3%** | **109375.31** | **73.3%** |

| County | Patented Timber Vol | Acquired Timber Vol 1,000bf |
|---|---|---|
| Butte | 8245 | 1852 |
| Shasta | 23551 | 21071 |
| Siskiyou | 15919 | 0 |
| Tehama | 5466 | 0 |
| Trinity | 20312 | 32013 |
| **Total** | **73493** | **54936** |

| | Fee | Easement |
|---|---|---|
| **Acreage** | **17788.25** | **485.95** |
| **Acreage** | **23516.10** | **0.00** |
| **Acreage** | **521.69** | **487.83** |
| **Average Value** | **$1,087.24** | |
| **Average Value** | **$930.71** | |

## APPENDIX B

## RIPARIAN HABITAT ASSESSMENT AND RIPARIAN FUNCTIONALITY ON HRWA

Scotch Creek: Due to its length, Scotch Creek was divided into three reach segments: upper, middle, and lower.

The upper reach (ID # 103) went from the Oregon/California border down to the confluence with an unnamed tributary in M.D.M., T. 48N., R. 6W., Section 24 NE1/4NE1/4. This reach is rated PFC.

The middle reach (ID #105) went from the same confluence with the unnamed tributary down to the confluence with Slide Creek. This reach is rated PFC**.**

The lower reach (ID #107) went from the confluence with Slide Creek down to the lower Horseshoe Ranch Wildlife Management Area boundary. This reach is rated FR with an upward trend.

Overall, there are many similarities in all three reaches. In many places, a well-defined floodplain is visible. The floodplain appears to be well maintained and piles of flood debris provide evidence of recent flooding. Sinuosity, width/depth ratio, and gradient appear to be in balance with the landscape setting. Scotch Creek has good sinuosity which helps to dissipate stream energy. Point bars appear to be well established and maintained. In most places riparian vegetation is either at its potential or in the process of widening. There is, in most cases, a dramatic shift from riparian species (willow, alder, choke cherry, snowberry) to upland species (buckbrush, oregon grape, oak, juniper). Riparian vegetation appears to be thicker where the valley bottom is more confined. When the valley bottom widens out, conditions become much drier and there is less riparian vegetation. In these cases willow is the only riparian species that persists.

There is a diverse age class and composition of riparian vegetation. Multiple species of willow are found throughout the riparian areas. Alder and choke cherry are also found less abundantly. All size classes are present from less than 1 inch to greater than 8 inches in diameter for some *Salix sp.* and *Alnus sp.*. The species present indicate the maintenance of riparian soil moisture. The dense willow component stabilizes streambanks with root masses capable of withstanding high streamflow events. Bank cutting is occurring on the outside bend of meanders as expected in a dynamic stream system. In most cases, it appears bank cutting occurred at a faster rate in the past. Over time, cut banks appear to have stabilized, with vertical banks slumping back to a more stable angle and becoming established with vegetation (small plants and grasses). Where active bank cutting is occurring, it appears to be within normal limits.

Although there is an old road that parallels much of Scotch Creek, impacts related to the road are not apparent. This natural surface road has mostly grown over with grasses and no obvious erosion problems are visible. There is a well defined game trail on the road surface which is causing some minor erosion at stream crossings. The main access road appears to be limiting the widening of riparian vegetation below the ranch site. However, since the road is placed at about the transition zone between riparian and upland species, this effect is minimized and is only occurring where the road is very close to the stream.

The major area of impact on Scotch Creek is located at the ranch site (spring house) area. This area historically has been the most disturbed area. Scotch Creek appears to be lacking sinuosity in this location which may be due to past management activity along the stream. Currently this site has become a popular loafing area for horses and trespass cattle, which continue to impact the area with hoof action and riparian grazing pressure. Understory riparian species are lacking and have low vigor due to grazing and browsing. However, a nice overstory component of alders is present. Downstream migration of impacts are shielded by the bedrock canyon below the ranch. Below the canyon, the gradient levels out creating a natural area of deposition. Aggradation of this channel reach was likely accelerated due to historic and current disturbance upstream. In this location Scotch Creek has become a braided stream with numerous stream channels weaving across a wide valley bottom. Riparian vegetation is well established along and between these multiple channels. Just below the Horseshoe Ranch fence line, these stream channels become captured by the access road which routes the stream about 150 feet down the road before returning to the stream channel. The road in this location is well rocked which helps to minimize any potential impacts.

The ranch site area of Scotch Creek would greatly improve if access for horses and cattle was restricted, such as by the use of an exclosure or some other method. Riparian vegetation would improve very rapidly and impacts along the stream banks and springs in the area would be reduced.

Slide Creek: Due to its length, Slide Creek was divided into three reach segments: upper, middle, and lower.

The upper reach (ID# 115) went from the Oregon/California border down to the confluence with Brushy Gulch. This reach is rated PFC.

The middle reach (ID #113) went from the confluence with Brushy Gulch down to the confluence with Wildcat Gulch. This reach is rated PFC**.**

The lower reach (ID #109) went from the confluence with Wildcat Gulch down to the confluence with Scotch Creek. This reach is rated PFC**.**

Overall, all three stream reaches were very similar, except the lower reach has more bedrock than the upper reaches.

Riparian vegetation, especially willow is well established in most places. Young alder colonization is occurring at several places along the stream, but only where the stream valley is more confined. Lots of other riparian species are present (current, choke cherry, cottonwood, and snowberry). All age classes were observed for these species. Vigor appeared high. Riparian vegetation is much more lush wherever the stream valley became more confined, and old, tall alders were noticeably present. We observed this trend in every stream reach we surveyed on the Horseshoe Ranch Area. This indicates that a cooler microclimate is being maintained by the confined valley. Conditions dry up very quickly as the valley width increases.

Bank cutting is occurring on the outside bend of meanders. Current rates of cutting appear to be normal. Many older cut banks are stabilizing and revegetating. Point bars are usually present on the inside bend and are vegetated by riparian species. There is evidence of recent flood flow that has accessed the well-defined floodplain in many places along Slide Creek. In several

areas there is historic evidence of channel shifting across the valley. All lateral stream movement appeared to be associated with normal stream dynamics.

A natural surface road is close to Slide Creek near its confluence with Brushy Gulch. Overall, very few impacts related to this road were observed. Some minor road related erosion and rutting was observed at stream crossings. The only major road-related impact is the excessive scouring of one tributary below a road crossing. This scouring appears to be the result of concentrated runoff flowing down the road and routed into the tributary by a dip in the road crossing. Conditions at this site appear to have stabilized; however, a high flow event could trigger an increase in erosion which could damage the road and increase sediment production. This site is located at the first tributary below the road crossing with Slide Creek.

The lower section of Slide Creek has many bedrock areas that act as good energy dissipaters. Where bedrock was not present, willow is well established and protecting the banks. Throughout Slide Creek, the stream appears to be in balance with its landscape setting and does not show any signs of excessive erosion or deposition.

Brushy Gulch: Brushy Gulch was surveyed from its confluence with Slide Creek, up to a spring in M.D.M., T. 48N., R. 6W. Section 26 NE1/4NW1/4.. This reach is rated PFC**.**

Where a floodplain is present, it appears to be maintained and accessed relatively frequently. Floodplain action is more evident higher in the stream system where more water is present.

The stream is in balance with the landscape setting, no excessive erosion or deposition was observed. Conditions appear to be dryer than in the past, which is affecting riparian vigor to some degree. Riparian vegetation is thick and lush where the stream valley is more confined. This is similar to what was observed in Slide and Scotch Creeks; however, it is much more dramatic here. Riparian vegetation is more limited lower in the reach where very little water is present. Throughout the reach, there is sufficient channel structure and adequate substrate material to dissipate stream energy.

Wildcat Gulch: Wildcat Gulch was surveyed from its confluence with Slide Creek, up to the confluence with an unnamed tributary in M.D.M., T. 48N., R. 6W., Section 36 NE1/4NE1/4. This reach is rated PFC.

Floodplain inundation is occurring; however, the stream is less dependent on the floodplain for energy dissipation. The steep channel has a high amount of bedrock and other large substrates to help dissipate energy. No excessive erosion or bank cutting was observed.

Conditions appear to be drier now than they were in the recent past. Willows are mostly old and stressed (moisture), little regeneration is occurring or it appears to be slower than normal. Vigor appears to be lower; this is especially evident on the outer riparian margins. This may indicate that the riparian area is shrinking in some areas. A diverse composition of riparian vegetation is present, especially higher up in the reach where more water is present.

Currently this reach is still functioning properly. However, it appears that conditions within this basin have become drier. This reach is heavily spring influenced. Recent periods of low precipitation may have diminished moisture availability. If dry conditions continue, riparian vegetation may suffer and the rating would shift to FR with a downward trend.

## APPENDIX C

## ADDITIONAL CULTURAL INFORMATION

Ethnography

At the time of contact the study area was principally inhabited by the Shasta Indians. These were Hokan-speaking hunters and foragers occupying numerous villages along the Klamath River with smaller settlements situated at springs and along secondary streams. Special use locations (gathering sites, quarries for stone, hunting locations, etc.) were more widely scattered across the landscape. Because of seasonal availability of various resources, the Shasta practiced a pattern of seasonal migration, periodic movement, and group splitting and joining up while following the resources. The Klamath River corridor was an active interaction sphere and trading pathway dating back into prehistoric times. The Klamath Indians appear to have been involved in trading (e.g., basketry, obsidian, marine shell beads and ornaments, salt, etc.) and other activities within this corridor and in the study area, at least on its eastern margins. Both the Shasta and the Klamath had a rich religious institution closely intertwined with the natural world and with neighboring groups, manifested in myth and ritual and sacred or special locations throughout the landscape.

There were numerous food resources used by the Shasta and their neighbors including roots and bulbs such as camas (*Camassia* sp.) and various varieties of *Perideridia* sp.(e.g., ipos, yampa). Acorns in a good year were an important food source along with salmon, eel, suckers, freshwater mussel, deer, bear, elk, and smaller animals. Other plant foods included various seeds (e.g., *Madia* sp.). Nuts and berries helped round out the diet. A diversity of plants and animals provided materials for clothing, tools, houses, medicines, etc., resources found in the study area.

Throughout Shasta territory cylindrical pestles, hopper mortars, manos and metates were the principal grinding implements for foods and other materials. Sinew backed bows of yew or juniper were made with arrows, often tipped with obsidian points, painted to match the bows. Some basketry was produced in the twining method. Bone and antler were used for scrapers, awls, wedges, arrow shafts and salmon gigs. Various flaked stone tools were also employed.

An important technique utilized by Native American Indians was controlled burning to help manipulate the growth of desired plants and provide beneficial habitats for animals, much like the practice used in the study location today. Of course, long term changes in plant communities and animal population distributions have occurred over the centuries and millennia in the location, both as a result of changing natural environmental conditions (precipitation, temperature, etc.) as well as human uses.

While written inquiries to the various tribes within the greater region regarding Traditional Cultural Properties of concern within the greater study region elicited no response, an examination of an earlier sacred lands' study completed for BLM by Theodoratus Cultural Research in 1985 was examined (*Mapping Project Ethnographic Inventory Shasta-Trinity National Forest, Mendocino National Forest [Corning and Stonyford RD],* Redding *Resource Area, Bureau of land Management).* This report and maps are on file with BLM in Redding. The record shows two Shasta villages located adjoining the study area, *Ekwik',* along Camp Creek, and *Id-doo-kwi,* along the Klamath River near the mouth of Camp Creek.

Historic Resources

Peter Skene Ogden's exploration of 1827 initiated the dramatic and disastrous disruption of

Native American lifeways in the region. Ogden's trip along the Klamath River and over the Siskiyous for the Hudson's Bay Company was followed by numerous other trapping and exploration parties between about 1830 and 1850, with the main Siskiyou Trail along the western and southern border of the greater study area. The natural and cultural world was severely disrupted. Subsequently, the Gold Rush brought in many more miners, entrepreneurs and settlers with Yreka the principal community, with nearby smaller communities such as Cottonwood/Henley. During the 1850s and 1860s, Native American Indian people were largely removed from the area. A few Shasta families managed to persist in the locality or returned from reservations. Their descendants live locally in the region to this day.

Farmers and ranchers began the transformation of the area in the 1850s, although more to the south in Shasta Valley than in the Horseshoe Ranch area. Roads were built to the ranches, including one from Cottonwood to Wadsworth Flat and possibly on up the Klamath on its north side or to points to the north. This is perhaps the wagon road mentioned by early range rider George Wright (see below) running between Hornbrook and Little Good Water, passing through the study area and Horseshoe Ranch itself. U.S. Government surveyors laid out both the township and ranges and defined the California-Oregon border through accurate survey methods. C.C. Tracy initiated surveys in the region in 1856. D.G. Major officially delineated the state line in 1867-1869 followed later by Fred Rudolf in 1916. State land delineations were initiated through the State Indemnity School Selection Grant in 1853. The next official land transfer in the greater locality did not occur until a homestead entry in 1869 and a mineral patent in 1874. Various homestead and stock raising entries were filed beginning in earnest in 1891 into the 1930s, although many were relinquished or cancelled, probably in cases due to the relatively marginal living conditions, isolation, and absence of water. Most applications were filed in the first 15 years of the 20th century. A number of individuals undoubtedly lived in the area without filing an application, for a time before filing an application, or after an application was relinquished or revoked judging from the oral history notes of George Wright, discussed below, on file with the BLM office in Medford.

A Central Pacific Railroad grant was obtained in1896 and some land was placed into the Forest Service jurisdiction in 1910-1911. The 240-acre Horseshoe Ranch itself was obtained by Carlton Miller et al. in 1936 from the Southern Pacific Land Company. It eventually passed into the State of California's hands in 1977. Earlier ranching occupants also lived here.

An examination was made of the Government Land Office plats for the study area. Away from the Klamath River the most prominent area of historical activity was along the California and Oregon Stage Line, the earlier emigrant trail. A dirt road shown on the 1875 GLO plat runs up Hudon (Hutton) Creek. An agriculture field is also shown along this creek close to present day Interstate 5. Up a fork of Cottonwood Creek on the State line is listed Rushton's House, evident on the 1916 map. A ranching complex is present at Horseshoe Ranch itself. Local lore has it that a stage station was present at Wadsworth Flat (perhaps known earlier as the location of Little Good Water), along a historic road previously mentioned. While this location on private land was not visited, from afar large poplar trees and a historic development are evident. Other historic sites in the area include various ranches or homesteads, most on private or State land, including those of Crovele, Quigley, McHenry, Pappas, Pedro Smith, Terrill, Beers-Liskey, Scholenburger, Madero, McNew–Bull Hide Camp-and Miller, as well as others near the California-Oregon Trail, some still occupied to this day. There is an abandoned ranch at Andersons Spring, Spaulding's Camp near the mouth of Wildcat Gulch (on BLM land), old fence lines, a few old roads, and the Southern Pacific Railway, built in 1887, present in the study area.

The comparative remoteness of much of the area, the scarcity of fresh water sources, its relative ruggedness and absence of development are seemingly reflected in the minimal historical geographical nomenclature for the area, as found on the topographic maps and the presence of BLM administered land remaining unpatented. There are obvious landmarks including Little Pilot, Bailey Hill, Shelton Rock, Fog Rock and Slide Ridge; the various springs named Maple, Anderson, and Collins; Wildcat, Miller and Wildcat gulches. There is also Camp, Dry, Hudon (Hutton), Scotch, and Slide creeks. Oral history notes from the 1950s were obtained by Anne Fowley and the Medford BLM office as discussed above. These have been compiled into a monograph on file with that office. These notes are derived from work with an early settler, later range rider for BLM, George Wright. The documentation bespeaks a relatively rich local geography and history. Oak Spring, Choke Cherry Spring, Brady's Lick, Horseshoe Bend, Hears Flat, and Elies Flat, for instance, are no longer listed on the modern day topographic map.

A highlight of Wright's applicable narratives follows. Scotch Creek was apparently once called Lone Pine Creek. Camp Creek received its name in the mid 1850s when a detachment of soldiers camped near its mouth during hostilities with the local Indians. Wildcat Gulch and nearby Spaulding Camp were the scenes of a major encounter with the notorious Grizzly, Reelfoot. He was eventually shot in 1890 along Wildcat Gulch after a furious battle. Many horses used to roam the area along with cattle and a few goats. Sheep seemed to have been concentrated to the north (into Oregon) and south in the Shasta Valley. Bobcat, coyote and mountain lion were formerly hunted in numbers in the area and the deer were reduced through over-hunting by the 1950s, in Wright's estimation. Former wood cutting for rails and pickets occurred in the early days in the study area, with wagon roads scattered about interspersed with a homestead here and there along the creeks and by springs. Gold mining was briefly attempted by Lone Pine ridge at Fred's Mine (also known apparently as the Chipmunk Tunnel). The Lowood School was at the mouth of Scotch Creek. More than one mention is made by Wright of local moonshine stills, log corrals, hunting camps, fur trapping, steelhead runs in the creeks, and trout populations.

During the ranching period (1850s-1930s), limited irrigation work began to move water about the more gentle landscape. Hunters depleted game, and brought local extinction to various animal species such as wolves, antelope, mountain sheep and grizzlies. Recreation uses began following World War II.

The cattle and sheep industry during this ranching period was spread throughout the study area, both on an official and unofficial basis. The memoirs of George Wright provide a vignette of conditions historically within at least portions of the study area:

During the spring of 1889 and 1890 . . . hundreds of cattle had just been loosed on the rangeland to graze the southward slopes of hillsides between Hornbrook and the Pilot Rock area . . .

Unregulated grazing by sheep and cattle was initiated shortly after the Gold Rush and prior to most homesteading activities (the Homestead Act was established in 1862). By the early 20th century many of the pastures, rangelands and riparian communities had been badly damaged by overgrazing and indiscriminate burning. Recovery is continuing to this day.

Prehistoric Resources

An examination was conducted of both the Bureau's cultural resource records as well as those on file with The Northeast Center of the California Historical Resources Information System at

California State University, Chico. There have been 10 previous archaeological inventory projects within the greater study area, four of which were BLM-initiated reconnaissance surveys, three were CDF-Fish and Game related inventories directed at habitat improvement, and single examples are related to logging, communication site development and a fiber-optics cable alignment. These inventories, totaling 543 acres, are not random, composing two percent of the greater study area. They range between one and 160 acres in size. They are somewhat dispersed in the greater study area, however, providing an inkling of prehistoric site distribution and composition. Historic site distribution is better known based on historic information as presented above.

During the inventories there were four prehistoric residential artifact scatters (flaked and ground stone present), one of which was a housepit village; four lithic scatters (chert/jasper materials with occasional obsidian flakes); and five isolates (projectile points, flakes and a pestle). One historic ranching complex was recorded (Horseshoe Ranch). Other historic features not documented include cedar stumps (rail manufacturing?), a historic road, and old barbed wire fences. If one were to consider those prehistoric and historic sites recorded during the various surveys, there is a rough approximation of one site per 50-100 acres plus numerous isolates. This suggests that there are about 250 to 500 prehistoric and historic sites in the greater study area, with historic sites more common on current private land. Within the existing RMP boundary, between 175 and 350 sites could be present. A small percentage of the historic and prehistoric sites would likely be eligible for listing on the National Register of Historic Places, sites such as the Horseshoe Ranch prehistoric village, the Southern Pacific Railroad, and others. At this juncture there is not enough information to suggest any National Register districts.

The prehistoric sites appear to be mainly late prehistoric judging from the projectile points recovered. Major villages are known to occur along the Klamath River and within the lower stretches of perennial secondary streams. As one moves further away from the Klamath and lower stream stretches, occupation seems more ephemeral, probably special use sites related to seasonal hunting and foraging, as in bulb, tuber and root collecting in meadows. Additionally, there are scattered concentrations of quartz-related cryptocrystalline silicate materials including chalcedony and chert/jasper. These materials appear to have weathered out in places from the basic igneous rocks, primarily occurring in colluvial deposits and stream beds difficult to predict in terms of occurrence. Such materials facilitated expedient flaked stone tool production. Minor prehistoric quarrying/prospecting appears to be present in the area and such siliceous materials were locally used for various cutting/scraping tools. Better materials in biface and core/tool form may have been exported to other areas which, along with materials testing, has left behind flaked stone by-products.