



**U.S. Department of the Interior
Bureau of Land Management**

Lakeview District
Lakeview Resource Area
Bureau of Land Management
HC 10, Box 337
Lakeview, Oregon 97630

September 2000



Areas of Critical Environmental Concern Nomination Analysis Report

For the Lakeview Resource Area
Resource Management Plan

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interest of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. Administration.

BLM/OR/WA/PL-01/001+1792

Public Disclosure Notice: *Comments, including the names and addresses of respondents, will be available for public review at the Bureau of Land Management office address listed on the front cover of this document, during regular business hours, Monday through Friday, except holidays. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment(s). Such requests will be honored to the extent allowed by law and recent court decisions. All submissions from organizations, businesses, or individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.*

Table of Contents

I. Introduction	I - 5
Background	I - 5
Existing Areas of Critical Environmental Concern	I - 5
Current Nominations	I - 5
Previous Nominations	I - 5
II. Definitions, Requirements, and Process	II - 7
Areas of Critical Environmental Concern	II - 7
Research Natural Areas	II - 7
Requirements for Designation	II - 7
Relevance Criteria	II - 7
Importance Criteria	II - 8
Need for Special Management	II - 8
Evaluation Process	II - 8
III. Evaluation of Relevance and Importance Criteria for Proposed Areas	III - 10
Connley Hills ACEC/RNA	III - 10
Sink Lakes ACEC/RNA	III - 13
Guano Creek ACEC/RNA	III - 16
Hawk Mountain I ACEC/RNA	III - 20
Hawk Mountain II ACEC/RNA	III - 22
High Lakes ACEC	III - 25
Fish Creek Rim ACEC/RNA	III - 27
Spanish Lake ACEC/RNA	III - 31
Rahilly-Gravelly ACEC/RNA	III - 33
Foley Lake ACEC/RNA	III - 37
Table Rock ACEC	III - 40
Black Hills ACEC/RNA	III - 42
Red Knoll (Tucker Hill) ACEC	III - 45
Juniper Mountain ACEC/RNA	III - 47
Abert Rim Addition to Lake Abert ACEC	III - 51
IV. List of Preparers	IV - 53
V. References	V - 54
VI. Appendix	VI - 57
VII. Map	VII - 58

Abbreviations and Acronyms

Reader note: Please refer to the following list for abbreviations and acronyms commonly used throughout this document.

ACEC ~ area of critical environmental concern
BLM ~ Bureau of Land Management
CFR ~ Code of Federal Regulations
EA ~ environmental assessment
EIS ~ environmental impact statement
FLPMA ~ “Federal Land Policy and Management Act”
HMNAR ~ Hart Mountain National Antelope Refuge
ICBEMP ~ Interior Columbia Basin Ecosystem Management Project
IMP ~ “Wilderness Interim Management Policy”
LRA ~ Lakeview Resource Area
LRARMP ~ Lakeview Resource Area Resource Management Plan
MFP ~ management framework plans
ODFW ~ Oregon Department of Fish and Wildlife
OHV ~ off-highway vehicle
ONDA ~ Oregon Natural High Desert Association
ONHP ~ Oregon Natural Heritage Program
ONRC ~ Oregon Natural Resources Council
RMP ~ resource management plan
RNA ~ research natural area
TCP ~ traditional cultural property site
TNC ~ The Nature Conservancy
USDI ~ United States Department of the Interior
USFS ~ U.S. Forest Service
USFWS ~ U.S. Fish and Wildlife Service
VRM ~ visual resources management
WSA ~ wilderness study area

I. Introduction

In anticipation of the preparation of the Lakeview Resource Area Resource Management Plan (LRARMP), the Lakeview Resource Area (LRA) staff considered all lands within the resource area for possible designation as an area of critical environmental concern (ACEC) and research natural area (RNA). The Federal Land Policy and Management Act (FLPMA) and Bureau of Land Management (BLM) policy (USDI-BLM 1987; 1988) require the BLM to give priority to designation and protection of ACEC's during the land use planning process.

Two ACEC/RNA's (Sand Dunes/Lost Forest/Fossil Lake ACEC/RNA and Devils Garden Lava Bed ACEC) were designated in the existing generation of land use plans and another area was given protective management, but not designated (Connley Hills, ACEC/RNA) (USDI-BLM 1982a; 1982b; 1983a; 1983b). Several other areas were considered for potential ACEC designation in the Lakeview Grazing Management Final Environmental Impact Statement (USDI-BLM 1982a), but were found not to meet the criteria. However, the resource area as a whole was not evaluated at that time. Since the management framework plans (MFP's) were approved in 1983, two plan amendments have been completed to address specific ACEC nominations at the Warner Wetlands and Lake Abert (USDI-BLM 1989; 1995). Since the planning regulations require that ACEC's be considered during the planning process, they are being addressed within this evaluation and the upcoming planning process across the entire LRA.

Background

ACEC's may be nominated by BLM staff, other agencies, or members of the public at any time. In 1992, the BLM contracted with the Oregon Natural Heritage Program (ONHP) to conduct a survey to evaluate plant and animal community natural heritage

cells represented within the resource area and to look at previous ACEC nominations. Over 20 sites were examined and 10 sites were recommended for designation for both ACEC and RNA status (Vander Shchaff 1992). Those recommendations are considered in this document along with other nominations from the Oregon Natural Resources Council (ONRC), various tribes, BLM staff, and Dr. Rick Miller (Oregon State University). A relatively recent ACEC proposal was made by the Oregon Natural High Desert Association (ONDA) and 21 other cosponsors, which is commonly referred to as the proposed Pronghorn ACEC (ONDA 1998). This proposal was evaluated in a separate evaluation document (USDI-BLM 1999) and will not be repeated here.

Existing Areas of Critical Environmental Concern

At present there are four existing ACEC's in the LRA: Devils Garden ACEC; Warner Wetlands ACEC; Lake Abert ACEC; and Lost Forest(RNA)/Sand Dunes/Fossil Lake ACEC. No changes are being proposed for the Devil's Garden ACEC. The Sand Dunes/Fossil Lake/Lost Forest (RNA) ACEC is being analyzed to create a management plan, as no management plan has even been written. Warner Wetlands ACEC will require minimal analyses of management, but no changes are anticipated. Lake Abert ACEC will be analyzed to determine if a RNA might be formed on the northern end of the lake; and land now outside the existing ACEC on top of the east rim is analyzed for addition to the established ACEC.

Current Nominations

The areas listed below have been nominated as ACEC/RNA's and are being evaluated for potential

designation as a precursor to the upcoming resource management plan (RMP) planning process (see Map 1). The name for the proposed Tucker Hill ACEC (see 13 below) has been changed to the Red Knoll ACEC to avoid confusion with the mining area on Tucker Hill.

- 1) Connley Hills ACEC/RNA
- 2) Sink Lakes ACEC/RNA
- 3) Guano Creek ACEC/RNA
- 4) Hawk Mountain I ACEC/RNA
- 5) Hawk Mountain II ACEC/RNA
- 6) High Lakes ACEC
- 7) Fish Creek Rim ACEC/RNA
- 8) Spanish Lake ACEC/RNA
- 9) Rahilly-Gravelly ACEC/RNA
- 10) Foley Lake ACEC/RNA
- 11) Table Rock ACEC/RNA
- 12) Black Hills ACEC/RNA
- 13) Red Knoll [formerly Tucker Hill] ACEC
- 14) Juniper Mountain Proposed ACEC/RNA
- 15) Abert Rim Addition to Lake Abert ACEC

- Plush Road
- Pronghorn (see discussion elsewhere in text)
- Powerline Playa
- Silver Lake Wildlife Management Area with Fremont National Forest
- Silver Lake/Duncan Area.

During the development of the upcoming Lakeview Resource Area RMP, Hawk Mountain I and II, and Guano Creek and Sink Lakes may be combined for further consideration.

Previous Nominations

The following list of areas were previously proposed as potential ACEC/RNA's (USDI-BLM 1982b). These proposals were reviewed as part of this evaluation process and were found not to meet the relevance/ importance criteria. See Appendix for descriptions.

- Alkalie Lake Toxic Waste Site
- Bull Lake
- Christmas Lake
- Coleman Lake
- Crane Mountain Front
- *Elymus triticoides* Site
- Guano Valley

II. Definitions, Requirements, and Process

Areas of Critical Environmental Concern

BLM regulations (43 CFR part 1610) define an ACEC as an area "within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards."

ACEC's differ from other special management designations such as wilderness study areas (WSA's) in that the designation, by itself, does not automatically prohibit or restrict other uses in the area. The one exception is that a mining plan of operation is required for any proposed mining activity within an ACEC. The ACEC designation is an administrative designation and is accomplished through the land use planning process. It is unique to the BLM in that no other agency uses this form of designation. The intent of Congress in mandating the designation of ACEC's through FLPMA, was to give priority to the designation and protection of areas containing truly unique and significant resource values.

Research Natural Areas

BLM Manual 1623.3 defines RNA's as "an area which contains natural resource values of scientific interest and is managed primarily for research and educational purpose." BLM and the ONHP cooperate in the RNA programs to identify, designate, and manage natural areas containing important scientific values located on BLM-administered land.

According to ONHP (1993) the purpose for RNA's are: "to preserve examples of all significant natural

ecosystems for comparison with those influenced by man; to provide educational and research areas for ecological and environmental studies; and to preserve gene pools of typical and endangered plants and animals." All BLM RNA's are designated and managed as ACEC's. (OR Manual Supplement 1623.35) Therefore, all RNA's must meet both the ACEC criteria, as applied in writing by an interdisciplinary team and approved by the field manager, as well as the need for a RNA cell as defined in the ONHP data base. The ACEC can be larger than the RNA, to encompass other values, which may not be needed for the RNA. If an area qualifies for ACEC/RNA status, it may also merit interim management prior to the area being designated in the resource management plan.

RNA cells are the basic units that must be represented in a natural area system. These cells can be an ecosystem, community, habitat, or organism. Cells are artificial constructs used by the ONHP to inventory, classify, and evaluate natural areas in Oregon. Cells contain one or more ecosystem elements. Typically, a RNA aggregates several cells that need representation. The ONHP was created by the Oregon Natural Heritage Advisory Council to the State Land Board in 1993. They are the State counterpart of the Federal program.

Requirements for Designation

To be designated as an ACEC, an area must meet the relevance and importance criteria listed in BLM 1613 Manual (USDI-BLM 1988) and require special management. Specific evaluation questions for each of these three elements are listed below.

Relevance Criteria

Does the area contain one or more of the following?

- A significant historic, cultural, or scenic value;

- a fish and wildlife resource;
- a Natural process or system; or
- a natural hazard?

implement without ACEC designation.

Importance Criteria

Does the value, resource, system, process, or hazard described above have substantial significance or value? Does it meet one or more of the following criteria?

- Is it more than locally significant, especially compared to similar resources, systems, processes, or hazards within the region or Nation;
- does it have qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change;
- has it been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA;
- does it have qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare; or
- does it pose a significant threat to human life and safety or property?

Need for Special Management

Does the value, resource, system, process, or hazard require special management to protect (or appropriately manage) the relevant/important value(s)? Special management is defined as or is needed when:

- 1) Current management activities are not sufficient to protect a given relevant/important resource value and a change in management is needed that is not consistent with the existing land use plan(s).
- 2) The needed management action is considered unusual or outside of the normal range of management practices typically used.
- 3) The change in management is difficult to

Evaluation Process

Regardless of who nominates an area as a potential ACEC, it is the BLM who is responsible for evaluating the area to determine if it meets the relevance/importance criteria and requires special management. Table 1 summarizes the evaluation findings for each of the ACEC's considered. The following section III is composed of evaluations of each proposed ACEC as to whether it meets the relevance and importance criteria as defined in 43 CFR 1610.7-2. The need for special management will be determined through the RMP/EIS.

Table 1.—Nomination evaluation summaries of the areas of critical environmental concern

Proposed ACEC/RNA	Acres	Resource values (Relevance/importance values)
Connley Hills RNA	3,599	Botanical and ecological values: essential habitat of species diversity. Unique plant communities limited to this site in Oregon: fills ONHP cell for Basin and Range Ecosystems. Outstanding archaeological values
Sink Lakes RNA	2,322	Botanical and ecological values: low elevation vernal pool and sagebrush/sandberg bluegrass (<i>Poa sandbergii</i>) scabland. Fills ONHP cells for Basin and Range Ecosystems.
Guano Creek RNA	2,614	Botanical and ecological values: fills ONHP cell for Basin and Range Ecosystems. Two Bureau sensitive plants in area. Cultural plants present
Hawk Mountain I RNA	12,485	Botanical and ecological values: outstanding example of biodiversity of high desert grassland steppe. Fills ONHP cell for Basin and Range Ecosystems.
Hawk Mountain II RNA	4,856	Botanical and ecological values: outstanding example of biodiversity of high desert grassland steppe.
High Lakes	40,095	Cultural and botanical values: high concentration of rock art sites up to 7,000 years old. Diversity of plants and animals, especially cultural plants. Evidence of long-term relationship of tribal people and landscape. May be eligible for traditional cultural property site (TCP) designation.
Fish Creek Rim RNA	8,725	Cultural and botanical values: high density of significant sites in upland environment. Significant plant species diversity; fills ONHP cells in Basin and Range Ecosystems; Two Bureau sensitive plants.
Spanish Lake RNA	4,699	Botanical values: diversity of salt desert scrub communities with limited distribution in LRA and Northern Great Basin; meets ONHP cell for Basin and Range Ecosystems.
Rahilly-Gravelly	20,127	Cultural and botanical values: high density and variety of significant cultural sites. Plant gathering area for Northern Paiute. May qualify as a TCP. Presence of Bureau sensitive plant species. Meets ONHP cell needs for Basin and Range Ecosystems.
Foley Lake RNA	2,747	Cultural and botanical values: significant cultural sites related to resource procurement, settlement patterns, and religious practices. Important species diversity and presence of BLM sensitive species. ONHP cell for Basin and Range Ecosystems.
Table Rock	5,139	Cultural, botanical, and scenic values: high density of unique site types. Presence of two Bureau sensitive species; also old growth western juniper. May qualify as a TCP.
Black Hills RNA	3,048	Botanical values: ash plant community; ecological diverse western juniper community, age classes, with disjunct pine community. Two Bureau sensitive plants.
Red Knoll (formerly Tucker Hill)	11,588	Cultural and geological values: high density and wide variety of sites important for research and traditional cultural values. Presence of ancient beach erosion terraces. Unique plant community containing BLM sensitive plant species.
Abert Rim	18,028	Cultural and biodiverse plant communities; high in cultural plants.
Juniper Mountain	6,335	Botanical values: old growth western juniper and high species diversity. Meets ONHP cell description.

III. Evaluation of Relevance and Importance Criteria for Proposed Areas

Connley Hills ACEC/RNA

All of Section 2.

Description of Area

The Connley Hills proposed ACEC/RNA is located south of Fort Rock, Oregon, and north of the Paulina Marsh in a small, low range of mountains called the Connley Hills. Covering a variety of aspects and slopes and ranging in elevation from 4500 feet to 5500 feet, the plant communities on the site consist of western juniper (*Juniperus occidentalis*), big sagebrush (*Artemisia tridentata tridentata*), and understory bunchgrasses bluebunch wheatgrass (*Agropyron spicatum*), Idaho fescue (*Festuca idahoensis*), and western needlegrass (*Stipa occidentalis*). The present proposal area covers about 3,599 acres.

The Connley Hills area was first evaluated as a proposed RNA in 1976, and at that time was found to be in excellent condition. In 1985, an interim management agreement was signed for the Connley Hills to be managed as an RNA/ACEC (USDI-BLM 1984). The Connley Hills area has also been identified as a potential RNA by the "Lake County Comprehensive Land Use Plan" (Lake County 1979; 1983; 1989). In 1992, the area was included in the ONHP analysis (Vander Schaaf 1992). Parts of that report are incorporated into section 3 of this document.

The legal description is as follows:

T.26S., R.14E.,
All of Section 26, 35.
Portions of Section 36.

T.27S., R.14E.,
Portions of Section 1, 11, 12

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

No systematic survey of the entire Connley Hills formation has been completed to date. However, several intuitive surveys, project surveys, and a large scale archaeological research project have been completed in the area. Evaluation of this material has shown that the formation has value.

Site Types

Caves and rockshelters: Within the formation, several caves and rock shelters have been recorded. In the area known as the Connley Caves, Luther Cressman and Stephan Bedwell of the University of Oregon conducted archaeological excavations. Work indicated that these sites were occupied as much as 11,000 years ago (Aikens and Jenkins 1994).

Lithic scatters: Several areas of lithic scatters have been identified on the formation.

Historic materials: A historic corral of felled western junipers has been identified on the formation.

Small occupation sites: Some areas with ground stone such as manos and metates have been identified on the formation.

Record of Occupation

Work by the University of Oregon has established a record of occupation for the formation which extends back some 11,000 years. This work indicates that use of the cave over four or more time periods was very important to past occupants of the area (Bedwell 1973).

Findings

The Connley Hills area has significant prehistoric sites which have provided important information on the prehistory of the region. While the area has not had a complete inventory, those sites which have presently been identified are significant. The area meets the criteria for relevance.

There are few areas in the Northern Great Basin which have provided more information than the Connley Hills have to date. Some of the earliest dated cultural materials from the basin have come from these sites. The area meets the criteria for importance.

2. Scenic Analysis

Values

The tree-covered Connley Hills provide a topographic and vegetation change from the surrounding flat desert terrain in the Fort Rock Basin. However, they are similar to other small ranges in the area. The Connley Hills were inventoried and are currently managed as VRM Class III and IV (refer to the Appendix and USDI-BLM [1980] for a definition of VRM classes).

Findings

The Connley Hills do not contain significant scenic value, and therefore do not meet the relevance or importance criteria.

3. Wildlife Analysis

Values

The good condition of the western juniper/bunchgrass community and the steepness of the terrain and semi-remoteness of the area create an area of "refugia" for the expanding population of North Lake County elk. The area provides security cover and forage for elk when feeding on adjacent private alfalfa fields and also during hunting season when pressured off the forest to the west. The area also provides habitat for mule deer (crucial winter range), small mammals, wintering bald eagles and other raptors and nongame birds. There is no known crucial habitat for threatened, endangered or sensitive species.'

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile, nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Connley Hills are located in the transitional zone between the Basin and Range and High Lava Plains Physiographic Provinces. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000–5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province

The Connley Hills include Horning Bend, an eroded mid

Pliocene-age lava cone of andesitic composition, and Hayes Butte, a late Pliocene-age composite shield volcano consisting of basalt and basaltic pyroclastic material. There are no known natural hazards in the Connley Hills.

Findings

These geologic features are very common in the local area, and throughout the High Lava Plains physiographic province. The Connley Hills do not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

The Connley Hills area represents an important area for plant community studies as it is located in the ecotone between the Basin and Range and the High Lava Plains Province (Franklin and Dryness 1973) or the Mazama High Desert (Anderson et al. 1998). The plant communities of the Connley Hills consists of western juniper woodland with varying under stories. Big sagebrush is common in most of the communities except in those areas which have had recent wildfires. Understory grasses are primarily bluebunch wheatgrass and Idaho fescue with a fair amount of western needlegrass found in many communities.

The ONHP analysis found the Connley Hills to be in good condition (Vander Schaaf 1992) with understory grasses present in high densities of percent cover. Weedy species are not well established throughout much of the RNA and are restricted mostly to disturbed areas near roads. There have been several wild fires in the proposed RNA in recent years, one covering a considerable area in the northwest corner of the site. This fire has altered the natural community by killing much of the big sagebrush. Bulldozer trails are still evident in the area and have caused a limited spread of weeds into the area. No long-term degradation is expected

from the action.

The Connley Hills area fills the following four natural area cells in the ONHP (1998):

- (4) Western juniper/big sagebrush/bluebunch wheatgrass;
- (7) Western juniper/bluebunch wheatgrass;
- (8) Western juniper/Idaho fescue; and
- (11) Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) /bluebunch wheatgrass.

It is unusual for an RNA to fill four natural area elements that are as prominent in a physiographic province as those listed above. This is indicative of the importance of the Connley Hills to be designated as an RNA (Vander Schaff 1992). Eddleman (1999) states, " . . . the Connley Hills are important. . . . Every aspect of rangeland health depends on reference points and standards that we must obtain from the best we have. The Connley Hills qualify as an area to use for such reference points. From that standpoint alone, these hills have a high value for research . . . these areas increase in importance as source areas for native plant genetics needed in restoration efforts. Although this aspect is not readily apparent, it shows every indication of becoming of paramount importance for obtaining genetic materials at the province level."

Findings

This area meets the relevance criteria as habitat essential for maintenance of species diversity and as representative of the botanic communities described by heritage cell designations in Basin and Range Ecosystems (see above). The area meets the importance criteria because cell numbers 4, 8 and 11 plant communities are only represented in Oregon within the Connley Hills proposed ACEC/RNA. After investigation (1999), the four cells elements in the area still meet the relevance and importance criteria for biological values for the state representation of these plant communities and to protect these terrestrial ecosystems as determined in 1984.

This area meets requirements for an RNA because it represents four distinct ecosystems, is easily accessible for use by researchers and for educational reasons, and would make an excellent outdoor laboratory for monitoring and research of native grasslands (auspiciously as seed sources).

As noted by the ONHP report (1992) the presence of four cell communities increase its value as a research/educational area. At present (1998), Dr. R. Miller, Oregon State University, and a group of graduate students are researching western juniper woodland structure in the area. Dr. Lee Eddleman, Oregon State University, also uses the area on a regular basis for range course field trips (Drs. Miller and Eddleman, personal communication)

Summary Findings

The historic/cultural and botanic/ecological values meet the importance and relevance criteria for ACEC designation.

Sink Lakes ACEC/RNA

Description of Area

The Sink Lakes Proposed ACEC/RNA includes about 2,322 acres and is located on a high treeless plateau north of Guano Creek, just south of Hart Mountain Refuge, and northwest of the Shirk Ranch (Map 1). It is contained entirely within the boundary of the Guano Creek WSA. The elevation of the site varies between 5,770 and 5,980 feet.

Under the recent jurisdictional exchange completed between the BLM and the Hart Mountain National Antelope Refuge, the entire Guano Creek WSA, including Proposed Sink Lakes ACEC/RNA, is excluded from use by livestock. Two seasonal lake/wetlands are located within the area. The private land to the west which contains another sink lake, Billy Burr Lake, is owned by The Nature

Conservancy (TNC) and the area has been excluded from grazing as part of their High Desert Preserve. TNC has suggested a possible future land exchange with the BLM for this property.

The legal description is as follows:

T.38S., R.26E.,
Portion of Section 1.

T.38S., R.27E.,
Portions of Section 5, 6, 7, 8, 9, 17.
All of Section 15, 16.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

While the Sink Lakes area is known to contain some cultural resources, there has not been sufficient survey work completed within this area to characterize these resources.

Site Types

Only one small lithic scatter near one of the Sink Lakes is recorded at this time. This site is a small concentration of obsidian flakes, probably indicating some hunting or collecting activity in the area.

Record of Occupation

At present, there is not enough information to assess the record of occupation at the Sink Lakes.

Findings

There is no evidence that this area meets the criteria for relevance or importance for cultural values.

2. Scenic Analysis

Values

The proposed area is mainly covered with low sagebrush and bunch grasses with some juniper and other shrubs. Although lakes represent a rather unusual visual feature on the landscape, the area does not rate particularly high with respect to visual quality. Although inventoried as VRM Class III and IV, it is managed as VRM Class I since it falls within the Guano Creek WSA. For a definition of VRM Classes refer to the Appendix.

Findings

Although the proposed area is within a WSA, the scenic value is similar to that found in the region and, therefore, it does not represent a significant scenic value or meet the relevance or importance criteria.

3. Wildlife Analysis

Values

The area contains season-long habitat for mule deer and pronghorn antelope, and bighorn sheep can occasionally be seen on Shirk's Rim to the south. There are probably sheep from the Hart Mountain National Antelope Refuge (HMNAR) and Dauherty Rim herds. There are no known raptor nest sites within the proposed ACEC boundary. However, there are two prairie falcon and one golden eagle nest within 6 miles.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining wildlife species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances. It is not considered to be fragile nor has it been

recognized as warranting special protection under FLPMA. Therefore, it does not satisfy the criteria for importance.

4. Geology and Natural Hazards

Values

The Sink Lakes area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000–5000 feet above sea level, broken up by late Tertiary-to Holocene-age block faulting. Higher-elevation Tertiary-to Quaternary-age volcanic flows and domes characterize portions of the province.

The Sink Lakes area lies on Tertiary-age basalt flows dissected by the Eugene-Denio Lineament. In this area, numerous en echelon normal and reverse faults create a series of northwest–southeast trending grabens that contain intermittent lakes. These graben lakes are characterized by Quaternary-age clayey, silty, and in some cases, sandy playa deposits (Walker and Repenning 1965).

Findings

While geologically interesting, graben lakes are common in the Basin and Range Physiographic Province, both locally and regionally (Summer Lake, Abert Lake, and Warner Lakes). The Sink Lakes area does not meet the relevance or importance ACEC criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

Sink Lakes was first proposed as an RNA in 1982, and then again in the 1998 ONHP report. Two lakes are located within the area. The private land to the west

which contains the remaining sink lake, Billy Burr Lake, is owned by TNC.

The site represents the following two natural area cell needs from the 1998 ONHP for the Basin and Range Ecosystems:

- (8) Low sagebrush (*Artemisia arbuscula*)/Sandbergs bluegrass scabland (*terrestrial ecosystem*); and
- (53). Low elevation vernal pond (*aquatic ecosystem*).

The low sagebrush cell was only considered as being partially filled at this site given the condition of the community in 1992. At present there is research being conducted to determine the detrimental effects of past grazing pressures. The Ecological Site Inventory rated the area as 95 percent in fair condition and 5 percent in good condition (rocky hillsides). Monitoring studies have indicated that with the decrease and elimination of livestock grazing plus several wet years, the biodiversity and health of the wetland plant communities have improved

The Sink Lakes area contains three vernal lakes (if Billy Burr Lake is included in site) which are essentially dry playas in the drought years and vernal pools during wet years. The playas are all ringed by silver sagebrush (*Artemisia cana*) and surrounded by uplands that are dominated by low sagebrush grasslands. The dry lakebeds differ in their vegetative composition and may be dominated by tansy-leaf evening primrose (*Camissonia tanacetifolia*). The middle lake or playa located in Section 8 is best characterized as a silver sagebrush/Nevada bluegrass (*Poa nevadensis*) community. This is a common playa community, but it is readily impacted by grazing which removes the sparse bluegrass cover and decreases the silver sagebrush. In 1997, this lake was filled in late July and Baltic rush (*Juncus balticus*), povertyweed (*Iva axillaris*), and lanceleaf goldenweed (*Haplopappus lanceolatus*) were present along the shoreline.

The smallest playa, located in Section 16, had been grazed on a regular basis in the past, but not for the past four years. This playa/lake, like the other playas, is ringed by a silver sagebrush/Nevada bluegrass community. There are several other species that were present in 1992 on the playa itself: Mat muhly (*Muhlenbergia richardsonia*) was common on the playa but even more dominant was water foxtail (*Apecurus geniculatus*); Baltic rush also occurs on this playa.

The surrounding uplands are mostly dominated by low sagebrush grasslands in fair condition. The grasses present include Sandbergs bluegrass, Wheelers bluegrass (*Poa nervosa*), and Thurbers needlegrass (*Stipa thurberiana*). Grazing has had an impact in the past on both communities, particularly on the private lands surrounding Billy Burr Lake. Given the relative isolation of the plateau combined with private ownership at Billy Burr Lake by TNC and the jurisdictional exchange excluding grazing, there will be a unique opportunity in the future to study the long-term effects of grazing removal from upland low sage sites and vernal playa/lakes.

Findings

It may be worthwhile to explore a joint RNA with TNC, as the BLM is presently conducting joint research with them in the area. It also is recommended that this area be combined with Guano Creek to form one ACEC/RNA. All of the area falls within the Guano Creek WSA.

This area meets the relevance criteria as it protects a rare aquatic ONHP Basin and Range plant cell—the low elevation vernal pool—and partially fulfills the cell for low sagebrush/Sandbergs bluegrass scablands. With the elimination of grazing in the area, this site should recover rapidly. The area meets the importance criteria because it is the only site for both cells in Oregon (see above).

Despite the relative difficulty of getting to the site, the area warrants designation as an RNA for research and

educational studies because it protects a unique aquatic ecosystem and sagebrush scablands. There are few scabland studies in eastern Oregon, even though there are many acres of this plant community which are grazed by livestock. In removing livestock under the jurisdictional exchange there is a unique opportunity for baseline successional studies. With the grazing disturbance removed, the vernal lakes/playas would also serve as an outdoor laboratory to study fluctuations in vegetation related solely to precipitation. Vernal lakes are common, but these circular sink lakes are located only on Steens basalts.

Summary Findings

Botanic/ecological values meet the importance and relevance criteria for ACEC designation and meets the criteria for designation as an RNA.

Additional Recommendations

Combined with the Proposed Guano Creek ACEC/RNA which lies immediately adjacent to the south, Sink Lakes would make an interesting package. With the recent elimination of livestock grazing, the Proposed Sink Lakes/Guano Creek ACEC/RNA would make an attractive upland/lowland research area. Recently, the Billy Burr Lake parcel was donated to BLM by TNC. The ONHP included this parcel in their original proposal. The BLM has determined that this parcel meets the relevance and importance criteria for botanical values.

Guano Creek ACEC/RNA

Description of Area

The Proposed Guano Creek ACEC/RNA covers about 2,614 acres and is located west of Guano Valley, just north and west of the Shirk Ranch; it entails the canyon from the mouth of Guano Creek where it enters Guano Valley west to just over two

miles up the crooked canyon (Map 1). It is bordered on the north by the proposed Sink Lakes ACEC/RNA and is contained entirely within the Guano Creek WSA.

Originally, the proposed boundary was shaped along elevation lines; however, the boundaries currently being proposed will be in stright lines for easier legal description of the site. The elevation varies between 5,300 and 5,707 feet. The landscape is marked by small areas nearly void of vegetation because of the volcanic ash content of the soils.

The proposed ACEC/RNA lies within the area included in the recently completed jurisdictional transfer between the BLM and HMNAR. Livestock grazing has been removed from the area since 1995.

The legal description is as follows:

T.38S., R.27E.,
All of Section 21, 22,
Portions of Section 27, 28.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The Guano Creek area has not had a complete cultural resources site inventory; however, project work in this area has recorded some sites.

Three site types are present: lithic scatters of obsidian flakes, stone rings, and rock art sites are known to occur in this area.

Record of Occupation

The record indicates that this area has been visited by Native American populations over a 10,000 year period. Activities which may have taken place in the area include stone quarry work, occupation while collecting plants and hunting, and rock art sites

which could be of a religious nature.

Findings

While the Guano Creek area is known to contain numerous sites, these sites are duplicated in other portions of the district. This area does not meet the criteria for relevance for cultural values.

While the Guano Creek area sites are capable of providing information of importance to the study of Great Basin prehistory, they are not unique overall. This area does not meet the criteria for importance for cultural values.

2. Scenic Analysis

Values

The drainage does represent some uncommon features with the combination of rock forms, vegetation, and water being present most of the year. Because of the water, this area does carry added visual significance in the desert landscape.

The area within Guano Creek Wilderness Study Area (the proposed ACEC/RNA is contained within that area) was originally inventoried as VRM Class III and IV. However, it is currently managed as VRM Class I under the Wilderness IMP to protect the area's naturalness pending designation. For a description of VRM Classes refer to the Appendix.

Findings

Guano Creek does not meet the relevance or importance criteria for scenic values. The creek drainage, though visually interesting, does not represent a significant visual feature on the landscape.

3. Wildlife Analyses

Values

The area contains season-long habitat for mule deer and pronghorn antelope, and bighorn sheep can occasionally be seen on Shirk's Rim. These are probably sheep from the Hart Mountain and Daugherty Rim herds. There are no known raptor nest sites within the proposed ACEC boundary; however, there are two prairie falcon nests and one golden eagle nest within 6 miles.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining wildlife species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances. It does not satisfy criteria for importance with respect to wildlife values.

4. Geology and Natural Hazards Analysis

Values

Guano Creek is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000–5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

The lower reaches of Guano Creek cut through Tertiary-age tuffaceous and pumiceous sedimentary rock and locally-welded tuffs. The course of Guano Creek is largely controlled by the faulting in the area. As with most of the drainages in the Basin and Range Province, there is potential for localized flash flooding (Walker and Repenning 1965).

Findings

These geologic values are very common in the Northwestern Basin and Range and High Lava Plains Physiographic Provinces. Guano Creek does not meet the relevance or importance ACEC criteria for geology or natural hazards

5. Botanic/Ecological Analysis

Values

Guano Creek was proposed as an RNA in 1982 for its botanical/ecological values. The site has a number of natural values which all lend support for its designation as an RNA.

Of primary significance in the Guano Creek site is the occurrence of the high quality natural community that is characterized by Wyoming big sagebrush/needle-and-thread grass and Thurbers needlegrass. This community is uncommon in the Great Basin and is typically found in association with sandy soils. It fills the following ONHP cell needs in the Basin and Range Ecosystems:

- (15) Wyoming big sagebrush/needle-and-thread community; and
- (82) Low elevation riparian community.

The low elevation riparian community cell description should contain three species of willow: coyote willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), and Pacific willow (*Salix lucida*); the plant community in the Guano Creek riparian zone does not fulfill the criteria for the cell description as no willow grows in the upper creekbed. However, there is a rich community of Great Basin wildrye (*Elymus cineris*) and other forbs.

Also found at the site are two Bureau sensitive plant species, grimy ivesia (*Ivesia rhypara* var. *rhypara*) and Crosby's buckwheat (*Eriogonum crosbyae*). A conservation agreement is being written between the BLM and the USFWS to help preserve and study

these species for their entire populations. A conservation agreement already exists in Malheur County for those populations; however, the new agreement will contain all of the other known sites (in Oregon, Nevada, and California). Both Crosby's buckwheat and grimy ivesia are on the ONHP List 1, Threatened or Endangered Throughout Their Range (ONHP 1998)

The two species do not grow in the same habitat at the Guano Creek site, nor do they occur in the big sagebrush/needle-and-thread grass community which is the prominent feature in the proposed RNA. The grimy ivesia population is found on an outcrop of vitrified volcanic ash on the west edge of Section 22. The outcrop is very unusual for the area and is a distinctive light gray. Other similarly colored outcrops in the immediate area do not contain the rare species. The plant is found growing in cracks in the welded ash. There are only three other populations of this species in Oregon, all of which are in Malheur County near Leslie Gulch. These other populations also occur on welded volcanic ash substrates.

The Crosby's buckwheat occurrence is located on the south side of the canyon on rock outcrops above the creek bottom. Again the underlying substrate is unusual, this time being described as a tuffaceous sandstone in some places overlaid with a white pumiceous layer. Crosby's buckwheat is found in several populations at the site.

Although not designated on the ONHP ecosystems, the "ash soil" plant communities which are found in southeastern Oregon contain interesting suites of plants; often rare and threatened species. These communities were identified by the Vegetation Committee for the Interior Columbia Basin Ecosystem Management Project (ICBEMP). They designated these as "communities of concern" and recommended protection until more is learned about the biology of those plants found on these barren soils.

The site also contains a mile-long stretch of Guano Creek, an intermittent desert stream which supports

riparian vegetation. Guano Creek itself is an important attribute of the proposed RNA. Guano Creek flows are regulated by an upstream reservoir, and the creek proceeds through a narrow canyon; then opens out into a narrow valley within the proposed RNA. The riparian zone contains some small stands of Great Basin wildrye and a narrow strip of sedges. Since cattle have been removed, many forbs have made their appearance in the riparian zone; some have cultural values for the Native Americans, such as camas (*Camassia quamash*) and yampa (*Perideridia* sp.). The ONHP (1992) reported willows in the riparian zone and predicted that more willows would be found under more favorable conditions; however, willows are found only in isolated spots along the entire drainage and can be found only in areas where springs add to the dependability of available water. Guano Creek would make an excellent study site to determine Great Basin desert intermittent-stream riparian dynamics and to continue studies that were begun upstream on the HMNAR. These studies looked at conductivity lanes for species from the uplands to the lowlands. The camas and yampa, plus a few other forbs, demonstrate that principle at present. During extremely wet years, sensitive fish species have been noted coming upstream into Guano Creek, demonstrating one of the roles of desert stream systems with Great Basin drainage.

The site of the proposed RNA has been considerably eroded, due mostly to natural factors. While livestock grazing in the Guano Creek drainage may have promoted some of the erosion, an even more important factor is the loose, unconsolidated soils. The soils at the site are very sandy and likely date back to the Pleistocene when Guano Valley to the east was covered by a large lake. The unusual needle-and-thread grass plant community is found on the sandy soils at the site. The largest example of the community is found in the SW¼ of Section 22. The plant community is in excellent condition with very few weeds present. There is some Indian ricegrass (*Oryzopsis hymenoides*) within the community. The Indian ricegrass, which favors

sandy soils, does not have codominant status with the needle-and-thread grass at the site. This presence does not qualify for a different cell need.

Findings

Guano Creek RNA meets the relevance criteria by providing a high priority cell need for the ONHP Basin and Range Ecosystems (as listed above). The site meets the importance criteria with the two rare plant occurrences within the proposed RNA. The grimy ivesia is the most northern population of this species and one of two locations in Oregon; however, it is barely surviving where it is growing. The importance of the gene pool of those sensitive plants on a unique soil is also a very important consideration for the designation of the area.

In consideration for an RNA, the Guano Creek site would make an important addition to the RNA system in Oregon as it contains not only a unique plant community but also has populations of two rare plant species. The presence to the Guano Creek riparian zone also contributes to the diversity of the site and the need for further research. Although situated in a remote area, Guano Creek meets the criteria for the designation of an RNA.

Summary Findings

Botanic/ecological values meet the importance and relevance criteria for designation of Guano Creek as an ACEC and meets the criteria for designation as an RNA.

Additional Recommendations

Combined with the Proposed Sink Lakes ACEC/RNA which lies immediately adjacent to the north, designation would make an interesting and logical package. With the recent elimination of livestock grazing, the Proposed Sink Lakes/Guano Creek ACEC/RNA's would make an attractive upland/lowland research area.

Hawk Mountain I ACEC/RNA

Description of Area

Hawk Mountain I was nominated in 1982 (originally called "Hawksie-Walksie 2."). The boundary was refined in 1984 and it was proposed again in 1992 by the ONHP. It includes approximately 12,485 acres and is located on the upper slopes between Acty Mountain and Hawk Mountain in the eastern portion of the Beaty Butte Allotment (Map 1).

It includes representations of excellent condition big sagebrush grasslands with a mix of grass species. The elevations for the site range from 5,900 to 6,500 feet. The most important ecological characteristic about the site is the high quality grasslands. Grazing has been light in the area due to lack of water and the general remoteness of Hawk Mountain.

Boundaries for the proposed RNA run generally along the ridge to the northwest, down to Billfold Waterhole to the southeast, west to a minor ridge that is just east of Rastus Waterhole and then north towards Lone Jack Waterhole and the ridgeline.

The legal description is as follows:

T.40S., R.31E.,
All of Section 20, 28, 29, 30, 31, 32.

T.40S., R.30E.,
Portions of Section 25, 36.

T.41S., R.31E.,
All of Section 5, 6, 7, 8, 17, 18, 19, 20.

T.41S., R.30E.,
Portions of Section 1, 14, 23.
All of Section 12, 13, 24.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The Hawksie-Walksie area of the proposal has had extensive archaeological site inventory and evaluation. Work by the University of Nevada, Reno, has shown that the area has been used and occupied by Indian People for as much as 10,000 years. The location of Clovis material in the area along with early stemmed point-type materials indicates that this region was used during the earliest periods of the occupation of North America (10,000 to 8,000 years before present). Materials from the Archaic Period (8,000 to 2,500 before present) and from recent time periods (2,500 before present to 1840 A.D.) are abundant in the area.

Site Types

A wide range of site types exist in the area including (but not limited to) early occupation sites, campsites, lithic quarry and stone tool making sites, and rock art sites.

Record of Occupation

It appears that all stages of the occupation of North America may be located within this area.

Findings

Based upon present knowledge, this area meets the criteria for relevance and importance for cultural resources.

2. Scenic Analysis

Values

This area is in a remote region with very high visual sensitivity due to the potential for wilderness designation, and the representation on the landscape of

native vegetation in very good natural condition. The landforms have dramatic variance, with contrast in line, form, and color. Although the area was inventoried as VRM Class IV, it is currently managed as VRM Class I under the Wilderness IMP in order to protect the natural features pending designation.

Findings

While within a larger area of moderately high visual quality, the proposed RNA itself does not have significant visual features and, therefore, does not meet the relevance and importance values.

3. Wildlife Analysis

Values

Hawk Mountain provides year-long habitat for mule deer and pronghorn antelope and bighorn sheep have been seen in the area probably traveling from the Daugherty Rim, Hart Mountain, and Nevada herds. Although no raptor surveys have been conducted within the proposed ACEC area, potential prairie falcon and golden eagle habitat exists to the west and north

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Hawk Mountain I area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000–5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province

The Hawk Mountain I area lies in faulted volcanic uplands primarily characterized by Tertiary- to Quaternary-age volcanic domes and flows that are rhyolitic to dacitic in composition. Minor Tertiary-age silicic welded tuffs are present near the southwest corner of the area. There are no apparent natural geological hazards (Walker and Repenning 1965).

Findings

These geologic values are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Hawk Mountain I area does not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

The two Hawk Mountain areas have been nominated for their high quality grasslands. Grass species present include Idaho fescue, Thurbers needlegrass, bluebunch wheatgrass prairie junegrass (*Koeleria cristata*), bottlebrush squirreltail (*Sitanion hystrix*) Sandbergs bluegrass, and Indian ricegrass.

The site is difficult to classify in terms of dominant plant communities but some of the communities present include: Wyoming big sagebrush/Idaho fescue, Wyoming big sagebrush/Idaho fescue-bluebunch wheatgrass, low sagebrush/Idaho fescue, and Wyoming big sagebrush/Thurbers needlegrass. The low sagebrush community is found in small isolated

occurrences, none of which cover more than a few acres. The big sagebrush was determined to be the Wyoming big sagebrush but there may be some mountain big sagebrush (*Artemisia tridentata vaseyana*) at the site as well.

The Hawk Mountain I Proposed ACEC/RNA site will fill the following natural area cell need for ONHP Basin and Range Ecosystems:

(12) Big sagebrush/Idaho fescue community.

This community is widespread throughout the site, growing on most aspects and slopes. As noted above, many other grass species are intermingled with the Idaho fescue. Thurbers needlegrass is prominent in the community, particularly evident in 1992. Bluebunch wheatgrass is found in abundance on gentle, south-facing slopes where soils appear to be deeper. The community in these isolated areas is best described as Wyoming big sagebrush/Idaho fescue-bluebunch wheatgrass.

The Indian ricegrass was found growing in the sandy soils and was also noted to occur around ant mounds. Prairie junegrass was also found in association with Indian ricegrass as well as being scattered throughout Idaho fescue grasslands. Sandbergs bluegrass was also found scattered throughout the site in most communities. BLM Bureau sensitive plant species found in these big sagebrush/Idaho fescue grasslands include: thickstemmed wild cabbage (*Caulanthus crassicaulis*) and cushion bristleweed (*Happlopappus acaulis*).

Findings

Hawk Mountain I meets the relevance criteria as it contains a diversity of bunchgrasses, especially the ONHP big sagebrush/Idaho fescue cell. It also meets the importance criteria as the plant communities represent a biodiverse example for high desert grassland steppe combined with BLM Bureau sensitive plant species. This ecosystem has a great

variety of seed source potential for collection and replanting in the Lakeview District and southeastern Oregon in general.

Although these sites are isolated and difficult to reach, the potential for education and research is important. The genetic variability of grass species, and steppe dynamics related to fire and grazing pressures, are just a few of the potential research areas. Hawk Mountain I meets the significance criteria to form an RNA.

Summary Findings

Botanical/ecological values meet the importance and relevance criteria for designation as an ACEC and meet the criteria for designation as an RNA.

Additional Recommendations

Combined with Hawk Mountain II, which is not connected but is in the same general area, the two Proposed RNA/ACEC's would make a logical unit. Both have the same values and could be managed similarly

Hawk Mountain II ACEC/RNA

Description of Area

This second site in the Hawk Mountain area was initially recommended for RNA designation in 1982. This site includes about 4,856 acres and is located south and west of the previously described Hawk Mountain I proposed RNA and is centered on a series of dry washes that are approximately 3 miles west of the Hawksie-Walksie playa. The elevation varies slightly around 4,760 feet (Map 1).

The legal description is as follows:

T.41S., R.29E.,
Portions of Section 1, 12, 13.

T.41S., R.30E.,
Portions of Section 5, 8, 17
All of Section 6, 7, 18.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

This area have not been inventoried for cultural values. While sites of importance have been identified in close proximity to the area, they are not actually within the Hawk Mountain II area.

At this time, the presence of sites and the record of occupation within the proposed areas is unknown.

Findings

Based upon present knowledge, this area does not meet the criteria for relevance or importance.

2. Scenic Analysis

Values

Visually, this area is less unique than Hawk Mountain I, with low sage and rolling hills providing a much less dramatic and diverse form. Although the area was inventoried as VRM Class IV, it is currently managed as VRM Class I under the Wilderness IMP to protect the existing natural features pending designation.

Findings

This area does not possess significant visual quality or features; therefore, it does not meet the relevance and importance values.

3. Wildlife Analysis

Values

Hawk Mountain II provides year-long habitat for mule deer and pronghorn antelope, and bighorn sheep have been seen in the area (probably traveling from the Daugherty Rim, Hart Mountain, and Nevada herds). Although no raptor surveys have been conducted within the proposed ACEC area, potential prairie falcon and golden eagle habitat exists to the west and north.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards

Values

The Hawk Mountain II area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000–5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. High elevation Tertiary to Quaternary-age volcanic flows and domes characterize portions of the province.

The Hawk Mountain II area lies in faulted volcanic uplands primarily characterized by Tertiary-age, partly to densely welded tuffs of rhyolitic to dacitic composition. Tertiary-age basalt flows, tuffs, and tuffaceous siltstones and sandstones are present in the eastern half of the area. There are no apparent natural geological hazards (Walker and Repenning 1965).

Findings

These geologic values are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Hawk Mountain II area does not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

The plant communities of interest at this site fill the following ONHP Basin and Range cell needs:

(11) Wyoming big sagebrush/bluebunch wheatgrass; and

(12) Wyoming big sagebrush/Idaho fescue

These plant communities are prominent communities in the Great Basin. The (12) Wyoming big sagebrush/Idaho fescue cell is also represented at the proposed Hawk Mountains I RNA. The (11) sagebrush/bluebunch wheatgrass cell is also represented at the Connley Hills proposed RNA and Big Alvord Creek proposed RNA (Burns District).

Much of the site is covered by Wyoming big sagebrush with a Thurbers needlegrass understory. The area is in good to excellent condition with only limited livestock grazing evident. Water resources are scarce in the allotment and have resulted in better quality grasslands throughout much of the Hawk Mountain area. Wild horses use the area but have not had significant impact to the proposed RNA.

There is some limited low sagebrush/Thurbers needlegrass community-type present near the western boundary of the site; this community is one of the codominants at HMNAR. The entire area is good antelope range and antelope sign is abundant. The dry washes in the center of the site have healthy bunchgrasses on the side slopes with some green rabbitbrush (*Chrysothamnus viscidiflorus*) in the bottom of the washes. The washes provide

some diversity to the otherwise featureless site and offer some alternative habitat for wildlife. There are less amounts of bottlebrush squirreltail grass, Sandbergs bluegrass, Indian ricegrass, and Idaho fescue scattered throughout the site. Forbs were not prominent during the survey but include Truckee green rabbitbrush (*Chrysothamnus humilus*) and Hood's phlox (*Phlox hoodii*). Late season surveys prevented a more complete search for forbs (Vander Schaaf 1992).

Findings

Hawk Mountain II meets the relevance criteria for creating a RNA as it contains a diversity of bunchgrasses, especially the ONHP big sagebrush/Idaho fescue cell and big sagebrush/bluebunch wheatgrass cells. This site also meets the importance criteria as the plant communities represent an example of biodiversity in the high desert grassland steppe and the area has several BLM Bureau sensitive plant species. This ecosystem has a great variety of seed source potential for collection and replanting in the Lakeview District and southeastern Oregon in general. Although these sites are isolated and difficult to reach, there is potential for education and research on the genetic variability of the grass species, and steppe dynamics related to fire and grazing pressures. Hawk Mountain II meets the significance criteria as an RNA.

Summary Findings

Botanic/ecological values meet the importance and relevance criteria for designation as an ACEC and meets the criteria for designation as an RNA.

Additional Recommendations

This second site in the Hawk Mountain area is different enough from the first site to warrant designation as a separate RNA. However, it is proposed that the two Hawk Mountain sites be combined and the additional acreage of Hawksie-Walksie be added for high cultural values. The ACEC/RNA would be named Hawksie-Walksie ACEC/RNA.

High Lakes ACEC

Description of Area

The High Lakes Proposed ACEC covers about 40,095 acres and is located on a large plateau to the east of the Warner Valley and south of Hart Mountain. It extends from just south of the HMNAR boundary south to Highway 140 (Map 1).

This upland area is composed of north-south low trending valleys with intermittent lakes found within them. The elevation varies between 5,800 and 6,314 feet on Little Juniper Mountain. The vegetation is largely low sagebrush, with scattered areas of tall sagebrush and isolated stands of western juniper. A variety of shrubs are found around the lakes and in the cliff and landslide areas.

The legal description is as follows:

T.38S., R.26E.,
All of Section 13, 14, 17, 20, 21, 22, 23, 24, 25,
26, 27, 28, 29, 32, 33, 34, 35.
Portions of Section 15, 16, 36.

T.39S., R.26E.,
All of Section 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13,
14, 15, 22, 23, 24, 25, 26, 27, 32, 33, 34, 35
Portions of Section 17, 20, 21, 28, 29, 36.

T.40S., R.26E.,
All of Section 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13,
14, 15.
Portions of Section 16, 17.

Relevance and Importance Criteria

1. Historical and Cultural

Values

The High Lakes area contains one of the largest and most densely concentrated number of rock art sites anywhere in North America. These sites are often large with over 10,000 individual glyphs present. Extensive inventory and evaluation of the rock art of this region has been conducted. Mary Ricks of Portland State University completed a doctoral dissertation on the rock art of the area (M. Ricks, Personal communication). Besides the rock art, the area has extensive indications of occupation sites and the area has value as a possible TCP.

Site Types

Rock art: The area contains numerous rock art sites which contain both petroglyphs and pictographs, often in large numbers. These are associated with evidence of occupation.

Stone rings: The area contains many sites which contain stone ring features. Some of these may be houses, religious sites, or hunting blinds.

Rock cairns: Many of the sites in the area have rock cairns present. Some of these may also be religious and/or hunting sites.

Hunting sites: In several locations, indications of hunting activity are present.

Lithic scatters: Many areas have large to small lithic scatters present.

Occupation sites: The area contains numerous, large to small camps and village locations. These are often associated with the rock art and in some cases, stone rings.

Findings

The sites in the area have the potential to provide information on site settlement patterns and many other facets of study. It is one of the largest concentrations of rock art sites in North America. The area meets the criteria for relevance.

This area is one of the most important concentrations of rock art in North America. Evidence exists that some of the rock art sites are more than 7,000 years old. This makes them the oldest dated rock art sites in North America. The area meets the criteria for importance.

2. Scenic Analysis

Values

The area is open sagebrush broken by shallow north-south rims, and dotted with scattered junipers and dry lakebed playas. The area was inventoried and is managed as VRM Class III and IV

Findings

The High Lakes area is visually common to the region, and does not represent a significant or unique feature. Therefore, the area does not meet criteria for relevance or importance.

3. Wildlife Analysis

Values

The area contains season-long habitat for mule deer and pronghorn antelope. Bighorn sheep, probably from the Hart Mountain herd, have occasionally been seen in the area. Elk can also be seen in the area from the expanding Warner Mountain herd. There are no known raptor nest sites within the proposed ACEC boundary; however, there are two prairie falcon, three golden eagle, one kestrel, and one great horned owl nest within 5 miles of the area. There are also 20 Western sage grouse leks within the proposed ACEC.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or

wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The High Lakes area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary to Holocene-age block faulting. Higher-elevation Tertiary to Quaternary-age volcanic flows and domes characterize portions of the province.

The High Lakes area lies on Tertiary-age basalt flows dissected by the Eugene-Denio Lineament. In this area, numerous en echelon normal and reverse faults create an series of northwest-southeast trending grabens that contain intermittent lakes. These graben lakes are characterized by Quaternary-age clayey, silty, and in some cases, sandy playa deposits (Walker and Repenning 1965).

Findings

While geologically interesting, graben lakes are common in the Basin and Range Physiographic Province, both locally and regionally (Summer Lake, Abert Lake, Warner Lakes). The High Lakes area does not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

The plant communities of this high plateau are found in direct relation to available water. The lake/playa systems will have a variety of wetlands species such as sedge, rushes, and occasionally cattails (*Typha* sp.) and tule (*Scirpus* spp.) when water is available. However, when the playas dry out, grasses are abundant and serve as food sources for the wildlife of the area. In the cliffs, rock faces, and landslide areas that surround these lakes, many shrubs can be found, especially plants that have been utilized by Native Americans such as chokecherry (*Prunus virginiana*), serviceberry (*Amalanchier alnifolia*), and giant Great Basin ryegrass. Also in some areas, blue camas (*Camassia guamash*) can be found growing in these playa edges.

The upland, low-sagebrush lithic soil areas contain many species of *Lomatium* (desert parsley and biscuit root), bitterroot (*Lewisia rediviva*), sego lily (*Calochortus macrocarpus*), wild onions (*Allium* sp.), balsamorhiza (*Balsamorhiza* spp.), big-headed clover (*Trifolium macrocephalum*), and other edible geophytes. Evidence exists in the archaeological record of the area suggesting that these plants were collected and processed in the area during the past several thousand years. Native Americans continue to have interest in cultural uses of these plants. Steve Shelly, as a BLM botanist, surveyed the area and suggested that these lake basins are reminiscent of high mountain meadows suggesting a longevity for parts of those plant communities and a time when these plant communities could have had higher water availability.

Findings

The High Lakes Proposed ACEC meets the criteria for relevance because of the longevity of the relationship to the landscape (natural plant communities and ecosystem) and the tribal people who used that landscape; and because of the biodiversity of those plants and plant communities. The Native American concept of ecosystem management places the human beings within that landscape and not apart from it; this is a classic

example of a remnant of that ancient system.

Two factors of the High Lakes Proposed ACEC create the criteria to meet the importance value: this area is more than locally significant and has qualities that make it fragile and irreplaceable. While many of the plants occur elsewhere, it is the juxtaposition of these plants to the humans (statistical analysis of the plant communities and rock art was demonstrated in 1995 [Ricks 1995]), and the biodiversity and longevity of use of these plants as resources that make these plant communities significant.

Summary Findings

Historical and cultural values combined with botanic/ecological values meet the importance and relevance criteria for designation of the High Lakes as an ACEC

Additional Recommendations

The High Lakes area has significant cultural values to be analyzed for the designation of a TCP.

Fish Creek Rim ACEC/RNA

Description of Area

The Fish Creek Rim proposed RNA is located on the rim which borders the western edge of the Warner Valley and plateau to the west; it lies entirely within the Fish Creek Rim WSA. At present the proposed area includes approximately 8,725 acres (Map 1). The elevations of the Proposed ACEC/RNA average 6,750 feet and are found between 6,900 and 6,013 feet. The general vegetation is low sagebrush, a mosaic of tall sagebrush, scattered western juniper, and isolated areas of quaking aspen (*Populus tremuloides*) and other bushes. Fish Creek Rim Proposed RNA has been a long standing proposal that has gone through several designs: it was first proposed in 1982, then studied for 5 years. In 1987, boundaries were decided upon in a

meeting with allotment users. In 1992, it was evaluated again by the ONHP (Vander Schaff 1992). They recommended RNA status for the area. Their findings are summarized in this evaluation.

The legal description is as follows:

T.38S., R.24E.,
All of Section 6, 8, 9, 16, 17, 20, 21, 28, 29, 32.
Portions of Section 4, 5, 33.

T.39S., R.24E.,
All of Section 5.
Portions of Section 4, 8.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The Fish Creek Rim area is known to contain high concentrations of cultural resource sites. Survey work of a systematic nature has been conducted in some areas, while other areas have had site-specific project work surveys and occasional random surveys. However, this body of knowledge is sufficient to indicate the presence of many sites.

The proposed ACEC area has been enlarged from what was originally proposed to include an additional area including the rim. This additional area has an extremely dense concentration of archaeological sites and cultural plants.

Site Types

Stone rings/occupation sites: There are areas within the proposed ACEC where stone constructs known as stone rings are present. Archaeological investigations of some of these features by the University of Nevada, Reno, has indicated that they are a form of occupation

structure used within the past 500 years (Fowler 1992). This period of occupation is within the time period of the Northern Paiute Indians.

Lithic scatter: These are areas where lithic (stone) debris from the use, manufacture, or repair of stone tools are found. They are found throughout the area. Other types of sites, such as the stone rings, also have associated lithic scatters.

Rock art sites: There are numerous locations on the rim where rock art can be found. In some cases, these features are in association with other site types. This pattern of having large numbers of sites in a small area in this region is unusual in the Great Basin. The study of rock art sites in this region is important for gaining an understanding of the significance of upland land uses.

Hunting blinds: Several areas of the rim have what appear to be hunting blinds. Small nest like enclosures associated with lithic debris, butchering tools, and impact fractured projectile points would indicate that hunting took place at these locations.

Record of Occupation

The record of occupation for the Fish Creek Rim area is estimated to be more than 8,000 years. Materials from an early period known as the Stemmed Point Tradition which are estimated to date from 10,000 to 8,000 years before the present can be found in the area. This most abundant evidence of occupation, however, dates from the archaic period and the recent ethnographic period, covering the last 8,000 years. Evidence exists that throughout this period that Fish Creek Rim area was a focal point of use and occupation. It is likely that the pattern of upland plant gathering and hunting which was seen historically, is a very long-lived tradition.

Findings

The Fish Creek Rim area has significant prehistoric

cultural resources present. It has a high density of sites in an upland environment. This is a site environment which has not yet been subjected to extensive study. The sites located here should be able to provide important data on upland site uses and patterns within the Northern Great Basin. Fish Creek Rim meets the criteria for relevance.

The Fish Creek Rim sites are of more than just local importance. They can provide information on the use of uplands which can be applied to study of sites in other portions of the Great Basin. Work by the University of Nevada, Reno, has shown that they have potential for study. Fish Creek Rim meets the criteria for importance. The larger area than originally proposed has been proposed for cultural resource values.

2. Scenic Analysis

Values

This area is primarily a low sagebrush and western juniper flat sloping westward from Fish Creek Rim. It contains minor broken rims trending northwest to southeast. Closer to the rim, the vegetation changes from open sagebrush to dense mahogany stands, small quaking aspen groves, and scattered western juniper. The eastern edge of the proposed area consists of a portion of the steep, rocky rim. The area was inventoried as VRM Class II, but the portion within the Fish Creek Rim WSA is managed as Class I.

Findings

Although the proposed area is within a WSA and is fairly scenic, it does not contain substantial scenic significance or value; therefore, it does not meet the relevance and importance values.

3. Wildlife Analysis

Values

The area provides habitat for California bighorn sheep, as well as mule deer winter habitat, and pronghorn antelope habitat. Forty to fifty sheep already occupy the area at some time of the year. ODFW has set a population goal of 100 animals for the area. There are five Western sage grouse leks within 5 miles of the area, but no known crucial nesting habitat has been identified. Bald eagles also can be seen in the area in the winter. There are no known active raptor nests within the proposed ACEC area; however, there are four golden eagle and five prairie falcon nests within 5–6 miles of the area—some located on the rim itself. There is some suitable peregrine falcon habitat within the area and there have been some recent sightings of birds in the area probably from the release site located 3 miles to the east. The last peregrine pair observed nesting on the rim just north of the proposed ACEC boundary was in 1958 or 1959.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Fish Rim Creek area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

Fish Creek drains the central portion of the Fish Creek Rim uplands. These faulted uplands primarily consist of Tertiary-age basalt flows dissected by a northwest-trending zone of en echelon faults that form blocks of relatively low relief. In several areas, the course of Fish Creek is controlled by these faults (Walker and Repenning 1965).

Findings

The geologic values within the study corridors are very common in the northwestern Basin and Range and High Lava Plains Physiographic Provinces. Fish Creek does not possess any outstandingly remarkable geologic values. It does not meet the criteria for relevance or for importance.

5. Botanic/Ecological Analysis

Values

This Proposed ACEC/RNA incorporates upper elevation shrubland/grasslands with relatively extensive stands of mountain mahogany, (*Cercocarpus ledifolius*) in the rimrock. Shrubs present include Wyoming big sagebrush, mountain big sagebrush (*Artemisia tridentata vaseyana*), bitterbrush (*Purshia tridentata*), snowbrush (*Ceanothus velutinus*), and bittercherry (*Prunus emarginata*). Also present are small stands of quaking aspen and white fir (*Abies concolor*) as well as low sagebrush scablands. Western juniper is scattered throughout much of the proposed area. Several BLM Bureau sensitive plants species are found with the area : nodding malic grass (*Melica stricta*) and dwarf lousewart (*Pedicularis centranthera*) (ONHP 1998b).

Fish Creek Rim Proposed ACEC/RNA fills the following Basin and Range Ecosystems natural area cell elements from the ONHP (ONHP 1998):

- (20) Big sagebrush-bitterbrush/Idaho fescue;
- (26) Low sagebrush/Idaho fescue scabland;
- (35) Mountain mahogany/ mountain big

sagebrush, and where possible, bitterbrush; and (41) Snowbrush and bittercherry shrub complex.

The natural area cells listed above describe the plant communities present at the site. There is considerable intermingling between the mountain mahogany and sagebrush communities.

Also, present in the area are a number of cultural geophytic plants utilized by Native Americans; examples are *Lomatium* and *Calochortus* species, onions, and bitterroot.

Findings

This area meets the relevance criteria as habitat essential for maintenance of species diversity and as representative of the botanical communities described by Heritage Cell Designations in Basin and Range Ecosystems. The area meets the importance criteria as numbers 20, 35, and 41 are only represented in Oregon on Fish Creek Rim. Number 26 is also found at the Sink Lakes proposed RNA. Also present in the area are populations of Bureau sensitive plants which add to the importance criteria because of their limited range and fragility.

This area has a high potential for an RNA: the terrestrial ecosystem cells are unique and in need of scientific study, as are the Bureau sensitive plant species. The limited distribution and the sensitive plant species gene pools afford good opportunities for research and education. The unusual presence of white fir (disjunct) on the site is an indicator of high biodiversity and uniqueness of the area. The proximity of the site to the town of Adel, although somewhat difficult to reach, makes it an important outdoor classroom.

Summary Findings

Based on the historical/cultural and botanic/ecological criteria, this area meets the relevance and importance criteria for ACEC designation. It is recommended that the Fish Creek Rim area be designated as a RNA in the planning process.

Spanish Lake ACEC/RNA

Description of Area

In 1992, the ONHP (Vander Schaaf 1992) proposed the Spanish Lake site for an ACEC/RNA. This site is located in the south end of the Warner Basin in Oregon, south of Greaser Reservoir and northeast of Coleman Lake, and covers about 4,699 acres (Map 1). Spanish Lake is a semi-dry playa/lake that is mostly barren and surrounded by salt desert scrub. The community is much more common to the south in the Great Basin, but in Oregon, this community exists only in a few areas.

The legal description of the area is as follows:

T.40S., R.25E.,
Portions of Section 15, 17, 20, 27, 29, 32, 33
All of Section 16, 21, 22, 28.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

This area is known to contain archaeological resources, mostly lithic scatters and campsites

Site types

The sites found in the area appear to be small lithic scatters and remains of camp sites.

Record of occupation

While the region of Coleman Valley and Spanish Lake overall has a long record of occupation, very little can be said for the specific Spanish Lake area. Most of the sites in the area have been intensively surface collected for years and little cultural material remains on the surface to

indicate the age of occupation.

Findings

The sites within the Spanish Lake area are similar to sites which are found throughout the Northern Great Basin. Other areas have larger, better preserved sites than those found at Spanish Lakes. The area does not meet the criteria for relevance

While it can be argued that all sites have some importance, none of the known sites in this area are thought to contain data which would not be available at other site locations within the basin. The area does not meet the criteria for importance.

2. Scenic Analysis

Values

The area is an open basin, sloping upward towards Coleman Rim to the east. Spanish Lake is a mostly dry lakebed surrounded by desert scrub brush. Topography and vegetation are similar to that found in the surrounding area. The area was inventoried and is managed as VRM Class IV.

Findings

The area is similar to that found in the region and does not contain significant scenic value. Therefore, it does not meet the relevance or importance criteria.

3. Wildlife Analysis

Values

The area contains season-long habitat for mule deer and pronghorn antelope. There are no known raptor nest sites within the proposed ACEC boundary; however, there are two prairie falcon and three golden eagle nests within 6 miles. There is also a burrowing owl colony located 5 miles to the north. Bald eagles can be seen in the area in the winter, but nesting is not

known to occur

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Findings

The Spanish Lake area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

The Spanish Lake area lies near the north end of Coleman Valley. This area is dissected by typical north-trending Basin and Range type faults and a series of northwest-trending en echelon faults. The rocks are primarily Tertiary-age basalts and tuffaceous sediments in the uplands, and Tertiary- to Quaternary-age lacustrine and fluvial clays, sands, silts, and gravels in and near the down-faulted valleys. Aeolian deposits of silt and sand are common around the lakebeds that occupy the valleys. There are no apparent natural geological hazards (Walker and Repenning 1965).

Findings

These geologic values are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Spanish Lake area does not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Spanish Lake has several natural plant communities of salt desert scrub and alkali greasewood. Of particular importance is the extensive shadscale (*Atriplex confertifolia*)-budsage (*Artemisia spinescens*)/bunchgrass community that dominates the uplands to the east of the usually dry lake as well as portion of the flats surrounding the playa. ONHP considered this plant community to be in good ecological condition and to meet the requirements to fill a natural area cell need. Wildfire that has been in the area since the recognition has changed the community a little in the foothills; also some areas within the proposed RNA appear to have been heavily impacted by over-grazing of livestock.

The Spanish Lake site meets the following ONHP cell need in the Basin and Range Ecosystems (ONHP 1998a):

(34) Shadscale-budsage/bunchgrass desert shrub. This community is extensive at the site covering sideslopes in sections 16 and 22. The bunchgrass understory consists of bottlebrush squirreltail for the most part. Also present at the site is spiny hopsage (*Atriplex spinosa*), gray rabbitbrush (*Chrysothamnus nauseosus*), and seablite (*Suaeda nigra*). Also partially represented ONHP cell needs are: (ONHP 1998a):

- (73) Bare playa with povertyweed (terrestrial ecosystems); and
- (68) Spiny saltbush (or shadscale)/saltgrass playa (aquatic ecosystems).

On and adjacent to the playa there are several

greasewood (*Sarcobatus vermiculatus*) communities that are of importance.

Ringling the playa and continuing to the east towards the dirt road that cuts through the area are barren greasewood playa and greasewood/saltgrass (*Distichlis stricta*) communities. To the south of the Spanish Lake playa there is a small representation of alkali bottomland community classified as greasewood/Great Basin wildrye. This community is relatively rare because it has been impacted heavily by livestock grazing wherever it occurs.

Another natural community that occurs on the proposed ACEC/RNA to the north of Spanish Lake is characterized as vegetated, stabilized sand dunes. This community consists of big sagebrush, greasewood, spiny hopsage, and shadscale growing together on stabilized sand dunes. Also present in the community are gray rabbitbrush and Great Basin wildrye.

In the recent document created by the BLM, "The Great Basin: Healing the Land", the conclusions emphasize that the Great Basin's ecological health and resiliency are in jeopardy; this ACEC would aid in protecting the salt desert community that is important in the Great Basin.

Findings

Spanish Lake Proposed ACEC/RNA meets the relevance criteria as it contains a diversity of salt desert scrub communities and fulfills ONHP cell needs. The area also meets the importance criteria as these communities are widespread throughout the Great Basin but have not been represented to date in the combination found at Spanish Lake in any existing RNA's. In particular, the shadscale-budsage community is not represented in any existing RNA's and thus the site is important for protecting an example of this community type. Although found to the south in the Great Basin, this area is one of the few northern-most desert shrub communities found in Oregon, and it provides an

excellent laboratory to study the biodiversity and resilience of these plant communities. It is believed that these spiny plant communities arose in the Pleistocene under the foraging pressures of now extinct mammals; the occurrence this far north offers unique possibilities for genetic studies of the individual plant species. The area meets the criteria for establishing an RNA.

Summary Findings

Based on the botanic/ecological values present, this area meets the ACEC relevance and importance criteria and it is recommended that the Spanish Lake area be designated as a RNA/ACEC in the planning process.

Rahilly-Gravelly ACEC/RNA

Description of Area

The Rahilly-Gravelly area is located at the south end of the Warner Valley in the plateau and foothills dominated by western juniper, and tall and low sagebrush. The site runs north and south on the high hills that abut the Oregon-Nevada state line. The elevations average around 6000 feet in the proposed area (Map 1).

In 1992, the ONHP proposed the Rahilly-Gravelly Allotment to be designated as an RNA (Vander Schaaf 1992). The Oregon portion of the area is managed by the LRA. The Nevada portion of the area is part of the BLM Surprise Field Office. The Nevada portion is included in this report only for evaluation as a potential ACEC. If the LRARMP results in a decision to include the Nevada portion as a part of the ACEC, that decision must be approved by the California State BLM Director. The original area proposed included 730 acres in Oregon and 670 acres in Nevada. At present, about 18,830 acres in Oregon and 1,300 acres in Nevada are being proposed which include significant cultural and ecological values.

The legal description within Oregon is as follows:

T.40S., R24E.,
Portions of Section 2, 11, 14, 15, 19, 21, 22, 28,
30, 32.
All of Section 23, 26, 27, 31, 33, 34, 35

T.41S., R.24E.,
Portions of Section 6, 7, 14, 18, 23.
All of Section 2, 3, 4, 5, 8, 9, 10, 11, 15, 16, 17,
19, 20, 21, 22

The legal description within Nevada is as follows:

T.47N., R.19E.,
Portions of Section 17, 18, 19, 20.

Relevance and Importance Criteria

1. Historical and Cultural Analysis:

Values

The Rahilly-Gravelly area has been subjected to archaeological surveys more than most areas of the district. It is known to contain a wide variety of sites and a high density of sites. It is also known to be an area which has TCP values for the plant resources which are found there. The University of Nevada, Reno, has conducted archaeological excavations at several sites within the region. A masters thesis was based upon the results of this work. Earlier, the spring sites were the focus of investigations (Fagan 1974). Several large-scale archaeological surveys for geothermal exploration have been completed within the area.

Site Types

Stone rings: Stone rings are known to exist at several locations within the region. These features show evidence of being occupation sites or houses. Test excavations by the University of Nevada, Reno, has shown that some of these

features were occupied 2,500 years ago, making them some of the earliest dated features of this type in the region.

Rock art: This area has a dense concentration of very large rock art sites. The rock art covers a time period of several thousand years.

Lithic scatters: Lithic scatters which may represent lithic quarry activity, campsites, tool retouch areas, or hunting sites are found throughout the area.

Rock cairns: The presence of rock cairns would indicate religious activity.

Hunting blinds: In several locations, what appear to be hunting blinds are found. This would indicate that the area was important for hunting.

Occupation sites: There are several sites within the upland area where evidence of long term occupation by large groups of people are indicated. The presence of large amounts of stone tools within these sites would indicate that the collection and processing of plants was the major activity which took place in the area

Record of Occupation

This area of the Northern Great Basin has nearly every type of site found present. It shows a record of occupation going back at least 10,000 years. It was the home of the Northern Paiute Indians when Euroamericans entered the area.

Findings

The area has significant prehistoric and historic cultural resources present. The extremely high density of sites, the variety of sites, and the time depth of these sites, make the area very important for the study of prehistory in the Northern Great Basin. The area meets the criteria for relevance.

There are few areas which have upland resources of

the number and variety as this area. The area is important in the study of upland site use, settlement patterns and time in the Northern Great Basin. The area is known to be a plant resource area which is of current importance to the Northern Paiute. The area meets the criteria for importance.

2. Scenic Analysis

Values

Rahilly Gravelly is a steeply sloped, broken, hilly area covered with sagebrush, grasses, and scattered western juniper. The area was inventoried and is managed as VRM Class IV.

Findings

Although the area's topography and vegetation contrasts are scenic, it is similar to that found in the region and does not contain significant scenic value. Therefore, it does not meet the relevance or importance criteria.

3. Wildlife Analysis

Values

The area contains season-long habitat for mule deer and pronghorn antelope. Bighorn sheep, probably from the Coleman Rim herd, have occasionally been seen in the area. Elk can also be seen in the area from the expanding Warner Mountain herd. There are no known raptor nest sites within the proposed ACEC boundary; however, there are three prairie falcon, one golden eagle, one kestrel, and one great horned owl nest within 6 miles of the area. There are also seven Western sage grouse leks within 5 miles of the area.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or

wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Rahilly-Gravelly area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

The Rahilly-Gravelly area lies in faulted volcanic uplands primarily characterized by Tertiary-age basalt flows dissected by northwest and northeast trending en echelon fault sets. There are no apparent natural geological hazards (Walker and Repenning 1965).

Findings

These geologic values are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Rahilly-Gravelly area does not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

The Rahilly-Gravelly site contains scattered western juniper stands, tall sagebrush mosaic, and low sagebrush on the lithic soiled flats. Prominent features of the site are the diversity of shrubs and the high quality grasses in the understory. Of particular note is the presence of squaw apple (*Perophyllum*

ramosissimum) and bitterbrush along with big sagebrush in the shrub layer.

Of primary importance, the site fills the following natural area cell need in the ONHP Basin and Range Ecosystems (ONHP 1998a):

- (6) Western juniper/big sagebrush-bitterbrush community.

Western juniper occurs across the site, mostly in open stands of older aged trees with occasional clumps of dense young trees. The clumps of younger trees are found generally in small pockets of side slopes. Across the relatively flat top of the hilly site in the southern portion of the area, the western junipers are all older and are scattered to a density of approximately 10 to 12 trees per acre. Sagebrush is the most prominent shrub on the lower slopes being mostly Wyoming big sagebrush. At the upper elevations of the site, the sagebrush includes the mountain big sagebrush variety (*Artemisia tridentata vaseyana*) but more importantly other species of shrubs become equally as prominent as sagebrush.

The BLM sensitive plant species, Cooper's goldflower (*Hymenoxys cooperi* var *canescens*= *H. lemmonii*), occurs four places in the area; these four locations are the only populations for this plant in the State of Oregon. This variety occurs at the northwestern edge of its range in Oregon, and the total range for Cooper's goldflower is southern Idaho, southward through Nevada to northwestern Arizona, and west to eastern California. The status for ONHP is List 2, "... which contains species which are threatened, endangered or possibly extirpated from Oregon, but are more common or stable elsewhere." (ONHP 1998b).

Over much of the site four shrub species have nearly equal cover, these being big sagebrush, low sagebrush, bitterbrush, and squaw apple. Sagebrush and bitterbrush are common shrub associates in the Great Basin, but squaw apple is far less common.

Serviceberry also occurs at the site. The common shrubs form a fairly dense shrub layer over large portions of the site with small patches of low sagebrush scablands interspersed where soils are very shallow. The tall shrub communities tend to be at the southern end of the area at higher elevations and the low sagebrush communities are at the northern end on the scabland plateau.

It is not known precisely what characterizes habitat for squaw apple. Occurrences have been noted where substrates are medium textured soils derived from weakly consolidated, fractured tuff, and diatomaceous deposits. It is also noted to occur on high, moist hillsides, generally in the northern portion of the Great Basin. The low hills of the Rahilly-Gravelly site may act to collect sufficient moisture to support squaw apple compared to the surrounding Warner Valley to the north. Winter moisture-bearing storms often approach the region from the south allowing significant interception of snow or rain in this area.

The understory at the site is in good condition with Idaho fescue being the dominant grass. Also present is bluebunch wheatgrass, Sandbergs bluegrass, and Thurbers needlegrass in lesser amounts.

Findings

The Rahilly-Gravelly area meets the relevance criteria as habitat essential for maintenance of species diversity and as representative of the botanical cell need for ONHP. The site also meets the importance criteria, especially with the presence of the Bureau sensitive plant species, Cooper's goldflower.

Rahilly-Gravelly meets the criteria for an RNA, and is especially important because it exists in the ecotone where the northern Great Basin meets the sagebrush/bunchgrass steppe. The presence of squaw-apple, as well as the other shrubs, opens an opportunity for plant community and ecosystem biodiversity research.

Summary Findings

Historical and cultural values combined with botanic/ecological values meet the importance and relevance criteria for designation as an ACEC.

Traditional Cultural Property

The area as presently described meets the criteria for a TCP.

Foley Lake ACEC/RNA

Description of Area

The Foley Lake area was first nominated as a RNA in 1982 by the ONHP group (665 acres); in 1999, about 2,747 acres were proposed. This area is located east of the north end of Abert Rim along the west side of the Hogback Road. The site runs southwest from the Hogback Road up to the top of Commodore Ridge to the small basin which contains Foley Lake. The elevation varies between 4,800 feet and 5,160 feet (Map 1).

The target natural plant community at the site is the black sagebrush (*Artemisia nova*) community; however, all other *Artemisia* species found in the LRA are also present at the site increasing its level of biodiversity. The site consists of low and black sagebrush sites on lithic soils, some deeper soiled sites with tall sagebrush, a large playa vernal wet with silver sage, and Foley Lake, site of Columbia cress (*Rorippa columbiana*) which is seasonal during wet years. A study site for the BLM Bureau sensitive plant, Columbia cress, is located inside an enclosure fence within the lake bed (ONHP 1998b)

The legal description is as follows:

T.31S., R.22E.,
Portions of Section 23, 24.

T.31S., R.23E.,
Portions of Section 21, 28.
All of Section 20, 29.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The Foley Lake area contains a high concentrations of cultural resources. Work has been completed on some sites by the University of Nevada, Reno. This work has shown that the sites cover an estimated time period from 7,000 years ago up to the present (Tipps 1998).

Site Types

Stone rings: Stone ring sites in the area appear to be small occupation sites or houses. Archaeological investigations of these features indicate that they are recent in time and may relate to Paiute occupation of the region.

Rock art: The rock art of the area is significant in that it is located at important locations of water within the area. It is also related to occupation sites at these locations. The rock art has a time range of middle archaic (4,500 years ago) up to very recent, probably Paiute time period (500 years ago to present).

Burial sites: At least one burial is known within the area.

Rock shelters: there are several areas within this area where rock shelters show signs of occupation. In at least one case, excavations by the University of Nevada, Reno, indicates that this occupation goes back at least 7,000 years before the present.

Lithic scatters: There are numerous areas where lithic scatters of obsidian and basalt flakes can be found. These areas may be lithic work areas,

hunting locations, campsites, etc

Record of Occupation

The archaeological work which has been done in this area indicates that this upland area was important for resource procurement over at least a 7,000 year period. This use probably includes stone tool production at quarry sites, hunting for game, and occupation of the area while collecting plant resources.

Findings

The Foley Lake area has significant cultural resources present. These sites are important for the study of upland resource procurement and settlement patterns. The area meets the criteria for relevance.

The unique nature of the sites in this area make the area important for the study of upland site uses and patterns. The area meets the criteria for importance.

2. Scenic Analysis

Values

The proposed area is fairly open with little elevation change. Low vegetation dominates the landscape, with Foley Lake providing some brighter color contrasts to the immediate area. The area was inventoried and is managed as VRM Class IV.

Findings

The proposed area is similar to that found in the region and does not contain significant scenic value. Therefore, it does not meet the relevance or importance criteria.

3. Wildlife Analysis

Values

Foley Lake area contains season-long habitat for mule deer and lies within crucial pronghorn antelope winter range. Bighorn sheep, probably from the Abert Rim herd, have occasionally been seen in Rabbit Creek to the south. There are no known raptor nest sites within the proposed ACEC boundary; however, there are three prairie falcon, one golden eagle, and two kestrel nests within 6 miles. There is also a burrowing owl colony located 5 miles to the northwest and three Western sagegrouse leks within 5 miles.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not does not satisfy the criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Foley Lake area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

Foley Lake lies on the gently-sloping backslope of the upthrown Abert Rim fault block. The area is characterized by Tertiary-age basalt flows and scattered low areas that host seasonal lakes. There are no apparent natural geological hazards.

Findings

These geologic values are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Foley Lake area does not meet the relevance or importance criteria for geology or natural hazards (Walker and Reppenning 1965).

5. Botanic/Ecological Analysis

Value

Foley Lake is a seasonally dry playa that in the past has had use by wild horses, antelope, mountain sheep, and cattle. In wet years, this vernal pool usually dries out by August. The playa has had in the past a sizeable population of Columbia cress, a BLM Bureau sensitive species. In 1997, the Lakeview District of the BLM signed a conservation agreement with the USFWS to protect and study the plant species. Research, however, was started as early as 1992 when an enclosure fence was constructed to enclose part of the playa (USFWS 1996). Columbia cress is on ONHP List I, Threatened or Endangered Throughout Range

The Foley Lake site fills the following natural area cell need for the ONHP Basin and Range Ecosystem (ONHP 1998a):

- (30) Black sagebrush/bunchgrass community complex.

Black sagebrush grows in shallow, stony soils that have a significant calcareous content. The soils at the Foley Lake site are likely derived from lake sediments laid down during the Pleistocene when the Warner Basin consisted of a series of large lakes. The calcareous soils at Foley Lake are typically seasonally inundated with saturated soils occurring for at least part of the year. At the Foley Lake site, the terrain is slightly sloped with overland flow evident in places. Desert pavement occurs over at least part of the surface.

The black sagebrush community occurs within an extremely diverse mosaic of Wyoming big sagebrush/bunchgrass, low sagebrush/ bunchgrass and silver sagebrush. The summer deciduous bud sage (*Artemisia spinescens*) also occurs in the immediate area. Within the black sagebrush community, the dominant grasses are bottlebrush squirreltail with Idaho fescue occurring to a lesser extent and the tiny Truckee green rabbitbrush. The Wyoming big sagebrush community contains a more even mix of bottlebrush squirreltail and Idaho fescue grasses.

Surrounding the playa to the south is a silver sagebrush flat. The black sagebrush community can be found through the Foley Lake Basin but has extremely limited distribution elsewhere in the Lakeview District and in the State of Oregon.

Findings

Foley Lake site meets the relevance criteria as habitat essential for maintenance of plant species diversity and as representative of the botanical cell need for the ONHP. The site also meets the importance criteria especially with the presence of the Bureau sensitive plant species, Columbia cress

Foley Lake meets the criteria for an RNA as it already has had research conducted in it for 5 years. It is a unique site for studying sagebrush biodiversity, as four distinctive sagebrush species grow in very close proximity; also, the site is extremely easy to access.

Summary Findings

Historical and cultural values combined with botanic/ecological values meet the importance and relevance criteria for designation as an ACEC/RNA.

Table Rock ACEC

Description of Area

Table Rock, formed by steam explosions resulting from rising magma encountering ground or surface water, is one of several basaltic maar volcanoes found in the Silver Lake/Fort Rock area. Table Rock dominates the area east of the town of Silver Lake and southwest Christmas Valley, it rises to an elevation of 5,621 feet. (Map 1). It covers approximately 5,139 acres. The vegetation on the formation is western juniper, including some ancient trees, tall sagebrush and areas of low sage. The volcanic soils support two BLM Bureau sensitive plants: Cusick's buckwheat (*Eriogonum cusickii*) and snow-line cymopterus (*Cymopterus nivalis*).

The legal description is as follows:

T.28S., R.16E.,
Portions of Section 5, 17, 18, 19, 20.
All of Section 6, 7.

T.27S., R.15E.,
All of Section 35, 36.
Portions of Section 25.

T.28S., R.15E.,
All of Section 1, 2.
Portions of 11, 12.

T.27S., R.16E.,
Portions of Section 31, 32.

1. Historical and Cultural Analysis

Values

The Table Rock formation has been extensively inventoried for cultural resources as part of BLM project work, power line right-of-way inventory and archaeological research projects. Excavations have been conducted at several site locations over a 50

year period. The formation is known to have many sites present (Aikens and Jenkins 1995; Paul-Mason 1993 in Aikens and Jenkins).

Site Types

Caves: Two cave locations on the formation have been identified that contain cultural resources.

Burial sites: One location on the formation has been identified as containing a burial

Lithic scatter: Many areas of lithic scatters are known for the formation.

Rock cairns: Many rock cairns have been recorded on the formation.

Hunting sites: Several areas felt to be hunting sites have been identified.

Occupation sites: Several locations where people lived have been identified on the formation.

Record of Occupation

Cultural resource work which has been completed on the formation estimates that the area has been visited and used by Native Americans for over 10,000 years. The area has stratified occupation sites that contain fire hearths with faunal materials. It is one of only a few sites where the use of fish have been identified and dated. Religious use of the formation over a long period of time is indicated by the rock cairns present.

Findings

The area has significant cultural values present on the formation. The area has a high density of unique site types such as rock cairns, caves, and rock alignments. The area meets the criteria for relevance.

The sites of the formation are important for the study of the prehistory and ethnography of the region. The area

meets the criteria for importance.

2. Scenic Analysis

Values

The towering basalt column of Table Rock with its surrounding maar is a significant visual feature on the landscape, with dramatic relief in form and color. Vegetation changes between grasses and western juniper stands provide added contrast. It is a dominant feature visible from Highway 31, which is a designated State and national scenic highway, and to County Road 5-14F, which is part of a national back country byway. The area was inventoried and is managed as VRM Classes III and IV.

Findings

Although VRM management classes are fairly low, Table Rock's location adjacent to the Christmas Valley National Back Country Byway and the Oregon Outback State and National Scenic Highway, makes it more than locally significant. Table Rock possesses regionally important scenic value. Therefore, it meets the relevance and importance criteria.

3. Wildlife Analysis

Values

The proposed ACEC area provides crucial winter range habitat for mule deer. There are five known prairie falcon, three golden eagle, two kestrel, one red-tailed hawk, and a great horned owl nest within the area, as well as one prairie falcon and one golden eagle nest within 4 miles of the area. Bald eagles are also present during the winter months.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species of

wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance. The area does not meet criteria for relevance or importance.

4. Geology and Natural Hazards Evaluation

Values

Table Rock is located in the transitional zone between the Basin and Range and High Lava Plains Physiographic Provinces. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. High elevation Tertiary to Quaternary-age volcanic flows and domes characterize portions of the province.

Table Rock is one of several volcanic eruptive centers in the Fort Rock/Christmas Valley area. It is part of the Fort Rock Formation, a sequence of Tertiary- to Quaternary-age volcanic and sedimentary materials characterized by tuffs, breccias, ashy diatomite, and basalt. There are no known natural hazards (MacLeod and Sherrod 1992).

Findings

These geologic features are very common in the local area, and throughout the High Lava Plains Physiographic Province. Table Rock does not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

The general vegetation of the formation is western juniper woodland mixed with sagebrush on deeper soils and a mosaic of relatively bare ash soils with plants adapted to those extreme dry, harsh conditions.

Although the proposed area does not contain any ONHP plant community cells, it does represent a variety of specialized plants communities found on dry rocky volcanic soils. The presence of two BLM Bureau sensitive plants adds to the ecological biodiversity of the area. Cusick's buckwheat is on ONHP List 1, Threatened and Endangered Throughout Range. There are a few isolated Cusick's buckwheat plants located within the ash soils on the north part of the formation. The snowline cymopterus is more prevalent and is found along the top of the formation tucked into the protective rocks, under the the western junipers and in some places out in the open ash soils. The snowline cymopterus is on ONHP List 2, Threatened with Extirpation in Oregon, May Be More Common Elsewhere. The Lakeview and Burns Districts are in the process of finalizing a conservation agreement with the USFWS to conserve the future of both plant species.

In the analysis of plant communities for the ICBEMP process, a series of ash soils were described as containing suites of unique plants which could tolerate these ash soils. Table Rock is one area where these plant communities can grow if protected from off road vehicles and other threats.

Researchers from the Oregon State University and Arizona State University have studied age classes of the "ancient juniper forest" on the formation and these determinations add to the value of the ecological diversity. Some of the western juniper trees are the oldest junipers in the West and have been cored to demonstrate an age of over 1,000 years old (Miller and Eddleman 2000). Cultural plants found on the formation are bitterroot, *Lomatium* species, onion, sego lily and the snowline cymopterus.

Findings

The Table Rock area meets the relevance criteria as habitat essential for maintenance of plant species diversity and meets the importance criteria, especially with the presence of the Bureau Sensitive plants species: Cusick's buckwheat and snowline cymopterus. Much more research is needed on the genetics and physiology of these "ash flow plant" communities. The ease of getting to this site is an important factor to encourage future research. The western juniper forests combined with the forb communities, including the sensitive plants, meet the criteria for a RNA on Table Rock.

Summary Findings

Historical and cultural, botanic/ecological, and scenic values meet the importance and relevance criteria for designation as an ACEC. The area meets the criteria for a RNA.

Traditional Cultural Property

The area meets the criteria for a TCP.

Black Hills ACEC/RNA

Description of Area

The Black Hills are a group of low-lying hills located four miles south of the town of Christmas Valley. At an average elevation of 4,800 feet (Map 1). The unique soils of the Black Hills support two BLM Bureau sensitive plants species: snowline cymopterus and Cusick's buckwheat.

In 1980, the hills were closed permanently to off-highway vehicle (OHV) use. At that time, a habitat management plan was created to protect the two species. In 1982, the Black Hills were proposed as an RNA and included about 1,920 acres. It was determined that the plant communities found at this site were represented better in other locations and that the

OHV closure appeared to be an effective way to preserve the sensitive plants. Therefore, an ACEC/RNA designation was not made at that time. Currently, it does not appear that the OHV closure has, in fact, been successful in protecting the plants. This document evaluates about 3,040 acres for potential designation.

The legal description is as follows:

T.27S., R.16E.,
Portion of Section 34.

T.28S., R.16E.,
All of Section 2, 3, 11.
Portions of Section 10, 13, 14.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The area of the Black Hills appears to have few cultural resources present. Surveys in the area have produced only scattered flakes and projectile points.

Site Types

At this time there are no known sites within the Black Hills ACEC proposal area

Record of Occupation

No direct evidence of occupation other than scattered flakes and projectile points has been identified in the Black Hills. The surrounding region has many sites and a record of occupation which goes back an estimated 10,000 years. It is not known why the Black Hills seems to be lacking in sites while the surrounding areas have many. It may be that resources of interest were not located in this area. No secular use of the

formation is known at this time.

Findings

The area does not meet the criteria for relevance or importance with respect to cultural/historic values at this time.

2. Scenic Analysis

Values

The Black Hills are a small range of hills that rise out of the Christmas Valley basin. The dark western juniper trees provide a change of texture and color to that of the surrounding desert floor. They were inventoried for scenic quality and are currently managed as VRM Class IV.

Findings

Although the Black Hills do provide a change in topography and color, they are not unusual in the region. They do not possess significant scenic value. Therefore, the Black Hills do not meet the relevance or importance criteria.

3. Wildlife Analysis

Values

The proposed ACEC provides year-long habitat for mule deer and pronghorn antelope. There are also four Western sage grouse leks within 5 miles of the area. There is one golden eagle nest within the proposed ACEC and no other known raptor nests within 10 miles; however, raptors are present, including bald eagles, during the winter months.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does

not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Black Hills are located in the transitional zone between the Basin and Range and High Lava Plains Physiographic Provinces. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

The Black Hills are one of several volcanic eruptive centers in the Fort Rock/Christmas Valley area. They are part of the Fort Rock Formation, a sequence of Tertiary- to Quaternary-age volcanic and sedimentary materials characterized by tuffs, breccias, ashy diatomite, and basalt. There are no known natural hazards. (McFarland and Ryals 1991).

Findings

These geologic features are very common in the local area, and throughout the High Lava Plains Physiographic Province. The Black Hills do not meet the relevance or importance criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

The vegetation of the Black Hills is western juniper woodland (including some ancient western junipers

over 1,000 years old), some isolated shrubs, including sagebrush and gooseberry (*Ribes cereum*), and low growing perennial plant community which grows in the exposed ash soils. The two BLM Bureau sensitive plants species, snowline cymopterus and Cusick's buckwheat, are the primary reason for the concerns for the plants of the area. Two disjunct ponderosa pine (*Pinus ponderosa*) also grow within the PRNA/ACEC. A conservation agreement is being finalized between the Burns and Lakeview Districts and the USFWS for the protection of these two plant species and their habitats.

These two plant species have been monitored and studied for over ten years and management protection has been attempted for their survival. The research that has been carried out gives evidence to the resilience of the two species and the need for evaluation of the threats to the plants species.

Findings

The Black Hills area meets the relevance criteria as it is one of a suite of unusual ash plant communities found in southeastern Oregon to be important, recognized by the ICBEMP, and due to the presence of ecological diversity of western junipers (many age classes) and presence of disjunct pines.

The site meets the importance criteria due to the location of two BLM Bureau sensitive plants within the proposed area. Cusick's buckwheat is limited to two small geographical areas in the Lakeview and Burns Districts of Oregon.

The Black Hills site would make an important addition to the RNA system in Oregon as it contains not only a unique plant community and old growth western juniper, but also it contains populations of two rare plant species. Research has been conducted in the area for over 10 years. The Black Hills meet the criteria for the designation as a RNA.

Summary Findings

Botanic/ecological values meet the importance and relevance criteria for designation as an ACEC and meet the criteria for designation as a RNA.

Red Knoll (Tucker Hill) ACEC

Area Description

Red Knoll, part of the Tucker Hill formation comprising about 11,588 acres, is located within the larger Lake Abert/Chewaucan River drainage on the southern edge of the Chewaucan Marsh. The formation trends north and south and can be seen for a long distance (Map 1). The vegetation of the area varies from greasewood/cheatgrass on sandy soil on the lower elevation area bordering Lower Chewaucan Marsh, to big sagebrush/squirreltail on the rocky sandy loam at the top of Tucker Hill. Scattered western juniper and shrubs crown the rocky hill top; elevations vary from 4,700 to 5,000 feet.

The name of the proposed ACEC was changed from Tucker Hill to Red Knoll in order to avoid confusion with the Tucker Hill perlite mining area. The proposed ACEC excludes the mining area and all associated claims.

The legal description is as follows:

T.35S., R.19E.,
Portions of Section 1, 2, 3, 11, 13, 24, 25.
All of Section 12.

T35S., R20E.,
Portions of Section 7, 15, 16, 17, 18, 20, 21, 27,
31, 33.
All of Section 19, 22, 28, 29, 30, 32.

T36S., R20E.,

Portions of Section 4, 5, 6.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The Tucker Hill formation has an extremely dense concentration of sites. The site complex which is located here contains nearly every type of site which is known for the Great Basin region. It is also an area which has been shown to have traditional cultural values making it a potential TCP site (USDI-BLM 1996).

Site types

Stone rings: The area contains several sites which contain stone rings. These are of more than one variety and probably use. Some are thought to be house rings, others may be hunting blinds

Quarry and workshops: The Tucker Hill formation contains large amounts of obsidian which was procured and turned into stone tools at the location.

Lithic scatters: Large areas of lithic debris are found throughout the area both in the formation and on the surrounding area. This material is from stone tool manufacture, stone tool retouch, stone tool use in hunting and plant collecting.

Rock art sites: Rock art is known to occur at the formation. Both pictographs and petroglyphs are found in the sites.

Rock cairns: Numerous rock cairns from cultural activity are found on the formation.

Talus slope pits: The talus slopes of the formation contain pits which probably are hunting blinds.

Rock walls: Rock walls are found on several locations. These are thought to be both historic and prehistoric in origin.

Burials: Burials are known to occur in this location.

Record of occupation

The record of occupation for the Tucker Hill formation indicates that this area has been occupied for over 8,000 years. Materials from an early time period are known for here. Middle archaic and late archaic are present. Ethnographic information indicates that living individuals have family ties to this location even today. The formation appears to have been a focal point for religious activity, occupation activity, and stone tool manufacture activity.

Findings

The Tucker Hill formation has significant cultural resource values. It has an extremely high density and wide variety of sites which are important for research and traditional cultural values. The formation meets the criteria for relevance. The Tucker Hill Formation sites are of more than just local importance. They can provide information of settlement pattern, religious activity, stone tool manufacture and trade and other questions important in area prehistory. The area meets the criteria for importance.

2. Scenic Analysis

Values

This formation is readily visible from Highway 31 and the surrounding flatter area. Vegetation contrasts are minimal, and mining activity detracts from its naturalness. It was inventoried and is managed as VRM Classes III and IV.

Findings

While visually interesting, Red Knoll does not possess significant scenic value. Therefore it does not meet the relevance or importance criteria.

3. Wildlife Analysis

Values

The proposed ACEC area provides crucial winter range habitat for mule deer and pronghorn antelope and 10 to 20 bald eagles can be seen in the marsh just to the east during much of the winter. There are seven known prairie falcon and one golden eagle nest within the area, as well as numerous prairie falcon and golden eagle nests within 5 miles of the area. There is also a barn owl roost and numerous raven nests on the hill and four Western sage grouse leks within the proposed ACEC. There is a burrowing owl colony 5 miles southeast of the area.

Findings

The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity does not satisfy the criterion for relevance. The area does not have more than locally significant qualities or circumstances that make it fragile nor has it been recognized as warranting protection under FLPMA, so it does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Tucker Hill II area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to

Holocene-age block faulting. Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

The Tucker Hill II area is basically a Tertiary- to Quaternary-age volcanic eruptive center dissected by a series of northwest-trending, en echelon faults. The rocks are primarily Tertiary-age basalt and andesite flows and pyroclastics, and tuffaceous rhyo-dacitic sedimentary sandstones and siltstones. Tertiary- to Quaternary-age basaltic and rhyo-dacitic flows and pyroclastics are also present (Walker 1963).

Finding

All of the geological values exhibited in the Tucker Hill II area are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Tucker Hill II area does not meet the relevance or importance ACEC criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

While the majority of the area where the mine is located is in poor vegetative condition, the larger area to the south of the formation is considered to be in good vegetative condition. The soils are thin but support sagebrush and diversity increases in the steep rocky areas near the hill tops where western juniper, gooseberry, and long-flowered snowberry (*Symphoricarpos longiflorus*) can be found. The long-flowered snowberry is a BLM Bureau sensitive plant and requires protection. Recently a low lying prickly pear cactus (*Opuntia fragilis*) was found on the slopes of the formation. This cactus is disjunct from its normal distribution and the plant and habitat warrants study. Native bunchgrasses on the formation are bluebunch wheatgrass, needle-and-thread grass (*Stipa comata*) and Thurber's needlegrass.

A series of cultural plants are also found on the formation: bigseed biscuitroot (*Lomatium macrocarpum*), Nevada biscuitroot (*Lomatium nevadense*), barestem biscuitroot (*Lomatium nudicaule*), Canby's lomatium (*Lomatium canbyii*), sego lily, dwarf onion (*Allium parvum*), blazingstar (*Mentzelia* spp.), clustered broomrape (*Orobanche fasciculata*), gooseberry and the above mentioned grasses, all contributing to the biodiversity of the plant community and ecosystem structure (USDI-BLM 1996).

Findings

While this area contains no ONHP plant community cells, it does represent a unique plant community found on extremely shallow soils. The composition of the community and the presence of the BLM Bureau sensitive plant, longflowered snowberry, and the brittle cactus (*Opuntia fragilis*) meet the criteria for relevance and importance.

Summary Findings

Geologic, historical and cultural, and botanical/ecologic values meet the importance and relevance criteria for designation of the Black Hills as an ACEC.

Traditional Cultural Property

Criteria for the designation of a TCP are met for Red Knoll. It may be possible to include the area on the National Register of Historic Places as both an archaeological district and as a TCP.

Juniper Mountain ACEC/RNA

Description of Area

Juniper Mountain has been proposed as an ACEC by Dr. Rick Miller (Eastern Oregon Agricultural Research Center, 1999). Juniper Mountain is located in south central Oregon approximately four miles east of the

town of Alkali Lake. This is a relatively isolated mountain rising to over 6,000 feet elevation along the border of Lake and Harney Counties and comprises about 6,335 acres. The area is within the High Desert Ecological Province (Anderson 1996). Most of the mountain is covered with western juniper woodland that is expanding into surrounding sagebrush/grassland steppe of mountain big sagebrush and mixed perennial bunchgrasses. The northern, eastern, and southern aspects of Juniper Mountain are occupied by a dense old growth western juniper woodland. The over-story tree canopy is 400 to 600 years old, and a few trees within the stand are estimated to be near 1,000 years old. (Miller, personal communication 1999) ONHP has nominated the area to represent a cell for Basin and Range Ecosystems (ONHP 1998).

The legal description is as follows:

- T.31S., R.24E.,
Portions of Section 5.
All of Section 6.
- T.31S., R.23E.,
Portion of Section 1.
- T.30S., R.23E.,
Portions of Section 23, 24, 26, 35
All of Section 25, 36.
- T.30S., R.24E.,
Portions of Section 18, 19, 20, 29, 32.
All of Section 30, 31.

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

While no formal cultural resource survey work has been completed in this area, it is considered to be an

area of high probability for cultural resources. Springs, obsidian sources, drainages and buttes would be areas of site locations. It is likely that the formation would have been used for traditional practices by Indian Peoples of the area.

Findings

No formal survey work has been conducted, so no conclusions can be drawn.

2. Scenic Analysis

Values

Juniper Mountain rises approximately 1,400 feet above the surrounding area, and its dark tree-covered slopes are visible for long distances from the southeast. Although the mountain is within 3 miles of State Highway 395, it is not visible from the highway, except from a distance. The south and east slopes are heavily treed, providing a contrast to the surrounding lighter-colored desert terrain. A large rectangular-shaped area on the east slope was clearcut in the 1970's, and its straight lines detract from the mountain's naturalness. The west side is more barren, with few trees on its open slopes. The area was originally inventoried as VRM Class IV due its scenic quality C, background distance zone, and low visual sensitivity. It is managed as VRM Class IV, where the management objective allows major modification of the existing character of the landscape, but impacts should still be minimized.

Findings

Although the mountain can be seen from long distances, its shape and size are not unusual or unique for the area. Juniper Mountain's scenic values do not meet the relevance and importance criteria. However, the mountain would benefit from management prescriptions that would protect the naturalness of the area, and prevent further reductions in scenic quality.

3. Wildlife Analysis

Values

The fair condition of the western juniper/bunchgrass community and the steepness of the terrain and semiremoteness of the area create an area of refugia for the expanding population of North Lake County elk. The area provides security cover, as well as some forage for elk and deer during hunting season when elk and deer are pressured off the forest. The area also provides habitat for small mammals, raptors and nongame birds, some of which may be sensitive species. There are no known sage grouse leks within the proposal area; however, there are 10 leks within 10 miles of the area to the south. There is no known crucial habitat for threatened, endangered, or sensitive species.

Findings

The potential exists that the area provides habitat for sensitive species and thus meets the relevance criterion. The absence of any known crucial habitat for threatened, endangered, or sensitive species or wildlife habitat essential for maintaining species diversity and not having more than locally significant qualities or circumstances that make it fragile or having been recognized as warranting protection under FLPMA, does not satisfy criteria for importance.

4. Geology and Natural Hazards Analysis

Values

The Juniper Mountain area is located in the northwestern corner of the Basin and Range Physiographic Province, just south of the High Lava Plains. The geology displays characteristics of both of these provinces. In this area, the Basin and Range Province is characterized by a broad, uneven plateau, 4000 to 5000 feet above sea level, broken up by late Tertiary- to Holocene-age block faulting.

Higher-elevation Tertiary- to Quaternary-age volcanic flows and domes characterize portions of the province.

Juniper Mountain is one of several volcanic eruptive centers in Lake and Harney Counties. It consists of Pliocene- to Pleistocene-age pyroclastics and flows, predominantly basaltic in composition. The central portion of the summit consists of older (Miocene- to Pliocene-age) silicic rocks. (Walker and Repenning 1965).

There are no apparent natural geological hazards.

Findings

These geologic values are very common in the northwestern Basin and Range and High Lava Plains transitional area. The Juniper Mountain area does not meet the relevance or importance ACEC criteria for geology or natural hazards.

5. Botanic/Ecological Analysis

Values

Juniper Mountains primary relevance as a RNA/ACEC would be for the natural processes and systems which are exhibited there. This area also meets the following ONHP cell need in the Basin and Range Ecosystems:

- (5) Western juniper/big sagebrush/Idaho fescue.

Old growth western juniper accounts for only 3 to 5 percent of the 8 million acres of this species growing throughout eastern Oregon, northeastern California, northwestern Nevada, and southwestern Idaho. The remaining 95 percent is composed of young trees encroaching into high desert plant communities since the time of European settlement. The most extensive old growth woodlands are located in the Mazama Ecological Province characterized by sandy aeolian soils. In the High Desert, Klamath, and Snake River Ecological Provinces old growth juniper is typically found growing as widely scattered trees on shallow rocky soils. Young trees are typically found growing on

deeper solids characterized by mountain big sagebrush and tussock grass species including Idaho fescue, bluebunch wheatgrass, and Thurber needlegrass. However, the dense western juniper woodland on Juniper Mountain is the exception within these provinces.

The northern, eastern, and southern aspects of Juniper Mountain are occupied by a dense old growth western juniper woodland. The over-story tree canopy is 400 to 600 years old. A few trees within the stand are estimated to be near 1,000 years old. Tree canopy cover ranges between 30 percent on the south aspect to 50 percent on the north aspect. This stand is truly unique in that (1) it is the only old growth woodland of both its size and tree density within the Klamath, High Desert, and Snake River Ecological Provinces, (2) tree canopy and density are considerably greater than the old growth juniper woodlands occupying the Mazama Province, and (3) the woodland is growing on igneous derived soils rather than the aeolian sands that typify the old growth woodlands of the Mazama Province. Juniper Mountain is an example of what much of the mountain big sagebrush alliance would look like in the absence of fire. Although there is evidence of small fires throughout the woodland, a stand replacement burn has not occurred for a least 600 years.

In regarding criteria for an RNA, the old growth woodland on Juniper Mountain and adjacent shrub steppe communities provides an excellent outdoor research laboratory. It is an example of the successional endpoint (in the absence of major disturbance) for several mountain big sagebrush grassland communities common to the Intermountain Shrub Region. Currently, millions of acres of these shrub steppe communities are being encroached by western juniper within these ecological provinces. However, these stands are in various stages of woodland succession and less than 120 years old. The old growth woodland on Juniper Mountain would allow researchers to study structure, function, and processes, which occur in climax juniper

woodlands that have persisted for hundreds of years. Anthropogenic disturbance within both the woodland and adjacent shrub steppe communities has been minimal. Plant species composition within the western juniper woodlands and shrub steppe is in excellent condition throughout most of the area. The greatest past disturbance and possibly the greatest threat to the woodland is wood cutting. (Rick Miller, personal communication, 1999).

Findings

Juniper Mountain proposed ACEC/RNA strongly fits the relevance criteria in providing a unique and important example of a natural system and processes for a fully mature old growth juniper woodland in the High Desert Ecological Province. It also meets the criteria by providing the ONHP cell need for Basin and Range Ecosystems: Western juniper/big sagebrush/Idaho fescue. The site meets the importance criteria. The biological processes and plant communities on Juniper Mountain have special worth and are more than locally significant.

In consideration for an RNA, Juniper Mountain would make an important addition to the RNA system in Oregon as it contains a natural system and plant community processes that are unique and in good condition. Oregon State University researchers have done a preliminary description of plant community composition, structure, and stand age on Juniper Mountain. Avian populations in both the old growth woodlands and sagebrush steppe communities have also been measured during the past three years. In addition, the University of Arizona and Oregon State University have collected tree ring samples for climate reconstruction. Genetic work is also being conducted on Juniper Mountain by the Intermountain USFS Research Laboratory, R. Tausch, Reno, Nevada. Juniper Mountain meets the criteria for the designation of an RNA.

Summary of Findings

Botanic/ecological values meet the importance and

relevance criteria for designation of Juniper Mountain as an ACEC and meets the criteria for designation for an RNA.

portions of Section 4, 5, 6, 7, 8, 9, 17, 19, 20, 30. All of Section 18.

Abert Rim Addition to Lake Abert ACEC

Area Description

This new area is being proposed to add to the existing Lake Abert ACEC and comprises about 18,028 acres. The area abuts the original ACEC boundary to the west and includes the area immediately east of Abert Rim. The east, north, and south boundaries are the same as those for the Abert Rim WSA. The new area being proposed is to be included in the ACEC, but not included in the national registry area, which is located at the base of the escarpment along Highway 395. The area's vegetation is interesting and contains some plants that are not found elsewhere in the RA, and the rim top contains an abundance of cultural plants.

The legal description for the addition is as follows:

T.33S., R.22E.,
portions of Section 10, 11, 14, 15, 16, 20, 21
22, 28, 29, 31, 32.

T.34S., R.22E.,
portions of Section 5, 6, 7, 8, 18, 19, 28, 29, 30,
31, 32, 33.

T.35S., R.21E.,
portions of Section 1, 2, 12, 14, 22, 23, 25, 26,
27, 28, 34, 35.
All of Section 13, 24.

T.36S., R.21E.,
portions of Section 1, 2, 3, 10, 12, 14, 15.
All of Section 11.

T.35S., R.22E.,

Relevance and Importance Criteria

1. Historical and Cultural Analysis

Values

The top portion of Abert Rim has been added to the existing ACEC in order to include areas of significant cultural resources. The area is considered by local Native Americans to be a TCP site used for various purposes. In addition, the area contains significant archaeological sites and several cultural plants.

Findings

The area is locally significant as it is part of the view landscape of the Cheuwacan/Lake Abert Watershed and adds to the total picture of the escarpment. This additional rim area meets the criteria for relevance and criteria for importance.

2. Scenic Analysis

Values

Visual Resources: The area is an open bench which slopes away from the rim towards the east, and is characterized by grass and shrub lands, with small pockets of western juniper and quaking aspen. The area was originally inventoried as VRM Class IV due to its Scenic Quality C, background distance zone, and low visual sensitivity. However, since the area is within the Abert Rim WSA, the area is managed as VRM Class I, where the management objective is to preserve the existing character of the landscape.

Findings

The scenic and recreational values of this area, by itself, do not meet the relevance and importance

criteria. However, when viewed as an extension of the existing ACEC, along with its WSA status, this area's recreational and scenic qualities add to the diversity of the original ACEC.

3. Wildlife Analysis

Values and Findings

Both are the same as the original ACEC: meet the criteria for an ACEC

4. Geology and Natural Hazards Analysis

Values and Findings

Both are the same as the original ACEC: do not meet the criteria for an ACEC and no natural hazards found.

5. Botanic/Ecological Analysis

Values

By adding the rim of Lake Abert to the established ACEC, another important plant community is included in the ACEC: low sagebrush. This community contains the usual plants found in shallow soils such as *Collomia*, *Narvarettia*, *Phlox*, three buckwheat (*Eriogonum* spp.) species, old man's beard (*Geum triflorum*), daggerpod (*Phoenicautis cheiranthoides*), *Agoseris* and *Trifolium* spp., mint (*Mentha* spp.), *Stellaria* and Sandberg's bluegrass. Probably because of high snow accumulation in the lee of the rim, the area contains a high amount of cultural plants: yampa, serviceberry, wild onion, several species of *Lomatium*, *Brodieae*, wild cherry (*Prunus* spp.), and mountain mahogany. This plant community is common throughout the Lakeview District; however, it is in unusually good condition with little disturbance. There are also wet marshy communities with several species of *Carex*, grasses and other wetland species. There are also clumps of shrubs and trees in areas of deeper soil and stringers

of ponderosa pine, quaking aspen, and western juniper.

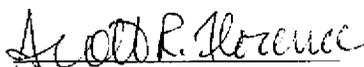
Findings

The proposed addition to the existing ACEC meets the relevance criteria for creating an ACEC because the natural ecosystem is in excellent condition. The proposed addition, however, does not meet the importance values even though the area is fragile, it is not more than locally significant.

Summary of Findings

Original findings for ACEC: Meet the relevance and importance criteria of: prehistoric cultural values, scenic values, wildlife (both populations and habitat) resources, and natural processes (aquatic ecology). The natural hazards (landslides, rockslides, cliffs and potential for flash flooding) which are present were found to meet the relevance, but not the importance criteria in the 1996 "BLM High Desert Management Framework Plan Amendment and Record of Decision for the Lake Abert Area of Critical Environmental Concern in Lake County, Oregon".

Signatures

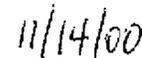


Scott R. Florence

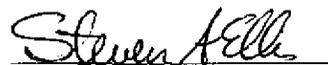
Field Manager

Lakeview Resource Area

Lakeview District


11/14/00

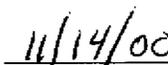
Date



Steven A. Ellis

District Manager

Lakeview District


11/14/00

Date

IV. List of Preparers

The following individuals comprised the Lakeview Resource Area Inter-Disciplinary Team which evaluated these areas and prepared this document:

William Cannon	<i>Cultural/Historic Resources</i>
Todd Forbes	<i>Wildlife Resources</i>
Scott Florence	<i>Document Review</i>
Lucile Housley	<i>Botany/Evaluation Process Team Lead</i>
Trish Lindaman	<i>Scenic Resources</i>
Dennis Simontacchi	<i>Geology/Hazards</i>
Leah Stewart	<i>GIS Analysis</i>
Vern Stofleth	<i>Wildlife Resources</i>
Dwayne Sykes	<i>Document Review</i>
Maple Taylor	<i>Writer/Editor</i>
Jim Thompson	<i>GIS Analysis</i>
Doug Troutman	<i>Scenic Resources</i>
Paul Whitman	<i>Document Quality Control/GIS Analysis</i>

In addition, the following individuals from the Surprise Field Office evaluated the California portion of the proposed Rahilly-Gravelly ACEC area:

Roger Farschon	<i>Document Quality Control</i>
Susan Stokke	<i>Document Review</i>

V. References

- Aikens, C.M.; Jenkins, D.L. 1994. Archaeological Researches in the Northern Great Basin: Fort Rock Archaeology Since Cressman. Anthropology Papers 50, University of Oregon, Eugene, OR.
- Anderson, E. W., Borman, M.M., Krueger, W.C. 1998. The Ecological Provinces of Oregon. Oregon Agricultural Experiment Station.
- Bedwell, S.F. 1973. Fort Rock Basin: Prehistory and Environment. University of Oregon, Eugene, OR.
- Eddleman, L. E. 1999. Personal communication.
- Fagan, J. L. 1974. Altithermal Occupation of Spring Sites I the Northern Great Basin. Anthropological Papers 6, University of Oregon, Eugene, OR.
- Fipps, J. 1998. High, Middle and Low: An analysis of Resource Zone Relationships in Warner Valley, Oregon. Department of Anthropology Technical Report 98-1, January 30, University of Nevada, Reno.
- Fowler, D. 1993. Archaeological Investigations in Warner Valley, Oregon, 1989-1992, An Interim Report. Department of Anthropology Technical Anthropology Reports 93-1, University of Nevada, Reno.
- Franklin, J.F.; Dryness, C.T. 1973. Natural Vegetation of Oregon and Washington. General Technical Report PNW-8, USDA Forest Service
- Lake County. 1979. Land Use Atlas, A Comprehensive Plan Supplement. Prepared by Lynn D. Steiger and Associates, Inc., for Lake County Planning Department, Lakeview, OR. 141 p.
- Lake County. 1983. Amendments to the Lake County Atlas, A Supplement to the Lake County Comprehensive Plan. Lake County Planning and Building Office, Lakeview, OR. 21 p.
- Lake County. 1989. Comprehensive Land Use Plan, Lake County, Oregon, Housing, Economic, and Population Elements, Goal Exceptions, and Buildable Land Inventories. Prepared by Lynn D. Steiger and Associates, Inc.; revised by A.R. Brown, Planning Consultant for Lake County Planning Department, Lakeview, OR. 197 p.
- MacLeod, N.S.; Sherrod, D.R. 1992. Reconnaissance Geologic Map of the West Half of the Crescent 1 Degree by 2 Degree Quadrangle, Central Oregon. Miscellaneous Inventory Series, Map I-2215, 1:250,000, USGS Survey.
- McFarland, W.D.; Ryals, G.N. 1991. Geologic Map, Geologic Section, and Typical Stratigraphic Column of the Fort Rock Basin, Oregon. Water-Resources Investigations Report 89-4057, USGS.
- Miller, R. 1999. Personal communication.
- Miller, R.F.; Eddleman, L. 2000. Western Juniper: History, Ecology, and Management. Proceedings, Society of Range Management, Boise, ID.
- Oregon Natural High Desert Association. 1998. Proposal for the Nomination of the Pronghorn Area of Critical Environmental Concern. Portland, OR. 26 p.
- Oregon Natural Heritage Program (ONHP). 1998a. Oregon Natural Heritage Plan. Oregon Natural Heritage Advisory Council, Portland, OR.
- ONHP. 1998b. Rare, Threatened and Endangered Species of Oregon. Portland, OR.
- Parker, P.; King, T. 199_. National Register Bulletin: Guidelines for Evaluating and Documenting

- Traditional Cultural Properties. USDI, National Park Service, Interagency Resources Division, 22 p.
- Ricks, M. 1995. A Survey and Analysis of Prehistoric Rock Art of the Warner Valley Region, Lake County, Oregon. Ph.D. Dissertation, Portland State University, Portland, OR.
- Ricks, M. Personal communication, 1998.
- Shelly, S. Personal communication, 1998.
- Tausch, R. Personal communication.
- Tipps, J. 1998. High, Middle and Low: An Analysis of Resource Zone Relationships in Warner Valley, Oregon. UNR Tech Report 98-1, January 30, 1998.
- U.S. Department of the Interior (USDI), Bureau of Land Management (BLM). 1980. Visual Resource Management Program. U.S. Government Printing Office: 302-993.
- USDI, BLM. 1982a. Lakeview Grazing Management Environmental Impact Statement, Final. Oregon State Office, Portland, OR.
- USDI, BLM. 1982b. Rangeland Program Summary, Record of Decision, Lakeview EIS Area. Lakeview District, Lakeview, OR. 24 p.
- USDI, BLM. 1983a. Warner Lakes Management Framework Plan. Lakeview District, Lakeview, OR. 2 vol.
- USDI, BLM. 1983a. High Desert Management Framework Plan. Lakeview District, Lakeview, OR. 2 vol.
- USDI, BLM. 1984. Connley Hills Management Plan Environmental Assessment. Lakeview District, Lakeview, OR.
- USDI, BLM. 1987. 1623 - Supplemental Program Guidance for Land Resources. Oregon State Office, Portland, OR. 14 p.
- USDI, BLM. 1988. 1613 - Areas of Critical Environmental Concern, Resource Management Planning Guidance. Washington Office, Washington, DC. 22 p.
- USDI, BLM. 1989a. Warner Lakes Plan Amendment for Wetlands and Associated Uplands, Plan Amendment and Environmental Assessment for the Warner Lakes Management Framework Plan and Decision Record. Lakeview District, Lakeview, OR. 46 p.
- USDI, BLM. 1989b. Oregon Wilderness, Final Environmental Impact Statement. Oregon /Washington State Office, Portland, OR. 4 vol.
- USDI, BLM. 1995a. Wilderness Interim Management Policy. Washington Office, Washington, DC.
- USDI, BLM. 1995b. High Desert Management Framework Plan Amendment and Record of Decision for the Lake Abert Area of Critical Environmental Concern (ACEC) in Lake County, Oregon. Lakeview District, Lakeview, OR. 30 p.
- USDI, BLM. 1996. Final Environmental Impact Statement, Atlas Perlite, Inc., Tucker Hill Perlite Project. Lakeview District, Lakeview, OR. 25 p.
- USDI, U.S. Fish and Wildlife Service and BLM; U.S. Department of Agriculture, USFS; and California Department of Fish and Game. 1996. Conservation Strategy for *Rorippa columbiae*, (Columbia cress). USDI, USFWS, Klamath Basin National Wildlife Refuge, BLM, Burns, Lakeview, and Spokane Districts, USDA, Winema, Shasta-Trinity, Modoc, and Lassen National Forests, and California Department of Fish and Game.
- Vander Schaaf, D. 1992. Final Report: Natural Area Inventory for the Lakeview Resource Area, Lakeview District, BLM. The Nature Conservancy,

Portland, OR. 26 p.

Walker, G.W. 1963. Reconnaissance Geologic Map of the Eastern Half of the Klamath Falls (Ams) Quadrangle, Lake and Klamath Counties, Oregon. USGS Mineral Investigation Field Studies Map MF-260, Scale 1:250,000.

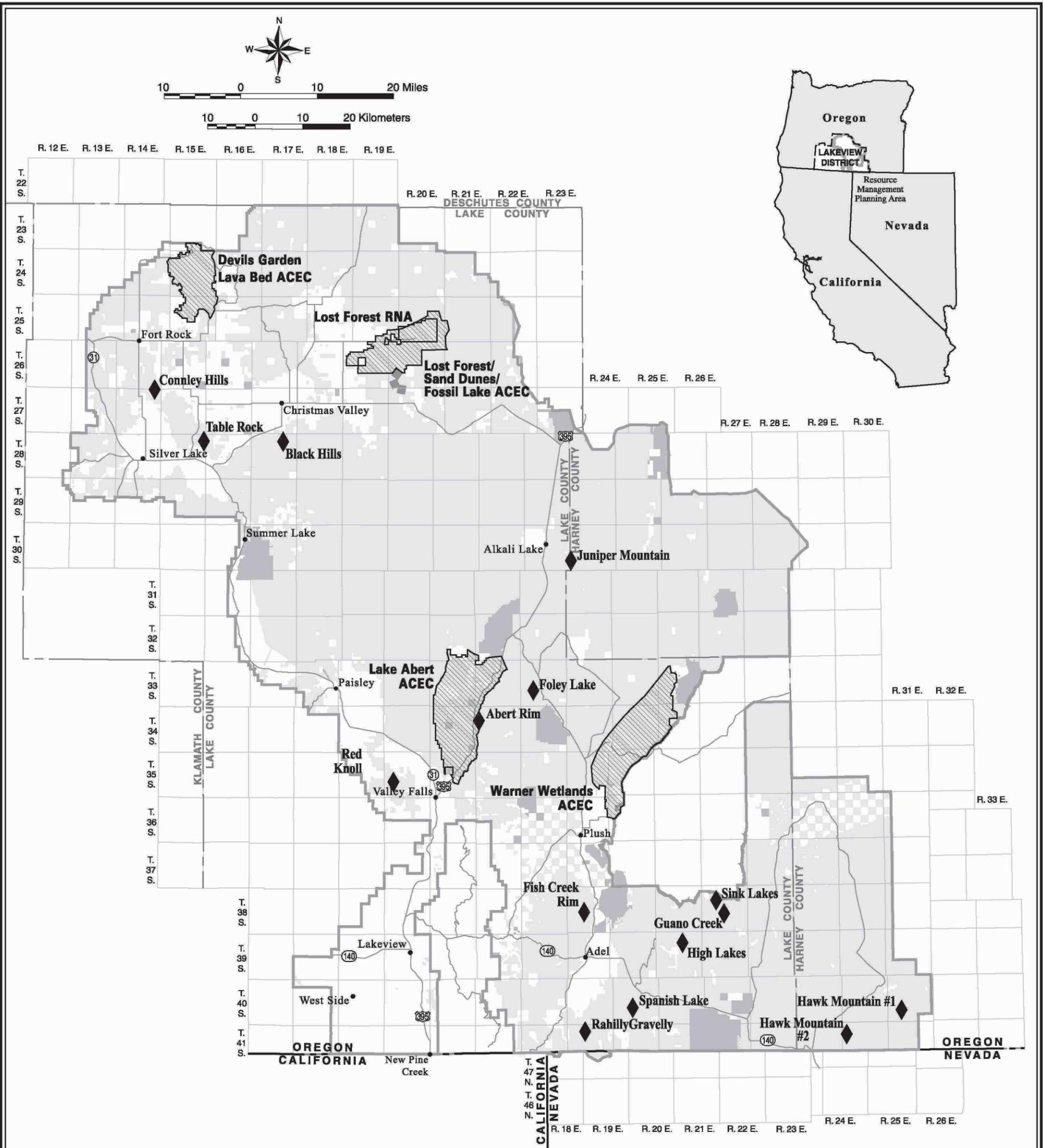
Walker, G.W.; Repenning, C.A. 1965. Geologic Map of the Adel Quadrangle, Lake, Harney, and Malheur Counties, Oregon. USGS Miscellaneous Geological Investigations, Map I-446, Scale 1:250,000.

Wilson, J.L.; Emmons, D.L. Tucker Hill Perlite Deposit, Lake County, Oregon. *Mining Engineering*, November, 1985:1301-1308.

VI. Appendix

Table A1.— *BLM visual resource management classes and objectives*

VRM Class	Description
I	<i>Objective:</i> Preserve existing landscape character. This class provides for natural ecological changes. It does not, however, preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
II	<i>Objective:</i> Retain existing landscape character. The level of change to the characteristic landscape should be low. Management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color and texture found in the predominant natural features of the characteristic landscape.
III	<i>Objective:</i> Partially retain existing landscape character. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate a casual observer's view. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
IV	<i>Objective:</i> Provide for management activities which require major modification of the existing landscape character. The level of change to the characteristic landscape can be high. Management activities may dominate the view and be the major focus of viewer attention. Every attempt, however, should be made to reduce or eliminate activity impacts through careful location, minimal disturbance, and repeating the basic landscape elements.



LEGEND

Administered Lands	— Planning Area Boundary
Bureau of Land Management	— Major Road
U.S. Fish and Wildlife Service	Existing (ACEC/RNA)
Department of Defense	Proposed (ACEC/RNA)
State	
Private or Local Government	

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Lakeview District
Lakeview Resource Area
ACEC Nomination Evaluation Report

Fall 2000

Map 1: General Locations of Existing and Proposed Areas of Critical Environmental Concern / Research Natural Areas



No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This product was developed through digital means and may be updated without notification.