

# **OUTSTANDING ENVIRONMENTAL RESOURCES AND VALUES OF THE WALKER RIDGE PUBLIC LANDS:**

## **A Nomination to the U. S. Bureau of Land Management (Ukiah Field Office) for Area of Critical Environmental Concern (ACEC) Status**

February 3, 2011

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### **SUMMARY**

This petition nominates the public lands along Walker Ridge for status as an Area of Critical Environmental Concern (ACEC). These lands are located along the boundary between Lake and Colusa Counties and are roughly 30 square miles in extent. This nomination describes the significant environmental resources and values of these lands, and the need for special management attention. Current ACEC parcels are disjunct and can lead to the eventual fragmentation of rare and unique habitats on Walker Ridge public lands. These resources include a high diversity of plant species, serpentine-associated plant species, special-status plants, potentially undescribed plant taxa, unusual plant associations, wetlands and its ecosystem significance at the headwaters of the Bear Creek (Upper Cache Creek) watershed. The public lands along Walker Ridge also have significant educational, recreational and scenic values: the complex geologic substrates and soils, elevation gradients, expansive viewsheds, rich flora and vegetation, water resources, and proximity to Bear Valley all contribute to these public values. These resources and values require special management attention, particularly as many current and potential future uses of these lands might be incompatible with conservation of these resources and values under the current ACEC design. Current ACEC parcels are disjunct and of insufficient size to adequately protect the botanical resources, along with the many other outstanding values found on Walker Ridge public lands. Thus, designation of an expanded ACEC is merited.

## TABLE OF CONTENTS

### I. Introduction

Overview of ACEC Designation.....	3
Overview of this Document and Supporting Documents.....	4

### II. The Need for Conservation of Natural Landscapes..... 4

### III. Unique Environmental Resources and Values of Walker Ridge

Outstanding Environmental Resources.....	5
High Diversity of Plant Species.....	6
Serpentine-Associated Plant Species.....	7
Special-Status Plants.....	8
Potentially Undescribed Plant Taxa.....	9
Unusual Plant Associations.....	9
Wetlands.....	9
Outstanding Environmental Values.....	10
Educational Value.....	10
Recreational and Scenic Values.....	11

### IV. Analysis of the Applicability of ACEC Criteria

Relevance and Importance.....	12
Need For Special Management Attention.....	12
Conclusions.....	14

### V. Literature Cited..... 15

### VI. Figures

Figure 1: Map of Current and Proposed ACEC.....	17
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### VII. Appendix

Appendix A: Plant Species Lists.....	A1
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## I. INTRODUCTION

### Overview of ACEC Designation

Areas of Critical Environmental Concern (ACECs) are defined as areas within the public lands where special management attention 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. The identification of a potential ACEC does not, in itself, change or prevent change of the management or use of public lands (43 CFR 1601.0-5). On Bureau of Land Management (BLM) Lands, ACEC designation indicates to the public that BLM recognizes that an area has significant values and has established special management measures to protect those values (BLM Manual 1613).

The Bureau of Land Management may consider an area for ACEC status if the criteria of relevance and importance are met. Relevance is defined as the presence of significant environmental “value, resource, system, process or hazard.” Importance is the “more than local significance” and the “special worth, consequence, meaning, distinctiveness, or cause for concern” of this relevant resource or value (43 CFR 1610.7-2).

To qualify as an Area of Critical Environmental Concern (ACEC), an area must meet the relevance and importance criteria defined in the Federal Land Policy and Management Act of 1976 (FLPMA) and codified in 43 Code of Federal Regulations (CFR) 1610.7-2. An environmental resource can be found relevant if there is a significant historic, cultural, or scenic value; a fish or wildlife resource; or other natural system or process. An environmental resource can be found important if the significant value, resource, or system have substantial significance and value. This generally requires that qualities exceed mere local significance and special worth.

Walker Ridge public lands cover an 11-mile-long, north-south trending ridge located on the boundary of Colusa and Lake Counties in California’s Inner Coast Range. The Ridge has significant ecological, scenic, and educational values. It is situated immediately to the west of Bear Valley—a renowned wildflower area—and immediately to the north of the Cache Creek Wilderness. Its linkages to Bear Valley and public lands to the west, north, and south, including designated and proposed wilderness areas, gives further value to the Ridge as a large and mostly unfragmented natural area. Collectively, the Ridge and adjacent lands constitute a major public resource that is now under consideration as a National Conservation Area.

This petition nominates an expansion of the current ACEC designated lands from three disjunct parcels to a continuous, ACEC area covering all BLM-managed public lands on Walker Ridge (Figure 1). This would establish the most ecologically relevant ACEC design for the conservation of the rich and unique serpentine-associated botanical resources that occur on Walker Ridge.

## **Overview of this Document and Supporting Documents**

This nomination describes some of the outstanding environmental values and resources of the Walker Ridge public lands, and how these values satisfy the criteria under which BLM may grant ACEC designations.

Attached to this nomination are the following supporting documents:

- 1) Map of Walker Ridge with current and proposed ACEC lands (Figure 1).
- 2) Plant species lists compiled during numerous trips by faculty and students from Humboldt State University, and University of California Davis, and by members of the Davis Botanical Society, the Sacramento Valley, Sanhedrin, and North Coast Chapters of the California Native Plant Society (CNPS), and other professional botanists (Appendix A). These species lists not only indicate the high level of biodiversity and the presence of unusual plant associations and of rare and threatened species, but also are evidence of the educational, scientific and recreational value that the flora and vegetation of Walker Ridge has for the greater region and the state.

## **II. THE NEED FOR CONSERVATION OF NATURAL LANDSCAPES**

A landscape approach looks across large, connected geographic areas to more fully recognize natural resource conditions and trends, natural and human influences, and opportunities for resource conservation, restoration, and development of an ecosystem. It seeks to identify important ecological values and patterns of environmental change that may not be evident when managing smaller, local land areas.

The designation of disjunct ACEC parcels within contiguous, intact habitat has been the BLM's past practice on Walker Ridge public lands and elsewhere. This conservation approach is ineffective at preventing habitat fragmentation and encroachment of ACEC targeted conservation resources that result from direct and indirect impacts of projects and/or management objectives occurring on public lands between and around the disjunct ACEC areas. Ecosystem-level management of the Walker Ridge area as a whole landscape is the most effective way to protect and enhance the wide array of significant, interdependent values in this landscape.

A landscape approach uses this broader understanding of the environment to inform, focus, and integrate the BLM's national and local resource management efforts. A landscape approach provides a framework for integrating science with management, and for coordinating management efforts and directing resources where they are most needed. As new information becomes available, management actions can be adjusted to ensure that conservation targets are met. In the absence of a landscape approach, management decisions are made piecemeal, often to the detriment and loss of conservation targets through the fragmentation of intact habitats.

Fragmentation takes multiple tolls on the integrity of ecosystems (Debinski and Holt 2000, Kruess and Tschardtke 1994, Saunders et al. 1991). Fragmentation is known to reduce fecundity among herbaceous plant species (Baur and Erhardt 1995), decrease interactions between plants and pollinators (Townsend and Levey 2002), and reduce the opportunity for propagules dispersal (Haddad 1999). All of these issues result in reduced genetic variation, and a decrease in the ability of plants and animals to adapt to inevitable environmental change (Noss et al. 1997).

In 2006, three ACEC parcels were established over greatly disjunct areas of Walker Ridge public lands to protect serpentine ecosystems and associated sensitive plant species. Yet many of the same values represented in the current disjunct ACEC parcels extend over the entire Walker Ridge public lands. The geographical extent and biological sensitivity of these serpentine ecosystems support the need to protect the remaining critical values on Walker Ridge public lands through special management designation of a landscape-level ACEC. Moreover, many significant areas exist outside of the designated ACEC parcels that also warrant greater protection and management. Expansion of the existing ACEC-designated lands into a larger contiguous ACEC will ensure that all of the Walker Ridge ecosystem values will be protected. This will aid in proactive, ecosystem-level management of key habitats, and the long-term maintenance of viable populations of serpentine endemic species.

The Walker Ridge public lands represent a critical focal area for conserving endemic native plant taxa, important wildlife habitats, and regional migration corridors. To protect and enhance these at-risk lands, the expansion of the existing Walker Ridge ACEC areas into an ecologically appropriate size and design is both needed and warranted.

### **III. UNIQUE ENVIRONMENTAL RESOURCES AND VALUES OF WALKER RIDGE**

This section describes the significant environmental resources of Walker Ridge and their societal values. The significant environmental resources of the Walker Ridge lands include intact habitat for a high diversity of vascular plants, numerous serpentine-associated plant species, special-status plant species, potentially undescribed plant species, unusual plant associations, wetlands, and low degree of invasive, non-native species. Additionally, the Walker Ridge public lands represent a significant portion of the headwater lands and tributaries of the Bear Creek (Upper Cache Creek) watershed, a 65,000-acre landscape that has been the focus of large-scale federal, state and private conservation efforts. In addition to the outstanding ecological values found on Walker Ridge, there are also significant educational, recreational, and scenic values.

#### **Outstanding Environmental Resources**

The Walker Ridge lands represent a substantial component of the watershed from which water and materials enter Bear Valley. Walker Ridge provides a significant ecosystem connection for numerous plant and animal populations that extend across both Walker Ridge and Bear Valley.

Walker Ridge is adjacent to Bear Valley, a renowned wildflower area, where a large public and private investment of \$1,500,000 was made to purchase a conservation easement there to protect the scenic, conservation, and working landscape values in perpetuity. In addition, the Walker Ridge area is located within the Berryessa Snow Mountain region. Conservation groups, local communities, and legislators have come together to support designating the Berryessa Snow Mountain region as a National Conservation Area for future generations to enjoy. Furthermore, a Department of Interior memo entitled “Prospective Conservation Designation: National Monument Designations under the Antiquities Act” lists the Berryessa Snow Mountain region as one of the “nationally significant landscapes . . . worthy of inclusion in the NLCS (National Landscape Conservation System).” The memo states that the areas listed “may be good candidates for National Monument designation under the Antiquities Act.”

The habitats of Walker Ridge provide undisturbed wildlife corridors, allowing connectivity from the Klamath Region and Mendocino National Forest, to the north, through the Cache Creek

Wilderness Area and Knoxville federal and state lands to the south. The Ridge and the larger Bear Creek watershed support numerous wildlife species, including high concentrations of bobcat, brown bear, and bald eagle. Mountain lion, a state-protected species may use The Ridge and the surrounding area as habitat and as a movement corridor. The watershed is an important corridor for neo-tropical migratory birds and is five miles east of the Audubon-designated “Clear Lake Important Bird Area,” a major destination for northwestern California birds. Sixteen reptiles and amphibians are known from the area including the BLM special-status northwestern pond turtle and foothill yellow-legged frog. Six globally rare insects and 80 species of butterflies occur here, and it is one of six hotspots in California for dragonfly and damselfly diversity, supporting 46 of the state’s 108 species.

Changing climate will affect all biological resources in the Berryessa Snow Mountain region, and responding to the impacts of climate change requires coordinated management actions across all levels of public lands in the region, including lands managed by the Forest Service, the Bureau of Land Management, the Bureau of Reclamation, and other federal and state agencies. Changing climate will drive plant and wildlife communities “poleward and upward,” and the ecological linkages that allow the resulting range shifts must be available to increase the likelihood that habitat and population transitions can occur (Krosby et al. 2010).

All existing areas subject to administrative protections for conservation-related reasons, such as Areas of Critical Environmental Concern, are critical elements in a coordinated framework for climate-change response. This framework includes areas designated for species and habitats covered by federal or state laws and regulations (e.g., Endangered Species Act), as well as any species and habitats identified pursuant to agency planning processes. Serpentine-endemic plant species and the communities in which they occur are particularly important conservation targets for the Berryessa Snow Mountain region.

Large contiguous natural areas such as Walker Ridge and the surrounding region provide our best hope for addressing loss of species and open space, preserving water quality, and providing opportunities for species to adapt to the effects of climate change, while preserving the wildlife and lands we enjoy today. The region also provides countless opportunities for connecting the communities of the Bay Area and the Central Valley with nature.

The environmental resources of Walker Ridge are only partially documented. No inventories have been compiled of its fungi, bryophytes, invertebrates, or wildlife species. However, the botanical resources of Walker Ridge, though only partially inventoried, demonstrate a very diverse flora. Together with the uniqueness of their underlying geology, these plant resources suggest that Walker Ridge also supports a high diversity of other organisms. The value of Walker Ridge and the need for more comprehensive inventories and conservation planning are also emphasized in the 2010 BLM document, “Stewardship for Bear Creek Watershed: Priorities 2010-2014,” an adjunct document that accompanied the Bear Creek Watershed Assessment (Weigand and Thomsen 2010).

The known vascular plant resources of Walker Ridge are described in the following sections.

### **High Diversity of Plant Species**

Although no comprehensive botanical inventory of Walker Ridge has been performed, its botanical resources have been partially documented by botanists, and include numerous species.

(There have been roughly 450 vascular plant taxa recorded to occur at Walker Ridge and its immediate surroundings (Appendix A)).

The botanical diversity of Walker Ridge is due to several factors. These factors include the diversity of underlying substrate, a range of elevations, and the ridge's geographic location. The ridgeline of Walker Ridge is one of the most southerly and eastern of the inner north coast ranges. It provides relatively high elevation terrain underlain by serpentine and sedimentary rock, numerous rock outcrops, seeps, ravines, and ephemeral and intermittent streams along its flanks.

Walker Ridge—due to its high elevation range—is regionally significant in climate change models that project higher temperatures and increased aridity. Since many species will need to shift their ranges upward, higher elevation areas are expected to become regional refugia, protecting significant components of biodiversity into the next century. The number of species likely to survive in these refugia will depend on the ability of species to disperse, highlighting the importance of conserving landscape connectivity in the region in the face of increasing land use change and disturbance (Loarie et al. 2008).

### **Serpentine-Associated Plant Species**

The Walker Ridge public lands are geologically complex with varied soils that include serpentinite substrates. Serpentinite soils are known to support high numbers of uncommon or narrowly-distributed California native species and plant assemblages, including serpentine-endemic and BLM special-status plants. Plant communities found on Walker Ridge include diverse serpentine and mixed chaparral, serpentine barrens, chamisal, blue oak woodland, native grasslands and serpentine forb fields, and an array of seep, riparian, and meadow wetlands.

A substantial component of the plant diversity at Walker Ridge is associated with serpentinite-derived soils. Many of these are unusual, uncommon, or rare species. A comparison of the plant lists for Walker Ridge and surrounding areas (Appendix A) with the serpentine endemic and indicator lists of Kruckeberg (1984) and Safford et al. (2005) reveals that nearly one quarter of the flora (over 100 plant taxa) are serpentine-associated species. Of these species, about sixty are serpentine endemics, including Sargent and McNab cypress (*Hesperocyparis sargentii* and *H. macnabiana*, respectively), Jepson's ceanothus (*Ceanothus jepsonii*), Congdon's silk-tassle (*Garrya congdonii*), serpentine willow (*Salix breweri*), Brewer's jewel flower (*Streptanthus breweri* var. *s. breweri* and *hesperidus*), Jepson's milkvetch (*Astragalus rattanii* var. *jepsonianus*), four-petalled pussypaws (*Calyptridium quadripetalum*), serpentine sedge (*Carex serratodens*) and serpentine onion (*Allium falcifolium*). An additional 40–50 uncommon taxa at Walker Ridge are less strictly associated with serpentine and are best considered indicators of serpentine substrates.

These serpentine-associated species also form unusual plant assemblages. The seeps, rock outcrops, and intermittent drainages support particularly distinct species assemblages, and these assemblages differ substantially among these locations (e.g., among seeps). From 1997-1999, a study of serpentine seep-associated species demonstrated the fragility of these plant populations. Populations were more likely to have gone extinct the closer they were to human-caused disturbances such as new roads. Populations were also more likely to go extinct, and less likely to become recolonized, the farther they were from other populations of the same species (Harrison, Maron and Huxel 2000).

The high diversity of serpentine endemics, i.e. species found only on soils derived from serpentine and related mafic and ultramafic rocks, gives the Walker Ridge public lands statewide

and worldwide significance. Serpentine soils are known throughout the world as hotspots for plant evolution. Together with Turkey, Cuba and New Caledonia, California is one of the four richest places in the world for serpentine endemic plants (Brooks 1987). Within California, the richness of serpentine endemics reaches its peak in the North Coast Ranges (Kruckeberg 1984, Harrison et al. 2000). Of the 215 serpentine endemic plants in the state, 58 are found in Lake County alone, compared with 36 in the entire South Coast Ranges and 16 in the entire Sierra Nevada (Kruckeberg 1984, McCarten 1988).

### **Special-Status Plants**

Among the uncommon and rare plants occurring along Walker Ridge and surrounding lands, several are BLM special-status species (CNDDDB, November, 2010). Special-status species reported at Walker Ridge include the following California State Rare, State Endangered, California Rare Plant Rank (CRPR) 1B<sup>1</sup>, and CRPR 4<sup>2</sup> taxa:

*Amsinckia lunaris* (bent-flowered fiddleneck) (CA Endangered, CRPR 1B)  
*Arctostaphylos canescens* ssp. *sonomensis* (Sonoma canescent Manzanita) (CA Endangered, CRPR 1B)  
*Astragalus rattanii* var. *jepsonianus* (Jepson's milk-vetch) (CRPR 1B)  
*Atriplex joaquiniana* (San Joaquin spearscale) (CRPR 1B)  
*Balsamorhiza macrolepis* var. *macrolepis* (big-scale balsam root)(CRPR 1B)  
*Brodiaea coronaria* ssp. *rosea* (Indian Valley brodiaea) (CA Endangered, CRPR 1B)  
*Calystegia collina* ssp. *tridactylosa* (three-fingered morning glory) (CA Endangered, CRPR 1B)  
*Castilleja rubicundula* ssp. *rubicundula* (pink creamsacs) (CRPR 1B)  
*Eriastrum tracyi* (Tracy's eriastrum) (CA Rare, CRPR 1B)  
*Eriogonum nervulosum* (Snow Mountain buckwheat) (CRPR 1B)  
*Fritillaria pluriflora* (adobe-lily) (CRPR 1B)  
*Harmonia hallii* (Hall's harmonia) (CRPR 1B)  
*Hesperolinon drymarioides* (drymaria-like western flax) (CRPR 1B)  
*Layia septentrionalis* (Colusa layia) (CRPR 1B)  
*Monardella villosa* ssp. *globosa* (robust coyote mint) (CRPR 1B).  
*Streptanthus morrisonii* (Morrison's jewel flower) (CRPR 1B)

Other BLM special-status plant species may be present at Walker Ridge. Additional plant species of concern reported on Walker Ridge include:

*Astragalus clevelandii* (CRPR 4)  
*Asclepias solanoana* (CRPR 4)  
*Delphinium uliginosum* (CRPR 4)  
*Collomia diversifolia* (CRPR 4)  
*Calystegia collina* ssp. *oxyphylla* (CRPR 4)

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<sup>1</sup> CRPR 1B plants (formerly known as CNPS List 1B) are rare throughout their range with the majority of them endemic to California. Most CRPR 1B taxa have declined significantly over the last century. 1B plants are considered rare, threatened or endangered in CA and elsewhere.

<sup>2</sup> CRPR 4 plants (formerly CNPS List 4) are of limited distribution or infrequent throughout a broader area in California. While they occur more commonly from a statewide perspective, they are of limited distribution, and uncommon enough that their status should be monitored regularly for changes to the degree of endangerment or rarity.

*Senecio clelandii* (CRPR 4)  
*Clarkia gracilis ssp. tracyi* (CRPR 4)  
*Navarretia jepsonii* (CRPR 4)  
*Collinsia greenei* (CRPR 4)  
*Lomatium hooveri* (CRPR 4)  
*Astragalus breweri* (CRPR 4)

Other plant species of concern may be present at Walker Ridge. Incompatible management of Walker Ridge would contribute to further declines of these species, and increase their likelihood of federal or state listing as threatened or endangered.

### **Potentially Undescribed Plant Taxa**

Serpentine areas, like those along Walker Ridge, are important reservoirs of plant diversity, and their endemic flora has not been fully described. In California, new serpentine-associated vascular plants are still being described. Recent examples include *Carex serpentinicola*, *Harmonia guggolziorum* and *Silene serpentinicola* (Zika et al. 1998; Baldwin 2001; Nelson and Nelson 2004).

Along Walker Ridge, several plants deserve a closer examination by botanists to clarify their identity, and to determine if they could be undescribed taxa. For example, on Walker Ridge there are plants in the genera *Linanthus* and *Streptanthus* that do not key to or clearly fit the descriptions of the described taxa in those genera.

### **Unusual Plant Associations**

The vegetation of Walker Ridge is extremely varied, and includes outstanding examples of distinctive plant associations. For example, one of the world's largest stands of McNab Cypress (*Hesperocyparis macnabiana*) occurs on Walker Ridge. Additionally, large stands of Sargent's cypress (*Hesperocyparis sargentii*) exist there along with assemblages of knobcone pine (*Pinus attenuata*) and three other conifer species; grey pine (*Pinus sabiniana*), California nutmeg (*Torreya californica*), and western juniper (*Juniperus occidentalis*). Five different oaks (and some unusual hybrids of those species) have been documented. Extensive stands of serpentine, non-serpentine and chamise-dominated chaparral cover much of Walker Ridge, supporting over 40 species of trees and shrubs and hundreds of non-woody species. Post-fire inventories after the 2008 Walker Fire revealed an extraordinarily rich array of wildflowers and other herbaceous plants. Wetland communities are abundant, supporting diverse assemblages of associated species. Although botanists have reported the presence of these and numerous other associations on Walker Ridge, its plant associations have not been formally described or inventoried. Such research would be worthwhile for the management of these lands.

### **Wetlands**

Walker Ridge is unusually rich in wetland habitats, including seeps, springs, riparian areas and wet meadows. These communities are critical to wildlife, harbor unique assemblages of plants, and play a key role in watershed function.

Harrison (2000) documented the value of serpentine wet areas at Knoxville, noting that they host a diverse array of late-flowering species, 25 of which are restricted to this habitat. Many of these

plants exist on Walker Ridge, although comprehensive inventories are still needed to further document the wetland flora on the Ridge.

Worldwide, natural springs exhibit a unique combination of physical and chemical properties that give rise to distinctive biological communities (Sada, et al. 2001), often supporting plants and animals found nowhere else. A diversity of fresh water, alkaline, and geothermal springs are found on Walker Ridge. The named springs found on Walker Ridge public lands are Complexion Spring, Barrel Spring, Cold Spring, Til Jones Spring, Deadshot Spring, and Eaton Springs. In addition, many other (unnamed) springs exist within the proposed ACEC, which also contributes to the overall ecological and recreational values of the Walker Ridge landscape.

Perennial creeks and their associated riparian communities include Kilpepper Creek, Trout Creek, and the extensive Sulphur Creek headwater drainages (Eaton Springs - East Fork tributary, Till Jones Freshwater Branch tributary, West and Salt Branch Fork tributaries). Intermittent and ephemeral drainages bisect much of Walker Ridge, all of which provide a great variety of water-derived landscape features, and critical watershed and habitat values.

Numerous wet meadows occur on Walker Ridge, including the extensive Eaton Springs complex with its hydric soils and associated riparian community. Methany Flat also supports serpentine wetland meadow and riparian species, surrounded by mixed serpentine chaparral. The BLM picnic area at Cold Spring is another spectacular example of a unique wet meadow assemblage. One striking feature of the Cold Spring assemblage is the prevalence of the white-tomentose swamp thistle, (*Cirsium douglassii* ssp. *breweri*). Additionally, at least nine native grass species occur in the Cold Spring wet meadow area, along with many other plants that have limited occurrences in the region. A wet meadow two miles south of Brim Road supports the only known population of tufted hairgrass (*Deschampsia caespitosa*) in the Bear Creek watershed.

The importance of these wetland resources cannot be overstated. While enough information is already known that gives testament to their value, a key management objective should be a full documentation of all the wetland sites that occur on Walker Ridge public lands (Weigand and Thomsen 2010).

## **Outstanding Environmental Values**

### **Educational Value**

The combination of its diverse flora, road access, and geographic location relative to cities in both the Sacramento and Bay areas, has made Walker Ridge a frequent field trip destination for environmental education. Several universities (e.g., Humboldt State University, University of California at Davis), botanical groups (e.g., Davis Botanical Society, California Native Plant Society) and others sponsor or lead trips to Walker Ridge for environmental education. Appendix A contains examples of plant lists compiled by these visits over the past several years. Plant collectors also have regularly visited Walker Ridge to collect materials for educational events and university courses.

In June 2008, a large wildfire burned 14,500 acres on Walker Ridge, creating a unique opportunity to better document the flora. Unburned for many decades, areas that were formerly dominated by dense chaparral are now accessible. Moreover, there is a rich “fire-follower” flora on serpentine and non-serpentine substrates that can now be documented. Although partial plant lists are available for Walker Ridge that demonstrate its regional and statewide significance, there

have been no systematic attempts to document the flora, map the many rare plants and high-value plant associations, or to describe the site-specific issues that threaten its botanical resources.

The need to better document the rare and endemic flora of California for future climate change monitoring efforts is paramount. There is now ample evidence that climate change is already affecting living systems (Parmisan and Yohe 2003). Scientists are predicting that narrowly-distributed endemics, such as special-status species and serpentine endemics like those occurring throughout the Walker Ridge area, are at high risk of extinction as the California climate changes over the next century (Loarie et al. 2008; Harrison et al. 2009). Walker Ridge is home to many serpentine- and near-serpentine endemics with limited distributions; these plants and their associated pollinators are vulnerable to even minor shifts in regional climate. Serpentine endemics are presumed to face extraordinarily high risks from climate change because their narrow edaphic niches limit their possibilities to adapt through migration (Harrison et al., 2009). As such, these landscapes are critical areas for climate change studies, yet their extreme vulnerability to climate change has received insufficient attention and baseline documentation. Rather, the trend for the Walker Ridge area has been to consider the industrial development of public lands where the best opportunities may exist for conserving and restoring key ecological values.

### **Recreational and Scenic Values**

The Walker Ridge lands provide numerous recreational opportunities for activities as varied as hiking, recreational shooting, bird watching, plant observation and off-road vehicle riding. But, it is their proximity to, and accessibility from, Bear Valley and Highway 20 that gives the Walker Ridge lands recreational and scenic values of more than local significance.

Since the late 1990s, the American Land Conservancy (ALC), California Wildlife Conservation Board, The David and Lucile Packard Foundation and the California Rangeland Trust (ALC 2005) have conserved about 15,000 acres of the private lands adjacent to Walker Ridge. These lands are a destination for visitors not only from the region but also from throughout the state and nation (Game and Lyon 1996; ALC 2005).

The primary attraction is the spring wildflower bloom, which draws plant and photography enthusiasts from throughout the state and nation. This recreational use is supported by a guidebook funded by numerous organizations (including Sunsweet Growers Inc., Sierra Nevada Brewing Company, Inc. and the Yuba-Sutter Appeal-Democrat), and numerous websites and articles describing the valley and providing advice for visiting the region (Edwards 1993, Game and Lyon 1996, Phillips 1998, ALC 2005, Leigh 2005). These publications and websites address a national audience and describe Bear Valley and its surroundings as one of California's best wildflower displays, and even as "one of the most spectacular wildflower displays in the world" (Game & Lyon 1996).

Many tourists travel along and recreate on Walker Ridge in conjunction with their visits to Bear Valley. Walker Ridge has recreational values that complement those of Bear Valley, and strengthen the region as a destination for recreation. By driving along Walker Ridge, visitors can make a loop drive from Highway 20 through Bear Valley, and then up and along Walker Ridge back to Highway 20. Unlike Bear Valley, Walker Ridge provides opportunities for hiking and picnicking, including visits to hot springs and abandoned mines, and spectacular views of Bear Valley, the Sutter Buttes, Indian Valley Reservoir, Snow Mountain and even Mt. Lassen. It also provides an opportunity for visitors to view many uncommon plants and animals that do not occur on the floor of Bear Valley. In fact, many photographs of "Bear Valley wildflowers" in

guidebooks and articles are of plants that do not grow in Bear Valley but do grow on Walker Ridge, indicating that Bear Valley visitors also recreate on Walker Ridge and do not make a distinction between these two portions of this watershed.

The visual values of the Walker Ridge lands have greater than local significance because of their prominence in many Bear Valley views. Walker Ridge is part of the landscape being photographed in Bear Valley, which draws photographers from throughout the state and nation each spring. Many of these visitors are also taking photographs on Walker Ridge as well.

Incompatible management of Walker Ridge would contribute to decreased accessibility of these unique lands for educational and recreational purposes.

#### **IV. ANALYSIS OF THE APPLICABILITY OF ACEC CRITERIA**

##### **Relevance and Importance**

Several resources or values of the Walker Ridge public lands described in this proposal are relevant to its potential as an ACEC, because they constitute a significant environmental “value, resource, system, process or hazard.” Several of these resources or values are important because they have “more than local significance” and “special worth, consequence, meaning, distinctiveness, or cause for concern.”

The relevance criterion is met by the existence at Walker Ridge of a distinctive flora and unusual vegetation, and because it constitutes a substantial portion of an ecologically significant watershed. Importantly, these are landscape-scale attributes. These resources cannot be reduced to a series of dots on maps or sustainably conserved as a set of fenced locations.

The importance criterion is met by demonstrating greater than local significance, and/or rarity and fragility. Resources and values that meet the importance criterion include the regional (i.e., northern California) and statewide educational and recreational value of the Walker Ridge ecosystem, the uniqueness and fragility of its vegetation, and its ecological connections to Bear Valley, a major focus of State government and both national and state conservation organizations.

##### **Need for Special Management Attention**

The need for expanded management attention for a more ecologically relevant, expanded Walker Ridge ACEC is based on its conditions and trends, the relationship of its environmental values to other resources and activities, and the opportunities for its protection and restoration if it is so designated.

Predominant present activities are hiking, ORV use, recreational shooting, environmental education, bird watching and other nature observation, operation of telecommunication facilities and use as a travel route to Indian Valley or Bear Valley. Future uses could include more extensive development of infrastructure and other facilities for recreational visitor use, transportation, telecommunications and wind energy.

There is a need for management attention because several of the current or possible future uses could potentially conflict with each other, and may be incompatible with conserving the resources and values of Walker Ridge. Furthermore, conditions and trends by many observers are considered to be deteriorating.

Serpentine areas, particularly wet areas and barrens, are fragile environments that recover slowly from severe disturbance. This argues that Walker Ridge is not an easy place to conserve environmental resources in combination with its other uses. Several uses pose no substantial conflicts with conservation of environmental resources including recreational shooting, legal hunting, hiking, mountain biking, horseback riding, bird watching and nature study (these uses, however, may not all be compatible with each other). Uses that disturb vegetation and compact soil (e.g., ORV use) at a minimum, require careful management to be compatible with uses involving extensive clearing of vegetation and grading. Uses that disturb vegetation and compacting soil (e.g., development of additional infrastructure and other facilities) are probably not compatible with conservation of the environmental resources and values of Walker Ridge.

The sensitivity of Bear Valley's visual resources also should be taken into consideration in the management of Walker Ridge. Installation of larger structures that are visible from Bear Valley would impair its visual resources and elsewhere in the region, including public lands to the south such as the Bear Creek Ranch and the Cache Creek Wilderness.

Another special management issue includes monitoring and controlling the spread of invasive, nonnative species. Barbed goatgrass (*Aegilops triuncialis*), one of several wildland invasive plants on Walker Ridge, is an extremely noxious species that reduces native plant biodiversity on serpentine soils. Barbed goatgrass occurs along Brim Road leading to Bear Valley. Without control efforts, it could easily spread on Walker Ridge—as it has elsewhere in the neighboring areas.

Considerable public funds have been spent on controlling invasive plants on adjacent BLM lands (Bear Creek Ranch) south of Highway 20, the Caltrans-designated Bear Creek Botanical Management area along Highway 20, and at nearby Bear Valley, just east of Walker Ridge (Thomsen et al. *in press*). Stewardship of public lands includes maintaining the native plant communities upon which wildlife and people depend for a wide range of ecological services, habitat, and recreational opportunities.

On Walker Ridge, non-native invasive plants can be expected to increase where ground disturbances and human activities co-occur, and their increased presence will have a marked influence on the native botanical resources there. In some wetland areas, two invasive species have already made substantial inroads into the native plant communities; annual yellow sweetclover (*Melilotus indica*) at Eaton Springs and elsewhere, and compass plant (*Euphorbia lathyris*), at the BLM picnic area near Cold Spring.

Weigand and Thomsen (2010) emphasized the need to rehabilitate OHV trails and automobile damage in sensitive areas such as wetlands on Walker Ridge. Vehicle use reduces plant cover, causes soil compaction, and alters water flow. These disturbances also affect lower impact recreational values and facilitate the spread of invasive plants.

Many of the environmental features, human uses, and management problems found throughout the Walker Ridge public lands also have been present at other BLM lands and played a key role in ACEC designation (e.g., in the Red Hills Management Area) or in requests for such designation (e.g., the Knoxville public lands). Walker Ridge actually has environmental resources of comparable or greater uniqueness and sensitivity than other nearby ACECs and RNAs and ACECs and RNAs with similar types of resources (e.g., the Northern California Chaparral RNA, and the Cedar Roughs and Cache Creek ACECs.) It also has comparable or greater environmental values than these existing ACECs and RNAs.

This nomination does not propose any specific management policies for Walker Ridge. However, it does argue that the conditions and trends of environmental resources and values on Walker Ridge meet and exceed the criterion of “need for special management attention,” and that many opportunities exist for improved conservation. In the absence of a more ecologically relevant ACEC designation, as nominated herein, the environmental resources and values of Walker Ridge will not have been fully and adequately considered in management plans and activities.

## **Conclusions**

This nomination concludes that the entirety of the Walker Ridge public lands, based on its environmental resources and values, meets the criteria of relevance and importance for ACEC status, and that there is a need for special management attention. Critical resources include a high diversity of plant species, serpentine-associated plant species, special-status plants, wetlands, potentially undescribed plant taxa, unusual plant associations and its ecosystem significance as a major component of the Bear Creek watershed, including Bear Valley. Special values include significant educational, recreational and scenic opportunities. These resources and values require special management attention, particularly as many current and potential future uses of these lands are not necessarily compatible with conservation of these resources and values. Thus, the expanded ACEC designation is merited.

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