

Chapter 2: Current Conditions and Trends in Wilderness Character and Management

2.1 Introduction

This chapter describes the existing condition of the King Range and Rocks and Islands Wilderness character, as well as past and current management actions and uses that affect the qualities contributing to this character. The five wilderness qualities—natural, undeveloped, solitude or primitive and unconfined recreation, untrammled, and unique/supplemental values—will be discussed as they relate to existing conditions.

BLM policy for management of designated wilderness areas states that, “Unless Congress specifies otherwise, BLM must ensure the preservation of wilderness character in managing all activities conducted within wilderness areas” (43 CFR Part 6300). The character of most wilderness areas, including the King Range and Rocks and Islands Wilderness, has been impacted by past and present human use. By designating wilderness, Congress establishes that a particular area has wilderness character that must not be degraded from conditions at the time of designation. This chapter describes the baseline conditions of the King Range and Rocks and Islands Wilderness qualities and provides the context necessary to understand the impact of the actions described in Chapter 3. A more complete description of the resource values can be found in the King Range NCA RMP (USDI BLM 2005).

2.2 Natural

The quality of “naturalness” is a fundamental component of wilderness character. In this context, natural means that ecological and evolutionary systems are substantially free from the effects of modern civilization and natural conditions are preserved and protected.

The Rocks and Islands Wilderness encompasses rocks and small islands along the coast adjoining the King Range NCA. These rocks and islands are used by a variety of sea birds and marine mammals and support diverse intertidal life (Figure 2-1). The wilderness boundary, as well as the BLM’s jurisdictional boundary, is at the mean high tide line. For the most part, the rocks and islands are concentrated near Sea Lion Gulch, Punta Gorda, Shelter Cove, and north of the Mattole River estuary. The

total size is approximately 2 acres. The BLM interprets the tidepools and rocks along the Shelter Cove coastline and educates visitors about minimizing impacts to tidepools, marine mammals, and seabirds. Abalone diving/harvesting is popular on the rocks and reefs surrounding Shelter



Figure 2-1 Cormorants resting on the Rocks and Islands Wilderness, Shelter Cove, CA

Cove and Punta Gorda, with harvests regulated by the California Department of Fish and Game. Historic uses, including harvesting of marine mammals and sea birds, impacted some species for which the wilderness provides habitat for, although the majority of these species have since recovered (Read and Wade 2000). At present, impacts to the natural quality of the Rocks and Islands Wilderness, including fishing pressure and marine debris, take place primarily beyond the wilderness boundary.

The King Range Wilderness, although impacted by past land uses, exhibits a higher degree of naturalness than most coastal land in the U.S. Due to hot, off-shore summer winds and an associated absence of fog, historic vegetation patterns within the King Range NCA are thought to have been shaped primarily by summer moisture availability and the prevalence of lightning caused fires and/or indigenous use of fire. These conditions, in conjunction with the area's steep coastal ridges, help to create and maintain an unusual mosaic of plant communities and species assemblages. Seven primary natural communities —chaparral, coastal scrub, forest, grassland, coastal beach, rocky intertidal, and rivers and streams—can be found (Figure 2-2). Maintaining the integrity of these systems is essential to protecting the area's natural quality. The King Range RMP (2005) defined the pre-logging era date of 1945 as a baseline for the goal of protecting and maintaining a mix of vegetation communities. The seven natural communities are described below, as are several factors threatening these systems.

Figure 2-3 Chaparral and young Douglas-fir forests cover upland ridges in the southern portion of the wilderness area



2.2.1 Chaparral

Chaparral generally occurs along ridge-tops and in other areas where moisture is insufficient to support forest vegetation (Figure 2-3). Chaparral is composed of dense stands of fire-adapted vegetation, such as manzanita (*Arctostaphylos* spp.) and ceanothus (*Ceanothus* spp.). Numerous species utilize this habitat, including western rattlesnake (*Crotalus viridis*), red-tailed hawk (*Buteo jamaicensis*), California quail (*Callipepla californica*), Roosevelt elk (*Cervus canadensis roosevelti*), Columbia blacktail deer (*Odocoileus hemionus columbianus*), black-tailed jack-rabbit (*Lepus californicus*), coyote (*Canis latrans*), and striped skunk (*Mephitis mephitis*).

2.2.2 Coastal Beach and Intertidal Zone

The coastal beach and the intertidal zone occur side-by-side along the shoreline. For many visitors, these areas form the symbolic heart of the wilderness, yet their total area is only a small percentage of the wilderness. These areas, which receive a significant portion of the human visitation, provide habitat for numerous wildlife and plant species. The BLM uses kiosks and brochures to provide visitors with information on how to minimize impacts to these ecosystems.

The King Range Wilderness beach is kept in constant flux by wind, tides, waves, and sand transport. This area is often visited by shore birds such as western and least sandpipers (*Calidris mauri*, *Calidris minutilla*), semipalmated plovers (*Charadrius semipalmatus*), long-billed curlew (*Numenius americanus*), and marbled godwit (*Limosa fedoa*). Harbor seals (*Phoca vitulina*) and sea lions (*Zalophus californianus*) may haul out on the beach, but generally prefer the larger intertidal and offshore rock outcrops. The popular Lost Coast National Recreation Trail (LCT) runs the length of the beach, making it the most heavily visited area.

The intertidal zone is characterized by the dramatic changes brought by the shifting tides. The species that live in the rocky intertidal zone must withstand pounding waves followed by hours of dryness or confinement to tide pools. Crabs (*Cancer* sp.), anemones (*Anemonia* sp.), sea stars (*Asterias* sp.), urchins (*Strongylocentrotus purpuratus*), abalone (*Haliotis* sp.), snails (class: *Gastropoda*), mussels (*Mytilus californianus*), and barnacles (subclass: *Cirripedia*) thrive in this habitat. When the tide is in, fish and other larger animals take advantage of the shelter and food these rocky settings provide.

Each spring large quantities of marine debris and trash tend to accumulate along the beaches. This debris includes plastics and industrial materials that are unsightly and could impair wildlife habitat. BLM annually removes much of this material along with other debris left by visitors.

The shoreline below the mean high tide line, including the majority of the intertidal zone, falls under the jurisdiction of the State of California. The BLM manages all lands above mean high tide. The BLM has obtained a permit from the California State Lands Commission (Permit Number PRC 6533.9, expires February 28, 2028) to enforce vehicle closures below the mean high tide line along the length of the King Range NCA.

2.2.3 Coastal Scrub

Coastal scrub is generally adjacent to the coastal prairies or covering steep rocky terrain on the immediate coastline. Coastal scrub vegetation

is generally dense and less than 6 feet in height; it represents an intermediate vegetative succession stage. Dominant species include coyote brush (*Baccharis pilularis* ssp. *consanguinea*), salal (*Gaultheria shallon*), evergreen huckleberry (*Vaccinium ovatum*), California blackberry (*Rubus ursinus*), Pacific reedgrass (*Calamagrostis nutkaensis*), and poison oak (*Toxicodendron diversilobum*). This habitat supports the Pacific tree frog (*Pseudacris regilla*), western fence lizard (*Sceloporus occidentalis*), western rattlesnake (*Crotalus viridis*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*), among other species.

2.2.4 Forest

The dominant forest type is a mixed evergreen forest of Douglas-fir (*Pseudotsuga menziesii*), tanoak (*Lithocarpus densiflorus*), and madrone (*Arbutus menziesii*). Large, continuous stands of old-growth forests are, and have historically been absent from the King Range NCA. Due to climatic factors, soil conditions, and both natural and human-caused fires, the full range of vegetative seral stages are present (Figure 2-4).

For many decades, the timber industry focused on the region's redwood forests, by-passing the Douglas-fir forests of the King Range NCA. Logging around, and to some extent within, the King Range NCA began in earnest in the late 1950s and peaked in the middle 1960s. A small amount of logging continued until mid-1970s. In the 1960s, the BLM completed two harvests in what is now King Range Wilderness totaling approximately 500 acres.

The majority of logging affecting what is now wilderness took place on private land that was later acquired by the BLM. Harvest methods were clear-cutting and high grading (removal of the best trees), which left remnant large Douglas-firs scattered in some harvested areas. For the most part, these areas were not reforested, but were left to regenerate naturally. As a result, tanoak and madrone presently dominate many acquired lands on which large Douglas-fir were historically prevalent. Forest stands within these acquired lands often lack the structure and species composition of the pre-harvest forest stands. Douglas-fir habitat supports a high abundance of wildlife, including diverse amphibians, birds, and mammals. The BLM has ongoing projects on lands adjoining the wilderness to thin stands and reduce the tanoak component to accelerate a return to pre-harvest characteristics.

Each year the evidence of past logging activities within the wilderness is growing fainter. Stumps continue to decay and/or burn in wildfires and are expected to disappear in the next 20 years. Most old logging roads have been either decommissioned or sufficiently revegetated to appear



Figure 2-4 A Douglas-fir forest

natural. In time, the harvested areas have the potential to regain more of their pre-harvest characteristics. However, wildfire conditions and climate change may inhibit a full return to these characteristics.

2.2.5 Grassland

The majority of the grasslands, characterized as coastal prairie, are located in the northwest section of the King Range Wilderness, with smaller pockets found farther south along the coast. This habitat is dominated by native perennial grasses such as California oatgrass (*Danthonia californica*), Pacific reedgrass (*Calamagrostis nutkaensis*), and seacliff bluegrass (*Poa unilateralis*). Various non-native grasses also exist. Patches of rare native prairie Junegrass (*Koeleria macrantha*) and California melic (*Melica californica*) are also present. The grasslands support species including the California red-legged frog (*Rana aurora*), western rattlesnake, pocket gopher (*Geomys bursarius*), coyote, and various song birds. They also provide foraging habitat for raptors, including northern harrier (*Circus cyaneus*), American kestrel (*Falco sparverius*), white-tailed kite (*Elanus leucurus*), and peregrine falcon (*Falco peregrines*).

Research conducted in the Sinkyone Wilderness State Park, which neighbors the King Range Wilderness, indicates that coastal prairies were historically more prevalent along the Mendocino/Humboldt coast than at present. Researchers believe that natural fire cycles, along with burning by Native Americans, historically maintained the presence of grasslands within the area (Bicknell et al. 1993).

Over the past 60 years, King Range grasslands have been affected by modern fire suppression, Douglas-fir encroachment, and invasive species introductions. Grasslands declined from 5,097 acres in 1941 to 3,464 acres in 2005, a decrease of about 32 percent in 64 years (BLM unpublished data). Since 1941, some areas, such as the Hidden Valley, Kinsey, and Oat Ridge grasslands, have sustained rapid levels of Douglas-fir encroachment as identified in Figures 2-5 and 2-6 where other areas, such as Spanish Flat (Figure 2-7), have sustained more gradual levels. While much of the King Range NCA was managed for grazing in the 1940s, aerial photographs from 1941 are the earliest photographic documentation of the area's vegetative cover and were taken shortly before mechanical logging and active fire suppression began in earnest.

While the size of grasslands in the King Range NCA has decreased over the past 60 years, their composition has also been altered by the introduction of non-native annual and perennial species (D'Antonio et al. 2000). The replacement of native bunchgrasses by non-native

Mediterranean grasses has occurred throughout California over the past 150 years. Some species of historically abundant native perennials, such as prairie Junegrass and California melic, have fewer than ten small relict sites remaining in the King Range NCA.

Since 2004, the BLM and its partners have conducted native grassland projects as part of restoration activities following wildfires. These projects include native seed collection, propagation, and transplant. Following the 2007 Spanish Fire, the BLM immediately reseeded areas disturbed by fire suppression with native California mountain brome (*Bromus carinatus*) and blue wildrye (*Elymus glaucus*). In the fall of 2008, approximately 12,000 native perennial bunchgrasses were planted in the recovering area to take advantage of the reduced thatch and annual grass competition.

2.2.6 Rivers and Streams

Thirty-nine perennial streams are located on the western slope of the King Range NCA. These streams range from narrow channels containing neither fish nor amphibians to larger waterways with anadromous and resident fish as well as an assortment of amphibians and reptiles. Generally, all streams are steep and carry a high sediment load. Thirteen west-side streams contain anadromous fish populations. These include Fourmile Creek, Cooskie Creek, Randall Creek, Spanish Creek, Oat Creek, Kinsey Creek, Big Creek, Big Flat Creek, Shipman Creek, Buck Creek, Gitchell Creek, Horse Mountain Creek, and Telegraph Creek. These streams contain a small population of winter-run steelhead trout (*Oncorhynchus mykiss*), sculpin (*Cottus* sp.), and threespine stickleback (*Gasterosteus aculeatus*). Sightings of coho salmon (*Oncorhynchus kisutch*) have been reported in Telegraph Creek and Big Creek, but no evidence of a stable population has been found in these streams. On the eastern slope of the King Range NCA, Mill, Honeydew, and South Fork Bear Creeks all support populations of coho salmon, steelhead, and sculpin. The latter two creeks, which are among the Mattole River's largest tributaries, also support populations of Chinook salmon and threespine stickleback. Refer to Chapter 3 in the King Range NCA RMP for extent of anadromy. The BLM is working with Humboldt State University and the Mattole Salmon Group to monitor fish populations and habitat in wilderness streams.

The majority of the King Range Wilderness fish-bearing streams have been evaluated using rapid bioassessment, a method in which aquatic macroinvertebrate communities are used as indicators of water quality. Assessment results show that water quality ranges from good to excellent with few exceptions (Vinson 2001). Since this assessment, cattle

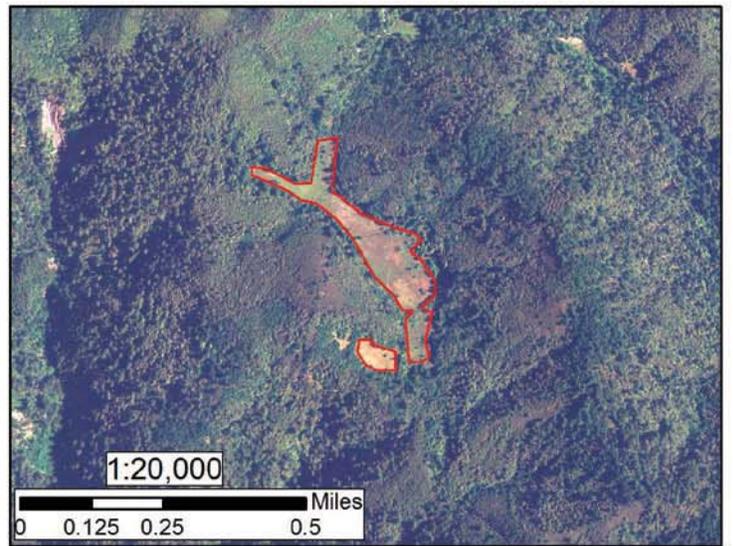
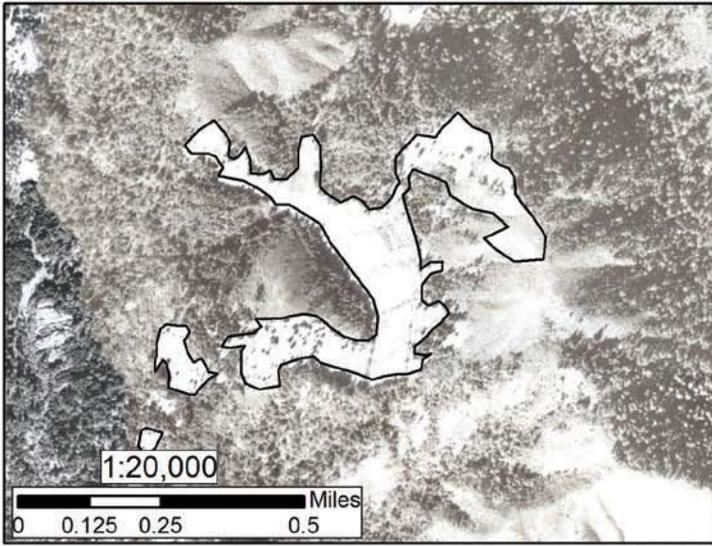


Figure 2.5 Hidden Valley grassland 1941 (left) and 2005 (right)

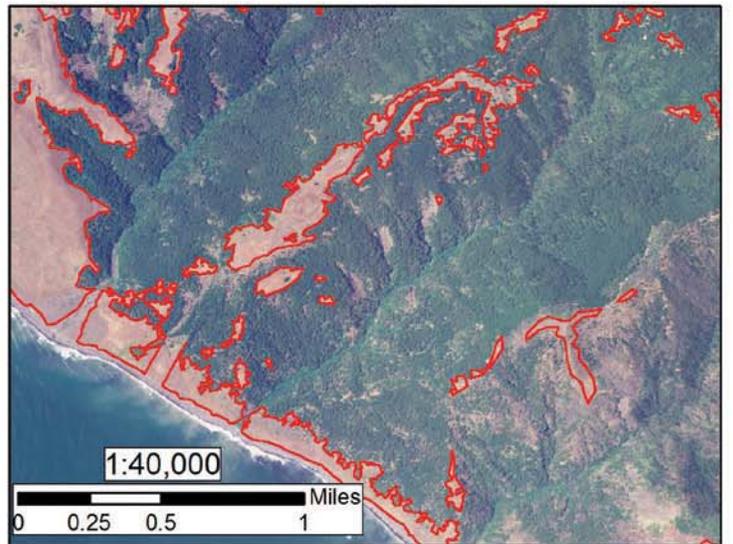
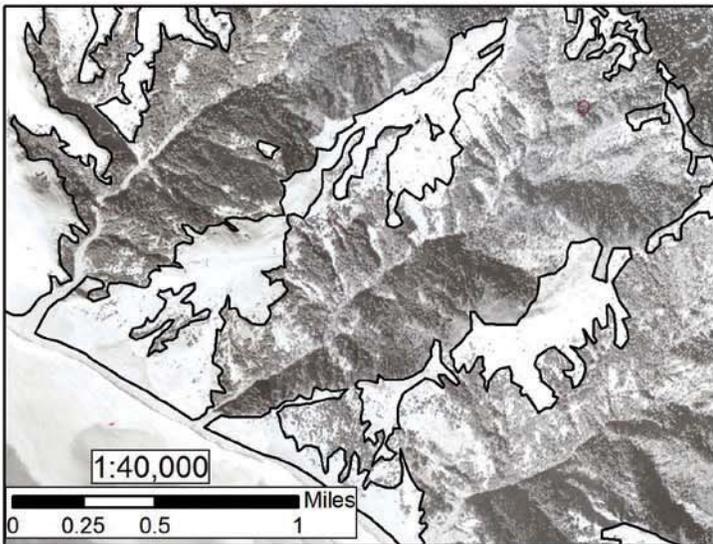


Figure 2.6 Kinsey and Oat Ridge grassland 1941 (left) and 2005 (right)

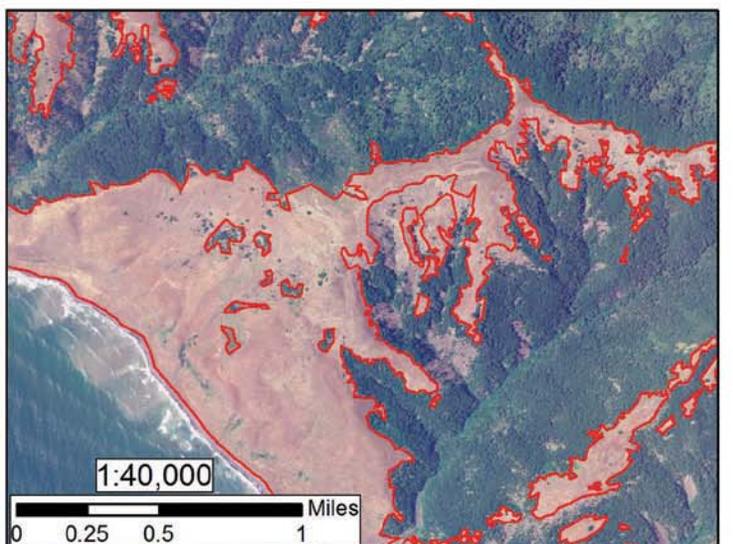
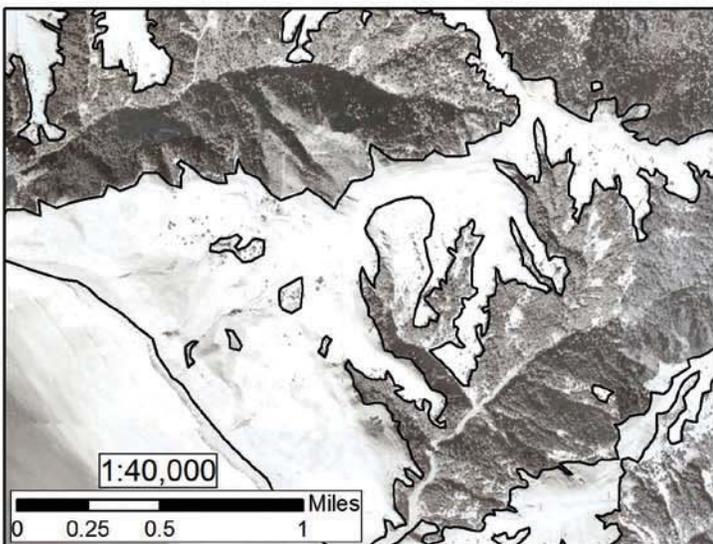


Figure 2.7 Spanish Flat grassland distribution 1941 (left) and 2005 (right)

have been removed from the Randall Creek watershed, which was found to have relatively inferior water quality. Data on nitrogen and phosphorous concentrations were collected in 1999 and 2000 in Cooskie, Randall, Spanish, Kinsey, Big, and Big Flat Creeks (Engle 2000). These samples showed nitrogen concentrations to be within the expected range for forested streams. Phosphorus levels in sampled streams were found to be high in the 1999 samples, but were much lower in 2000 (Engle 2000). Continuous summer water temperature measurements have also been recorded in these streams (Engle 2000). With the exception of Cooskie Creek, summer water temperature data tend to stay below 68 °F which is within the range to support native fish and other aquatic life.



Figure 2-8 Mill Creek is one of numerous streams that provides spawning habitat for anadromous fish

The riparian areas surrounding these aquatic ecosystems are generally healthy. The influence of the naturally high sediment load in west slope streams likely overwhelms the erosive effects of historic sheep grazing. Vegetation along these streams is dominated by fast growing species such as alder and willow, though large conifers such as Douglas-fir are also present. The riparian areas along the Mattole River tributaries (Mill Creek, Honeydew Creek, and South Fork Bear Creek) have been influenced by a combination of past logging and sedimentation caused by large flood events in 1955 and 1964. Riparian vegetation in these areas is dominated by alder (*Alnus rubra*) and willow (*Salix* sp.), though the upper portions of Mill Creek and South Fork Bear Creek have more natural riparian conditions with some stands of unlogged Douglas-fir (Figure 2-8).

2.2.7 Fire and Fuels Management

Historically, fire has been one of the primary forces affecting the King Range NCA landscape, creating and maintaining a mosaic of fire-adapted ecosystems including grassland and chaparral (Figure 2-9). Disrupting natural fire dynamics which is sometimes necessary to protect natural resources and human health and property, impairs the untrammeled and natural qualities of wilderness. The King Range NCA RMP seeks to establish a balance between managing for natural fire dynamics and protecting property and resources. A comprehensive description of the King Range NCA fire management program can be found in Chapter 3 of the King Range NCA RMP (USDI BLM 2005). The California Department of Forestry and Fire Protection, by agreement with the BLM, is principally



Figure 2-9 Lightning caused fires create a mosaic of vegetation along the crest of the King Range

responsible for suppressing wildfires in the King Range Wilderness. The Cooperative Fire Protection Agreement provides legal structure for this collaboration and requires fire suppression agencies to identify operating restrictions to protect wilderness resources (USDI BLM 1997).

In a normal fire season, one to two human-caused wildfire events require suppression. These fires typically originate in unattended campfires along the Lost Coast Trail. An additional one to two escaped campfires per year are discovered by, or reported to BLM staff, but are suppressed by the public or go out naturally. The majority of these wildfires are confined to driftwood or grass along the marine terrace. Approximately once every 3 years, a wildfire moves upslope to the immediate ridge top or the mid slope timber. These wildfires, although usually requiring suppressive action, may thin out young Douglas-fir trees encroaching on coastal prairies that were historically maintained by lightning events or anthropogenic burning by indigenous people (Bicknell et. al. 1993).

Historical observations by BLM resource specialists suggest that once every 5–15 years a landscape-wide lightning event may produce wildfires within the wilderness, generally burning along ridge tops or mid-slope. Figure 2-10 shows the fire history since 1950. During such events, multiple wildfires may occur over southern Humboldt County and northern Mendocino County, resulting in large, extended wildfires and intensive suppressive operations on both public and private lands. In the past, such wildfire events have resulted in severe suppression actions, including dozer line construction, in what is now wilderness. Restoration activities in the wake of these actions may require heavy equipment such as bulldozers or excavators to eliminate berms and safety zones and re-contour the natural shape of the land.

In order to provide a defensible perimeter and minimize the need for dozer lines, a shaded fuel break system has been completed and maintained along the eastern edge of the wilderness. This system is designed to minimize impacts of fire suppression activities and reduce heavy equipment impacts within the heart of the wilderness. Refer to Figure 3-2 in Chapter 3 for the location of this fuel break system. After the 2003 Honeydew Fire, the BLM attempted to construct an additional shaded fuel break along a dozer line at Fire Hill. These trees did not survive due to the soil and weather conditions and the fire break was consequently abandoned.

2.2.8 Infection and Disease

While disease can play a natural ecological role, humans sometimes unwittingly spread vegetative disease and infections beyond their

natural scope of influence. Sudden oak death is currently threatening several tree species in California and Oregon forests. Sudden oak death is a disease caused by a fungus-like pathogen (*Phytophthora ramorum*) that infects a wide variety of host species and causes mortality in tanoak, black oak (*Quercus velutina*), coast live oak (*Quercus agrifolia*), and many other plant species. The agent by which this pathogen is dispersed is not yet fully understood. As a result, the most appropriate measures for preventing its establishment in the wilderness are unknown; current planning guidance in the King Range NCA RMP provides for an adaptive management approach to outbreak response. Sudden oak death has not yet been identified in the wilderness, though it has been discovered in the vicinity of Salmon Creek and the town of Redway, CA, approximately 15 miles from the wilderness boundary. It is likely that the introduction of sudden oak death would alter forest structure and composition within the wilderness.

2.2.9 Invasive Species

Invasive species pose a significant threat to the natural quality of the King Range Wilderness. In order to limit the spread of invasive plants, the BLM has undertaken prevention and eradication efforts. Proliferation of invasive species directly impacts native biodiversity, as well as ecological structure and function. It can also potentially alter native gene pools through hybridization. All natural communities within wilderness are threatened by invasive species currently in and adjacent to the wilderness.

Numerous invasive plant species have been documented and mapped within the wilderness during BLM field surveys, including European beachgrass (*Ammophila arenaria*), pampas grass (*Cortaderia jubata*), tansy ragwort (*Senecio jacobaeae*), French broom (*Genista monspessulana*), gopher plant (*Euphorbia lathyris*), and Cape ivy (*Delairea odorata*). Refer to Table 2-1 for a list of invasive non-native plants within the King Range Wilderness. Other non-native primary grassland species, such as Italian thistle (*Carduus pycnocephalus*), milk thistle (*Silybum marianum*), bull thistle (*Cirsium vulgare*), and Malta star thistle (*Centaurea melitensis*), are also present in the region but are less invasive in healthy ecosystems.

Table 2-1 A list of the primary invasive, non-native plants within the King Range Wilderness

Scientific Name	Common Name	Native Habitat(s) at Risk of Further Invasion	Approximate Total Number of Acres Infested
<i>Ammophila arenaria</i>	European beachgrass	Coastal strand/dunes	< ½ acre
<i>Carduus pycnocephalus</i>	Italian thistle	Grasslands	Scattered
<i>Centaurea melitensis</i>	Malta star thistle	Grasslands	Scattered
<i>Cirsium vulgare</i>	Bull thistle	Grasslands	Scattered
<i>Cortaderia jubata</i>	Pampas grass	Grasslands, coastal scrub/bluffs/rocks and islands	<200 acres; scattered on bluffs between Telegraph Creek and Shipman Creek
<i>Delairea odorata</i>	Cape ivy	Grasslands, coastal scrub and forest, riparian	1 acre
<i>Digitalis purpurea</i>	Foxglove	Grasslands, coastal scrub	5 acres
<i>Euphorbia lathyris</i>	Gopher weed	Grasslands, coastal scrub	5–30 acres; status post-treatment pending
<i>Genista monspessulana</i>	French broom	Grasslands	< 2 acres
<i>Holcus lanatus</i>	Velvet grass	Grasslands	Scattered, naturalized
<i>Mentha pulegium</i>	Pennyroyal	Grasslands/riparian	Scattered, naturalized
<i>Raphanus sativa</i>	Wild radish	Grasslands	Scattered
<i>Senecio jacobeeae</i>	Tansy ragwort	Grasslands	<500 acres, scattered
<i>Silybum marianum</i>	Milk thistle	Grasslands	Scattered
<i>Trifolium angustifolium</i>	Narrow leaved clover	Grasslands	Scattered, naturalized

The BLM currently makes use of manual labor with non-motorized hand tools in its efforts to eradicate invasive species within the wilderness. Some supplies for these efforts have been carried in using livestock. Specific invasive plant species and current eradication efforts are described below.

Native to South Africa, Cape ivy has invaded California's coastal forests and scrublands. It is a brittle vine that is able to invade relatively undisturbed habitats through fragments and wind-dispersed seed. Without control, it spreads and smothers native vegetation, particularly in riparian areas. Previously thought to be sterile in California, current research indicates that at least some populations within California are producing viable seed (Robison 2006). This finding has raised the BLM's management priority for treating Cape ivy in the King Range NCA. The BLM is currently working to manually eradicate this species, but efforts are complicated by safety concerns created by the species tendency to grow in steep areas and in close proximity to poison oak (*Toxicodendron diversilobum*).

European beachgrass is a deep rooted, perennial grass that displaces native plants along North American coastlines. The BLM's current management of this species within the wilderness focuses on detection and manual eradication. Repeated treatments have prevented this species from establishing on the coastal strand and dunes.

Pampas grass, which is native to South America, is a large, perennial grass with abundant wind-dispersed seeds delivered from large, showy plumes. Pampas grass displaces native vegetation in a variety of sun exposed habitats, such as coastal scrub, grassland, forest openings, disturbed areas, bluffs, etc. Pampas grass is found in abundance along the LCT between Telegraph Creek and Shipman Creek. Management of pampas grass focuses on containing populations within the existing infestation area (south of Miller Flat), as well as on eradication of plants beyond the wilderness boundary. Efforts to fully eliminate infestations between Telegraph Creek and Shipman Creek have been unsuccessful due to the steep, unstable terrain, which makes access unsafe even with technical climbing equipment.

Tansy ragwort, native to Eurasia, is a short-lived, perennial member of the sunflower family. It is poisonous to livestock and invades coastal grasslands and scrub. BLM's management approach is focused on manual control; private landholders adjacent to the King Range NCA are considering management through biological control. Several sites are known to occur outside of the wilderness, but within the King Range

NCA. Small sites have been located and eradicated in the wilderness north of Cooskie Creek.

French broom, native to southern Europe, is a perennial legume that produces abundant, long-lived seeds that are viable for decades. French broom spreads rapidly through grasslands and coastal scrub, displacing native vegetation and reducing grassland productivity for wildlife and livestock. The BLM currently addresses French broom through manual eradication. There are known sporadic areas of infestation within the wilderness north of Lake Ridge.

Gopher weed is a toxic and hardy annual plant native to Africa. It is sometimes planted in residential gardens as a natural method of repelling gophers. Previous to the 2003 Honeydew Fire, this plant was not known to be invasive to wildland settings. Following the fire, however, the population of gopher weed in the wilderness increased from less than an acre to over 125 acres, establishing the species as a wildland invasive weed. The BLM is currently monitoring the gopher weed population following a 2 year manual eradication effort. The status of any remaining infestation is pending.

Isolated populations of iceplant (*Carpobrotus chilensis*) have been documented along the immediate coastline and on the Rocks and Islands Wilderness, but are not considered to be a threat as they spread very slowly compared to populations in central and southern California.

2.3 Undeveloped

In general, the “impact of man’s work” is substantially unnoticeable within the King Range Wilderness. There are, however, limited developments within the wilderness, most related to livestock grazing and private inholdings or edgeholdings. The Rocks and Islands Wilderness has no developments.

2.3.1 Livestock Grazing Management

The Northern California Coastal Wild Heritage Wilderness Act, in accordance with Section 4(d) of the Wilderness Act, authorizes livestock grazing and the maintenance of existing facilities related to grazing within the King Range Wilderness, where established prior to wilderness designation. Activities associated with this authorized use affect both the naturalness of the wilderness and its undeveloped quality. Portions of the Spanish Flat and HJ Ridge Allotments fall within wilderness, with a total of 1,645 authorized animal unit months (AUMs) permitted (Figure 2-11). A comprehensive description of the King Range grazing management program can be found in Chapter 3 of the King Range NCA RMP.

Livestock use in the wilderness is expected to stay at the current maintenance level, with actual use averaging between 700 AUMs and the full authorized level of 1,645 AUMs. Fluctuations depend on lease use patterns and limitations put in place by the BLM to reflect the amount of available forage (e.g., less available forage in dry years). Approximately 3,560 acres within the wilderness are grazed from about November 1 through June 30. Prior to the 2001 grazing season, these AUMs were distributed across 10,260 acres within the wilderness boundary. In the fall of 2000, a management decision designed to protect cultural resources identified a 500-acre, narrow strip of coastal terrace within the Spanish Flat Allotment unavailable to grazing. Protection of this terrace effectively reduced the area used by livestock by several thousand acres after it was determined to be unfeasible to continue grazing without an extensive investment in fencing in what was then a wilderness study area. While this decision effectively protected coastal cultural sites, it shifted the bulk of livestock distribution to the Mackey Pasture, which has led to degraded vegetative conditions. The BLM is working to find a new livestock distribution pattern within this allotment that honors the authorized grazing preference, while protecting cultural resources and minimizing the impact to naturalness.

Since 1995, 3.5 miles of obsolete fence line and a sheep shearing barn have been removed from the King Range Wilderness. At the time of wilderness designation, grazing related developments included approximately four miles of existing livestock boundary fence, eight water improvements, one set of corrals, six gates, and one hiker stile.

Discussions with local ranchers indicate that historic access for grazing operations was by horseback from nearby on-site coastal homesteads. These homesteads were purchased by the BLM in the 1970s and 1980s making access to pastures a longer journey for lessees from the Mattole Valley. After acquisition of the homesteads by the BLM, grazing lessees used four-wheel drive vehicles, all-terrain vehicles, and horses to transport materials to maintain range improvements and to turn-out and round-up cattle. The Spanish Flat Allotment currently receives approximately ten visits per year from lessees. The HJ Ridge Allotment currently receives approximately four visits per year from lessees.

Prior to wilderness designation, the BLM worked with lessees to minimize impacts to cultural sites, but placed few restrictions on vehicle access. With the passage of the Northern California Coastal Wild Heritage Wilderness Act, the BLM met with the two lessees to discuss requirements for working within wilderness. The following language was added to the grazing leases: "*Lessee(s) and/or authorized representative(s) shall*

have reasonable vehicular access based on practical necessity to lands administered for livestock operations upon telephone or e-mail communication with the Arcata Field Office grazing staff representative, King Range Manager, or Arcata Field Office Manager, prior to access (voice mail message okay). Examples of practical necessity include vehicle use for emergency purposes such as rescuing sick animals, replacement or reconstruction of deteriorated improvements, and occasional use of motorized equipment where practical alternatives do not exist (particularly in portions of wilderness where such access had occurred prior to the area's designation as wilderness). Livestock management activities should be accomplished on horseback or by foot whenever feasible."

Grazing within the King Range Wilderness is managed in accordance with the Congressional Wilderness Grazing Guidelines (Appendix A) set forth in the report of the Committee on Interior and Insular Affairs of the House of Representatives accompanying the Arizona Desert Wilderness Act of 1990 (P.L. 101-628), as well as the Code of Federal Regulations (CFR) Grazing Administration—Exclusive of Alaska (43 CFR Part 4100). Livestock management within wilderness, as on other BLM lands, must adhere to the Bureau rangeland health standards and guidelines (USDI 1998).

2.3.2 Private Land (Inholding and Edgeholding) Access

Six parcels of private land, including four "inholdings" (private lands completely surrounded by wilderness) and two coastal "edgeholdings" (private lands on the wilderness boundary), are located within the King Range Wilderness (Figure 2-12). For the purpose of access, the edgeholdings are treated the same as inholdings since their only non-wilderness boundary is the ocean. The term inholding will be used for all parcels discussed in this document for the purpose of access. The inholdings range in size from 0.12–82 acres. The means by which inholders access their land varies, as does the type of authorization under which they do so. Three of the inholdings have no existing structures or facilities. These undeveloped parcels are used by their owners for primitive recreational activities such as camping and hunting, in much the same way as the surrounding public lands are used by visitors. The remaining three inholdings are developed to varying degrees.

Sections c and d of the Wilderness Act provide that prohibited uses, such as vehicle use, are subject to "existing private rights" and that owners of private lands surrounded by wilderness shall be given "adequate access to privately owned lands."

Section 4(f) of the Northern California Coastal Wild Heritage Wilderness Act specifically addresses access to private property within wilderness:

“4(f) ACCESS TO PRIVATE PROPERTY.

(1) IN GENERAL. The Secretary shall provide any owner of private property within the boundary of a wilderness area designated by this Act adequate access to such property to ensure the reasonable use and enjoyment of the property by the owner.

(2) KING RANGE WILDERNESS.

(A) IN GENERAL. Subject to subparagraph (B), within the wilderness designated by section 3(11), the access route depicted on the map for private landowners shall also be available for persons invited by the private landowners.

(B) LIMITATION. Nothing in subparagraph (A) requires the Secretary to provide any access to the landowners or persons invited by the landowners beyond the access that would be available if the wilderness had not been designated.”

Although the Northern California Coastal Wild Heritage Wilderness Act directs that access be provided to private inholdings, specific regulations governing the BLM’s authorization and management of this access are found in Title 43 of the CFR, Subpart 6305 (43 CFR Part 6305). This section states that “BLM will only approve that combination of routes and modes of travel to your land that (1) BLM finds existed on the date Congress designated the area surrounding the inholding as wilderness, and (2) BLM determines will serve the reasonable purposes for which the non-Federal lands are held or used and cause the least impact on wilderness character” (43 CFR 6305.10 (a) (1) and (2)). Subpart 6305 directs the BLM to authorize such access under 43 CFR Part 2920 Leases, Permits, and Easements (43 CFR Part 2920).

Each King Range Wilderness inholding is described below. Information is provided on authorization type, mode of access, and level of development.

Parcel 1: Parcel 1 is bounded on three sides by designated wilderness and on the fourth side by the ocean; it is therefore an edgeholding lying outside of the designated wilderness boundary. This 20-acre parcel includes a two bedroom cabin and shed. The current interim authorization for motorized vehicle access consists of a letter issued by the BLM in 1993 authorizing “reasonable access” via motorized vehicle across public land exclusively for ingress and egress to the inholding. This authorization accompanied the issuance of non-duplicatable, numbered keys

to the Kinsey Ridge gate. No other authorization is known to exist. Historically, Parcel 1 owners have accessed their parcel by motorized vehicle via the Smith-Etter Road to the locked gate at Kinsey Ridge. Past the gate, the property owners travel down the Kinsey Ridge Trail (depicted in Figure 2-12 as the Access Corridor Identified in Public Law 109-362) to the coastal terrace at Spanish Flat. Once on Spanish Flat the property owners drive on a two-track road approximately 1 mile north to their property. To enable access to the property, the BLM maintains the Kinsey Ridge Trail for the year-around passage of four-wheel drive vehicles. The owners visit the parcel periodically for recreational and maintenance activities.

Parcel 2: Parcel 2 is bounded on two sides by designated wilderness and on the third side by the ocean; it is therefore an edgeholding lying outside of the designated wilderness boundary. This 82-acre parcel includes a two bedroom cabin and detached garage. The current interim authorization for motorized vehicle access consists of a letter issued by the BLM in 1993 authorizing “reasonable access” via motorized vehicle across public land exclusively for ingress and egress to the inholding. This authorization accompanied the issuance of non-duplicatable, numbered keys to the Kinsey Ridge gate. No other authorization is known to exist. Historically, Parcel 2 owners have accessed the parcel by motorized vehicle via the Smith-Etter Road to the locked gate at Kinsey Ridge. Past the gate, the property owners travel down the Kinsey Ridge Trail (depicted in Figure 2-12 as the Access Corridor Identified in Public Law 109-362) to the coastal terrace at Spanish Flat. Once on Spanish Flat, the property owners drive on a two-track road approximately 1 mile south to their property. To enable access to the property, the BLM maintains the Kinsey Ridge Trail for the year-around passage of four-wheel drive vehicles, including the occasional rebuilding of a stream crossing at Kinsey Creek. The owners visit the parcel frequently for recreation purposes and maintenance activities.

Parcel 3: Parcel 3 has the highest level of development and contains multiple structures, including a former hay barn converted to sleeping quarters for multiple guests, a caretaker’s cabin with cooking and sleeping quarters, and small outbuildings including storage and a bathhouse. This 33-acre parcel lies completely within the designated wilderness boundary and has a deeded easement for the landing of non-jet, non-commercial aircraft on an airstrip appurtenant to the parcel (Figure 2-12). The airstrip was created before the designation of the King Range NCA and the easement was sold with the parcel by the previous owner. The BLM purchased all other parcels to which the airstrip is appurtenant and therefore, is the only other easement holder. The airstrip easement

is the only authorization for motorized access to this parcel. The airstrip is well developed with a graded gravel surface and has been in more or less continuous use since the late 1970s. The owners visit the parcel regularly for recreational purposes and maintenance activities. (Figure 2-13).

Parcel 4: Parcel 4 encompasses 40 undeveloped acres lying completely within the designated wilderness boundary. The current interim authorization for motorized vehicle access consists of a letter issued by the BLM in 1993 authorizing “reasonable access” via motorized vehicle across public land exclusively for ingress and egress to the inholding. This authorization accompanied the issuance of non-duplicatable, numbered keys to the Kinsey Ridge gate. No other authorization is known to exist. Historically, Parcel 4 owners have accessed their parcel, which is located on the northwest slope of Miller Ridge near Big Flat Creek, by motorized vehicle via the Smith-Etter Road to the Kinsey Ridge Trail (depicted in Figure 2-12 as the Access Corridor Identified in Public Law 109-362) to Spanish Flat, then approximately 4.5 miles south along the beach to Big Flat. The vehicles then leave the beach at Big Flat and turn inland along the north edge of the Big Flat Creek floodplain, heading east approximately 0.75 miles on the lower Rattlesnake Ridge Trail. The owners park their vehicles at the north bank of the Big Flat Creek floodplain. No road reaches the inholding. The owners of this parcel self-report up to six visits to their parcel annually, primarily for deer hunting. The owners have also given access to others to check on their property.

Parcel 5: Parcel 5 encompasses 55 undeveloped acres lying completely within the designated wilderness boundary. A deeded easement for the landing of non-jet, non-commercial aircraft on an airstrip is appurtenant to the parcel (Figure 2-12). The airstrip was created before designation of the King Range NCA and the easement was sold with the parcel by the previous owner. The BLM purchased all other parcels to which the airstrip is appurtenant and therefore, is the only other easement holder. The airstrip easement is the only authorization for motorized access to this parcel. The airstrip is mostly unimproved with airplanes equipped with oversized tires landing on a flat meadow. The airstrip received little use until 1997 when the owners began regular hand-tool maintenance and mowing. BLM backcountry personnel periodically observe mowed grass and tire tracks on the airstrip, indicating that the owners regularly visit the parcel.



Figure 2-13 Gravel airstrip on Big Flat provides deeded access to Parcel 3

Parcel 6: Parcel 6 encompasses an estimated acreage between 0.12 and 2.75 acres of undeveloped, “accreted” land at the edge of the ocean bluff on Miller Flat. Accreted land is land that was omitted from an earlier survey, and then later added to an ownership. A BLM cadastral surveyor derived the smaller acreage estimate from a preliminary on-the-ground survey, while the larger acreage is derived from the master title plat. This parcel lies completely within the designated wilderness boundary. This accretion was noted in 1994 and the parcel was sold to a new owner in 1997. Title research has determined that an easement for the landing of non-jet, non-commercial aircraft on the same airstrip as Parcel 5 is attached to this parcel (Figure 2-12). The current landowner asserts historical use of the parcel for many years, although the landowner also admits uncertainty as to its actual location on-the-ground. It is therefore, unclear as to how and when the current owner has either used or accessed this parcel. The BLM has not issued any authorization for motorized vehicle access to this parcel.

2.3.3 Existing Life Estates

There are two life estates within the King Range Wilderness. Figure 2-12 shows the location of these areas. The life estates have resulted from land sales to the BLM in which the sellers reserved for their lifetimes access to the parcel and use of cabins existing on the properties. Both cabins are currently uninhabitable due to age, decades of weathering, vandalism, and lack of maintenance.

Life Estate 1 was recorded on January 26, 1983 as part of a land exchange. The reservation states that the grantees are reserved the right to use the cabin for life and a nonexclusive easement for ingress and egress. The life estate is located near Sea Lion Gulch. There is one, uninhabitable structure associated with this life estate. The owners of the life estate have stated interest in repairing the cabin for personal use. In 2008, after consultation with BLM, they made minor improvements to their deeded easement to facilitate motorized vehicle access to the cabin.

Life Estate 2 was recorded on June 22, 1984 as part of a land exchange. The life estate language in the title policy states that two individuals have the right to use the cabin for their lifetimes. This life estate is located near Oat Hill. There is one, uninhabitable structure associated with this life estate.

2.3.4 Rights-of-Way

The King Range NCA RMP designated the majority of land now included in the King Range Wilderness as a rights-of-way (ROW) exclusion zone, restricting the issuance of future ROW. Through its designation as wilderness, the entire King Range Wilderness is now a ROW exclusion zone, with the exception of valid existing ROW. There are two active ROW within wilderness, both granted before wilderness designation, which impact the area's undeveloped quality. These ROW were issued for access to scientific structures used for geological research purposes and are located on Johnny Jack Ridge immediately adjacent to the U.S. Geological Survey (USGS) monument known as Gorda 2. The facilities on the ROW are only visible in the immediate vicinity.

The first ROW authorizes a USGS telemetered seismic station. This site operates remotely on solar power and occupies approximately 3 square feet. This ROW was authorized in 1991.

The second ROW authorizes the Plate Boundary Observatory, part of an array of sites installed and managed by UNAVCO, Inc. The site supports the operation of a shallow-drilled global positioning system (GPS) reference station for the purpose of measuring ground shifts caused by tectonic and volcanic processes. The GPS reference station is composed of a monument assembly and mast-mounted equipment enclosures. The stainless steel monument legs are grouted approximately 6–8 feet deep into hand-drilled holes in the bedrock. The entire above ground assembly is approximately 5 feet high and has a foot print approximately 8 feet in diameter. The GPS station also includes a mast mounted equipment enclosure and solar panels located within 30 feet of the monument. The ROW grant area is 50-foot square and was authorized in 2006.

2.4 Solitude or Primitive and Unconfined Recreation

Wilderness provides opportunities for people to experience solitude, natural sights and sounds, freedom, risk, and the physical and emotional challenges of self-discovery and self-reliance. The King Range Wilderness is one of the few remaining places in the contiguous U.S. where individuals can experience these aspects of wilderness character while exploring a coastal landscape. The area's growing popularity both testifies to, and threatens, the outstanding quality of the backcountry visitor experience available within the wilderness. Visitors are attracted by the area's remote and rugged coastline, stunning mountain and ocean vistas, rushing mountain streams, and opportunities for solitude and self-reliant adventure. The LCT, which follows the King Range Wilderness coastline and is used by the majority of visitors, has been

featured in newspapers, guidebooks, and magazines with nationwide distribution. Chapter 3 of the King Range NCA RMP contains additional information about recreation within wilderness.

The Rocks and Islands Wilderness receives minimal direct public use, but its presence contributes to the experience of visitors to the Lost Coast region. Wilderness also provides opportunities for tide pool exploration and wildlife observation. Visitors can participate in these activities in close proximity to the community of Shelter Cove, as well as along remote stretches of coastline.

2.4.1 Trends in Visitor Experience and Visitation Levels

As one of the longest undeveloped coastlines in the country, the King Range Wilderness offers a unique opportunity to experience a true coastal wilderness. Many people who backpack on the LCT travel long distances to do so, indicating their strong motivation for visiting the area.

Backpacking and day hikes along the rugged coastline are the most common recreation activities within the wilderness. Stock trips, sightseeing, big game and upland bird hunting, wildlife observation, abalone diving, surf fishing, and tide pooling also occur in the area. Big Flat is a popular surfing destination during the winter months. As noted above, the great majority of visitors make use of the LCT. The following conclusions about visitors to the LCT are based on a visitor studies conducted by Humboldt State University in 1997 and 2003 (Martin and Widner 1998) (Martin and Harris 2004):

- The opportunity to enjoy the sights, sounds, and smells of nature is the most important motivation for visiting the LCT. Nearly 90 percent of respondents stated that the opportunity was very important and another 8.5 percent stated that it was moderately important.
- Solitude was also an important motivation for visiting the area. Nearly 90 percent of survey respondents stated that solitude was at least moderately important, with 52 percent stating that solitude was very important.
- Other important motivations for visiting the area include the opportunity to reduce tension, to feel free from society's restrictions, and to exercise and keep physically fit.

The study also analyzed the ability of visitors to achieve desired outcomes during their time on the LCT. Researchers gauged visitor satisfaction levels by comparing the perceived ability of visitors to achieve a particular outcome (such as solitude) during their visit with the importance

of that outcome to visitors. The results showed that some visitors had a greater desire to experience solitude and the natural environment than they were able to achieve during their time on the LCT. In all other cases, visitor expectations were met or exceeded.

The researchers compared the data from the 2003 survey with data from a similar survey conducted in 1997 to gauge trends in visitor perceptions and expectations. In 1997, 51 percent of visitors were able to achieve solitude, compared with only 34 percent in 2003. While still a minority, an increasing number of visitors identified crowding and increased use as an impediment to solitude (Figure 2-14). In 2003, 29 percent of survey respondents said there were too many other groups camped within sight or sound of their group, up from 20 percent in 1997. Despite the importance of recreating in an unconfined and unrestricted manner, 55 percent of respondents supported implementing group size limits in 2003, up from 49 percent in 1997. The majority of survey respondents in 2003 also supported implementing visitor capacity limits to maintain solitude. Overall, a majority of survey respondents indicated that maintaining solitude on the LCT was important enough to impose some restrictions on recreation. It should be noted that without limiting survey respondents to repeat visitors it is difficult to confidently compare visitor experiences over time given the diverse expectations of visitors. For example, as an area gets more crowded those visitors who desire higher levels of solitude will no longer be among the visiting population.

Visitation Levels

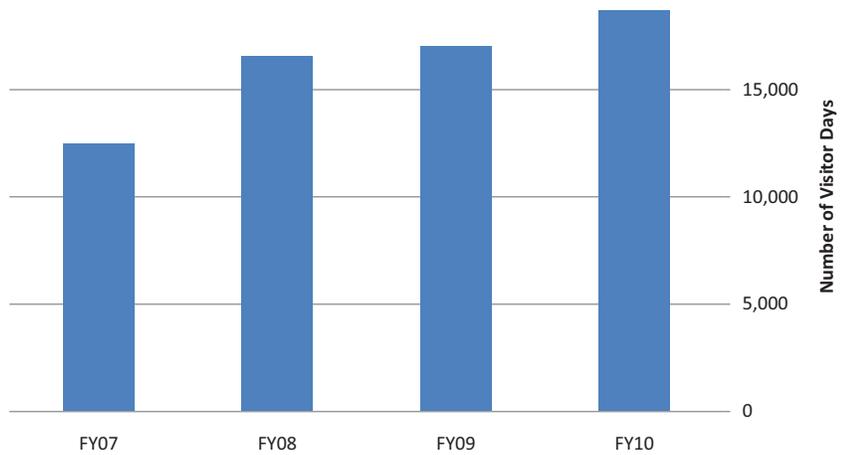
The King Range NCA RMP includes use restrictions and actions that apply to the “Backcountry Management Zone” as defined in the plan. This zone includes the area now designated as the King Range Wilderness as well as the coastal strand extending north from the wilderness boundary to the Mattole Trailhead. In discussing the permit and use allocation program, the term planning area will be used to describe this area since it expands beyond the wilderness boundary.

Since implementing a mandatory permit system for overnight backcountry visitors in 2006, the BLM has observed an increase every year in total backcountry user-days. A 50 percent increase in visitor days (12 or more hours) was observed between 2007 and 2010. Since 2006, the average length of a backcountry visit has been approximately 3.5 days, though this has shown a slight upward trend (USDI unpublished data). Figure 2-15 shows the total visitor days for the wilderness between 2007 and 2010. Actual use is approximately 10–15 percent higher than indicated



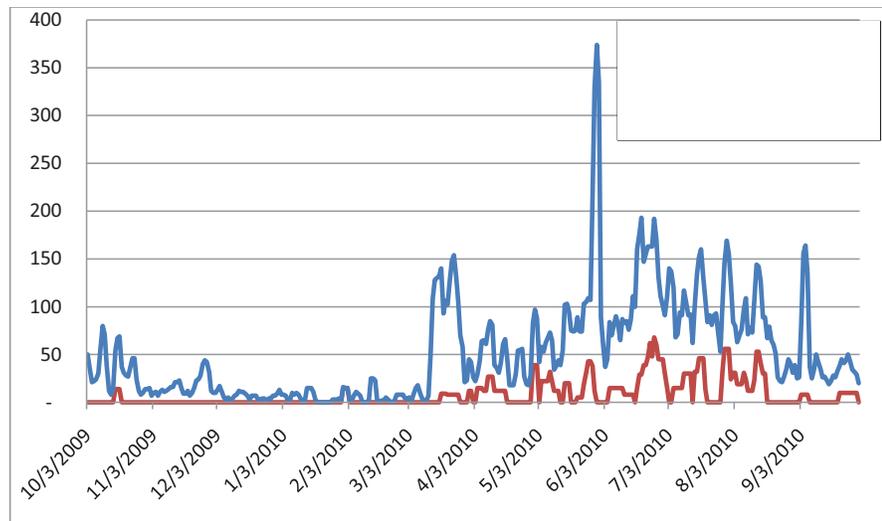
Figure 2-14 Solitude is an important motivation for visiting the King Range Wilderness

Figure 2-15 King Range visitor days by Fiscal Year (October 1–September 30), 2007–2010



The total visitor load represented in Figure 2-16, is an estimate of the total number of people in the backcountry on a given day. This number is reached by analyzing the start date, end date, and party size for backcountry permits.

Figure 2-16 Visitor load in King Range Wilderness total and proportion under Special Recreation Permit (SRP), October 2009–September 2010



The majority of visitation occurs during the summer season, with the highest level of use occurring on holiday weekends. Memorial Day weekend is the busiest single weekend for individual backcountry users; visitor loads during this weekend sometimes reach as high as 375, more than five times the average daily load during the peak season. Increased backcountry use during college spring break time periods is a newly identified trend. The popularity of the wilderness in spring and early summer is likely due in part to the inaccessibility of many alpine

wilderness areas in northern California during this time of year. Winter holidays such as Martin Luther King Day and Presidents Day are also popular surf weekends at Big Flat, when weather permits. Visitation can be significantly influenced by regional snow in winter and wildfire conditions in summer.

Special Recreation Permit Use and Trends

All commercial outfitters and organized groups must obtain special recreation permits (SRP) for overnight trips within the backcountry. Visitation data from 2006–2010 have been drawn from these permits and were combined with backcountry permit data for comparison. The duration of trips undertaken by groups with SRPs has steadily decreased since 2006, from 5.1 to 4.3 days per trip.

SRP visitors represent a significant proportion of total visitors to the area. As shown in Figure 2-16, SRP use accounted for nearly one-half of the visitor load on some peak weekends during the 2010 summer season. Figure 2-17 below shows the number of user days associated with SRP and non-SRP use, as well as the percentage of the total represented by SRP users. While SRP use has remained relatively constant over the years, non-SRP use has increased considerably. The percent of user days accounted for by SRP users has decreased since 2006 due to the increasing number of non-SRP permit days.

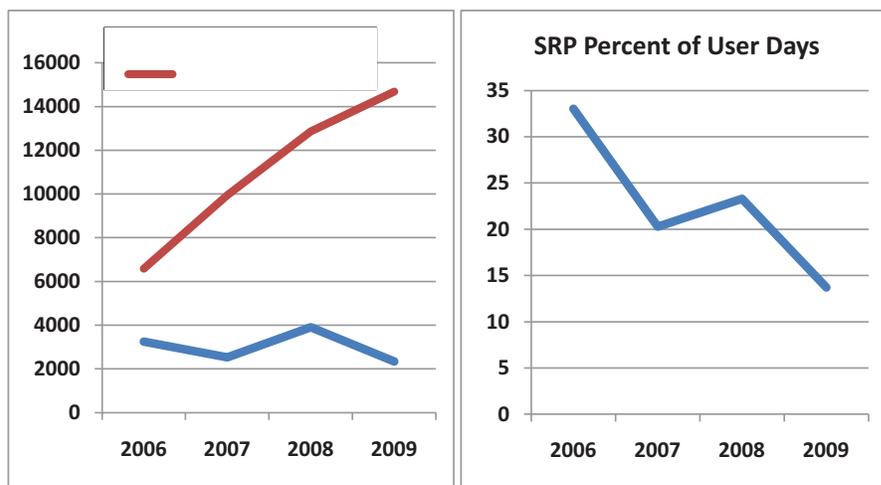


Figure 2-17 User days: SRP versus casual use (non-SRP) and percentage of SRP users

Group Size

The average size of private parties and SRP groups is determined by analyzing self-reported backcountry permit data and field compliance checks of SRP groups. Private backcountry groups appear to have remained relatively constant in size, with an average of 2.7 individuals in 2006, and 2.6 individuals in 2010. SRP groups were much larger, with an

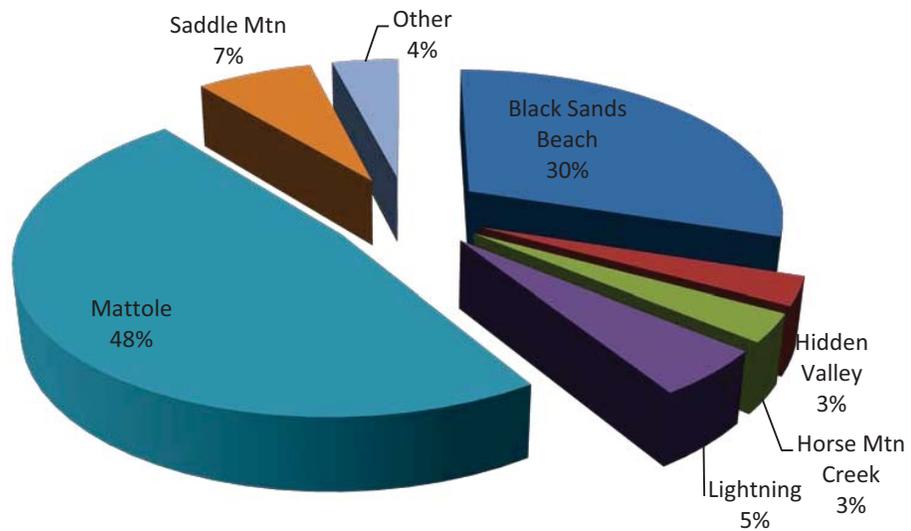
average group size of 12.4 in 2006, and 11.9 in 2010. The maximum allowable group size for all permit types is 15.

Visitor Use Distribution

Visitor use data, supported by observations from backcountry rangers, indicate that more than 85 percent of King Range NCA visitors utilize the LCT during some portion of their visit. Most visitors, under both permit systems, utilize the LCT between the Mattole Campground Trailhead in the north and the Black Sands Beach (BSB) Trailhead in the south. Nearly 80 percent of all visitors between 2007 and 2010 started from one of these two trailheads.

A significant portion of visitors who started from one of the remaining trailheads either used the LCT at some point during their trip or had a coastal destination. Figure 2-18 shows the distribution of trailhead starts for the years of 2007–2010. The distribution of routes used by backcountry visitors during 2010 is shown in Figure 2-19.

Figure 2-18 Originating trailhead for all visitors 2007–2010



Of the 45,585 acres of designated wilderness, most visitors utilize no more than 1,200 acres along the coast. Observations by backcountry rangers have documented that most visitors do not travel more than 100 feet from the LCT during their visit. For much of the LCT, sheer cliffs, thick brush, and the nearby ocean make it virtually impossible to travel outside of this corridor. Figure 2-20 shows how visitor use is geographically distributed within the area. More than 80 percent of backcountry use is concentrated in less than three percent of the area. This high concentration of use is likely to have a significant effect on the availability of solitude for visitors.

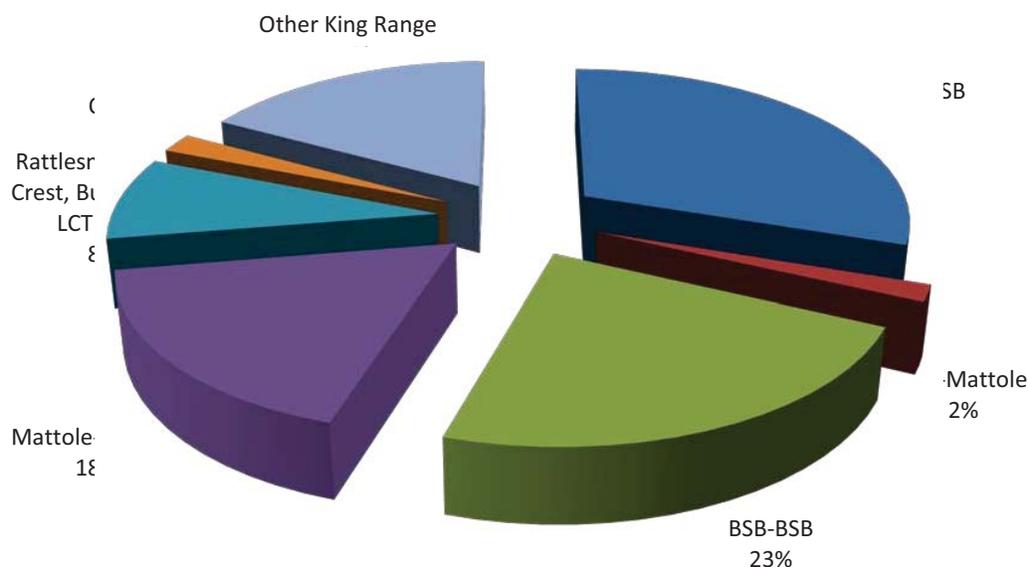


Figure 2-19
Distribution of visitor routes for 2010

2.4.2 Recreation Facilities

Backcountry Campsites

Campsites within the wilderness can be divided into two categories: designated camps created by BLM and dispersed sites which are user-defined. All designated camps are located in the wilderness uplands. Campsites along the LCT, which are all dispersed, are subject to both intense environmental conditions and high visitation levels. The majority of documented sites along the LCT are located where they are likely to be destroyed each year by winter storm waves or flooding streams. A few more persistent sites are located in areas with natural shelter and used by visitors for multiple seasons. BLM King Range staff created a campground development rating system to inventory and track the relative impact of campsites in the wilderness (Table 2-2).

Designated upland campsites, such as Maple, Miller, Nick's, and Bear Hollow Camps, have been located, signed, and maintained by the BLM (Figure 2-20). These sites have been chosen primarily for their proximity to drinking water sources. There are tent pads to accommodate approximately 11 groups in the designated campsites in the uplands. A small number of user-defined dispersed sites also exist in the uplands where suitable flat ground or water sources exist.

Table 2-2 Description of campsite development level ratings

Rating	Description of Campsite Condition
0	Site has been rehabilitated or washed away. It is no longer noticeable.
1	Barely noticeable. Evidence of campsite in the past but not recent. Mostly reclaimed by nature (old fire ring with grass, etc.).
2	Slightly noticeable. Small site. Minimal impact but signs of more recent use. Possible small unobtrusive fire ring. Minimal vegetation impact. Possible manipulation of logs/rocks for wind block, campsite delineation, or suitable tent site.
3	Noticeable impact. Signs of recent use but still a relatively clean campsite. Little or no trash. Distinct fire ring. Little or no impact on vegetation. Possible small shelter.
4	Moderately impacted site. Signs of moderate, recent use. Possible large shelter. Some loss of vegetation. Larger, used fire ring with coals/ash. Possible firewood near the ring. Moderate trash.
5	Heavily impacted site. Signs of frequent use. Possible large, obtrusive shelter. May be unsafe, have lots of marine trash, or trash within the shelter tucked into logs. Loss of ground vegetation and trees/shrubs with missing branches. One or more fire rings filling with coals/ash/sand and not very usable. Trash in the fire ring and/or scattered about the site.

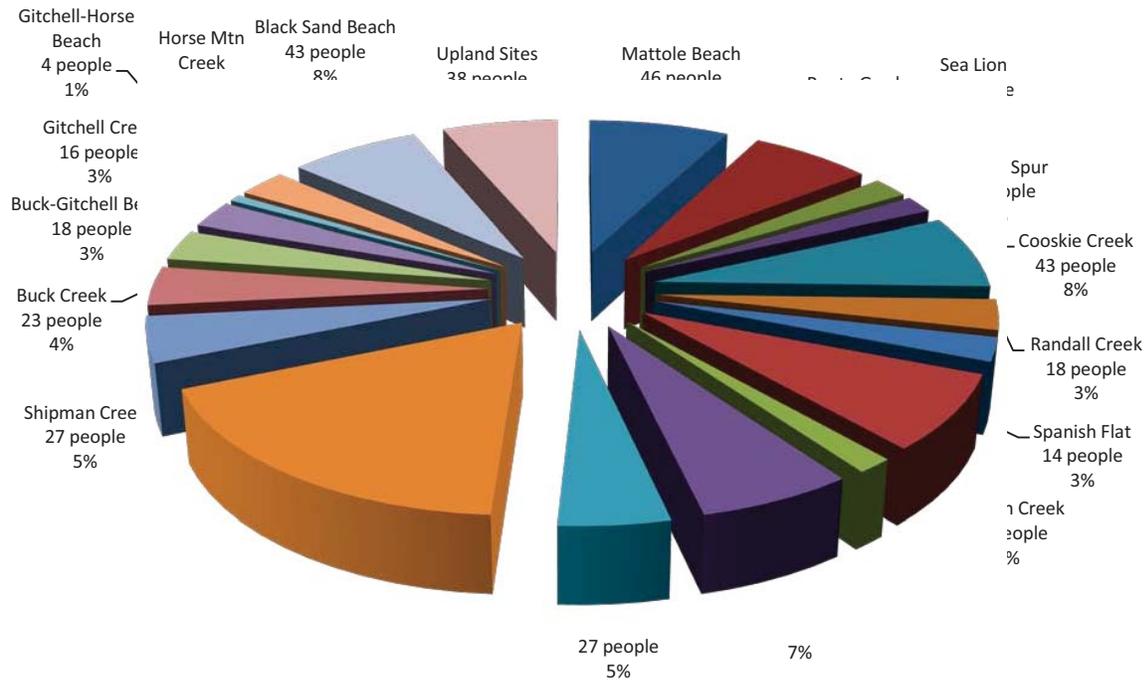
Dispersed campsites on the LCT have been routinely monitored since 2002. Based on campsite inventory data, the number of sites on the LCT has been stable since 2002, despite the increase in LCT user days. This finding indicates that the number of available and favorable sites along the coast is finite and limited by site arrangement and environmental conditions. At some of the smaller creek mouths, such as Buck Creek, this limitation is readily observable. If the current visitation trend continues and the number of sites cannot be substantially expanded, there is the potential for user conflict and site deterioration to increase.

No new designated camps have been developed by BLM since Nick’s Camp in 2004. Dispersed upland sites have been inventoried since 2008.

In the spring and summer of 2009, the BLM assessed the total physical capacity of all existing campsites within the King Range Wilderness. Figure 2-21 shows a breakdown of campsite capacity by location, including all campsite types. Campsite capacity determinations were based on observations of past use, site arrangement, and available space for

sleeping and cooking. The total physical capacity of all campsites, as surveyed, is estimated at 593 persons.

Figure 2-21 Distribution of campsite capacity within the King Range Wilderness



During the 2010 Memorial Day weekend, the BLM recorded the highest single-day visitor load to date, with nearly 375 people using the King Range backcountry at one time. Assuming that 80 percent of these visitors were using the LCT for a majority of their trip, it is likely that 300 people were on the LCT on the busiest day of the holiday weekend. It is also probable that the remaining 75 visitors utilized the LCT for a portion of their trip. During this weekend it is possible that nearly one-half of the available person-camp-spaces were occupied. While this may seem to indicate ample room for growth, visitors tend to “bunch up” at specific sites, causing crowding and user conflicts.

User-Created Structures

Visitors, particularly along the LCT, often construct facilities such as driftwood shelters and “beach art” using natural and unnatural materials that wash up along the coast. These structures typically grow larger over time as they are added to by successive visitors. BLM educational materials encourage visitors to follow Leave-No-Trace principles (Leave No Trace 2011) and discourage the construction of these shelters. Backcountry rangers and volunteers dismantle the larger structures as time and personnel are available (Figure 2-22).



Figure 2-22 A driftwood shelter is dismantled along the Lost Coast Trail

The King Range NCA encompasses 85 miles of primitive trails, including portions of two national recreation trails (Figure 2-20). Due to the extreme topography and dense vegetation, very few visitors hike off trail. Unobtrusive wooden trail markers help visitors identify the trail and avoid private properties. A small number of primitive bridges and retaining structures have been constructed to prevent impacts to riparian habitat and soils. While upland trails make up the majority of trail mileage, they receive relatively low visitation due to scarce drinking water and steep topography. A small wooden structure (approximately 6 feet by 6 feet) with an open front was built into the hillslope near the top of King Peak in the 1980s to serve as a windbreak for hikers. This structure burned in the 2003 Honeydew Fire and was reconstructed in 2004, prior to wilderness designation.

Spring Developments

Four natural springs have been developed and maintained over the last several decades to provide water at upland backcountry camps and access routes (Figure 2-20). Modifications consist of a buried spring box, a pipe, and, in some cases, a small collection basin. They allow backcountry users to safely access the King Crest and other trails in the dry uplands. The developments also protect resources by deterring user-made reservoirs and trampling of wetland vegetation and soils.

2.4.3 Management of Visitor Use

Backcountry Permits

The current backcountry permit (FR 29977, Vol. 71, No. 100) requires overnight visitors to provide a name, dates of arrival and departure, a zip code, number in the group, beginning and ending trailheads, a planned route, and the license plate number of a vehicle associated with the group. The permit is a two-piece document, one copy stays with the visitor and the other is deposited in a trailhead drop-box. The data collected through the use of this permit allows the BLM to determine user days in the wilderness and the proportion of visitors utilizing the various trailheads and trails.

Overnight visitors in the backcountry are required to store all food and scented items in hard-sided bear-proof containers (FR 29977, Vol. 71, No. 100) and to comply with appropriate Leave-No-Trace practices and current fire restrictions. Backcountry rangers patrol to ensure compliance with regulations and the permit system. Since its debut in 2006, the backcountry permit system has had a compliance rate near 85 percent

based on backcountry ranger permit-checks. However, during the 2009 spring break weeks, backcountry rangers observed compliance as low as 65 percent. Off-season visitors appear less likely to comply with the permit system, suggesting that actual visitor load is greater than that shown in Figure 2-16.

Special Recreation Permits

Under 43 CFR 2930, commercial (e.g., eco-tour guides) and organized groups (e.g., the Boy Scouts) are required to obtain SRPs. The King Range NCA has been managing commercial and organized group use through SRPs since 1996. From 2006 to 2009, organized groups accounted for 30 percent of the SRPs distributed in wilderness, while 70 percent came from commercial groups. Table 2-3 shows the number of SRPs issued and permit fees collected between 2006 and 2009. SRP fees are used to support the management of trails and recreation facilities.

	2006	2007	2008	2009
Number of SRPs Issued	36	29	39	34
Fees Collected	\$6,934.33	\$9,109.15	\$7,704.18	\$4,140.25

Table 2-3 Number of SRPs issued and amount of fees collected 2006–2009

SRP group departures are currently limited to two per day from each King Range NCA trailhead; no SRP groups are permitted during Memorial Day or Fourth of July weekends. SRP groups travelling in the backcountry are required to view an orientation video, adhere to a BLM-approved itinerary, and carry an authorized SRP at all times while in the wilderness. Like individual backcountry visitors, they are required to use bear-proof containers and comply with Leave-No-Trace practices and fire restrictions. The King Range NCA RMP prohibits SRP groups from camping at Shipman Creek or Buck Creek from Memorial Day to Labor Day. These groups are encouraged to utilize Spanish Flat, Big Flat, and Miller Flat for camping during these periods. Permitted visitors are also required to submit post-use reports within 30 days of a trip’s completion.

2.4.4 Recreation Facilities Management

Backcountry Trail Management

Heavy rainfall combined with geologic events, wildfire, and extremely steep, unstable topography makes trail maintenance a critical function in the King Range NCA. Each year, BLM employees and a large contingent of volunteers perform many hours of trail maintenance. Work projects, which are all conducted using non-motorized hand tools, include clearing fallen trees and stabilizing trail tread. Volunteers from the

American Hiking Society's Volunteer Vacation Program, the Student Conservation Association, and the California Conservation Corps complete the majority of the trail maintenance activities.

Campsite Management

King Range NCA staff monitor campsites annually to assess impacts to wilderness values. LCT sites have been inventoried and routinely monitored since 2002. Inventory of other campsites that are not located along the LCT began in 2008. Sites are rated on a scale of zero to five based on observations of litter, vegetation impacts, human waste, and evident human manipulation or arrangement of natural features. Sites which no longer show noticeable impacts may rate as zero. Sites which include large shelters made of driftwood, scattered trash, and damaged vegetation may rate as five. Since 2002, sites rating a five have tended to occur at creek mouths near the LCT, most often near Punta Gorda Lighthouse, Cooskie Creek, Spanish Creek, and Big Flat Creek. There have been no five-rated sites observed in the upland portions of the wilderness (Figure 2-20).

Based on trends identified through the campsite monitoring process, backcountry rangers and volunteers occasionally naturalize popular camping locations by removing ocean debris and fire scars or by dismantling driftwood shelters. Formal upland campsites are periodically maintained to remove brush and hazard trees, maintain water sources, and mark trails leading to the sites.

2.4.5 Public Outreach and Interpretation

The BLM uses public outreach and interpretation to facilitate primitive recreational access to the King Range Wilderness. Educational efforts are intended to promote visitor safety and limit impacts to wilderness qualities.

Information Kiosks

Visitor information kiosks featuring regulatory and educational information are located at each of the King Range NCA trailheads. Information available at the kiosks emphasizes Leave-No-Trace practices, including proper waste disposal and food storage. Kiosks also provide safety and warning information. Tide tables are posted to help visitors plan their hike. Backcountry permit boxes are also located at the kiosks.

Websites

The BLM maintains a website to provide off-site information about the King Range Wilderness. Private individuals and organizations also

maintain their own sites in regard to the King Range NCA, providing information about weather, trail conditions, and drinking water availability, as well as Leave-No-Trace information.

Literature/Multi-media

Backpacking the Lost Coast—This informative brochure provides information about backcountry permit requirements and minimum impact backcountry practices. The brochure is available at the BLM Arcata and King Range offices and is mailed to visitors seeking information about the area.

Lost Coast Adventure DVD—This video was developed in cooperation with the Lost Coast Interpretive Association to provide visitors with information on safety and backcountry ethics. Commercial outfitters and organized groups are required to view the video prior to beginning their trip.

King Range Visitor Map—This high quality topographic map is available for sale at the BLM Arcata and King Range offices, as well as at a limited number of local businesses. The map provides information about hiking opportunities, day-use sites, and campgrounds. It also includes information on safety and backcountry ethics.

On-site Backcountry Ranger Contacts

The BLM employs permanent and seasonal backcountry rangers to monitor resource conditions in the King Range Wilderness and to provide public information in the field. Rangers are well equipped to provide information about points of interest, regulations, and minimum impact backcountry practices.

Interpretation/Environmental Education Programs

The King Range NCA supports a variety of interpretation and educational programs year round, to provide outreach to local schools and residents. These programs provide visitors and residents with an increased understanding and appreciation of wilderness resources. Several partner organizations assist with planning and implementing outreach programs.

2.4.6 Wilderness Search and Rescue

Search and rescue (SAR) incidents and requests for emergency medical services (EMS) in the King Range Wilderness encompass a wide range of diverse scenarios, situational complexity, and responses from several different agencies. The county Sheriff's Office is generally the lead agency responsible for SAR operations within its county of jurisdiction. In the

wilderness a 911 call requesting a SAR or EMS will be received by the respective county sheriff's office (Humboldt or Mendocino); since the majority of the wilderness lies within Humboldt County, the Humboldt County Sheriff's Office (HCSO) coordinates most searches for missing persons in the wilderness.

Requests for EMS are usually routed to the California Department of Forestry and Fire Protection's (CALFIRE) Fortuna Emergency Command Center. Depending on the type and location of the incident, resource availability, and weather conditions, EMS response is conducted by the HCSO, BLM, CALFIRE, local volunteer fire departments, and/or the U.S. Coast Guard (USCG). HCSO and CALFIRE generally contact BLM in the early phases of the EMS for up-to-date information regarding current conditions, access, and requests for BLM involvement. Due to their proximity, local volunteer fire departments often arrive on the scene before other agencies. The BLM assists the Shelter Cove and Petrolia Volunteer Fire Departments by providing annual funding for SAR/EMS training and equipment.

On average, five to ten SAR/EMS incidents occur annually within the King Range Wilderness, ranging in severity from minor to life-threatening. Many incidents originate from a 911 cell phone call from hikers who have become lost or injured. A significant number of these 911 cell phone requests for assistance are made in non-urgent situations. A smaller number of such calls are made by, or on behalf of, hikers with injuries—ranging from heat exhaustion to sprains, strains, and broken bones—requiring treatment and transport out of the wilderness, usually via a motorized vehicle. Each year, a few calls involve requests for aid to, or extrication of, injured pets in the wilderness.

A small, but annually consistent, number of SAR/EMS incidents involve persons who have been swept off the beach and into the ocean by large waves. These incidents require an urgent and rapid response from emergency responders. In 2000, three hikers were killed when waves swept five individuals into the ocean. Since then, with funding from BLM, the Shelter Cove Volunteer Fire Department has developed and trained an ocean rescue unit that has successfully rescued hikers swept off of beaches.

Although often considered as a unit, search and rescue are two distinct activities which may require different types and levels of response. Often, a family member will contact BLM directly regarding a wilderness user who has not arrived or contacted home when expected. The BLM will check trailhead parking lots and backcountry permits for evidence of the hiker, contact the HCSO to report the missing person,

or both depending upon the known circumstances. Generally, an EMS request initiates a rapid response and a combination of motor vehicles—such as ATVs, 4-wheel drive vehicles, and aircraft (usually helicopters from USCG, CALFIRE, or California Highway Patrol)—is utilized. The Wilderness Act permits the use of motorized vehicles and the landing of aircraft in wilderness in “emergencies involving the health and safety of persons in the area” (16 USC 1131-1136 Sec 4(c)).

Requests have been made to conduct SAR/EMS training involving the use of motorized vehicles and the landing of motor boats within the King Range Wilderness. The BLM has not authorized these requests within the wilderness.

2.5 Untrammelled

Wilderness, by definition, is “untrammelled,” or self-directed and free from modern human manipulation. Actions impairing this quality are those by which humans actively impose their will upon an ecosystem and its inhabitants, even if the outcome of this action is to enhance an area’s naturalness. It is the manipulation inherent in these actions, and not their outcomes, which impairs wilderness character. This quality is discussed primarily in Chapter 4, which describes the effects of proposed actions on wilderness character.

While the BLM limits its manipulation of the wilderness a number of the management actions and uses described in this chapter currently impair the untrammelled character of the wilderness. These include invasive species control and natural fire suppression.

The Rocks and Islands Wilderness is removed from most human uses and management actions and remains essentially untrammelled.

2.6 Unique/Supplemental Values

Under the Wilderness Act, an area’s unique ecological, geological, scientific, educational, scenic, cultural, and historical values contribute to its wilderness character. In addition to its extraordinary scenery, the King Range Wilderness encompasses exceptional cultural, scientific, and ecological values.

2.6.1 Cultural Resources

The King Range Wilderness contains significant historic and prehistoric sites. The Punta Gorda Lighthouse, listed in the National Register of Historic Places (NRHP) is located near the northern edge of wilderness and is a popular day-hiking destination. This area contains two standing



Figure 2-23 Punta Gorda Lighthouse (in distance) and Oil House (in front)

structures, the oilhouse and lighthouse, and an interpretive display. BLM is required to maintain these historic structures in accordance with law and policy (16 U.S.C. 470 Sec. 1 (b) (2)). Major maintenance actions are required to insure the integrity of this site. On a periodic basis (approximately every 8–10 years) the concrete and steel elements of this site need rehabilitation in the form of sand blasting and painting because of the harsh coastal conditions. The oilhouse has been damaged by repeated seismic activities and is currently in need of major restoration to maintain its integrity and provide for public safety. Past restoration efforts at the Punta Gorda Lighthouse site have required the use of helicopter and other motor vehicle support to transport heavy materials such as sand-blasting equipment (Figure 2-23).

Numerous prehistoric resource procurement/processing and seasonal habitation sites are found within the wilderness. These sites are generally recognized as surface scatters of marine shell and fire affected rock distributed over areas of various sizes atop the marine terraces. Other small exposures can be found among sand dunes and the waveslope. Most of these archaeological resources have not been sufficiently documented for NRHP nomination or eligibility determination.

Until these sites are adequately evaluated as to their eligibility for listing on the NRHP, they are considered eligible and managed accordingly. Eligibility requirements for pre-Columbian archaeological sites include the availability of information that can be recovered to support interpretation of culture histories and cultural sequences based on the archeological record. For the past several decades, BLM archaeologists have periodically monitored previously-recorded archaeological sites to maintain records of changing conditions at those sites. Unstable terrain combined with high rainfall and ocean waves have caused erosion at sites with significant features and undetermined eligibility. In these locations, measures have been taken in consultation with the State Historic Preservation Officer and local tribal leaders to stabilize the sites. All efforts are made to use only natural materials in site stabilization, but in specific instances specialized geotextile materials were used to prevent substantial erosion; when used these materials are fully-buried and not visible at the surface.

The inland and upland portions of the wilderness host a variety of cultural resources. Prehistoric sites are predominantly small areas of scattered refuse from the maintenance of stone tools associated with resource procurement activities. There are also a number of historic sites

including facilities associated with livestock grazing and recreational hunting. Many of these sites are in ruins, but a few do have standing structures in various states of preservation. Domestic fruit trees are some of the more easily-recognized signs of historic homesteading. A small orchard located in Hidden Valley (Figure 2-24) at the southern end of the wilderness is a prime example. This historic orchard comprises about a dozen apple trees. These trees continue to produce heirloom varieties of apples and have been brushed around and lightly pruned in recent years to help maintain this resource.



Figure 2-24 Apple orchard in Hidden Valley

In addition to known archeological sites, it is highly likely that the wilderness encompasses yet-undiscovered cultural resources. The Lost Coast is one of the only west coast landscapes where tectonic uplift rates exceed the rate of post-glacial sea-level rise. Uplifted marine terraces that were adjacent to the coast during the early Holocene (approximately 10,000 years ago) would have been ideal areas for use by coastal migrants to the Western Hemisphere because they offered flat terrain adjacent to coastal food resources. Many of these landforms remain relatively undisturbed along the Lost Coast, making them prime candidates for the discovery of material remains of ancient human activities. In 2010 a long-term project began to identify, map, and further investigate these types of landforms.

2.6.2 Native American Values

Under the BLM's California Traditional Gathering Policy (USDI BLM 1997), Native American practitioners are provided with permit-free access to the King Range Wilderness for traditional gathering. Non-timber forest products, including food, medicinal plants, and a variety of hand-craft materials, are available for traditional, non-commercial gathering. In addition, tribal members and BLM maintain a strong interest in conducting archeological research and site protection at cultural sites within wilderness. Native Americans have the right to access the entire wilderness for demonstrated traditional ceremonial uses. There are no provisions in the Wilderness Act for mechanized or motorized access for these purposes.

2.6.3 Geologic Processes and Coastal Terraces

The King Range NCA is one of the most geologically active areas in North America. Three large tectonic plates collide just north of the King Range NCA at a geologic feature known as the Mendocino Triple Junction, a site of large and frequent earthquakes. Tremendous tectonic forces south of

the Mendocino Triple Junction and along the western front of the King Range NCA have created high mountain peaks, steep hill slopes, and very young coastal rock platforms. In this setting, the land encompassed by the wilderness provides a unique record of recent landforming processes (Lajoie et al. 1982, Merritts et al. 1992).

Geologists, using radiometric dating and coastal surveys, have determined that this stretch of coastline has one of the highest geologic uplift rates in the world, which accounts for the King Range NCA's high vertical relief and steep topography (Lajoie et al. 1982, McLaughlin et al. 2000, Merritts and Bull 1989). These high uplift rates are a direct result of the compressional forces at the Mendocino Triple Junction at the northern boundary of the King Range NCA.

Evidence of large earthquake events is found along the entire shoreline of the King Range NCA in the form of older “fossil” marine platforms cut into the bedrock at higher elevations above the present day beaches and tide pools. These marine terraces represent geographic stair steps through very recent geologic time (Lajoie 1986). For example, in March of 1992 three large earthquakes struck an area immediately north of the King Range NCA. Near the sites of these earthquakes, submerged land was dramatically uplifted from the ocean. Intertidal rock platforms and beaches were raised as much as 4 feet above sea level, creating new tidal areas seaward, stranding sea life, and eliminating some marine tide pool habitat closer to shore. Much of the LCT, which extends along the beach from the Mattole River south to Shelter Cove, is located on uplifted rock platforms which formed during very large earthquakes thousands of years ago (Lajoie et al. 1982, Merritts and Bull 1989). If it were not for the tremendous geologic forces that uplifted this coastal area during the last few thousand years much of the flat platform that the LCT rests upon would not be available for hiking and camping today.

The combined geologic forces of this area are continually reshaping the landforms of the Lost Coast, creating new habitat for stream, land, and marine life forms, and altering or completely eliminating habitat for others. The frequency and magnitude of the various geologic processes at work in the wilderness are unique. In other areas, landscape disturbances are often “rehabilitated” or “restored” destroying the longer-term record that such disturbances provide. Few places provide such a well-preserved record of geologic disturbances.

2.6.4 Threatened and Endangered Species

The rugged coastline and uplands of the King Range Wilderness and Rocks and Islands Wilderness provide habitat for several federally listed

species. Wildlife species that may use the wilderness include the northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), western snowy plover (*Chardrius alexandrinus nivosus*), and Steller sea lion (*Eumatopias jubata*). Of these species, only the northern spotted owl and Steller sea lion occur with regularity. Steller sea lions forage in offshore waters and rest on the near shore rocks (Figure 2-25).



Figure 2-25 Steller sea lion colony at Sea Lion Rock

Due to limited historic timber production within the King Range Wilderness, intact stands of old-growth Douglas fir remain, offering appropriate nesting habitat for the northern spotted owl. The species has been documented in wilderness during BLM surveys. Barred owls (*Strix varia*), which historically were not present along the west coast, have expanded their range into the region. This expansion has been identified as one of the main factors preventing the recovery of the northern spotted owl (Kelly 2001). Barred owls are habitat generalists and able to flourish in a wider range of habitats than the northern spotted owl. They are also larger and more aggressive, often forcing northern spotted owls out of the area when encountered. Barred owls have been found at Mill Creek, in the northern part of the wilderness area, and at Gillham Butte approximately 5 miles northeast of the King Range NCA. They have not been found in other locations in the King Range NCA though it is probable they will continue to expand their range.

The western snowy plover and marbled murrelet are observed infrequently. While surveyed only irregularly, the King Range Wilderness' extensive beaches are unlikely to be valuable snowy plover habitat due to the narrow, rocky nature of the beaches. An extensive 5-year survey for marbled murrelet yielded one fly-by detection at Mill Creek. Surveys of the nearshore waters yielded more detections, but no indication that marbled murrelet are using wilderness lands for nesting activity.

The rivers and streams within the King Range Wilderness provide habitat for threatened salmon and steelhead. Chinook salmon in the Mattole River basin are listed as threatened under the federal Endangered Species Act (ESA) as part of the California Coastal Evolutionarily Significant Unit (ESU). Coho salmon in the Mattole River basin are listed as threatened under the ESA as part of the southern Oregon/northern California Coasts ESU. Coho salmon which may inhabit west-side streams would be listed as threatened under the ESA as part of the Central California Coho ESU. Steelhead in the Mattole River and in the west-side streams are listed as threatened under the ESA as part of the northern California Steelhead ESU.

2.6.5 Wild and Scenic Rivers

The BLM has identified 28 stream segments in the King Range NCA that are eligible for wild and scenic river designation based on their free-flowing condition and outstandingly remarkable values. The King Range NCA RMP recommended ten of these segments as suitable for such designation. These suitable segments are managed by the BLM to prevent impacts to their free-flowing nature or outstanding remarkable values. These free-flowing streams contribute to the wilderness character of the King Range Wilderness.

2.6.6 Research

The King Range Wilderness and Rocks and Islands Wilderness offer unique opportunities for research. The nearly uninhabited coastal zone, streams, mountains, forests, and prairies allow for scientists to research physical and biological processes that are relatively unaltered by modern human intervention. Research into these systems will also enable the BLM to effectively preserve wilderness resources and provide appropriate visitor use.

Research efforts include studies of geological processes, archeological and botanical resources, wildlife, water quality, fish, and recreation visitors. Past research efforts have been conducted in cooperation with the BLM or BLM partners, while others have been conducted by universities and other government entities. Although a decision in the King Range NCA RMP requires researchers to obtain permits, research has occurred in the past without BLM authorization and in isolated cases has resulted in resource impacts. Overall, research is considered to be an important component of wilderness protection. The BLM encourages projects that are consistent with Department of Interior Scientific Integrity Policy (USDI 2011) and that can be conducted in a manner that protects the area's wilderness character.

The BLM's National Landscape Conservation System (NLCS) program is in the process of developing a Research Permit and Reporting System for use on all NLCS units. Once this system is functional, it will likely be used for research conducted within the King Range Wilderness and Rocks and Islands Wilderness.