



March 15, 2024

RE: Tributaries Forest Recovery Project #63289

Attn: Travis Sanchez, Project Coordinator

Attn: Liz Ballou, NEPA Planner  
39696 Highway 70,  
Quincy, CA 95971

Friends of Plumas Wilderness (FoPW) strongly supports Plumas National Forest (PNF) efforts to 1) reduce fuel loads to improve forest resilience and initiate conifer regeneration, where appropriate; 2) establish shaded fuel breaks; 3) restore functional processes in riparian corridors and meadows; 4) enhance recovery of ecological processes, habitats, and specific species; 5) acknowledge and protect cultural resources; and 6) control invasive species at the landscape level.

In the past five years, 64% of the PNF has burned, 11% burned at high severity. Based on maps in the Purpose and Need and Proposed Action (PNPA), 57%, 16%, and 27% lands within the Tributaries Forest Recovery Project (TFRP) burned at high, moderate, and low or unburned severity respectively. In addition to the strategies mentioned above, concerted effort should be made to enhance and ensure resiliency within the unburned areas and areas that burned at low severity throughout the project area. Maintaining existing mature and old growth trees and restoring a diversity of habitat types, including culturally significant species should be a desired outcome. FoPW appreciates the attention to this need presented at the panel and field tour on October 17th.

Our comments address the public comment process, proposed treatments, and designated land allocations. Given that FoPW is dedicated to studying, exploring, and safeguarding natural ecosystems where the Sierra and Cascades meet through conservation, advocacy, stewardship, and collaboration, we focus primarily on the protection of unique cultural and ecological values associated with predominantly natural ecosystems.

#### **Public Comment Process**

While FoPW acknowledges the time-sensitive nature of the proposed action, the organization does not support emergency authorization to expedite implementation. The use of emergency authorization may benefit short-term economic gain at the expense of long-term relationships

between the Forest Service, partners, and the public. Using emergency authority years after a wildfire and reducing opportunities for formal public involvement prior to a final decision does not build public trust. Rather than seek emergency authorization years after wildfires, FoPW recommends that the Forest Service accomplish long-term forest health goals during wildfire incidents. Instead of giving all decision-making authority to wildfire operations leadership, local Forest Service leaders should retain authority and accomplish anticipated work during the emergency. FoPW requests that the PNF pursue a Forest Plan amendment that allows wildfire response to achieve resource based objectives.

Tribes, NGOs, and members of the public possess a broad and varied knowledge of lands and waters administered by the Forest Service which is relevant to this project. Public comment and review prior to implementation is essential given the vast scale and scope of the project. FoPW requests that the PNF provide GIS information used in the maps included in the PNPA document during scoping to allow for the community to analyze the information presented during the scoping process.

### **Treatments**

#### **Planting Areas**

Reforestation efforts should focus on creating a diversity of age classes of all native habitat types rather than focus solely on preventing the long-term conversion of coniferous forests to shrub lands. Vast tracts of even-aged coniferous forests provided favorable conditions for the rapid spread of wildfire across the Northern Sierra in recent years. Recreating forest conditions which led to the largest single wildfire in California's recorded history, even-aged coniferous forests, is undesirable and unlikely, given climate projections.

The Tributaries Forest Recovery Project (TFRP) should employ an array of treatments based on forest plan land allocations and special designations which emphasize restoring a diversity of species and age classes and acknowledge sensitive ecological and cultural values (e.g. Baker cypress stands in the Mud Lake RNA, wilderness values of the Grizzly Peak IRA, plants used by Indigenous communities).

FoPW requests that PNF and Plumas Corp. botanists collaborate with silviculturists to plant and restore native hardwoods such as black oak and quaking aspen in addition to replanting conifer seedlings to promote biodiversity. The PNF should include oaks in their carbon sequestration and reforestation portfolio as oaks are more fire/drought resilient and longer-lived than conifers.

#### **Herbicide Application and Reforestation**

FoPW led the effort to stop the aerial application of herbicides on Region 5 Forest Service lands in the 1980's. We are glad to see that no aerial spraying is proposed in the Tributaries Forest Recovery Project (TFRP) as aerial application indiscriminately impacts non-target species. FoPW does not support the use of herbicides in or adjacent to areas with special designations or sensitive status species of plants and wildlife. If the targeted foliar application is used to tip the scale in promoting conifer growth, it should be done only when absolutely necessary and when outside of areas with special designations. Herbicide should not be applied to any hardwood species and non-target species such as *Prunus* sp. and *Salix* sp. FoPW does not endorse broadcast herbicide applications. FoPW requests there is delineation of the total acreage out of the 19,582 acres to be reforested where herbicide will be applied. If herbicide is applied, the public needs to be informed of the type of herbicide used, location of

application, and time of application. Clearly labeled signage and flagging should be used to delineate areas where herbicides have been applied to prevent further human exposure.

FoPW appreciates the PNF's acknowledgment of the cultural and ecological importance of shrub species. The processing of native plant materials for traditional uses requires that they be handled. Some techniques require processing by mouth. Given that the use of herbicides on forested lands can lead to significant health issues among Indigenous and non indigenous populations alike, we strongly recommend that Indigenous people are hired as consultants to survey all areas where herbicides will be applied to identify and avoid culturally significant plants. We appreciate attention to culturally significant plants that is displayed throughout the PNPA.

Lone Rock Creek and its tributaries are the only known locations where Sierra Nevada yellow-legged frogs (SNLYF) occur within the project area. Reforestation efforts located near Lone Rock Creek should be done in collaboration with wildlife biologists at the PNF and Plumas Audubon Society to prevent any adverse impacts to the SNLYF critical habitat located within the project. Additionally, stream surveys should be conducted within SNLYF critical habitat and surrounding watersheds to ensure that no undiscovered populations are adversely affected by reforestation treatments.

### Silvicultural Treatments

#### **Commercial Thin & Fuels Reduction**

According to the PNPA, "Silvicultural treatments were developed based on post-fire stand conditions and will be implemented on a site-specific basis considering physical characteristics (majority of treatments occur on slopes < 35%), access, Plumas National Forest projected climate analyses, American (formerly northern) goshawk and California spotted owl Protected Activity Centers (PACs) and Home Range Core Areas (HRCAs), and other on-the-ground factors such as meadow-like conditions and tree health". FoPW requests that additional factors, such as special designations (Inventoried Roadless Areas, Citizen Inventoried Roadless Areas, eligible Wild & Scenic Rivers, Research Natural Areas, and Special Interest Areas), be used to develop silvicultural treatments throughout the TFRP. Silvicultural Treatments should be developed for the aforementioned special designations. (Giant Sequoia National Monument Management Plan, Part 2, Table 4, pp. 38-41)

FoPW is concerned that the PNPA suggests, "Some larger trees (between 30" and 40" DBH) that are of poor health or are less suited for future climatic conditions may be removed in order to improve future stand health. This approach favors retention of the healthiest trees that are best suited for the site and resilient to both future wildfire and climatic water deficit". Mature and old-growth trees germinated under a different climate regime than exists today and are all "less suited for future climatic conditions". Many wildlife species rely on snags and logs of large diameter trees. These trees should be left on the landscape.

Past forest management practices have created dense, even-aged forests composed mostly of small and intermediate-sized conifers, which create ladder fuels and are susceptible to high severity fire, especially with a warmer climate. FoPW strongly supports the thinning of small and intermediate-sized conifers and the use of prescribed fire to produce a more diverse mosaic of age classes and ecosystems and protect large, fire-resistant trees. While we recognize the urgency, efforts to rapidly reduce fuels and fire hazard on multiple-use lands must be balanced with the protection of natural and cultural values. Applying the same fuel

reduction methods across all Treatment Areas is inappropriate. Areas with sensitive natural and cultural resources require lower impact approaches to fuels reduction. Using a variety of treatments and prescriptions will provide more diverse and resilient ecosystems. Fuel reduction projects have the potential to cause infestations of insects and diseases and start wildfires. Best available science and frequent consultation with entomologists should be incorporated into every aspect of fuels reduction projects, from planning and prescription writing to implementation.

FoPW supports fuels reduction treatments in special designations if care is taken to protect rare plants and best available science is used to guide restoration efforts. If mechanized equipment is used for fuels reduction, special care should be taken to reduce the spread of exotic plants as they can outcompete native plant species. If fuels reduction efforts are initiated in areas with rare plants we strongly recommend collaborating with the California Native Plant Society, Indigenous people, and ecologists knowledgeable of local rare plant populations.

Variable Density Thinning (VDT) should be accomplished via hand thinning whenever possible. Hand thinning should be used to avoid impacts from heavy equipment to cultural sites, wildlife habitat, riparian areas, sensitive resource sites, and areas with steep slopes. Particular considerations should be taken to limit the use of mechanical thinning on slopes over 30° to avoid bare soil exposure, runoff, and degradation. Specific slope restrictions for mechanical thinning and timber harvest efforts should be included.

FoPW has concerns about the slash and other chipped fuels that will be a byproduct of VDT. DeGomez (2015), Fettig and others (2006) showed that chipping submerchantable and unmerchantable ponderosa pines and depositing the chips back into treated stands increases the risk of infestation by several species of bark beetles in the Southwestern United States. The effect was due to large amounts of monoterpenes being released during chipping, which enhanced attraction to bark beetles. Impacts were greater from chipping in spring (April–May) than in late summer (August–September) because spring is the time of peak flight activity for several species of bark beetles as they search for new hosts. If possible, chipping should be conducted in fall to minimize tree losses to bark beetles if the chips will remain onsite. Many species of bark beetles have a 1-2 year life cycle. FoPW recommends that slash from fuels reduction be managed to reduce colonization of standing trees by bark beetles. Slash that is scattered or left in place in preparation as surface fuels for understory burning, or piled for burning should be burned within 1-2 years.

The TFRP proposes project-specific Forest Plan amendments to improve forest resiliency and protect communities from catastrophic wildfires. In particular, the project proposes using the metric of relative stand density index instead of basal area and canopy cover to meet forest health and resiliency goals. FoPW understands that forests need to be made less dense through fuel reduction efforts and metrics such as basal area, canopy cover, and tree diameter requirements limit the management actions that can be taken to address forest resiliency. Across the Sierra Nevada, large diameter trees (trees with diameter at breast height greater than 24 inches for this example) have been removed through timber harvest reducing their numbers by at least 50% since 1930, and small trees (4 to 12 inches dbh) have doubled in density over the same time period (McIntyre et al 2015). Recently, two studies from the Pacific Northwest have suggested that diameter limits need to be revised to meet restoration targets for resiliency (Johnston et al 2021, Hessburg et al 2021). Specifically, these studies

highlight how past logging has resulted in the growth of many large, shade-tolerant trees that are less fire resilient and impede the ability for large pines to recruit. These studies are focused on dry, inland forests of Oregon and Washington and while the forest types are similar in many ways to Sierran forests, to date there are no publications using field data that explicitly address diameter limits in the Sierra Nevada. Identifying and retaining mature and old-growth conifers is an important strategy for carbon sequestration as these conifers are more fire/drought resilient and sequester far more carbon than young conifers.

Due to the lack of empirical evidence for Sierra forests in the TFRP, FoPW proposes gathering field plot data in representative sample areas to inform the discussion about whether the project specific plan amendment is needed to meet project restoration goals. FoPW is interested in helping to design and execute a study similar to Johnston et al (2021) for the Plumas National Forest, but such an endeavor will take at least one year and is currently unfunded. Without empirical data for the entire project area at this time, we recommend that the PNF withdraw the project amendment that allows for the removal of >30" dbh trees. Additionally, FoPW strongly suggests adopting sufficient sideboards on the amendment to constrain the activity and gain greater buy-in and support from project critics.

Given that there is a lack of robust, peer-reviewed support for the need to harvest >30" trees in this region, we request the following sideboards, adapted from the North Yuba Project, at minimum, if the >30" tree cutting amendment is included:

1. Include a constraints filter in decision trees to guide >30" tree removal in any area the amendment is proposed.
2. In subsequent SIRs/RODs: Field surveys of large trees completed alongside other resource surveys shall determine departure from desired conditions. Field data should be modeled in Forest Vegetation Simulator (FVS) to show that desired conditions cannot be met within 20 years of treatment unless those trees are removed.
3. Use a 30" cap for pines, and a 39.9" for other species, with preference for removal of white fir over other species.
4. Retain snags and downed logs according to forest plan direction - girdle 30-39.9" trees to meet the retention direction before any trees are removed.
5. No 30-39.9" trees shall be harvested to create 1-3 acre openings.

Additionally, the Proposed Forest Plan Amendment reads: "In 5D and 5M stands within California spotted owl Home Range Areas, design treatments to retain a minimum of 40% canopy cover within each treated unit while reducing the rSDI as close to the target range as feasible" and "Design projects to a relative stand density index (rSDI) of 25-35% of maximum". FoPW does not support this recommendation, as explained above. Forty percent of the existing basal area in 5M & 5D stands within California spotted owl Home Range Areas should be retained. The retained basal area should continue to be generally composed of the largest trees.

### ***Prescribed Fire***

FoPW convened workshops to initiate prescribed fire in the Ishi Wilderness, supports amending the PNF Forest Plan to allow prescribed fire in the Bucks Lake Wilderness, and supports the use of prescribed fire across the Forest, including areas with special designations if it can improve ecosystem health and not threaten communities. We recommend using prescribed fire as often as possible as it is typically the lowest cost fuel reduction treatment

and produces a more diverse mosaic of age classes and ecosystems than mechanical or manual treatments. Native Californians used fire to tend landscapes for millenia and many Indigenous people possess Traditional Ecological Knowledge related to cultural burning practices. Integrating TEK, especially information related to when and where to use fire, could benefit prescribed burning efforts.

### Mature and Old-growth Forests

FoPW reviewers of the PNPA document did not find reference to Executive Order 14072: Strengthening the Nation's Forests, Communities and Local Economies. Released on April 22, 2022, E.O. 14072 required the Forest Service and BLM to define and identify mature and old-growth trees within a year. On April 20, 2023 the Forest Service released FS-1215a: Mature and Old-growth Forests: Definition, Identification, and Initial Inventory on Lands Managed by the Forest Service and BLM. It is unclear how these findings have been incorporated into the Project. FoPW recommends the Project *clearly demonstrate* how findings from FS-1215a were integrated into the Project. For example, Table 12 on page 34 of FS-1215a: Pacific Southwest Region Old-growth Types and Minimum Criteria shows that old-growth Jeffrey Pine and Red Fir have a 30" minimum diameter. Given this definition of old-growth, fuels reduction efforts should not remove Jeffrey Pine and Red Fir larger than 30" dbh if they are found within the Project Area.

FoPW has worked for nearly fifty years to protect the few remaining stands of mature and old-growth forests on the Plumas National Forest from being logged. Given the warming climate, we realize that high-severity fire poses a significant threat to the remaining mature and old-growth forests.

We strongly recommend that mature and old-growth forests be mapped for all Community Protection and Forest Recovery projects and thinning efforts are designed to protect these stands. We recommend mechanical removal of small and intermediate-sized trees and surface litter around remaining mature and old-growth stands and employing hand-thinning, piling, burning, and prescribed fire within the stands. Mechanical thinning within mature and old-growth stands should be minimized as the use of heavy equipment compacts soils and spreads invasive plant species.

### Trails

FoPW supports the restoration and development of recreation facilities and features which allow public access to our Forest Service lands, if they do not have considerable impact on other public land values. FoPW appreciates PNF & Plumas Corp's acknowledgment of the need to rehabilitate fire suppression lines and unauthorized (non-NFS) roads and trails that degrade water quality and aquatic habitats as well as plans to realign trails to avoid sensitive locations and provide cultural acknowledgement. Proposed trails should be sustainably designed and built to minimize erosion and located to minimize impacts to ecological and cultural resources. If trails are proposed within areas with special land designations they should not adversely affect the values the area has been recognized for. For example, if trails are constructed within special designations they should not adversely impact the ecological values or research potential of these areas. Likewise, motorized trails should not bisect the few remaining intact roadless areas on the Plumas National Forest, such as Inventoried Roadless Areas identified by the Forest Service or Citizen Inventoried Roadless Areas identified by The Wilderness Society. FoPW can provide appropriate PNF and Plumas Corp. staff with maps and accompanying documentation of areas with special designations.

### Fire Management Features

At the October 19, 2023 TFRP scoping meeting, Plumas National Forest staff presented a map showing locations where the PNF proposes to maintain permanent bulldozer lines. FoPW understands the need for retaining permanent fuel breaks along ridgelines to interrupt the continuity of fuels, provide anchors for prescribed fire and allow for rapid wildfire response. The Forest Service suppression repair practice of putting disturbed materials (fallen trees, stumps, and rocks) along the entire length of dozer lines increases fuel loading along ridges and impedes fire suppression efforts.

It is our understanding that the Plumas National Forest proposed “permanent dozer lines” will be open to Off Highway Vehicle use. FoPW is adamantly opposed to adding routes to the PNF Motor Vehicle Use Map without substantial public input and vetting. Development of the Plumas National Forest MVUM was extremely contentious and involved litigation; making any changes to the MVUM should incorporate adequate opportunities for public input.

The Plumas National Forest is responsible for managing over 3,000 miles of roads, many of which are in poor condition. Adding routes to the Plumas National Forest road network without closing others is unsustainable.

FoPW supports changes in how the PNF manages the 2,600+ miles of dozer line constructed during the Dixie Fire. Rather than treat these areas as permanent bulldozer lines/roads/OHV trails we strongly recommend these areas be managed as shaded fuel breaks which are gated to allow for administrative access only.

### Special Land Designations

FoPW appreciates the inclusion of special designations such as the Grizzly Peak Roadless Area and Mud Lake Research Natural Area included in the maps presented to the public during scoping meetings. FoPW requests that eligible Wild & Scenic Rivers, Proposed Special Interest Areas, and SNYLF critical habitat are included in future scoping maps. Not including areas with special designations on public-facing materials gives the impression that the Forest Service and planning partners do not acknowledge the unique values these areas have been recognized for. Using forest restoration and fuels treatment methods appropriate for each type of special designation will provide a diversity of approaches to forest management and increase the likelihood of successfully meeting management objectives while protecting the unique values of these areas. (Giant Sequoia National Monument Management Plan, Part 2, Table 4, pp. 38-41) includes treatments for all land allocations and provides a table showing which treatments are appropriate for each special designation.

### Inventoried Roadless Areas (IRAs)

FoPW appreciates the inclusion and delineation of the Grizzly Peak IRA in the PNPA. The PNPA does not propose treatments in the Grizzly Peak IRA. During the Dixie Fire, approximately 1.4 miles of dozer lines were constructed within the Grizzly Peak IRA. Action should be taken to restore the dozer lines to retain the primitive character of this area and where feasible, fuels reduction and forest restoration efforts should be employed to restore fire as a tool across the landscape. FoPW recommends that no new roads be constructed within IRAs and prescribed fire is the primary tool used to improve forest resilience. If temporary roads are constructed, they should be for administrative use only and obliterated

to prevent non-system, user-created roads from encroaching into the IRAs. FoPW recommends PNF consult with FoPW regarding actions taken in and around any IRAs.

### Citizen Inventoried Roadless Areas

In 2017, The Wilderness Society completed a field inventory of roadless areas on the Plumas National Forest. While the landscape has been dramatically changed since this inventory, the reports generated from this effort provide a baseline that should be considered when restoring these areas. Several of TWS Citizen Inventoried Roadless Areas (CIRAs) are located within the TFRP project area. Special consideration should be given to retaining these intact roadless areas as they provide important refuges for wildlife and opportunities for unconfined recreation and solitude. Proposed roads and motorized routes should be aligned to retain the size and values of these roadless areas. Fuel treatments should emphasize lower impact methods such as prescribed fire and hand-thinning, piling, and burning rather than the use of machinery. If roads are needed to treat fuels, they should be temporary, for administrative use only, and obliterated immediately after treatment. Special care should be given in CIRAs to prevent the spread of non-native species and motorized trespass. FoPW can provide GIS layers of Citizen Inventoried Roadless Areas identified by The Wilderness Society and the accompanying reports to the appropriate PNF and Plumas Corp. staff. Summarized below are simple overviews of the CIRA's values and their acreages within the TFRP. FoPW requests project managers meaningfully review and incorporate findings from these reports into the plans for this project.

#### ***Bagley Peak Citizen Inventoried Roadless Area***

Approximately 2,800 acres of the Bagley Peak CIRA are included in the TFRP. This CIRA is lacking significant impacts from human improvement activities and does not contain any motorized or non-motorized trails.

#### ***Paradise Creek Citizen Inventoried Roadless Area***

Approximately 2,800 acres of the Paradise Creek CIRA are included in the TFRP. This CIRA is rich with post-fire patches at a variety of successional stages. A Spotted Owl Protected Activity Center exists in the roadless area, indicating the presence of intact, old-growth forests.

#### ***Grizzly Peak Citizen Inventoried Roadless Area***

Approximately 5,700 acres of the Grizzly Peak CIRA are included in the TFRP. Surrounding the Grizzly Peak Inventoried Roadless Area, the Grizzly Peak CIRA contains several Spotted Owl Protected Activity Centers and the occasional elk population, indicating valuable ecosystems exist here.

#### ***Red Clover Citizen Inventoried Roadless Area***

Approximately 11,200 acres of the Red Clover CIRA are included in the TFRP. The human improvement activities in the Red Clover CIRA appear, for the most part, substantially natural.

#### ***Elephant's Playground Citizen Inventoried Roadless Area***

Approximately 9,600 acres of the Elephant's Playground CIRA are included in the TFRP. Values present in this CIRA include ecological diversity, geologic features, and opportunities for primitive and unconfined recreation.



### ***Papoose Peak Citizen Inventoried Roadless Area***

Approximately 5,900 acres of the Papoose Peak CIRA are included in the TFRP. These meadows and the dense forests that surround them provide optimal habitat for the herds of elk found in the area. California's elk populations were devastated by non-indigenous settlers, and elk are now returning to portions of their historical range due to protective conservation measures, successful translocation efforts, and natural dispersal of elk into suitable habitat.

### ***Mount Jura Citizen Inventoried Roadless Area***

Approximately 2,000 acres of the Mount Jura CIRA are included in the TFRP. The Mount Jura CIRA contains a plethora of opportunities for hunting and bird watching. Mount Jura, Kessler Peak, and Wheeler Peak rise over 6,000 feet in the roadless area. Several Spotted Owl Protected Activity Centers are found scattered throughout the CIRA, indicating the existence of older forests. The Mud Lake Modoc Cypress RNA, home to one of the two stands of Modoc cypress in Plumas County, contains Modoc cypress trees that tower over 90 feet tall and add a valuable natural feature to the landscape.

### ***Peter's Creek Citizen Inventoried Roadless Area***

Approximately 800 acres of the Peter's Creek CIRA are included in the TFRP. Peter's Creek CIRA is rich with post-fire patches at a variety of successional stages. A Spotted Owl Protected Activity Center exists in the roadless area, indicating the presence of intact, old-growth forests. As Peter's Creek Trail travels through the thick forests of the roadless area, it opens onto meadows of mule's ears and finally arrives at Lucky S Mines, a historical mining ghost town. The area is attractive for its remoteness, diversity of ecosystem types, and its historical sites.

### **Eligible Wild & Scenic Rivers**

The PNPA document does not list any of the Eligible Wild Rivers located within the Project Area. Mo Bisipi Creek is an eligible Wild & Scenic Rivers of which approximately 11.25 miles occur within the Project Area and should be delineated in the PNPA document. Treatments occurring adjacent to Eligible Wild Rivers should not degrade values or adversely affect the character of areas nor the potential for these lands to be designated as Wild & Scenic in the future. FoPW supports manual treatments, pile burning and prescribed fire along Eligible Wild & Scenic Rivers in the Project Area.

### **Research Natural Areas**

FoPW is concerned that the PNPA document states that no silvicultural treatments are proposed within Mud Lake Research Natural Area. Protection of the globally rare Baker's Cypress within the vicinity of Mud Lake should be a priority for the TFRP.

### **Special Interest Areas**

Special Interest Areas (SIAs) are managed to protect unique scenic, botanic, or geologic values. The PNPA document does not include any reference to the proposed SIA (pSIA) located in the Project Area. Approximately 500 acres of the Brady's Camp pSIA is within the Project Area. The Brady's Camp pSIA encompasses a large meadow and stream complex, surrounded by partially logged Red Fir Forest. The meadow complex appears to be extremely high in species diversity, containing herbaceous plants from both northern Sierra and Great Basin floristic provinces and seven plant communities. The outstanding floral displays and lush herbaceous growth are relatively free of livestock grazing impacts. Tremendous variation in soil moisture content creates a rich vegetative mosaic of color, pattern and a texture. Champion lodgepole

and western white pine are recognized within the primitive Brady's Camp site. A small population of the Forest-endemic *Penstemon personatus* is found here. The rare *Carex sheldonii* is present, and potential habitat for the rare *Silene invisus* can be found in the surrounding Red Fir Forests. Sightings of the Forest-sensitive pine martin are known from this area.

The approximately 500 acres of the over 1400 acre Brady's Camp pSIA located within the project area experienced impacts from the Dixie Fire. Nearly half the acreage burned at high severity and approximately 2.6 miles of dozer line were constructed. Action should be taken to restore the dozer lines that were constructed within the pSIA and protect and restore the remaining rare and endemic plants. Mechanical thinning within pSIAs should be minimized as the use of heavy equipment compacts soils and spreads invasive plant species. FoPW recommends that the PNF work closely with the California Native Plant Society to develop fuels reduction treatments specific to each pSIA. California Native Plant Society staff possess a comprehensive knowledge of California's native plants and have training and experience related to the development of fuels reduction treatments.

### Tribal Co-management

In recent meetings with Maidu representatives and community members, FoPW staff and board members found there is a desire in the local Indigenous community to establish areas on the Plumas National Forest where Traditional Ecological Knowledge and cultural burning are employed over long periods of time. The Maidu Stewardship Project (2004-2014), located within the project area, serves as a model for co-management on the Plumas National Forest. Lands tended within the Maidu Stewardship Project fared better during the 2021 Dixie Fire than adjacent Forest Service lands surrounding Greenville, CA. Another example of Indigenous co-stewardship is the leadership role that Mooretown Rancheria has taken with the Feather Falls Post-fire Restoration Project. Given the success of these efforts, we recommend the establishment of long-term (multiple decade) agreements between the Plumas National Forest and Tribal groups within a portion of the Project Area where long-term Tribal Co-management, Traditional Ecological Knowledge, and cultural burning are employed. Incorporating Indigenous knowledge in forest stewardship will create more diverse and resilient forests.

### Wildlife Corridors

Significant corridors for wildlife movement are located within the TFRP project boundary. The Doyle Mule Deer herd relies heavily on migration stopover sites near Red Clover and Last Chance Creeks. FoPW requests that PNF coordinate with CDFW biologists to ensure no negative impacts to migratory stopover sites are caused by restoration activities.

Pacific Marten are closely associated with late-successional, mixed conifer forests with multi-layer stands. The Conservation Biology Institute, in collaboration with the Lassen and Plumas National Forests, developed both pre and post-fire habitat suitability and connectivity models for Pacific Marten (NCASI Foundation, 2023). Following the 2021 Dixie Fire, the model shifted dramatically from the model that was developed in 2016. FoPW requests additional emphasis be added to restoration of high elevation red fir and white fir forest types throughout the project, given that the connectivity model developed post Dixie Fire shows Pacific Marten suitable habitat following the Dixie Fire runs directly through the project area.

FoPW commends the PNF and Plumas Corp. for initiating the Tributaries Forest Recovery Project and appreciates the opportunity to provide input on the process. If there are any questions related to our comments please contact me.

Sincerely,

Ron Logan  
*Board President*  
Friends of Plumas Wilderness

## Literature Cited & Attachments

DeGomez, T.; Fettig, C.J.; McMillin, J.D.; Anhold, J.A.; Hayes, C. 2015. Managing slash to minimize colonization of residual leave trees by Ips and other bark beetle species following thinning in southwestern ponderosa pine (revised 10/2014). AZ1449. Tucson, AZ: University of Arizona, College of Agriculture and Life Sciences Bulletin. 12 P

Fettig, C.J.; McMillin, J.D.; Anhold, J.A. [and others]. 2006. The effects of mechanical fuel reduction treatments on the activity of bark beetles (Coleoptera: Scolytidae) infesting ponderosa pine. *Forest Ecology and Management*. 230: 55–68.

Giant Sequoia National Monument Management Plan, Part 2

[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprd3797649.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3797649.pdf)

Hessburg, P.F., S. Charnley, A.N. Gray, T.A. Spies, D.W. Peterson, R.I. Flitcroft, K.L. Wendel, J.F. Halofsky, E.M. White, and J Marshall. 2021. Climate and wildfire adaptation of inland northwest US forests. *Frontiers in Ecology and Environment*. doi: 10.1002/fee.2408.

Johnston, James D; Greenler, Skye M; Miller, Becky A; Reilly, Matthew J; Lindsay, Amanda A; et al. *Ecosphere*; Washington Vol. 12, Iss. 3, (Mar 2021). DOI: 10.1002/ecs2.3394

McIntyre, Patrick J., J.H. Thorne, C.R. Dolanc, A.L. Flint, L.E. Flint, M. Kelly, and D.D. Ackerly. 2015. Twentieth-century shifts in forest structure in California: denser forests, smaller trees, and increased dominance of oaks. *PNAS* 112(5).pp 1458-1463.

Mule Deer Migration Corridors, CDFW.

<https://data-cdfw.opendata.arcgis.com/datasets/CDFW::mule-deer-migration-corridors-doyle-2016-2019-ds2909/explore>

NCASI Foundation, Marten and Fisher in Lassen and Plumas, 2023.  
*Attached.*

Plumas and Tahoe National Forest Wilderness Quality Inventory Map.

<https://wilderness.maps.arcgis.com/apps/webappviewer/index.html?id=634a69ea49fc40c48b858fa2424663a4>

The Wilderness Society, Citizen Inventoried Roadless Area Reports, 21, 24, 25, 26, 27, 28, 33, & 36.

*Attached.*

Available GIS layers

- Inventoried Roadless Areas (United States Forest Service)
- Citizen Inventoried Roadless Areas (The Wilderness Society)
- Proposed Special Interest Areas (California Native Plant Society)
- Eligible Wild & Scenic Rivers (National Wild & Scenic River System)
- Research Natural Areas (United States Forest Service)
- SNYLF Critical Habitat (CDFW)

2023 Annual Progress Report for Participating Agreement  
22-PA-11050600-014 between Lassen and Plumas National Forests and the  
NCASI Foundation  
Marten and Fisher Surveys

Executive summary:

We aim to provide an evaluation of recent wildfire on forest carnivores, focused on fishers (*Pekania pennanti*) and Pacific martens (*Martes caurina*). We aim to provide an initial assessment of the effects of this fire on populations, distributions, and habitat refugia of the martens, fishers and other members of the carnivore community directly following an unprecedented fire – the 2021 Dixie Fire. We are using the wealth of prior data on these carnivores and have designed a directed study using remote cameras to both resurvey areas surveyed 2006-2010 and we created a new design stratified by fire severity. We hope results from our efforts could be used for both as a foundation for a time series detailing carnivore persistence or re-colonization. Further, these data could be used experimentally to evaluate management actions, such as post-fire salvage logging or designated restoration practices for conservation.

Our research goals include:

- (1) Create predictive suitability maps for martens and fishers given high severity fire (CBI, marten completed, fisher in progress, see second section of the report).
- (2) Evaluate whether martens and fishers survived within and adjacent to the Dixie fire (Cal Poly Humboldt, see report and maps within).
- (3) Assess changes in distribution of martens and fishers immediately post-fire (modeling in progress).
- (4) Determine if specific management or habitat types were most resilient to fire and served as refugia for martens and fishers (evaluation in progress).
- (5) Assess the relationship between fire severity, the spatial scale of severity types, and multi-species carnivore occupancy (evaluation in progress, see preliminary results within).
- (6) Create the foundation for a time series assessment of mammalian community ecology following a large fire to assess short- and long- term impacts (surveys with >500 camera stations completed).

If you have questions, please contact Katie Moriarty ([kmoriarty@ncasi.org](mailto:kmoriarty@ncasi.org), 541-249-3987) or my collaborators (Dr. Ho Yi Wan, Dr. Micaela Szykman Gunther, Heather Rustigian-Romsos, Christopher Collier, Alyssa Roddy) as mentioned within.

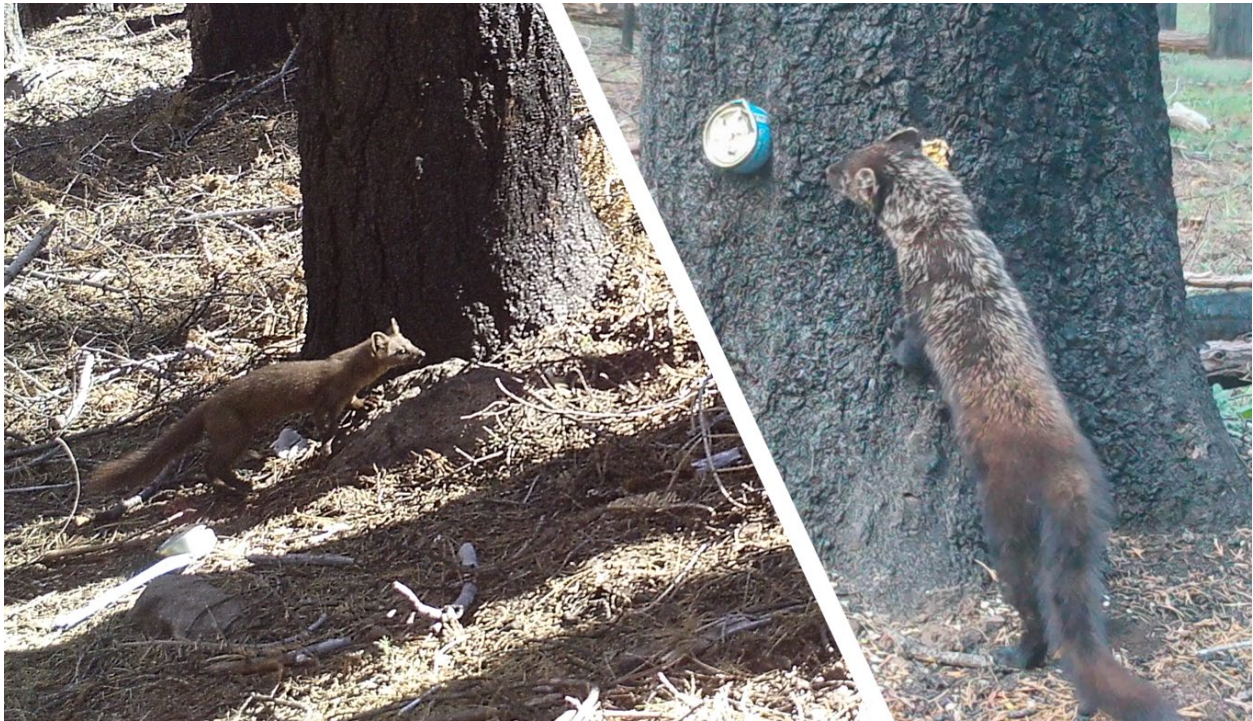
# Marten and Fisher in Lassen and Plumas National Forests, California

Annual Progress Report 2023

Cal Poly Humboldt Sponsored Programs Foundation Grant N4848  
Funded by Lassen and Plumas National Forests  
with Subaward through The National Council for Air and Stream Improvement, Inc. (NCASI)

Period of performance: November 2022-December 2025

PIs Micaela Szykman Gunther and Ho Yi Wan  
Contributors Christopher J. Collier and Alyssa M. Roddy



## Project Synopsis

Wildfires in much of the western United States have increased in frequency and severity. Recently, the consumption of one million acres resulted in California's largest single fire to date, the 2021 Dixie Fire, which burned in Butte, Plumas, Lassen, Shasta, and Tehama counties of northern California. Given that predictions show a continued increase in fire severity and frequency through the year 2050, assessing the risks and effects of wildfire on ecosystems is warranted and increasingly becoming a priority for land managers. While the social and economic losses associated with high severity wildfires are often apparent, the ecological effects are relatively unknown for some species and communities. While previous research has identified mixed or low severity fire to be beneficial to wildlife species, the responses to large megafires are poorly understood for many carnivore species. Therefore, to better understand these responses to severe fire, we used a random sampling design stratified by burn severity to survey in and around the Dixie Fire footprint using baited camera stations to determine presence of mesocarnivores including Pacific martens (*Martes caurina*) and fishers (*Pekania pennanti*) in a post-fire landscape. Our future analyses will involve occupancy modeling at multiple scales using forest structure metrics related to burn severity, basal area (m<sup>2</sup>/ha), and prey availability. We aim to provide insight into how Pacific martens and fishers adapt to high severity fires and to equip land managers with applicable information for conservation of these species.

## Study Objectives

- Conduct pilot remote camera surveys during 2022 (following up 2019 pre-fire surveys). [Technically, these surveys were outside the period of performance of this grant, as funding arrived only after cameras were deployed and surveys completed.]
- Work with NCASI to design carnivore distribution study stratified by fire intensity and address whether martens and fishers survived within and adjacent to the Dixie fire.
- Conduct second season of field work during 2023 using remote cameras and working with the National Forests for access and safety. Assess changes in distribution of martens and fishers immediately post-fire.
- Determine if specific management or cover types were most resilient to fire and served as refugia for martens and fishers.
- Assess the relationship among fire severity, the spatial scale of severity types, and multi-species carnivore occupancy.
- Create the foundation for a time series assessment of mesocarnivore community ecology following a large fire to assess short- and long-term effects.

## Brief Methods

### 2022 Surveys

We conducted remote camera surveys during late summer and fall of 2022 (prior to the performance period of this grant) in Lassen National Forest within the Dixie fire footprint to assess the effects of forest thinning treatments on occurrence of Pacific martens and fishers in a pre/post fire landscape. Additionally, this effort served as a pilot survey to inform a larger carnivore distribution study completed in summer of 2023. We followed Moriarty et al. (2016) sampling protocols, which stratified stand type by vegetative complexity related to management practices using 6.2 km<sup>2</sup> hexagons. Stands were characterized as 1) simple, 2) complex, or 3) open (Moriarty et al. 2016). Open stands were typified by minimal overstory cover resulting from naturally occurring openings or the result of timber harvests. Simple stands reflected



reduced structural complexity in both understory and overstory features and mirrored management strategies aimed at reducing wildfire risks. Complex stands represented older age classes with maintained structural complexity in both understory and overstory features that experienced minimal to no management in over 50 years (Moriarty et al. 2016).

We deployed two independent 3-km remote camera sampling grids, identified as Humboldt and Swain, designed to detect, and monitor occupancy of martens and other forest carnivores (Figure 1). Cameras were deployed in August and retrieved between October 2022 and July 2023 with variation in retrieval date due to weather and road conditions. We randomly stratified remote camera stations using the 6.2-km<sup>2</sup> hexagon grid vegetation classifications to ensure representative sampling of available stand types across camera surveys. Each sampling grid consisted of 20 sample units composed of two individual baited camera stations (40 cameras). We placed a camera station at a random point within a sample unit and randomly placed a second camera 100-300 m from the first station following a random compass bearing. We baited remote cameras with a raw chicken drumstick and a can of wet cat food, nailed 1-2 m up a tree, and lured with a commercial scent lure following marten-specific monitoring protocols (Moriarty et al. 2019). We left remote cameras (Bushnell Aggressors) in place for a minimum of 28 days and set them to the following settings: 3 second delay, 8-megapixel resolution, burst of 3 photos, low or medium LED, normal or low sensitivity, and high NV shutter.

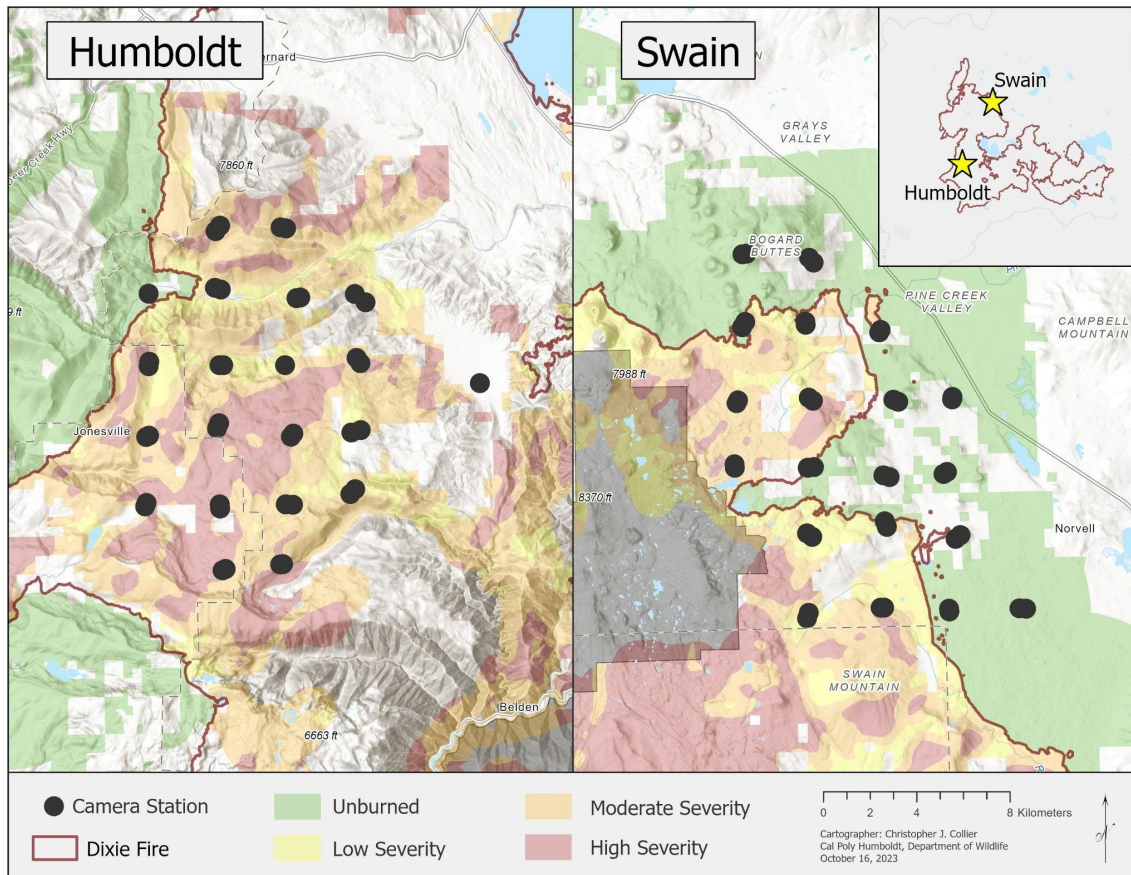


Figure 1. Camera locations for the 2022 pilot surveys of carnivores in the Dixie Fire study area in northern California. Shaded colors represent burn severity classes restricted to Lassen and Plumas National Forest lands. Burn severity raster derived from Monitoring Trends in Burn Severity (MTBS.gov) data.

## 2023 Surveys

Between June and September 2023, we used a random sampling design stratified by burn severity to survey in and around the Dixie Fire footprint to determine presence of mesocarnivores two years post-fire. We placed sites with a minimum spacing of 3 km with two camera stations at each ( $n = 230$ ; Figure 2), with 14 cameras set on privately managed forests by Collins Pines and 10 set in the Bucks Lake Wilderness by the Mt. Hough District of Plumas National Forest. We limited sites to within a 6 km buffer around the Dixie Fire perimeter and known marten or fisher locations from our pilot study and related prior studies (e.g., Zielinski et al. 2015, Facka et al. 2016, Delheimer et al. 2019, Green et al. 2022) and within 1 km of the nearest road. We also collated data collected by collaborators with different spacing among sites and included these additional data in the results section map and summaries of this report.

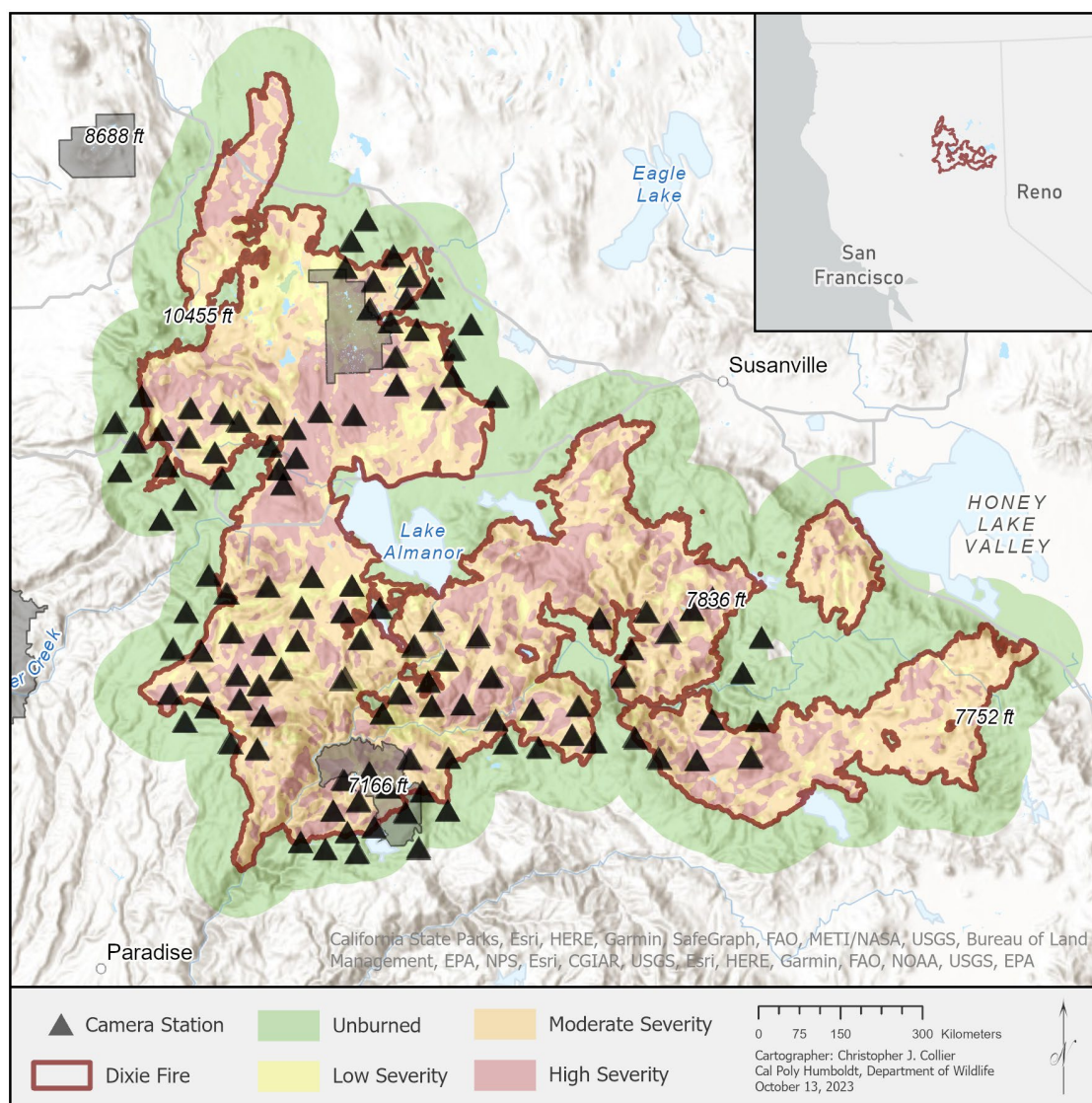


Figure 2. Camera locations for the summer 2023 Dixie Fire carnivore surveys in northern California. Shaded colors represent burn severity classes, which were derived from Monitoring Trends in Burn Severity (MTBS.gov) data. Green represents the 6 km buffer from Dixie Fire perimeter.

We deployed cameras (StealthCam, Browning, and Bushnell) in a paired configuration, with methods mirroring our pilot study. Following the same protocol, our collaborators set varying numbers of cameras (Table 1). One difference was that we applied small mammal bait adjacent to the carnivore bait consisting of half an apple covered in crunchy peanut butter and oats, which will allow us to estimate prey availability in future analyses.

We acquired a differenced Normalized Burn Ratio (dNBR) raster from Monitoring Trends in Burn Severity (MTBS.gov; Eidenshink et al. 2007) and averaged to 150 m, which was the halfway point between the most distant paired camera sites. Additionally, we collected measurements for vegetation characteristics at each camera. We used a 20-factor basal area prism to count the number of trees within each plot and estimate basal area ( $\text{m}^2/\text{ha}$ ). We also recorded dominant tree species, average percent stem scorch, and average percent mortality. We then visually estimated canopy cover and shrub cover. We will use these metrics to ground truth fire severity layers and to incorporate within models once these data have been consolidated.

To estimate marten and fisher detection ( $p$ ) and occupancy ( $\psi$ ) probabilities and uncover relationships with post-fire forest use, we fit single-season occupancy models (MacKenzie et al. 2002) using package ‘unmarked’ (Fiske and Chandler 2011) in R (Version 4.3.1; R Core Team 2023). We chose to only model data collected in 2023 and from sites  $>3$  km apart, which allowed us to meet the assumptions of closure and independence, respectively. We simplified detection histories to the site level, and considered occasion 1 to be camera A and occasion 2 to be camera B. Given our low number of cameras with detections ( $n = 16$ ), we fit a simplistic model with the continuous dNBR as the sole covariate ( $p(\cdot) \psi(\text{dNBR})$ ). We ranked our model against a null model assuming no effect of burn severity ( $p(\cdot) \psi(\cdot)$ ) using Akaike Information Criterion corrected for small sample size (AICc) and tested for goodness of fit (MacKenzie and Bailey 2004) using package ‘AICcmodavg’ (Mazerolle 2020).

## Brief Results and Discussion

### 2022 Surveys

Across the two sampled grids, we collected 524,587 images. We detected Pacific martens at 9 out of 80 camera sites, or 6 out of 40 sample units and detected fishers at 2 out of 80 camera sites, or 2 out of 40 sample units (Figure 3). The Humboldt grid detected a marten and a fisher at one sample unit within a day of each other at the beginning of December. No martens or fishers were detected in the Swain grid. Marten detections occurred in unburned ( $n = 2$ ), moderate ( $n = 4$ ), and high severity ( $n = 3$ ) sites. Fishers were detected in unburned ( $n = 1$ ) and moderate severity sites ( $n = 1$ ).

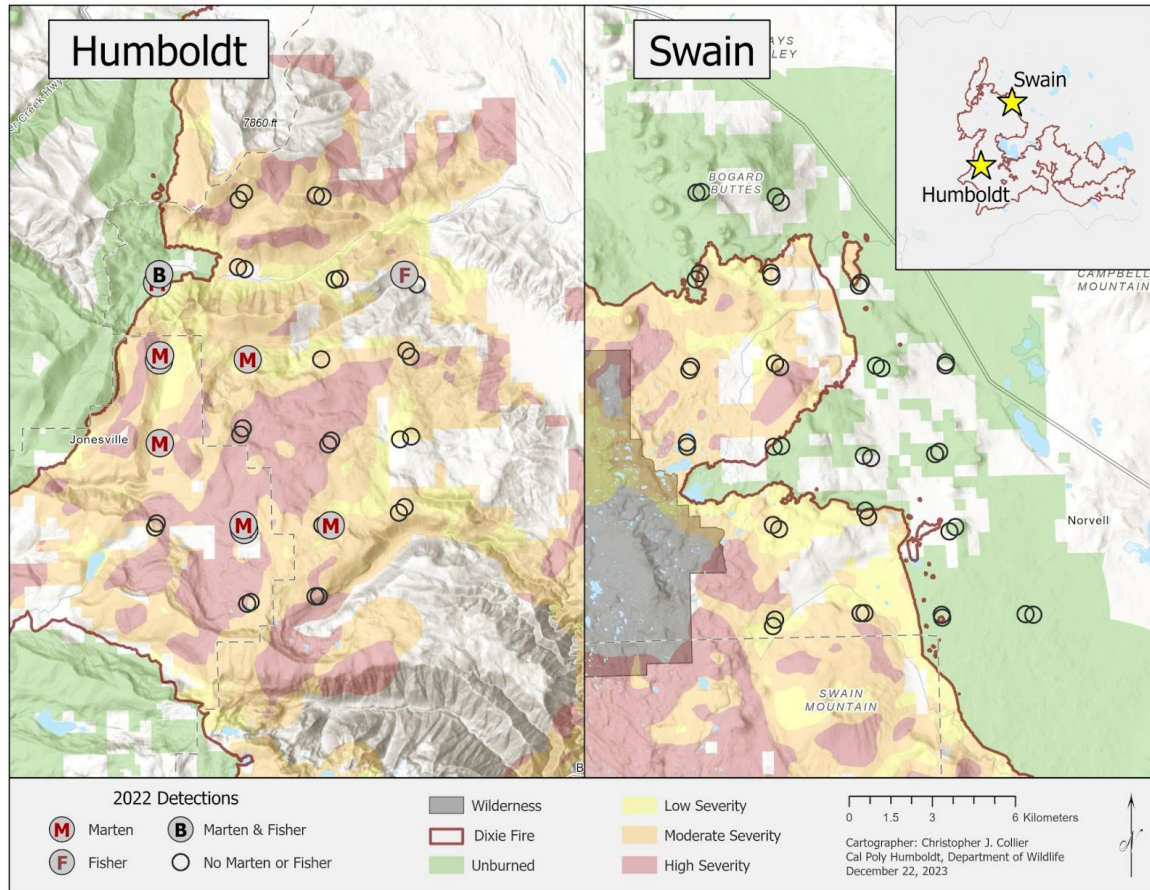


Figure 3. Sites with marten and fisher detections during fall 2022 surveys within the Dixie Fire study area in northern California. Shaded colors represent burn severity classes restricted to Lassen and Plumas National Forest lands. Burn severity raster derived from Monitoring Trends in Burn Severity (MTBS.gov) data.

### 2023 Surveys

During the Cal Poly Humboldt 2023 surveys, we collected 777,933 images and observed 26 species of mammals including 14 species of carnivores. With the combined data from 2022 and 2023 between us and our collaborators, we detected martens at 41 and fishers at 25 out of 544 cameras (Table 1). Of the cameras near (< 6 km) or within ( $n = 31$ ) the fire perimeter, marten detections were nearly evenly distributed across the burn severity classes, although the highest number occurred at the low severity sites ( $n = 10$ , Figure 4A).

Most fisher detections occurred at unburned cameras ( $n = 15$ ), though we also had detections at low severity ( $n = 2$ ), and moderate severity ( $n = 2$ ) cameras (Figure 4B). However, 6 of these detections occurred within close proximity to one another in the Hat Creek surveys and could potentially be the same individual (Figure 5). No fishers were observed at our sites within high severity patches. Several cameras placed near the approximate location of the Facka et al. (2016) reintroduction efforts detected fishers. Two cameras detected both martens and fishers at the same site in 2023 (Figure 5).

Table 1. Camera deployment counts, marten, and fisher detections during 2022 and 2023 surveys within the Dixie Fire study area in northern California. Collaborators provided data for Lassen National Forest - Eagle Lake and Hat Creek Districts, California Department of Fish and Wildlife (CDFW), Plumas National Forest - Mt. Hough District, and Collins Pines Company. \*Provided marten detections only.

Organization	Year	Cameras Deployed	Cameras w/ Marten Detections	Cameras w/ Fisher Detections
Cal Poly Humboldt	2022	80	9	2
Lassen NF - Eagle Lake District	2022	52	4	0
Lassen NF - Hat Creek District	2022	36	4	1
CDFW	2022	5*	5	0
Cal Poly Humboldt	2023	206	11	5
Collins Pines	2023	14	0	2
Lassen NF - Almanor District	2023	80	2	9
Lassen NF - Hat Creek District	2023	61	6	6
Plumas NF - Mt. Hough District	2023	10	0	0
Total		544	41	25

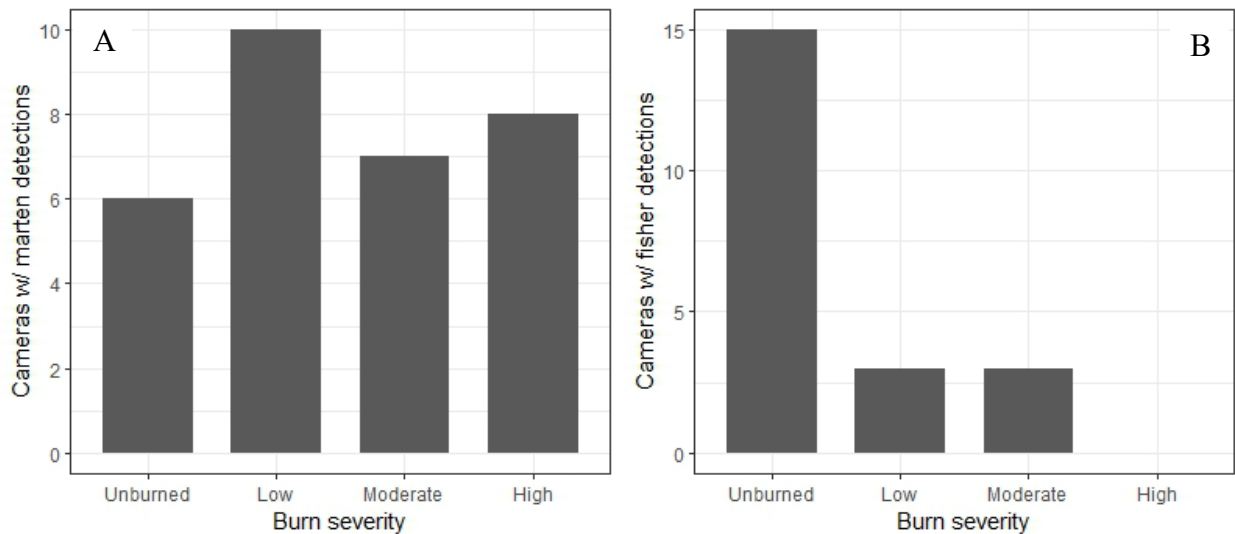


Figure 4. Cameras with (A) marten and (B) fisher detections grouped by rdNBR classes at a scale of 100 m. Includes detection data from our surveys and collaborators during 2022 and 2023 from sites that were within 6 km of the Dixie Fire perimeter.

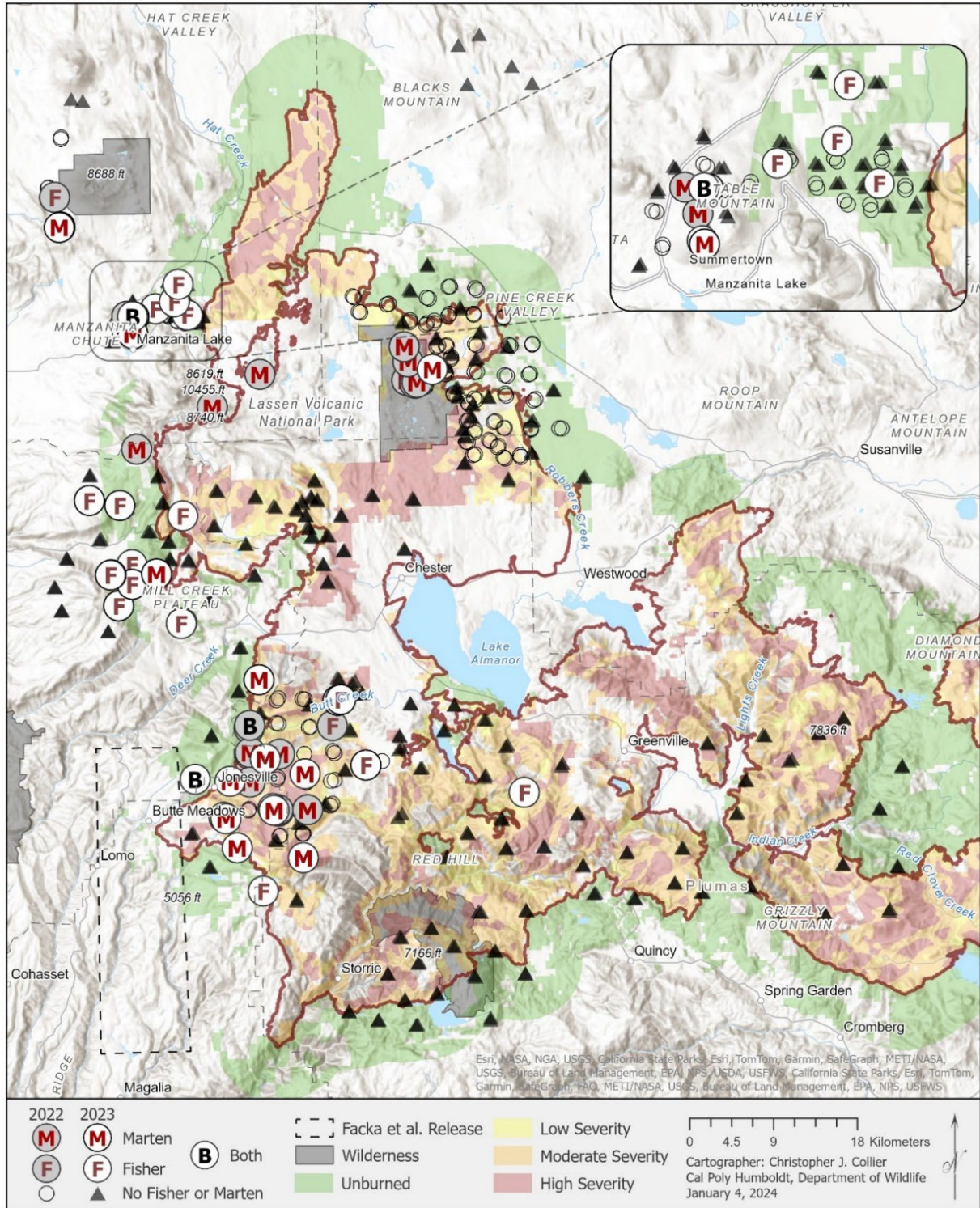


Figure 5. Sites with marten (M) and fisher (F) detections (and both [B]) during 2022 and 2023 surveys within the Dixie Fire study area in northern California. Shaded colors represent burn severity classes restricted to Lassen and Plumas National Forest lands. Burn severity raster derived from Monitoring Trends in Burn Severity (MTBS.gov) data. Green boundary represents 6 km buffer from fire perimeter. Approximate location of Facka et al. (2016) release site near Sterling City, CA included (dashed rectangle). Detailed map (top right) shows Hat Creek study area.

Both fisher models using data from 2023 surveys achieved convergence. Our estimate for fisher detection probability was 0.43 ( $\pm 0.17$  SE) and occupancy probability was 0.13 ( $\pm 0.05$  SE). The model with dNBR as an occupancy covariate performed better than the null model ( $\Delta AICc = 4.21$ ), but the goodness of fit test revealed under-dispersion ( $c\text{-hat} = 0.49$ ). This is likely an artifact of our small sample size. That said, we made predictions of marginal occupancy using model estimates. Fisher occupancy appeared to have a negative relationship with increasing fire severity, with estimates showing higher occupancy probability at the lowest levels of the dNBR (Figure 6).

These results coincide with those of previous fisher studies in the southern Sierra Nevada, where fisher use was higher in unburned and low severity burn patches (Sweitzer et al. 2016, Thompson et al. 2021). Our results provide evidence for a similar relationship between fisher and a post-fire landscape in the northern Sierras and southern Cascades.

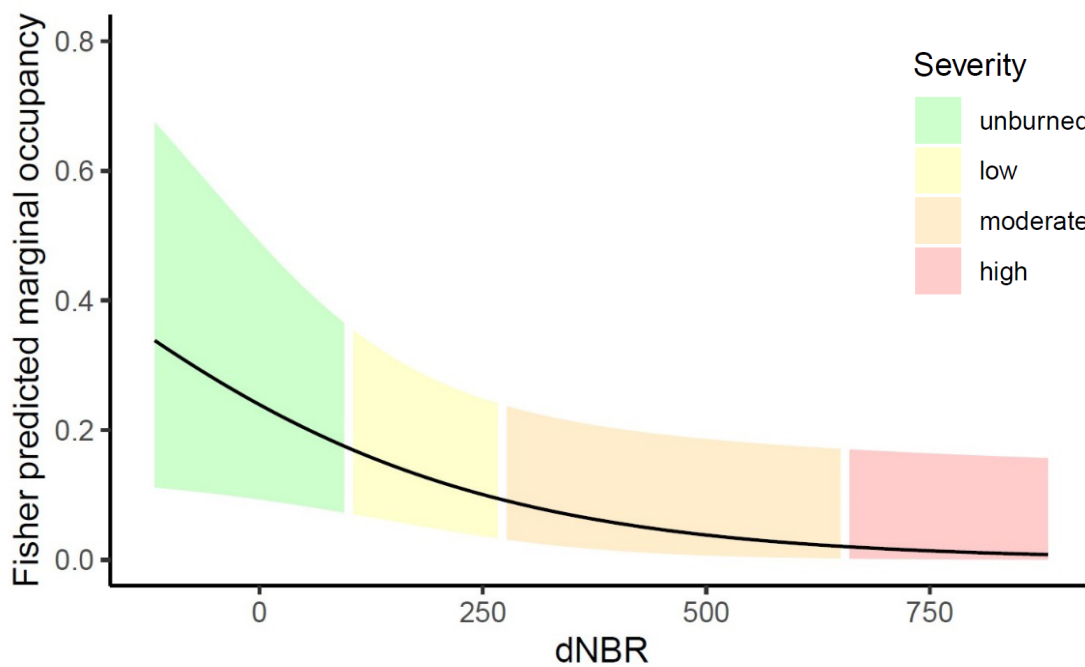


Figure 6. Fisher predicted marginal occupancy ( $\pm$  CI) relative to dNBR value in the Dixie Fire study area. We only included 2023 survey data (14 detections) from sites  $>3$  km apart ( $n = 126$ ) to achieve closure and prevent pseudoreplication.

Our models for marten occupancy built using data from only 2023 surveys also achieved convergence. We estimated marten detection probability to be 0.31 ( $\pm 0.17$  SE) and occupancy probability was 0.17 ( $\pm 0.09$  SE). Unlike our results for fisher, the dNBR model performed worse than the null model ( $\Delta AICc = 1.71$ ), but the model had good fit ( $\hat{c} = 0.98$ ). Marten occupancy appeared to have a weak positive relationship with increasing fire severity, as our estimates showed higher occupancy probability at the higher levels of the dNBR (Figure 7).

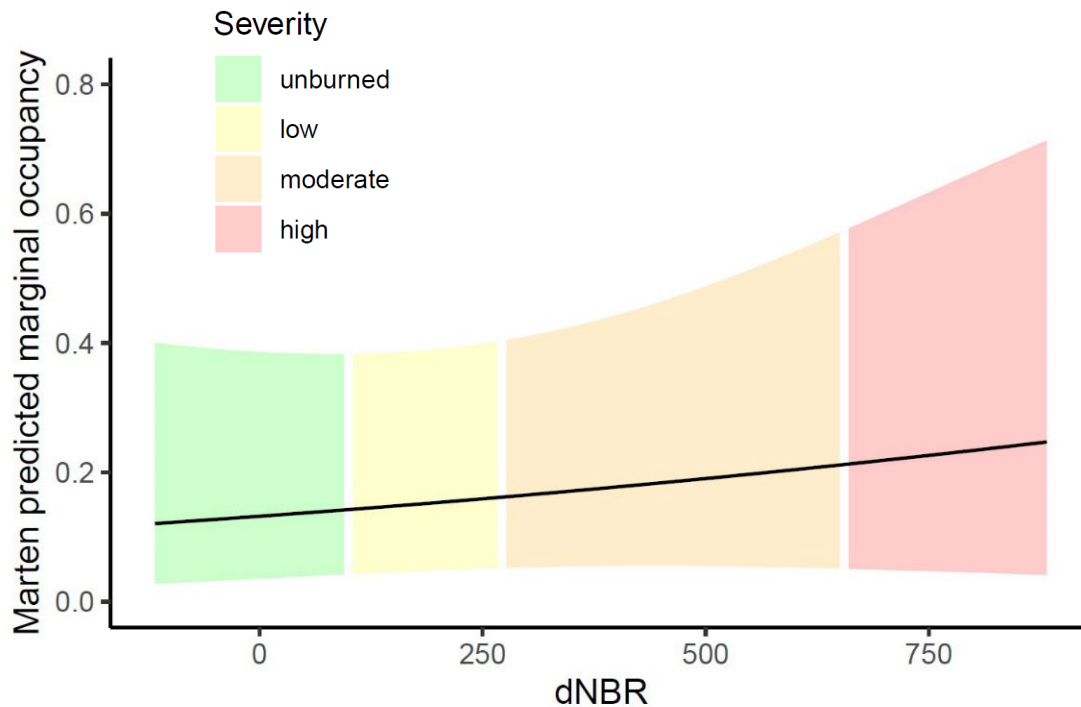


Figure 7. Marten predicted marginal occupancy ( $\pm$  CI) relative to rdNBR value in the Dixie Fire study area. We included data (13 detections) from 2023 sites within 6 km of the Dixie Fire perimeter and  $>3$  km apart ( $n = 126$ ) to achieve closure and prevent pseudoreplication.

Our results differ from a study on several fires in Washington and British Columbia that found Pacific martens selected for unburned and low severity areas, though they were documented using some moderate and high severity areas (Volkman and Hodges 2021). Our results provide some evidence for the opposite relationship, where marten occupancy increases with burn severity. However, our study area has different fire and management regimes, and the Dixie Fire burned a larger area at moderate and high severities.

Although martens may be using sites that were burned at moderate-high severity and they appear to persist in the Humboldt study area (Figures 3 & 5, lower left), the fire may have reduced their range in the Swain area (Figures 3 & 5, upper center). Our collaborators at the Lassen National Forest, Eagle Lake Ranger District detected martens using the Caribou Wilderness in 2022, but we only recorded them at one site in 2023 near its edge. The area just south of Lassen Volcanic National Park and east of Mill Creek (also called the Connectivity Grid) may also be recently devoid of martens, as we did not detect them in 2022 or 2023 (Figure 5) but pre-fire studies had (e.g., Hill 2022).



## Future Analyses

We were only able to model detections from a portion of sites that had them (13 of 41 and 14 of 25 for martens and fishers, respectively) to satisfy the closure and independence assumptions of occupancy models. We plan to fit spatial occupancy models (Johnson et al. 2013, Doser et al. 2022), which should allow more flexibility in modeling the sites placed closer than 3 km apart. This will also allow us to use the full detection histories from our cameras and should result in improved estimates for detection and occupancy probabilities.

Our future analyses will involve occupancy modeling of forest carnivores and prey availability at multiple scales using forest structure metrics including basal area, dominant tree species, shrub/canopy cover, and percent scorched/mortality. Additionally, we plan to include landscape metrics derived in FRAGSTATS related to fire severity such as edge density, aggregation index, and largest patch index. We plan to survey these sites again during summer 2024, which will allow us to better estimate post-fire land use of mustelids across time (i.e., 1-3 years post-fire).

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# Marten and Fisher in Lassen and Plumas National Forests, California

Annual Progress Report 2023

Conservation Biology Institute  
Funded by Lassen and Plumas National Forests  
with Subaward through The National Council for Air and Stream Improvement, Inc. (NCASI)

Contributors: Heather Rustigian Romsos, Matthew Delheimer, Katie Moriarty

Update from 2023 work:

During 2023, CBI derived updated marten pre- and post-Dixie Fire habitat suitability and connectivity models using the new time series of the vegetation data (Landscape Ecology Modeling, Mapping, and Analysis (LEMMA) Team. 2023. Gradient Nearest Neighbor (GNN) raster dataset (version 2023.01)) including data reflecting post-fire conditions (2021). The LEMMA Team recommend using data from the same models series when using multiple years, requiring us to update our original pre-fire habitat and connectivity models prior to projecting them with the newly available post-fire vegetation data. We published the new updated pre- and post-Dixie Fire outputs on Data Basin (<https://databasin.org/groups/ac7f828b1b8e4fc9b2a680d48ef62806/>), where they are shared with NCASI and collaborators.

We provided map and analytical support for the Northern Sierra Wildlife Connectivity Planning workshop organized by the Wildlands Network on February 16. We uploaded our previous versions of post-fire habitat suitability and connectivity to Data Basin and created an online map for use by the workshop participants (<https://databasin.org/maps/00bd871689de4bf3bc9e9f744c0738f1/>).

Lastly, we participated in an extremely informative June 5-8 field trip to the Plumas and Lassen National Forests led by Katie Moriarty with assistance from the wildlife staff in both Plumas and Lassen National Forests to tour areas within the Dixie Fire footprint and review impacts on marten habitat.

We expect work on fisher habitat suitability and connectivity modeling to commence in early 2024 when we receive detection data.

We provide additional methods and details below.

Previously, to allow for an evaluation of broader-scale, population-level connectivity, we expanded our modelling extent beyond our collected data (Figure 1). The full spatial extent of the model included a 3-km buffer around the Lassen, Plumas, and Tahoe National Forests (NF), bounded by Interstate 80 to the south and the northern edge of Lassen NF to the north (18,631-km<sup>2</sup>, Figure 1). Forest types across this region were generally similar (e.g., red fir or white fir-dominant at higher elevations) and while martens historically occurred continuously at higher elevations throughout the modelling extent, their contemporary distribution appears comparatively reduced and discontinuous (Zielinski et al. 2005).

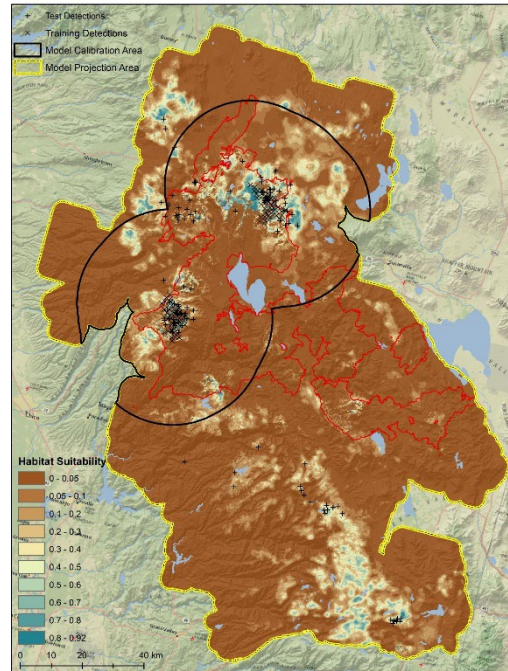


Figure 1. Map of predicted marten suitability with high severity areas at predicted 0 suitability and incorporating new 2021 GNN vegetation data.

We selected a suite of abiotic and biotic landscape covariates that we hypothesized would influence marten space-use. Biotic covariates represented components of forest structure, which were derived from the 2016 Gradient Nearest Neighbor (GNN) raster dataset (Landscape Ecology Modeling, Mapping, and Analysis (LEMMA) Team, <https://lemma.forestry.oregonstate.edu/data>). Biotic covariates included stem basal area (m<sup>2</sup>/ha), canopy cover (%), standard deviation of canopy cover, biomass (kg/ha), stand age (years), snag density (trees per hectare), and tree density (tree per hectare).

Abiotic covariates representing anthropogenic, hydrologic, and topographic features included elevation (m), slope (degree), distance-to-road (m), distance-to-opening (m), stream density, and perennial stream density. We represented fire history by accounting for time since last fire and temporally matching fire years with timing of GPS point data collection. Climatic covariates included spatially- and temporally-explicit downscaled historical climate data, available as 30-year summaries from the California Basin Characterization Model (BCM) dataset. We used 1981-2010 mean April snowpack (mm) and mean maximum August temperature (deg. C). We tested potential habitat variable at five spatial scales by deriving raster

layers (30-m resolution) and taking the mean value within *circular* neighbourhoods with radii of 30, 90, 270, 450, and 990-m. using ArcMap 10.6 Spatial Analyst Focal Statistics Tool. For canopy cover we also calculated standard deviation.

We used MaxEnt modeling software v. 3.3.k (Phillips et al. 2006) to estimate relative habitat suitability (Merow et al. 2013) and conducted analyses using program R software (version 3.6.2, R Core Team 2019). We thinned GPS points using a minimum nearest neighbour distance of 1 km to increase spatial independence and reduce spatial autocorrelation and model performance inflation (Veloz 2009, Boria et al. 2014). We selected the cross-validate option with 10 replicates and 500 iterations. We used the default of 10,000 random background sampling points, drawn from within a 27.2 km buffer of GPS. *We selected our optimized scale for each covariate using univariate models and selecting the scale with the highest 10-fold cross-validated mean AUC (area under the receiver operating characteristic (ROC) curve, a threshold-independent assessment of model discriminatory ability, Fielding and Bell 1997).* The AUC statistic ranges from 0 to 1, with values less than or equal to 0.5 indicating poor discrimination and a value of 1 indicating perfect predictions (Elith et al. 2006). We evaluated correlations between landscape covariates at the selected scales using ENM Tools (version 1.4.4, Warren et al. 2010). We excluded variables with highly correlated predictors ( $|\text{Pearson coefficient}| > 0.7$ ) from appearing together in any single model to create more parsimonious and interpretable results (Merow et al. 2013). We assembled 9 multiscale multivariate models, varying correlated measures of forest structure, climate, and topography to evaluate different combinations of predictors on mapped outputs of predicted habitat.

For each of the 9 models, we conducted an iterative stepwise process of variable selection by removing the variable contributing the least information to the model fit (highest mean training gain without the variable) to decrease model complexity and increase performance (Warren et al. 2014, Yiwen et al. 2016). We ran the model with the remaining predictors, repeating the process until only one variable remained. We selected the model with the fewest variables having a mean training gain that was not significantly different than the full model. We defined significance as lack of overlap between 95% confidence intervals for training gain means.

Because over-parameterized models tend to underestimate habitat availability when transferred to a new geography or time period, we used selection methods suggested by Warren & Seifert (2011). MaxEnt provides the option of reducing overfitting with a regularization multiplier that can be altered by the user to apply a penalty for each term included in the model ( $\beta$  regularization parameter) to prevent overcomplexity or overfitting (Merow et al. 2013; Morales et al. 2017). A higher regularization multiplier will reduce the number of features in the model, becoming more lenient with an increased sample size (Merow et al. 2013). We did not include model replicates to produce the required data (lambda file) and set output format to raw. We altered the regularization multiplier from 0.5 to 5 at 0.5 increments (e.g., Radosavljevic & Anderson (2014)) and used ENMTools 'Model Selection' function to calculate Akaike's Information Criterion corrected for small sample sizes (AICc; Burnham & Anderson 2002). For each of the 9 models tested, we used the regularization multiplier producing the lowest AICc score.

We evaluated models using threshold-independent and threshold-dependent methods. For threshold-dependent model evaluation methods, we used the maximum training sum of

sensitivity and specificity (MAXSS), a model-specific threshold shown to optimize discrimination between presence and absence (Liu et al. 2013) to classify model outputs into predicted suitable and unsuitable areas. We calculated model sensitivity (True Positive/(True Positive + False Negative)) using the GPS points for individuals reserved for model testing to evaluate model performance within the GPS study areas. For threshold-independent methods, we evaluated the AUC statistic to determine model accuracy and fit to the testing data (Fielding & Bell 1997). We also evaluated potential model overfitting using the mean cross-validated 10% test omission rate and difference between training and testing AUC.

We mapped predicted suitability outputs for each model. Because our predictive surface would be the basis of core habitat areas and resistance surface used in connectivity modeling, we selected the model which most accurately portrayed marten habitat selection and occupancy patterns across the region based on expert knowledge combined with assessments of variable response curves, variable contributions, and jackknife tests. We interpreted both percent contribution and permutation importance for relative importance of our variables in the final model (e.g., Halvorsen (2013). We acknowledged that percent contribution can be more informative with uncorrelated variables (Halvorsen 2013), while permutation importance provides better variable assessment when models and variables are correlated (Searcy and Shaffer (2016). The permutation importance measure depends only on the final model and not the path used to obtain that model.

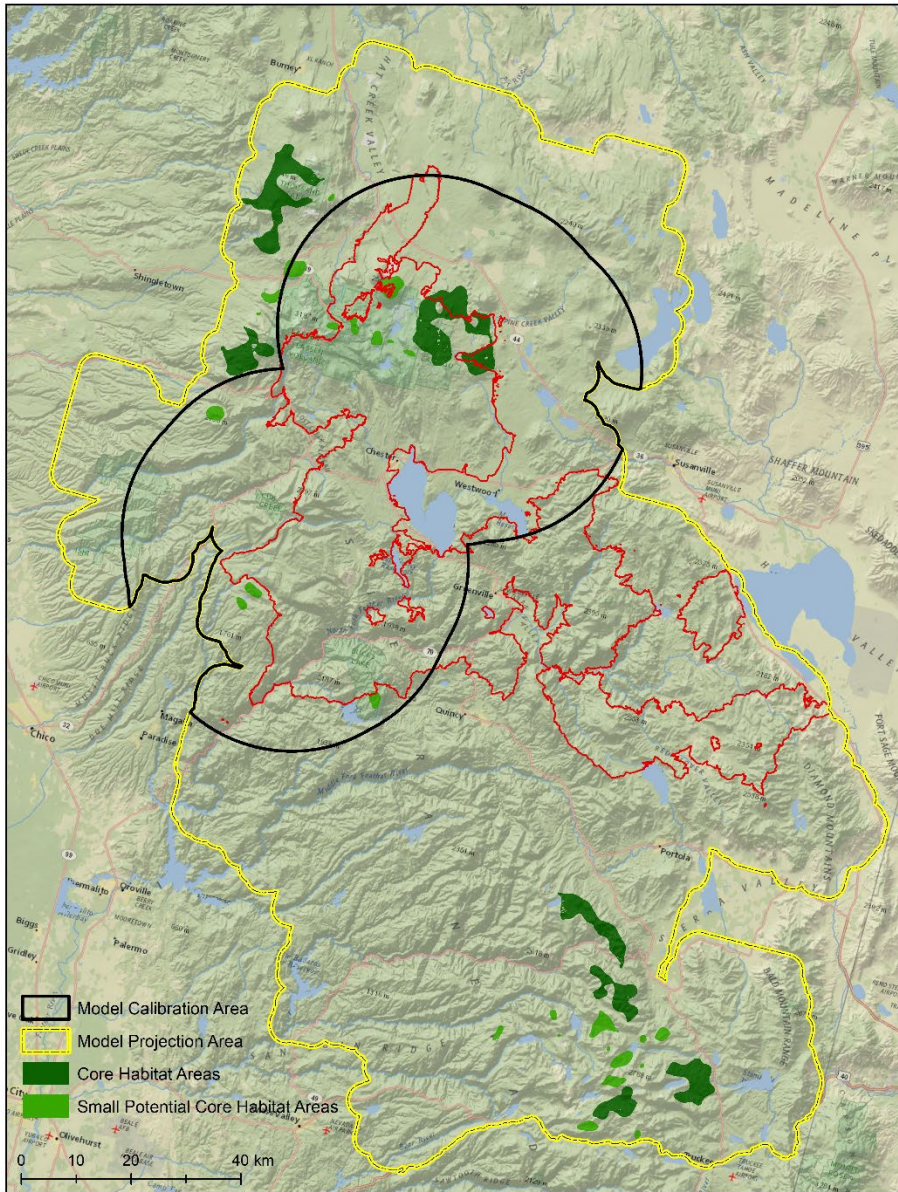


Figure 2. Predicted habitat cores for Pacific marten in our study area including Lassen and Plumas National forests.

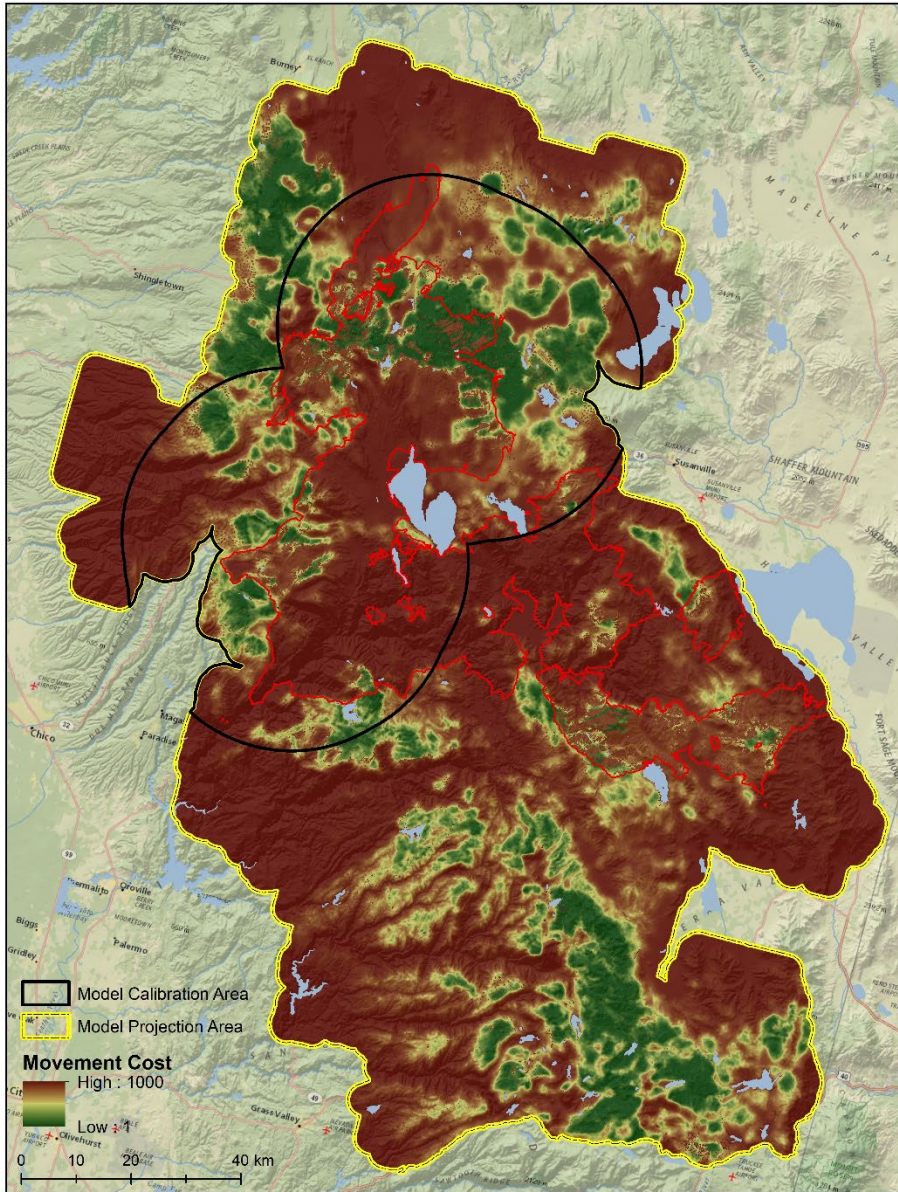


Figure 3. Resistance surface for Pacific marten connectivity modeling.

### *Connectivity Modeling*

We used least-cost corridor modeling and circuit theory methods to assess connectivity. Least-cost modeling requires two inputs: core areas (represented as polygons) to be connected and a raster resistance surface, reflecting the cost or risk of moving through a pixel. Corridors are identified based on cost-weighted distances between neighboring cores. Marten core areas, defined as contiguous blocks of predicted habitat large enough to support at least five female home ranges were derived from the final suitability model.

We modified the suitability model to account for conditions not reflected in the vegetation layers used as model predictors at coarser scales. We converted areas that burned at high severity from 2016-2020 (U.S. Forest Service RAVG Thematic Percent Change in



composite Burn Index (CBI-4)), a period following vegetation data (2016), to a suitability value of 0. We also converted areas with no data due to vegetation data masking for non-forest land cover and areas mapped as open water or developed land cover (U.S. Geological Survey NLCD 2016 Land Cover Conterminous United States) to a suitability value of 0. The modified suitability model was then smoothed by calculating the focal mean using a 3-km<sup>2</sup> circular moving window (approximate home range size; Moriarty et al. 2016).

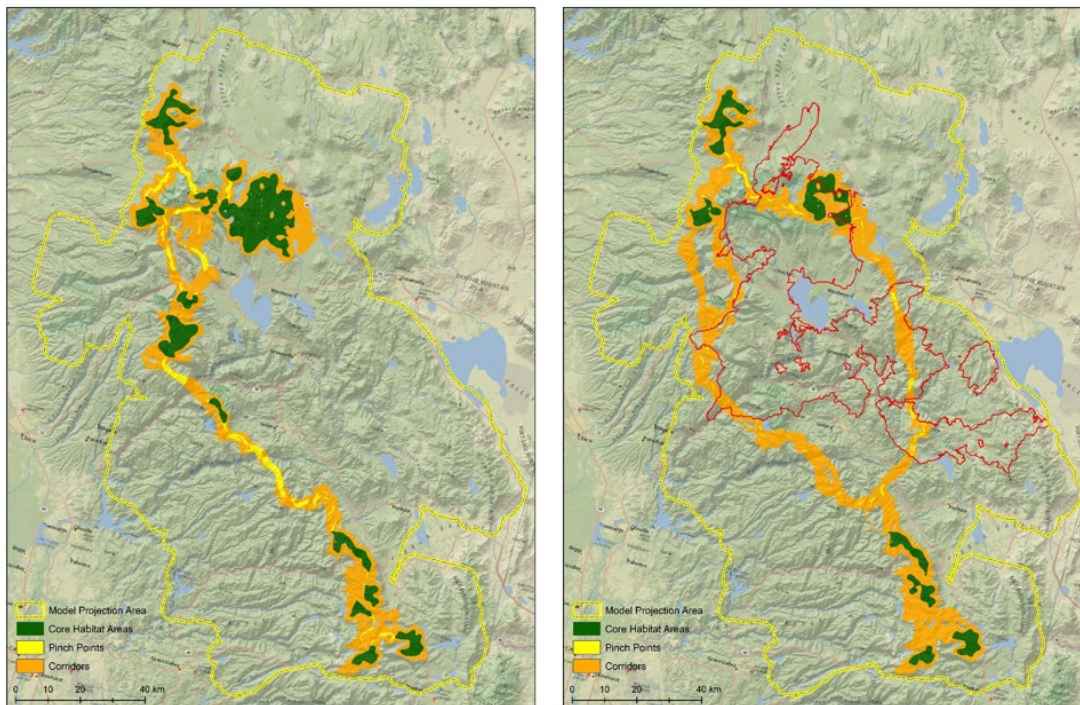
We found the maximum sum of sensitivity and specificity threshold used for model evaluation to be too inclusive for core area delineation. We instead used the predicted-to-expected (P/E) ratio curve and associated 95% confidence intervals from the continuous Boyce Index to inform our suitability threshold (Hirzel et al. 2006). We classified as suitable habitat pixels greater than or equal to the value where the mean P/E and confidence intervals were > 1 (0.408). We assigned areas of open water and developed land cover (U.S. Geological Survey NLCD 2016 Land Cover Conterminous United States), a suitability value of 0.

We converted our predicted habitat surface (> 0.408) to polygons. For the purpose of evaluating connectivity, we removed polygons <15-km<sup>2</sup> (i.e., approximately 5 female home ranges; Moriarty et al. 2016) which we considered to be too small to function as core areas. We also removed polygons of predicted habitat that occurred in eastern ecoregions (Big Valley Mountains, Blacks Mountain-Susanville Peak, Eagle Lake-Observation Peak, Honey Lake Basin-Pyramid Lake Basin, Fredonyer Butte-Grizzly Peak, Diamond Mountains-Crystal Peak, Frenchman, and Sierra Valley) that have no historical or contemporary records of marten occurrence (e.g., Zielinski et al. 2005) and would be unlikely to support connectivity.

We used our final habitat suitability model as the foundation of the resistance surface. Habitat suitability values were transformed with a negative exponential function:  $R = 100 - 99(1 - \exp(-c \cdot H) / (1 - \exp(-c)))$  where R = Resistance, H is suitability, and c determines the shape of the curves (Keeley et al. 2016). We used c= 8 similar to others (Spencer et al. 2019, Carroll et al. 2020). We rescaled our transformed surface to accentuate resistance discrimination (1-1000) (e.g., McRae and Kavanagh 2011). We modified the resistance surface to account for factors that may influence movement costs but were not reflected adequately in the underlying predicted suitability model, including recent high severity fires and clearcuts, roads, and open water. We based the additional costs for these factors on expert opinion (Table 1, Spencer et al. 2019) and combined new values with the rescaled transformed surface by attributing the maximum cost.

We used our core areas and enhanced resistance surface as inputs to Linkage Mapper (Version 2.0, McRae and Kavanagh 2017) to delineate likely potential marten movement corridors between core areas with the Linkage Pathways tool. We used a minimum linkage width of 600,000 cost-distance units. This resulted in linkage widths between ~0.7-3 km.

We identified “pinchpoints,” or narrow, constrained portions of predicted corridors, with Linkage Mapper’s Pinchpoint Mapper tool from the Circuitscape software (McRae et al. 2008). Pinchpoints represent areas where predicted corridors may be most susceptible to being severed (McRae et al. 2008, McRae and Shah 2009, McRae 2012). For our pinchpoint analysis, we used the adjacent pairs option and removed current density values less than or equal to 1e-08 to constrain the output to within linkages. We reclassified the output, creating a pinchpoint map from current density values greater than or equal to the mean plus 2 standard deviations (Bleyhl et al. 2017).



Left: updated pre-fire corridor network using new GNN release data for 2016  
 Right: updated post-fire corridor network projected with new GNN release data for 2021

Figure 4: We compare connectivity models from 2016 pre fire and 2021 vegetation data post fire for Pacific martens.

During 2024 we will continue to move towards publishing our marten model and contrast between pre and post Dixie fire, creating a model for fishers, and finalizing products.

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In Bagley Peak Roadless Area, the setting sun sets sage and conifers aglow in golden hues while dark storm clouds loom ominously overhead.

## Bagley Peak Roadless Area

**Size:** 6,185 acres

**Elevation Range:** 5394–7349 feet

**Location:** Plumas National Forest, Beckwourth Ranger District ([Web Map](#) Roadless Area 21)

**Area Overview:** Lying between Red Clover Valley and Lake Davis, Bagley Peak Roadless Area is a largely unexplored area within Grizzly Valley. From meadows to riparian zones to forests, the area is thick with verdant vegetation and scenic splendors. Lacking significant impacts from human improvement activities and not containing any motorized or non-motorized trails, Bagley Peak Roadless Area is a gem in its undiscovered mystery.

## Apparent Naturalness:

Meadows and riparian zones are scattered throughout the Bagley Peak Roadless Area, which is largely dominated by forests of white firs (*Abies concolor*), incense cedars (*Calocedrus decurrens*), Jeffrey pines (*Pinus jeffreyi*), and Douglas firs (*Pseudotsuga menziesii*). Aspen (*Populus tremuloides*) groves shade ephemeral streams in the north, flourishing with yarrows (*Achillea millefolium*), mints (*Lamiaceae* spp.), and wild roses (*Rosa* spp.). In the southern and eastern sections of the roadless area, meadows of grasses and sage (*Artemisia tridentate*) creep into forests thick with an understory of manzanitas (*Arctostaphylos* spp.), tobacco brush (*Ceanothus velutinus*), gooseberries (*Ribes montigenum*), willows (*Salix* spp.), snowberries (*Symphoricarpos* spp.), and mule's ears (*Wyethia* spp.).



Mule's ears flourish beneath a stand of Jeffrey pines.



White firs, Jeffrey pines, and Douglas firs tower into the blazing sun.

Populations of jays (*Corvidae* spp.), mountain chickadees (*Paridae* spp.), and woodpeckers (*Picidae* spp.) thrive within the thick forests of the south, calling from the canopies as caterpillars feed on shrubs below. Bear (*Ursus americanus*) scat was seen on the southern edge of Bagley Peak Roadless Area on Davis Heights Spur (an ML 2), as well as tracks of rabbits (*Lagomorpha* spp.) and deer (*Odocoileus hemionus*). In the west, a quail (*Oreortyx pictus*) was seen gliding along the edge of Bagley Peak Roadless Area.

Meadows in the Bagley Peak Roadless Area lacked obtrusive fences for the most part. Although range fences supposedly occur within the western meadows of Bagley Peak Roadless Area, no fences were observed. A barbed wire fence was present in the northeast following the border of the roadless area approximately several hundred feet south of Beckwourth-Genesee Road. A small two-track dirt road continues along this fence for 0.4 miles into Bagley Peak Roadless Area and is visible from satellite imagery.



The verdant scenery found in riparian zones will awe visitors.

Several unmapped roads and pullouts were found in the Bagley Peak Roadless Area. A short unmapped, unmarked road can be seen extending into the roadless area approximately one-third of a mile off of Pinchot Road (an ML 2). It is becoming overgrown with seedlings, grasses, and shrubs. Cars and trailers were parked in a large pullout in the northeast that can clearly be seen from satellite view. In the north, a large pullout included in the roadless area lead to a small slash pile surrounded by invasive species. These pullouts are significantly unnatural.

Several unnatural features exist in the western section of Bagley Peak Roadless Area. Some cut stumps are present in the western section of the roadless area where a commercial thin was conducted, but these are mostly concentrated within 100 feet of the road and are made less noticeable by low-lying

vegetation in the understory. Bagley Pass Spur Road (an ML 1) is wide, compacted, and has recent tire tracks.

Timber harvested areas varied in noticeability. No evidence of tree planting was seen in the south, and a thick forest of incense cedars, white firs, and Douglas firs mostly obscured the few cut stumps scattered across the landscape. In the south, only a few dispersed cut stumps provide evidence that a commercial thin occurred. The commercial thin that occurred in the northwest is slightly noticeable compared to the other commercial thin areas within Bagley Pass Roadless Area due to there being a relatively high amount of cut stumps and logs and lower amount of understory cover. Under the low-lying cover of sagebrush and mule's ear, few signs of timber management were seen as a result of the precommercial thin in the east, and the forest of Jeffrey pines appeared natural. The small section of Bagley Peak Roadless Area that experienced hazardous fuels reduction treatment is significantly unnatural due to the number of burned logs, cut stumps, and patches of exposed soil. Human improvement activities varied in how unnatural or natural they appeared in the Bagley Peak Roadless Area.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

At a height of 6,300 feet, Bagley Peak offers outstanding opportunities for mountaineers and ambitious off-trail hikers to explore and experience the solitude of the area. No non-motorized or motorized trails exist in the Bagley Pass Roadless Area, allowing visitors to experience the feel of the landscape solely off-trail. The area is graced with a feeling of calm in the absence of significant anthropogenic management, making this area highly valued for its naturalness and prospect of solitude.



## Supplemental Values:

From arid landscapes coated in mule's ears and conifer forests to meadows strewn with rocks and grasses, Bagley Peak Roadless Area offers the off-trail adventurer a chance to walk amongst a range of vegetation densities and occasionally happen upon lush riparian areas. The permanent campsites found along nearby Lake Davis will enable visitors to explore Bagley Peak Roadless Area by day and sleep in comfort at night.

## Recommendations:

Bagley Peak Roadless Area includes several unmarked and unmapped roads and pullouts. Beckwourth-Taylorville Road deviates slightly from where it appears in the GIS roads layer, and the Bagley Peak Potential Wilderness boundary should be adjusted to reflect the path of the road as seen from satellite imagery. Several unmarked, unmapped roads can be seen from satellite imagery in the southeast and northeast and can remain in Bagley Peak Potential Wilderness if they are either left to be overgrown or converted into non-motorized trails. Vehicle pullouts in the northwest and northeast can clearly be seen from satellite imagery and the boundary of Bagley Peak Potential Wilderness should be adjusted at least 0.1 miles southwest to exclude these unnatural areas. Bagley Pass Spur Road (an ML 1) is wide and compacted with some recent tire tracks on it. Although it could be converted into a trail, its current state makes it substantially noticeable as a road and may detract from the natural feel of Bagley Peak Potential Wilderness. It should be converted into a wide trail if it is to remain in Bagley Peak Potential Wilderness.

The areas where commercial thinning occurred in the Bagley Peak Roadless Area varied in their unnaturalness. Only a few scattered cut stumps are visible in the eastern commercial thin areas. These would most likely not detract from a visitor's experience to the Bagley Peak Potential Wilderness. The commercial thin in the northwest had a slightly noticeable amount of cut stumps and logs due to the sparse understory cover in this particular section, and may or may not be noticeable to the average visitor. In the west, some cut stumps are present where a commercial thin was conducted, but these are mostly concentrated within 100 feet of the road and are made less noticeable by low-lying vegetation in the understory. If the boundary of the Bagley Peak Potential Wilderness were adjusted 200 feet east of the western boundary, most of the stumps resulting from the precommercial thin would be excluded.

The human improvement activities that occurred in the south and east sections of Bagley Peak Roadless Area were not substantially noticeable. No evidence of tree planting was seen in the south, and a thick forest of incense cedars, white firs, and Douglas firs mostly obscured the few cut stumps scattered across the landscape. In the southeast, only a few dispersed cut stumps provided evidence that a commercial thin occurred. Under the low-lying cover of sagebrush and mule's ear, no signs of timber management were seen as a result of the precommercial thin in the east, and the forest of Jeffrey pines appeared natural. These areas would most likely not

appear significantly unnatural to the average visitor and can remain in Bagley Peak Potential Wilderness.

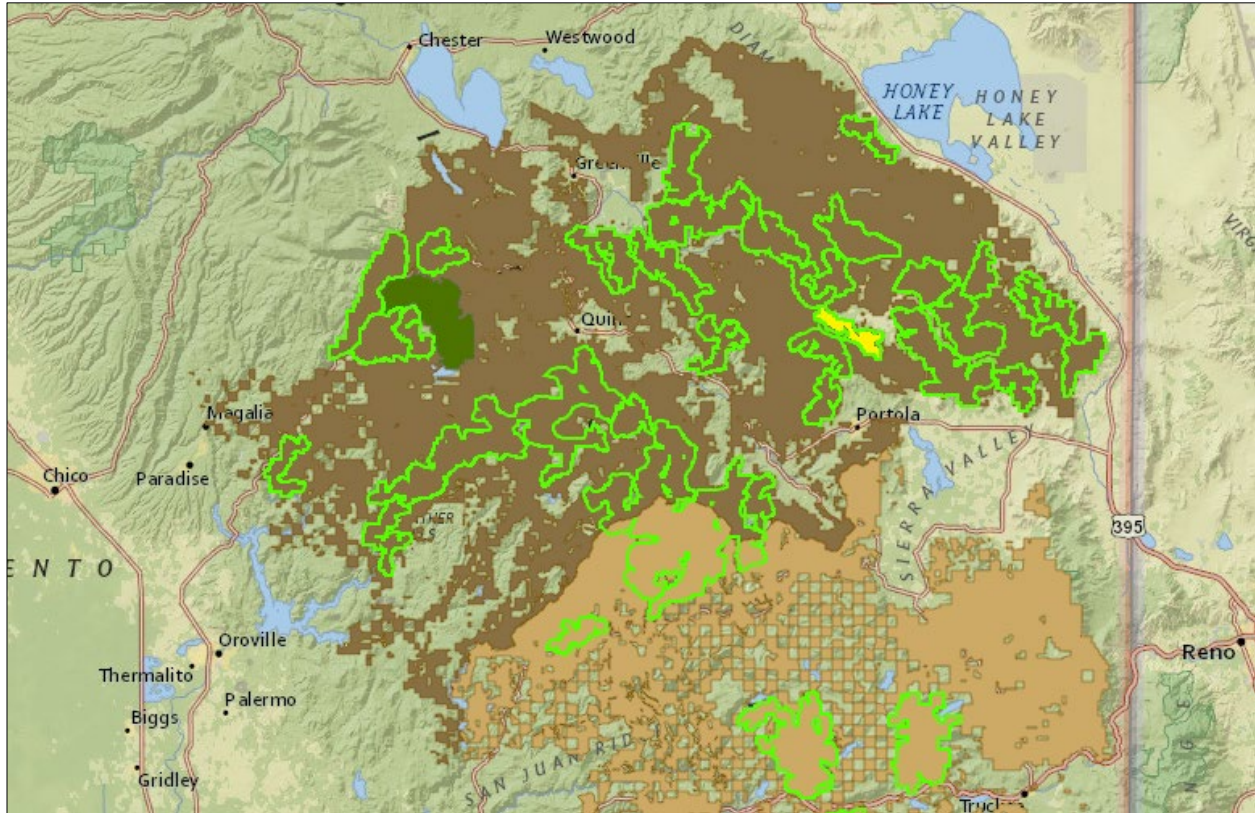
The hazardous fuels reduction treatment in the northwest was the only human improvement area that appeared significantly unnatural. Littered with small piles of burnt logs and cut stumps, as well as patches of exposed and compacted soil, layers of understory vegetation would have to return to the area to appear natural. This area must undergo restoration or cannot be included in Bagley Peak Potential Wilderness.

No fences were observed within the western meadows of Bagley Peak Roadless Area. A barbed wire fence was present in the northeast following the border of the roadless area approximately several hundred feet south of Beckwourth-Genesee Road. A small two-track dirt road continues along this fence for 0.4 miles into Bagley Peak Roadless Area and is visible from satellite view. A small road following cattle fences would most likely appear unnatural to the average visitor. The boundary of Bagley Peak Potential Wilderness should be adjusted to exclude them.

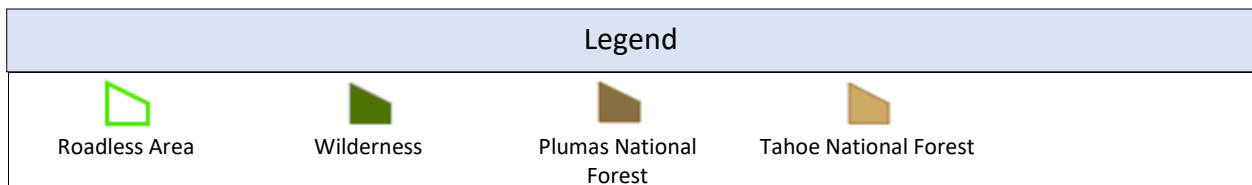


Shrubs flourish beneath diverse forests of conifers in the Bagley Peak Roadless Area.

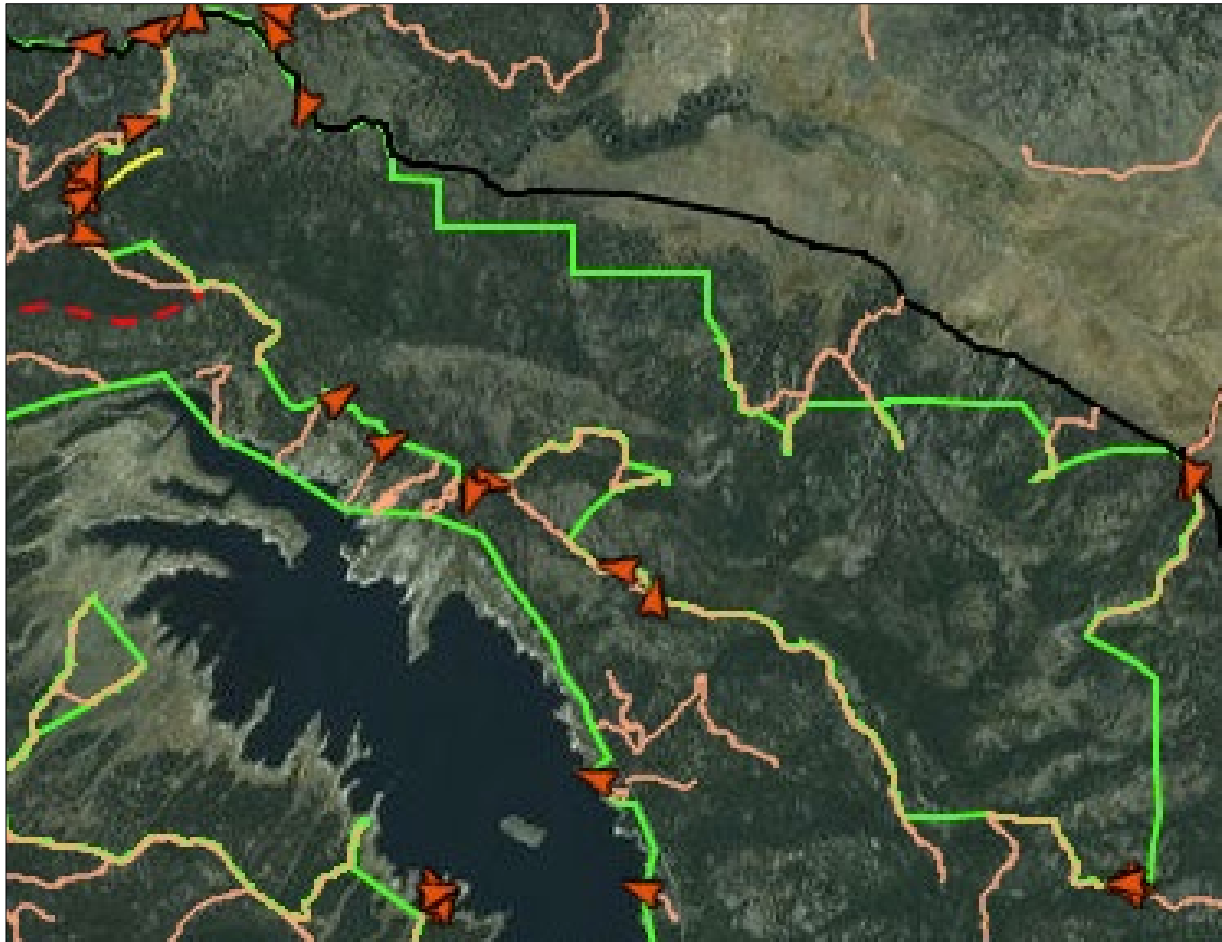
## Area Overview Map:



Tahoe National Forest overview, with Bagley Peak Roadless Area highlighted in yellow.

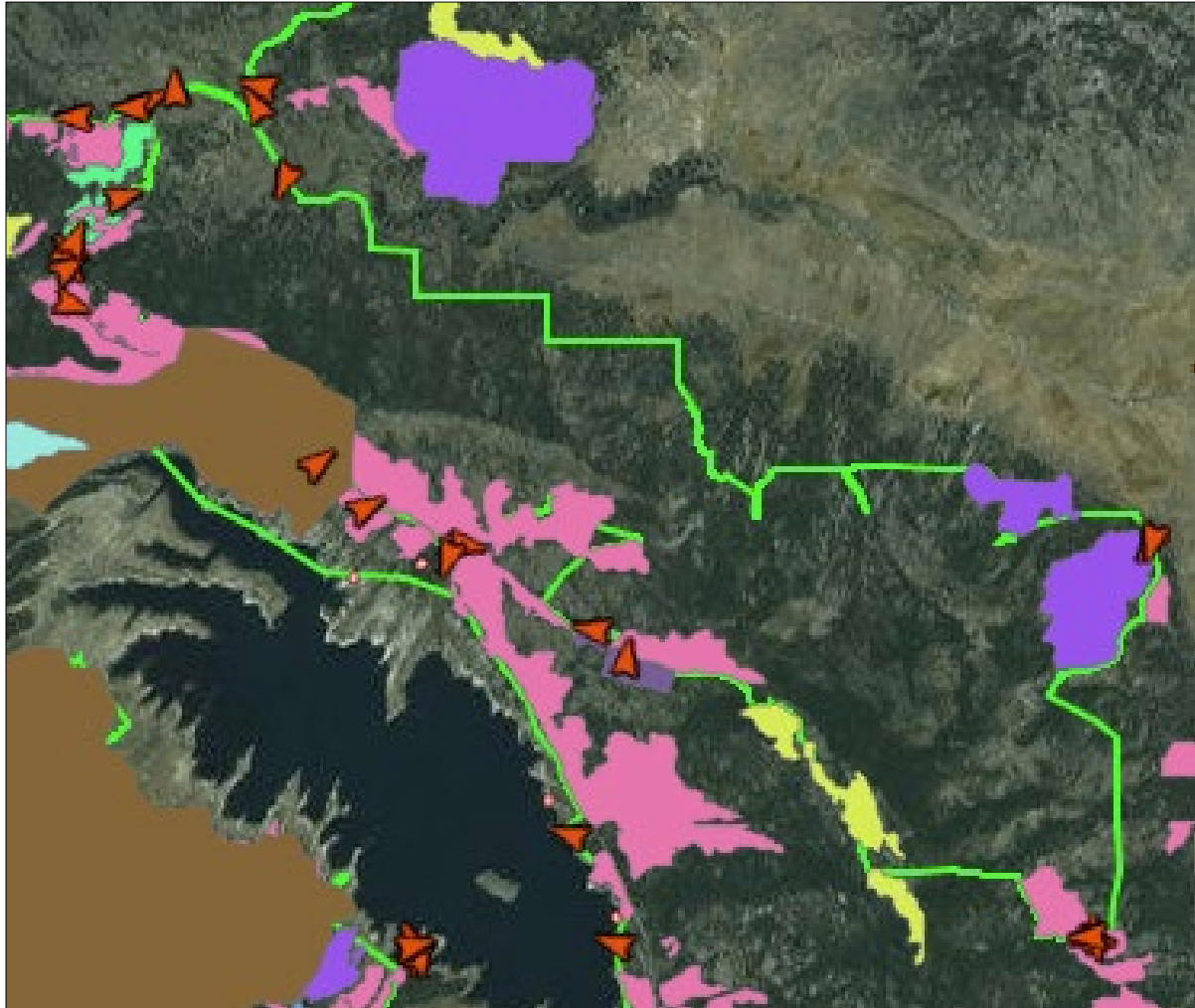










Bagley Peak Roadless Area Roads and Trails Map:



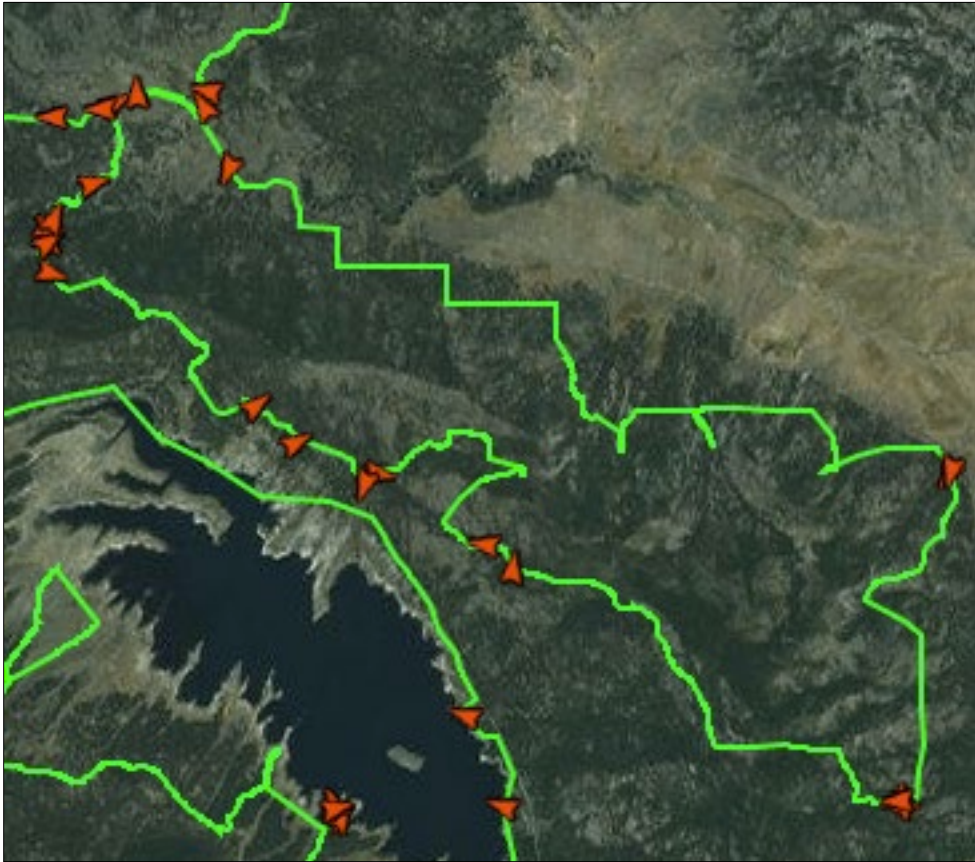
Legend				
				
Waypoint	OHV Trail	ML 1 Road	Important Local Road	Roadless Area



Bagley Peak Roadless Area Potentially Noticeable Activities and Improvements Map:



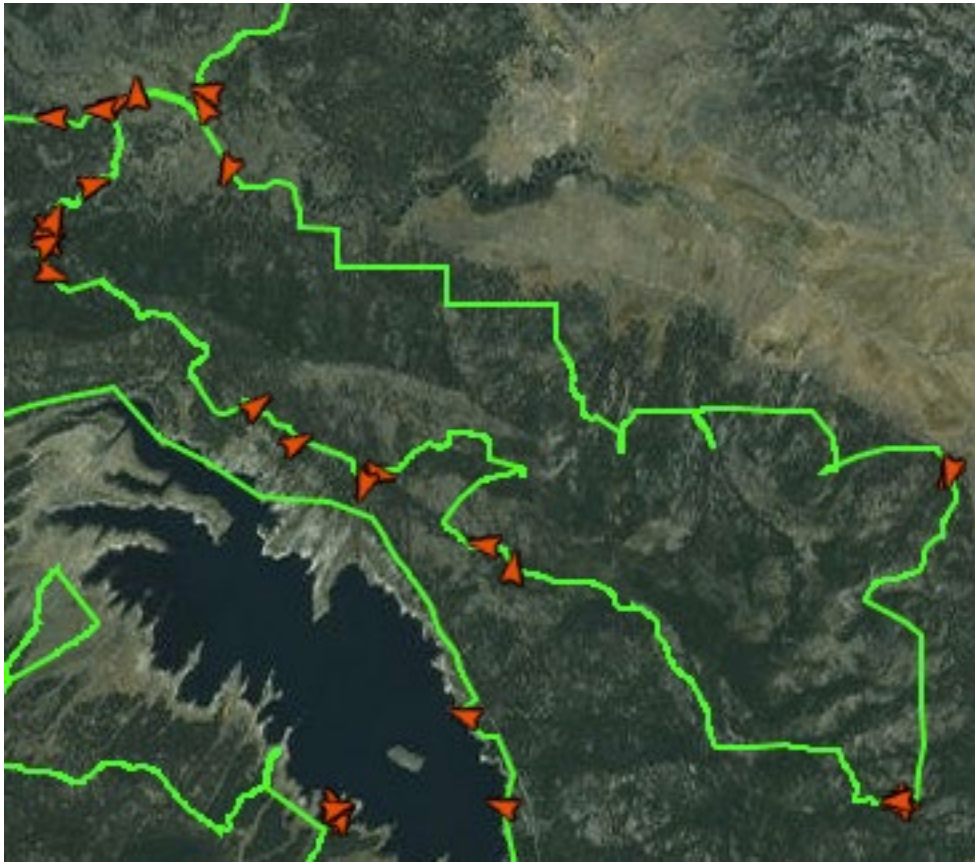
Legend				
				
Waypoint	Precommercial Thin	Commercial Thin	Plant Trees	Range Fences Area
				
Stand Clearcut	Thinning for Hazardous Fuels Reduction			
				
Roadless Area				



Bagley Peak Roadless Area Conservation Designations Map:



Legend	
	
Waypoint	Roadless Area

Bagley Peak Roadless Area Important Species Habitat Map:



Legend	
	
Waypoint	Roadless Area



Verdant slopes paint a picture of an area naturally recovering from a wildfire in the southwest section of Paradise Creek Roadless Area.

## Paradise Creek Roadless Area

**Size:** 7,728 acres

**Elevation Range:** 4393–7310 feet

**Location:** Plumas National Forest, Beckwourth Ranger District ([Web Map](#) Roadless Area 24)

**Area Overview:** Volcanic features accent Paradise Creek Roadless Area’s landscape, which is rich with diverse conifer forests and riparian areas. Ephemeral streams offer an ever-changing experience for visitors throughout the year, and post-fire recovery areas reveal the succession processes that occur after an area has experienced a wildfire. The lack of thick canopy in these post-fire areas allows visitors astonishing views into rolling mountains, and scattered boulders offer a place to sit and enjoy the solitude found throughout Paradise Creek Roadless Area.



## Apparent Naturalness:

A turkey vulture (*Cathartes aura*) was seen soaring in the southwest section of Paradise Creek Roadless Area, high above a woodland of incense cedars (*Calocedrus decurrens*), ponderosa pines (*Pinus ponderosa*), Douglas firs (*Pseudotsuga menziesii*), and black oaks (*Quercus kelloggii*). The understory, verdant with serviceberries (*Amelanchier* spp.), manzanitas (*Arctostaphylos*



Incense cedars and pines rise above carpets of pinemat manzanitas. Beyond, one can enjoy the misty fir forests as an evening storm passes over.

spp.), and whitethorn ceanothus (*Ceanothus cordulatus*), also gleams with an occasional ephemeral stream. Big leaf maples (*Acer macrophyllum*), deerbrush (*Ceanothus integerrimus*), canyon live oaks (*Quercus chrysolepis*), black oaks, ponderosa pines, manzanitas, and grasses line the now dry, rocky streambed, and the arid mountains above house large exposed boulders and lead into canyons where black oaks and big leaf maples flourish. Patches on the landscape seem to be naturally recovering from a wildfire, with snags peaking out of slopes thick with canyon live oak.

In the northeast section of Paradise Creek Roadless Area, white firs (*Abies concolor*), incense cedars (*Calocedrus decurrens*), and Jeffrey pines (*Pinus jeffreyi*) rise high above tobacco brush (*Ceanothus velutinus*), bitter cherries (*Prunus emarginata*), manzanitas, whitethorn ceanothus, *Ribes* spp., and mule's ears (*Wyethia* spp.). Chattering chipmunks (*Tamias* spp.), singing birds, and tapping woodpeckers (*Picidae* spp.) were the only sounds to be heard in this section of the roadless area, and quail (*Oreortyx pictus*) were seen scampering along the bordering roads. Naturally occurring Woody debris coats the ground of a white fir forest along Region Road (an ML 2). This appears to be a natural part of a healthy fir ecosystem and provides optimal habitat for the numerous squirrels (*Sciuridae* spp.) and chipmunks seen in the area.

Continuing north, red firs (*Abies magnifica*), white firs, incense cedars, lodgepole pines (*Pinus contorta*), sugar pines (*Pinus lambertiana*), and Jeffrey pines shade bitter cherries, whitethorn ceanothus, mountain maples (*Acer glabrum*), snowberries (*Symphoricarpos* spp.), tobacco brush, *Ribes* spp., and manzanitas thriving along the slopes of the roadless area. Blue elderberries (*Sambucus nigra* ssp. *caerulea*) and thimbleberries (*Rubus parviflorus*) spring up from the north-facing slopes, and bird calls rain down from the canopy. Along Little Grizzly Spur, Sierra currants, bitter cherries, whitethorn ceanothus, pinemat manzanitas (*Arctostaphylos nevadensis*), serviceberries, penny royals (*Mentha pulegium*), and tobacco brush flourish within a forest of Jeffrey pines, incense cedars, and white firs. Alders (*Alnus* spp.),

bracken ferns (*Pteridium aquilinum*), and willows (*Salix* spp.) can be seen growing along moister riparian sections, and a diversity of wildflowers and berries burst from verdant drainages, including mints (*Acanthomintha* spp.), pearly everlasting (*Anaphalis margaritacea*), Brewer's Angelicas (*Angelica breweri*), columbines (*Aquilegia* spp.), snowberries, gooseberries (*Ribes* spp.), wax currants (*Ribes cereum*), and Sierra currants (*Ribes nevadense*). Red and white firs, willows, tobacco brush, thimbleberries, bitter cherries, *Ribes* spp., blue elderberries, and snowberries grow along north-facing slopes in the roadless area. Butterflies flutter among elderberries, wax currants, bitter cherries, penny royals, lupines (*Lupinus* spp.), manzanitas, and whitethorn ceanothus within forests of red firs, white firs, and ponderosa pines in the northwestern section of Paradise Creek Roadless Area.

Greenhorn Road (Route 403), which appears as an ML 3 road on the Forest Service map, fully cuts through the western section of the roadless area as a well-maintained, wide and compacted road. Cut stumps can be seen along the road. An intact riparian area can be seen east of Greenhorn Road, shrouded by conifers. An unnatural clearing extends off of Greenhorn Road east into the roadless area along the riparian area, which may or may not be substantially noticeable to the average visitor for an unknown distance.

Exposed soil, old and unmarked logging roads, clearings, cut stumps, and piles of logs characterize the commercial thin conducted in the western section of Paradise Creek Roadless Area around Greenhorn Road, making the commercial thin area generally appear unnatural. The nearby group selection cuts were substantially noticeable and can be seen from satellite view as bare of vegetation. The returning understory of snowberries and grasses does not conceal the many cut stumps or patches of soil compacted from equipment.

Continuing along Little Long Valley Road (an ML 2), which forms the southwestern border of Paradise Creek Roadless Area, the area that experienced a precommercial thin appears substantially unnatural due to the plentiful cut stumps, the scattered log piles, and the high amount of exposed soil present. The commercial thin areas appear equally unnatural, with an abundance of cut stumps being highly visible due to the lack of understory and give the area a substantially trammled appearance. An old unmapped logging spur can be seen from satellite view leading into the roadless area east of the precommercial and commercial thins, and although this spur lacks recent tire tracks and grasses are growing on the roadbed, it has the characteristics of a wide and compacted roadbed to make it noticeable.



A snag provides habitat for small mammals and birds, while the thick understory of manzanitas, sagebrush, and whitethorn ceanothus below it provides great browsing opportunities for deer.

Large, unnatural clearings devoid of large trees and covered in woodchips can be seen from satellite imagery as pullouts and remnants of the human improvement activities that occurred along Little Long Valley Road, and old logging road spurs that extend into Paradise Creek Roadless Area are becoming overgrown, yet remain visible. These human impact areas would appear substantially noticeable to the average visitor.

Moving east along Little Long Valley Road, the mountainside appears to be recovering from a wildfire by the number of burnt snags and the thick, shrubby understory. A small area contains dense stands of ponderosa pine saplings, and a sign along Little Long Valley Road indicates that the planting occurred in 1983-1984 following a wildfire. Although the rows are not perfectly even, the pines aren't precisely even age, and other species are present, it may still strike the average visitor as substantially noticeable. This replanted area appears to extend approximately one half mile east along Little Long Valley Road.

Running further east along Little Long Valley Road, an unmarked, unmapped road can be seen from satellite view traveling at least two miles north into Paradise Creek Roadless Area. The road is narrow, compacted, and does not appear well used.

Although the GIS layer displays Region Road in the northeast as both an ML 1 and ML 2, it has the characteristics of an ML 2 and remains an ML 2 on the Forest Service map. In an area where no human improvement activity is noted along Region Road, some cut stumps are present. These scattered cut stumps blend in with the naturally occurring woody debris and would not be substantially noticeable. In the area where a commercial thin occurred, the abundance of upturned soil and cut stumps are made more visible by the lack of understory. In addition, an unmarked, unmapped logging road off of Region Road leads into the commercial thin area for an unknown distance. It is becoming overgrown with grasses but is still slightly noticeable as an unnatural feature on the landscape.

In the northeast along the areas marked as having experienced a commercial thin and hazardous fuels reduction, an unmarked, unmapped road with the characteristics of an ML 3 road extends into Paradise Creek Roadless Area and is wide, compacted, and maintained enough that logging equipment can use it to access the thinning projects in the area. The road veers west to connect with Little Grizzly Spur (an ML 2). This region of the roadless area is full of unmarked yet noticeable logging road spurs that are devoid of trees and appear degraded. Paint on the trunks of the trees that occasionally line the road indicates that further logging may occur, and that this area could become more degraded in the future. The area around this unmapped road generally appears degraded as a result of logging activities, even in areas that are not marked as having experienced substantially noticeable activities. The lack of vegetation and unstable soil conditions, as well as the scattered piles of logs and cut stumps, demonstrate a highly trammled landscape.



Lush forests of pines and firs rise above volcanic hillsides painted with yellow manzanitas.



Arid pine forests shade manzanitas, grasses, and mule's ears.

Group selection cuts that were surveyed west of Greenhorn Road appear substantially unnatural due to the high degree of exposed soil, piles of logs, and many cut stumps. Group selection cuts can be seen as exposed areas from satellite imagery. Group selection cuts found within Paradise Creek Roadless Area would most likely appear equally as degraded. The nearby hazardous fuel reduction thinning is also substantially noticeable due to the frequent cut stumps, piles of wood, and abundance of exposed soil, and can be seen as an area unusually

sparse on satellite view. Logging road spurs enter Paradise Creek Roadless Area for an unknown distance within these hazardous fuel reduction areas. The visibility of environmental degradation that occurred as a result of a commercial thin, hazardous fuels reduction, and group selection cuts would significantly detract from a visitor's experience of the roadless area, as these human activities do not at all appear natural.

Along the cherry-stemmed Little Grizzly Spur (an ML 2), a large quarry area can be seen from satellite view and should be left excluded from Paradise Creek Roadless Area. Extending further south after this rock pit, Little Grizzly Spur becomes impassible for motorized vehicles of all types as it is overgrown by grasses, robust shrubs, and seedlings. Although only one road is mapped, two dirt roads are present leading southwest into Paradise Creek Roadless Area. The unmarked road is impassible to motorized vehicles due to the thickets of tobacco brush growing in the roadbed. Little Grizzly Spur (an ML 2), as well as the nearby old logging spur extending into the roadless area, would not appear substantially noticeable to the average visitor and could be included in the roadless area. As Little Grizzly Spur travels further south, several other unmarked logging road spurs extend into Paradise Creek Roadless Area. Some are overgrown to the point of being hardly discernable, while others are noticeable.

Emigrant Tie OHV Trail is now so overgrown that its path could not be observed through an open meadow of mule's ears. A small berm was the only sign of a trailhead that was observed, but no path was present behind it. Nearby, a large, cleared area is littered with piles of logs and stumps, which are not concealed by the sparse understory (as a result of a commercial thin) and can be seen from the satellite view. This commercial thin continues to appear highly degraded and unnatural throughout its extent, with a highly noticeable unnamed and unmapped dirt road extending into the commercially thinned area.

Several of the ML 2 roads that create Paradise Creek Roadless Area's borders hardly retain the characteristics of an ML 2 road. Little Grizzly Spur Road (an ML 2) is sometimes thickly overgrown by tobacco brush and willows, and sometimes appears as a wide, compacted roadbed. Tailing Spur is completely overgrown by vegetation, is not noticeable, and is impassible. Argentine-Flourney Spur is a two-track dirt road, with one of the tracks is becoming overgrown, while the other side is more noticeable. Warkentein Spur seems to retain the characteristics of a wide, compact roadbed though it is occasionally overgrown and does not appear well-used.

Grizzly Ridge OHV Trail's northwestern entrance, located in the northern section of Paradise Creek Roadless Area, is a two-track trail with tall grasses growing in the middle. It has a compacted and somewhat wide roadbed, but appears to only be lightly used, as recent tire tracks are not visible.



Unused roadbeds in Paradise Creek Roadless Area could potentially be converted into non-motorized trails that allow visitors outstanding opportunity to explore the diverse ecosystem types of the roadless area.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

Visitors will have abundant opportunities to botanize, take photographs, and create art from the wide, open viewpoints into Paradise Creek Roadless Area fostered by the possible conversion of bordering ML 2 roads into wide hiking, equestrian, and cross-country ski trails. No other visitors were seen in this area, nor were anthropogenic noises heard.

The roadless area was quiet following a rainstorm, with the air smelling clean and the only sound to be heard being that of water dripping from the towering pines.

### Supplemental Values:

Volcanic rocks lined with bright yellow flowers are found scattered amongst forests of white firs, and the cool air smells of pine in the misty forests of the roadless area. Chattering chipmunks (*Tamias* spp.), singing birds, and tapping woodpeckers (*Picidae* spp.) were the only sounds to be heard in the northeast section of Paradise Creek Roadless Area, and Spotted Owl (*Strix occidentalis*) Protection Activity Centers are found in and around Paradise Creek Roadless Area.

### Recommendations:

A cement culvert diverts the flow of an ephemeral stream under Little Long Valley Road, which can easily be excluded from Paradise Creek Potential Wilderness by adjusting the boundary 50 feet north of Little Long Valley Road.



Volcanic rock features sharply accent the border of the roadless area, surrounded by forests of white firs.

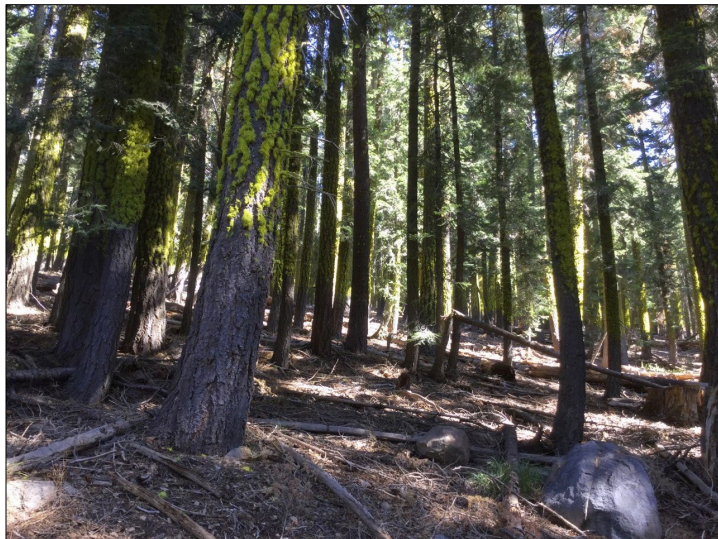
Greenhorn Road, which appears as an ML 3 road on the Forest Service

map, fully cuts through the western section of the roadless area, disqualifying the section of the roadless area west of it from being designated as wilderness. This area is approximately 972 acres, making the roadless area become approximately 6,576 acres without it.

The commercial thin conducted in the western section of the roadless area around Greenhorn Road is characterized by exposed soil, old and unmarked logging roads, clearings, cut stumps, and piles of logs, making the commercial thin area generally appear unnatural. The group selection cuts were substantially noticeable and can be seen from satellite view as bare of vegetation. The nearby precommercial thin area also appears trammled due to the number of unnatural clearings, cut stumps, patches of exposed soil, and log piles. Old logging spurs can be seen traveling through these human improvement activity areas as well. These areas appear substantially unnatural and would detract from the natural feel of Paradise Creek Potential Wilderness. If these areas were excluded in their entirety, Paradise Creek Potential Wilderness would lose over 400 acres of land. If it is not desired to exclude the entire area, it is recommended to move the roadless area boundary north of Little Long Valley Road at least 100 feet to exclude immediate logging clearings.

The area replanted with ponderosa pine saplings from a Penny Pines program along Little Long Valley Road appears slightly unnatural due to the stands being dense and even-aged, and may or may not be substantially noticeable enough to need exclusion from Paradise Creek Potential Wilderness. If deemed substantially noticeable, the border of Paradise Creek Potential Wilderness can be adjusted at least 300 feet north to exclude a large portion of the Penny Pines planted area and unnatural clearings found along Little Long Valley Road. The unmarked, unmapped road east of the Penny Pines planted area along Little Long Valley Road retains the characteristics of a compacted roadbed and is noticeable enough that it must be converted into a hiking trail for visitors' enjoyment, replanted, or excluded.

Region Road (an ML 2) in the east is a wide and compacted road that should remain excluded from Paradise Creek Potential Wilderness. The abundance of upturned soil and cut stumps as a result of a commercial thin in this area is made more visible by the lack of understory. The commercial thin continues to be substantially noticeable south of Little Grizzly Spur (an ML 2),



Woody debris covers the white fir dominated forest floor, providing habitat for rodents.

where the area appears highly degraded with a high amount of cut stumps and exposed soil being very visible due to the lack of understory. An average visitor may consider this area highly disturbed, and this commercial thin may need to be excluded from Paradise Creek Potential Wilderness.

The wide, compacted logging road that extends into the northeastern section of the roadless area must be excluded from Paradise Creek

Potential Wilderness entirely. Although it does not appear on the GIS layer, it retains the characteristics of an ML 3 road and appears to be frequently used by logging equipment accessing the thinning projects in the area. Considering that the group selection cuts, commercial thin, hazardous fuels reduction treatment, and general area around the road appear significantly unnatural due to the high abundance of log piles, cut stumps, logging road spurs, and eroded soil, this northeastern corner should be excluded entirely from Paradise Creek Potential Wilderness. This exclusion would make Paradise Creek Potential Wilderness lose over 1000 acres of land. If only the unmapped road were wished to be excluded and the areas that experienced human improvement activities left within Paradise Creek Potential Wilderness, the Paradise Creek Potential Wilderness would lose approximately 120 acres of land.

South of a rock quarry found along Little Grizzly Spur, Little Grizzly Spur becomes indiscernible as a road. Blocked by berms and grown over by thickets of tobacco brush, the road could easily be included in the roadless area. Certain sections of the road still retain the characteristics of an old roadbed, and if desired, Little Grizzly Spur could be converted into a non-motorized trail, with awesome views of misty mountains and wildflowers gracing the trail.

A meadow of mule's ears now replaces what was once Emigrant Tie OHV Trail. However, a nearby unnamed and unmapped dirt road is highly noticeable due to its width and compacted roadbed. Its path is visible from satellite view, and must either be converted into a trail or excluded from the roadless area altogether. Grizzly Ridge OHV Trail, which according to the GIS MVUM layer connects with Emigrant OHV Trail, is a two-track trail with tall grasses growing in the middle. It has a compacted and somewhat wide roadbed, but could potentially be converted into a hiking trail.

An old logging road spur can be seen running north-south in the roadless area. It is present to the east of Route 508 and runs parallel to it. This road is narrow enough to be converted into a trail, but many cut stumps are visible bordering it. If deemed too unnatural, the area could either be replanted or excluded.

Due to the number of highly degraded areas being suggested for exclusion, the roadless area may wish to be expanded to include the ML 2 roads Tailing Spur, Argentine-Flourney Spur, and Warkentein Spur, which are all either slightly or completely overgrown by vegetation and could be converted into trails allowing visitors to explore the area in a primitive manner. Along the cherry-stemmed Little Grizzly Spur (an ML 2), a large quarry area can be seen from satellite view and should be left excluded from Paradise Creek Potential Wilderness. Extending further south after this rock pit, Little Grizzly Spur becomes impassible for motorized vehicles of all types as it is overgrown by grasses, robust shrubs, and seedlings. Although only one road is mapped, two dirt roads are present leading southwest into Paradise Creek Potential Wilderness. The unmarked road is impassible to motorized vehicles due to the thickets of tobacco brush growing in the roadbed. Little Grizzly Spur (an ML 2), as well as the nearby old logging spur extending into the roadless area, would not appear substantially noticeable to the average visitor and could be left included. As Little Grizzly Spur travels further south, several other unmarked logging road spurs extend into the roadless area. Some are overgrown to the

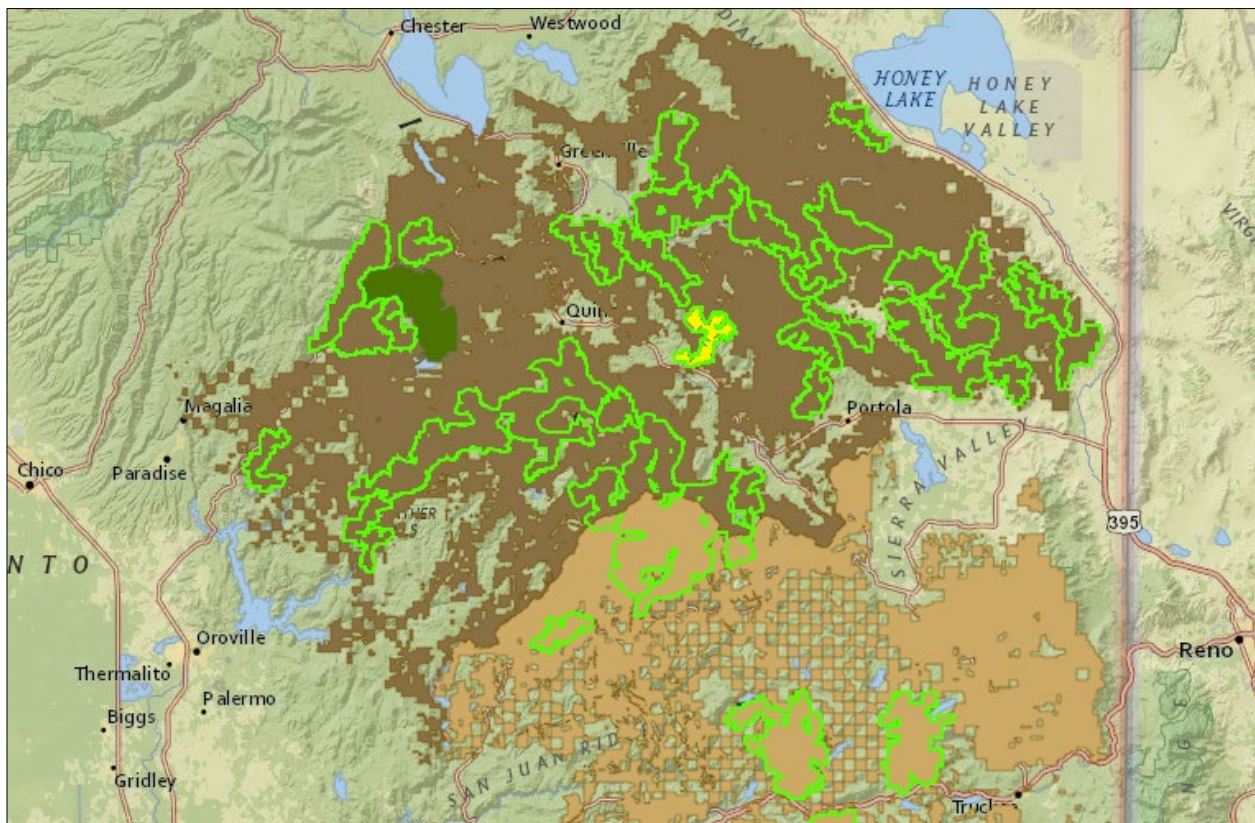


point of being hardly discernable, while others are noticeable and need to be converted into non-motorized trails or replanted to be included in Paradise Creek Potential Wilderness. Including Tailing Spur into Paradise Creek Potential Wilderness would add approximately 16 acres to Paradise Creek Potential Wilderness, including Warkentein Spur would add approximately 54 acres, including the area around Little Grizzly Spur and Argentine-Fluorney Spur would add approximately 400 acres, and including the cherry-stemmed section of Little Grizzly Spur would add around 134 acres to Paradise Creek Potential Wilderness.







In the northeast, meadows of mule's ears spill into forests of ponderosa pines and white firs.

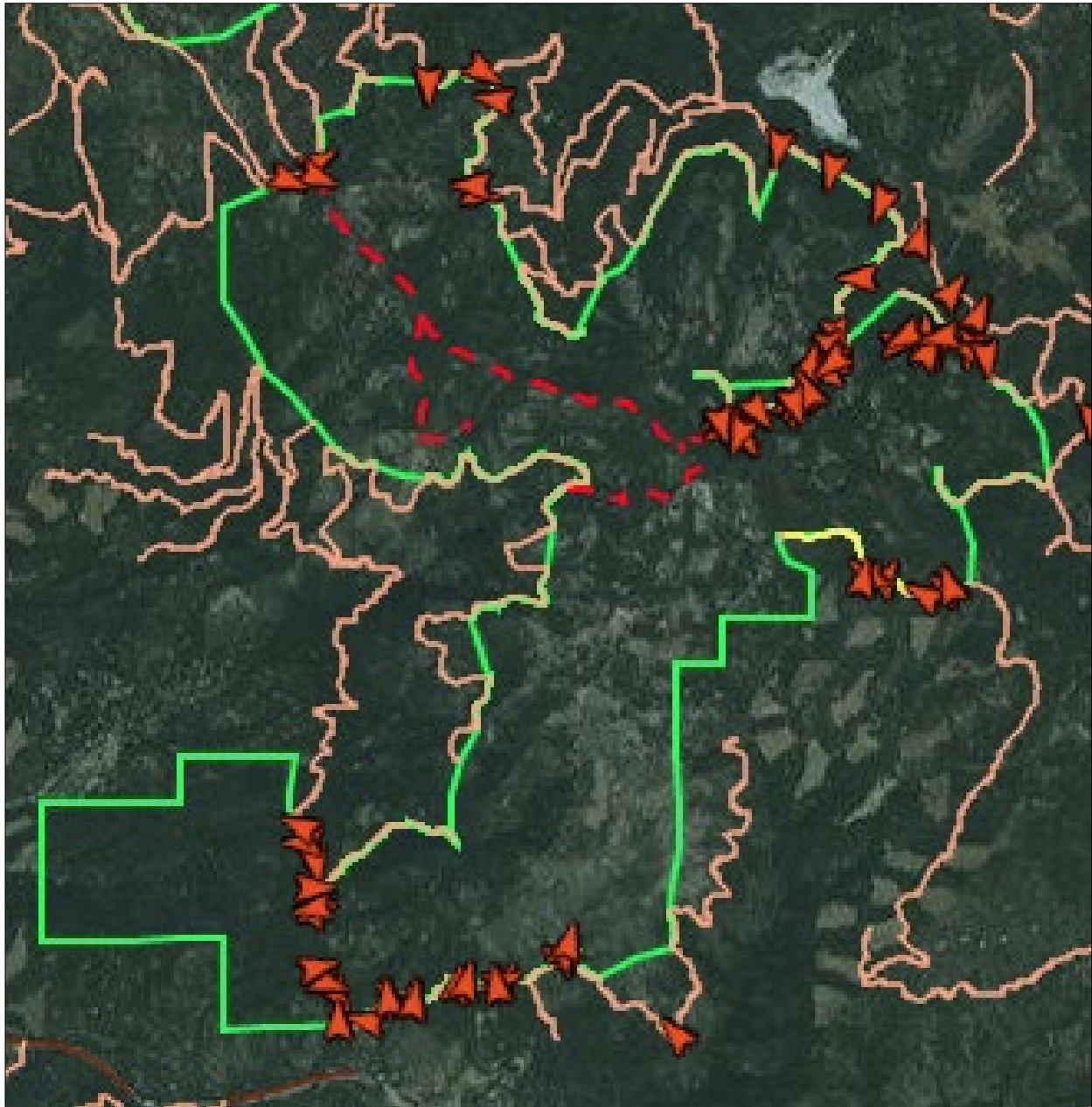
### Area Overview Map:



Plumas National Forest overview, with Paradise Creek Roadless Area highlighted in yellow.

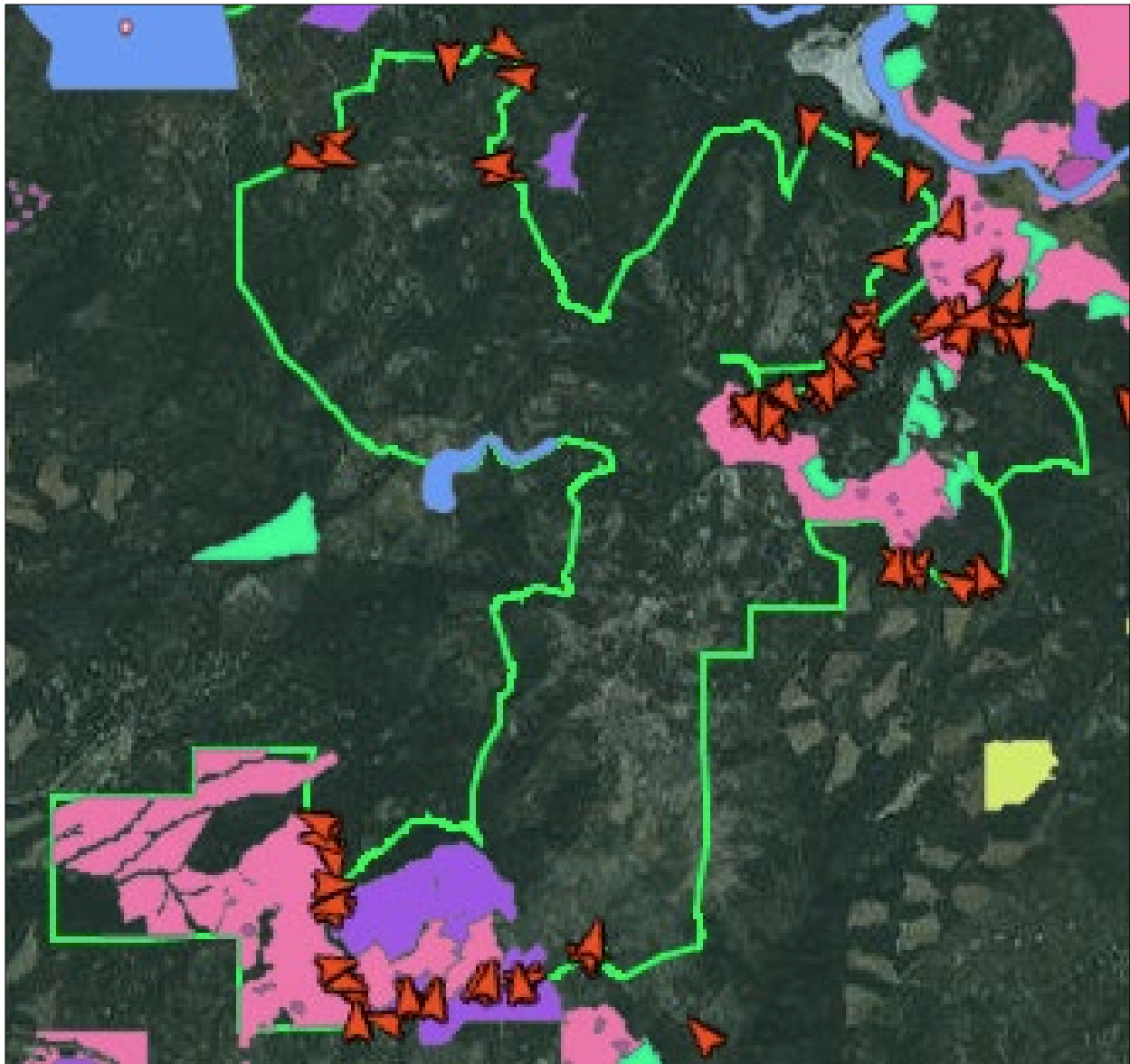
Legend			
			
Roadless Area	Wilderness	Plumas National Forest	Tahoe National Forest









Paradise Creek Roadless Area Roads and Trails Map:



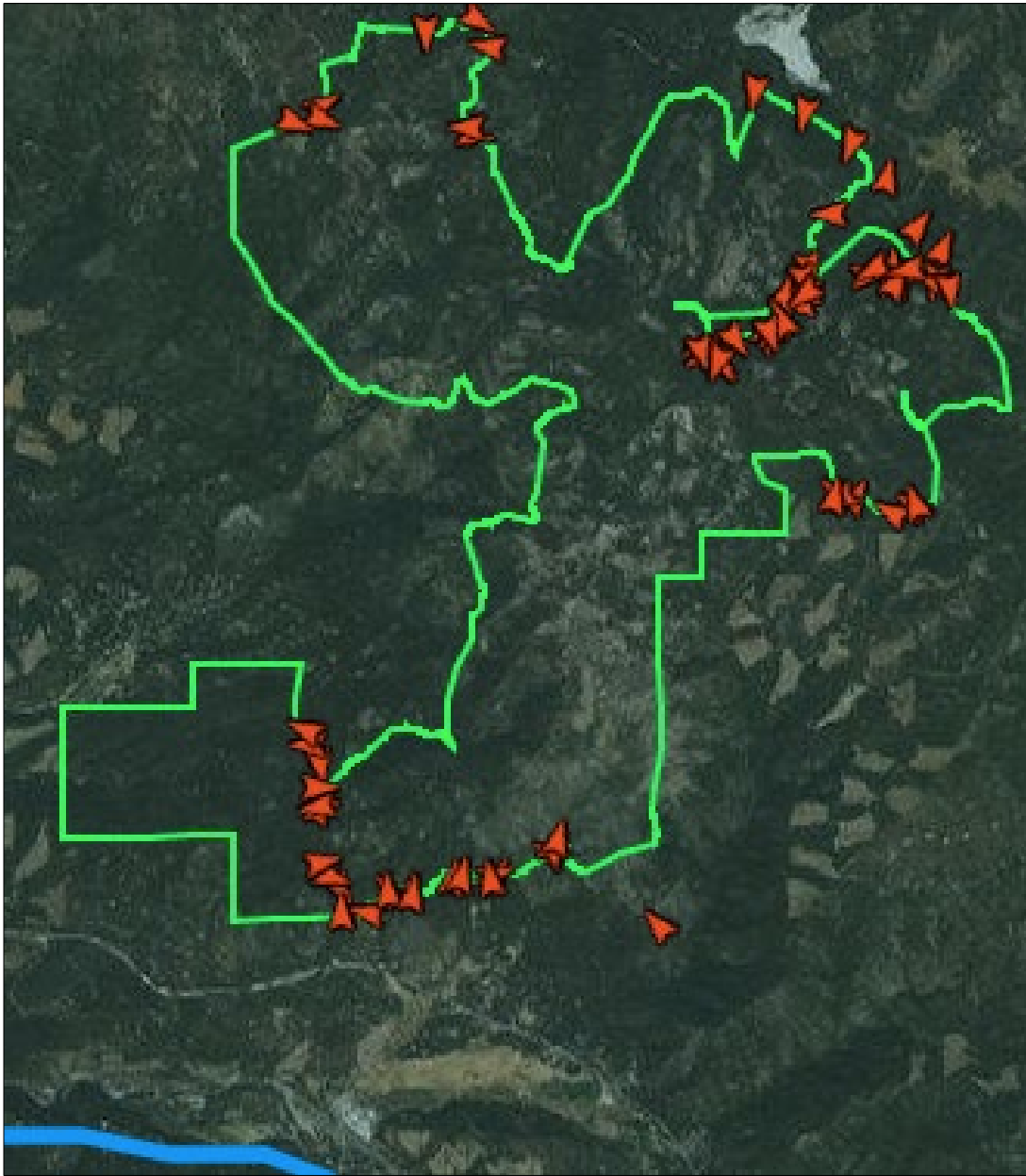
Legend				
				
Waypoint	Secondary Road	ML 1 Road	ML 2-5 Road	OHV Trail
				
Roadless Area				



Paradise Creek Roadless Area Potentially Noticeable Activities and Improvements Map:



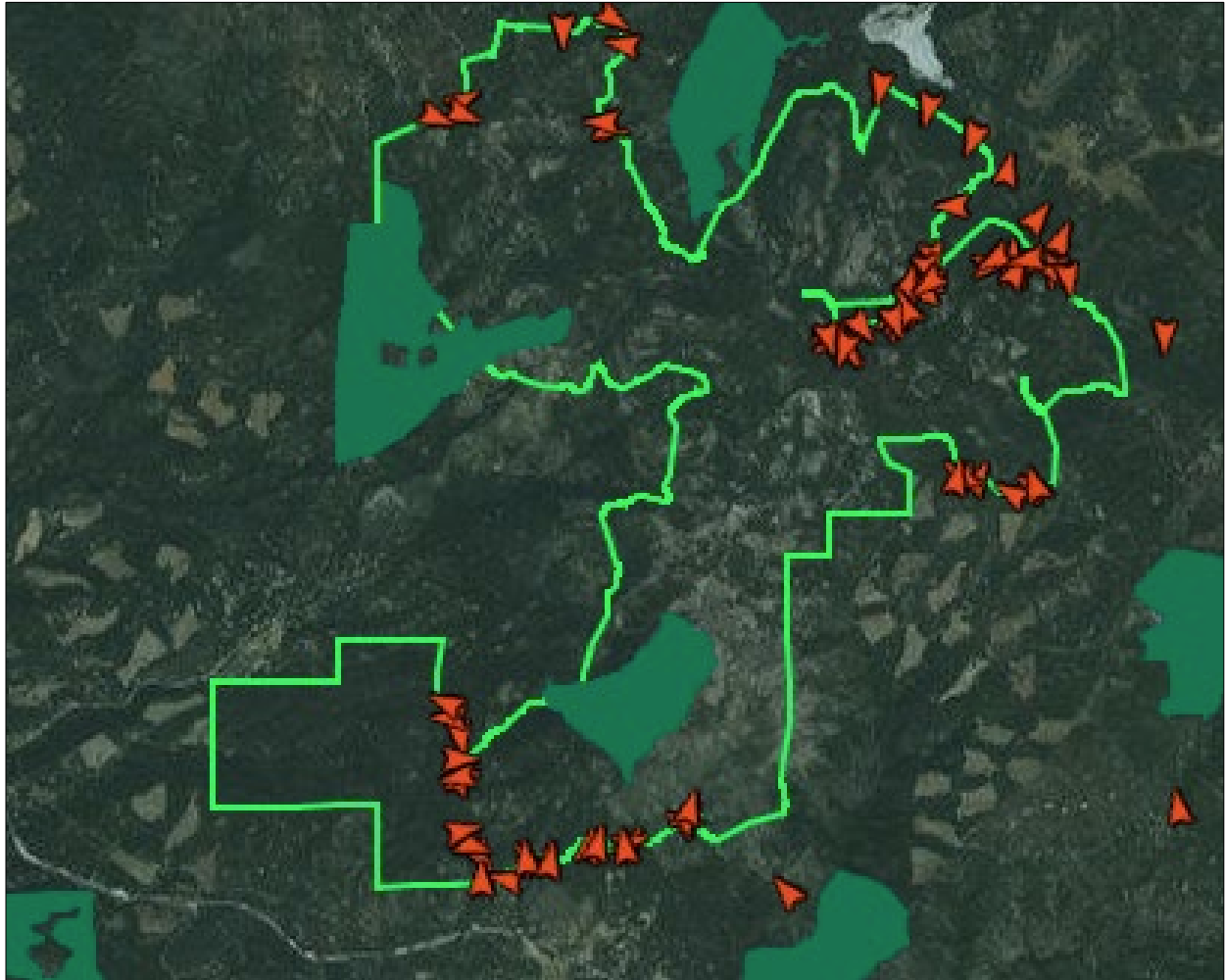
Legend				
				
Waypoint	Precommercial Thin	Commercial Thin	Sanitation Cut	Thinning for Hazardous Fuels Reduction
				
Group Selection Cut	Plant Trees	Roadless Area		




Paradise Creek Roadless Area Conservation Designations Map:



Legend		
		
Waypoint	Wild and Scenic River	Roadless Area

Paradise Creek Roadless Area Important Species Habitat Map:



Legend		
		
Waypoint	Spotted Owl Protected Activity Center	Roadless Area



Visitors will experience a sense of awe as they gaze upon the mountains of Grizzly Peak Roadless Area.

## Grizzly Peak Roadless Area

**Size:** 11,716 acres

**Elevation Range:** 3560–7759 feet

**Location:** Plumas National Forest, Beckwourth Ranger District ([Web Map](#) Roadless Area 25)

**Area Overview:** Called a potential “little gem of a wilderness” by Friends of Plumas Wilderness, Grizzly Peak Roadless Area is rich with wilderness potential. Grizzly Peak, towering 7,711 feet over the roadless area, offers breathtaking views and a challenge for mountaineers. Meadows and streams scattered throughout dense forests give visitors the opportunity to traverse a variety of ecosystem types and see a diversity of species. The Grizzly Peak Inventoried Roadless Area, several Spotted Owl Protected Activity Centers, and occasional elk populations can be found within the Grizzly Peak Roadless Area, indicating valuable ecosystems exist here. This area’s stunning natural beauty will attract visitors to explore its granite peaks, cold streams, and lush forests.

## Apparent Naturalness:

White firs (*Abies concolor*), big leaf maples (*Acer macrophyllum*), alders (*Alnus* spp.), incense cedars (*Calocedrus decurrens*), ponderosa pines (*Pinus ponderosa*), Douglas firs (*Pseudotsuga menziesii*), canyon live oaks (*Quercus chrysolepis*), and black oaks (*Quercus kelloggii*) compose a canopy of green over mountain ceanothus (*Ceanothus cordulatus*), deerbrush (*Ceanothus integerrimus*), hazelnuts (*Corylus cornuta*), dogwoods (*Cornus nuttallii*), and other shrubs. Some trees covered in vibrant wolfsbane lichen (*Letharia vulpina*) were estimated to be over 100 feet tall, and neighboring dead snags provide great habitat for animals such as birds, rodents, and insects. Along the moist bank of Little Grizzly Creek in Grizzly Peak Roadless Area, scouring rushes (*Equisetum* spp.), red-stemmed dogwoods, *Ribes* spp., willows (*Salix* spp.), blue elderberries (*Sambucus nigra* ssp. *caerulea*), and thimbleberries create a verdant stream bank.

Occasional meadows of yarrow (*Achillea millefolium*), asters (*Acamptopappus* spp.), Indian paintbrush (*Castilleja* spp.), penny royals (*Mentha pulegium*), bracken ferns (*Pteridium aquilinum*), thimbleberries (*Rubus parviflorus*), mule's ears (*Wyethia* spp.), grasses (*Poaceae* spp.), and other wildflowers can be found as openings amongst forests of red firs (*Abies magnifica*), white firs, lodgepole pines (*Pinus contorta*), western white pines (*Pinus monticola*), and huckleberry oaks (*Quercus vacciniifolia*). The occasional boulder provides lookout spots for chipmunks (*Tamias* spp.). Patches of these forests are designated as Spotted Owl Protected Activity Centers, and a large area of Grizzly Peak Roadless Area is designated as Grizzly Peak Inventoried Roadless Area.



Golden meadows of mule's ears shine in the morning sun, surrounded by thick conifer forests.

Elk (*Cervus canadensis*), are occasionally found in Grizzly Peak Roadless Area. It is hypothesized that the elk in Lassen County are moving southward into Plumas County. Elk are not common in California due to the high demand for elk during the California Gold Rush days, making their presence in Grizzly Peak Roadless Area a special feature.

China Grade Road, which is a wide, clear, compacted, and well-travelled road that runs through the northern section of Grizzly Peak Roadless Area connects with Arlington Road in Taylorsville. Both China Grade Road and Arlington Road are missing from the GIS roads layer. Several other unmapped small roads lead off of Argentine Taylorsville Road in the northeast. An unmapped,



unmarked dirt road in the northeast leads east into the Grizzly Peak Roadless Area for an unknown distance. This unmarked road is narrow, does not have a compacted roadbed, and appears unused. Another unmapped spur, which can be seen from satellite view extending northwest of Squirrel-Taylor Road, probably leads through the extent of the sanitation cut. It is wide, compacted, and has the characteristics of an ML 2 road.

The human improvement activities that occurred along the roadless area's western boundary of Argentine Taylorsville Road tend to appear substantially unnatural. The commercial thin and much of the sanitation cut areas are littered with patches of exposed soil, piles of logs, and a noticeable amount of cut stumps and woody debris. Small spurs, some marked as OHV trails, lead off of Argentine Taylorsville Road to piles of logs within the thinned areas, characterized by large tire tracks traveling through exposed soil. Areas that experienced group selection cuts appear especially unnatural, with numerous cut stumps and piles of logs giving the landscape a significantly degraded overall appearance. Group selection cuts can clearly be seen from satellite view as being barren of overstory and understory. The group selection cuts that occurred in this area are all highly visible from satellite view. They have left behind large swaths of barren land full of noticeable cut stumps. A few trees painted at breast height in a group selection cut area indicate that further logging treatments may occur. Although pine mat manzanita is returning to the area, group selection cuts are still substantially noticeable due to the large number of cut stumps and woody debris, as well as the lack of a thick understory.



Mist from a recent storm rises off of the forest, creating a stunning scene.



Wolfsbane lichen covers the conifers that thrive in misty forests.

Moving to the southern section of Argentine Taylorsville Road, the forest floor is covered in naturally-occurring woody debris, making the cut stumps and logs from the sanitation cut less noticeable. Cut stumps and logs do not seem to reduce the quality of habitat, as numerous squirrels and chipmunks were seen running over logs within the thinned area. Tall red firs combined with the naturally occurring woody debris found along the forest floor in the southern section of the sanitation cut make the area appear natural. In areas along Argentine

Taylorville Road that have not been logged, white and red firs with understories of whitethorn ceanothus, bitter cherries, penny royals, huckleberry oaks, and *Ribes* spp. thrive.



Little Grizzly Creek runs through deciduous and evergreen trees.

Grizzly Mountain OHV Trail is a loop located in the southwest section of Grizzly Peak Roadless Area off of Argentine Taylorville Road. It is the northernmost OHV trail running into Grizzly Peak Roadless Area off of Argentine Taylorville Road. The western entrance to Grizzly Mountain OHV Trail is substantially noticeable. The trail appears to be an old logging road with the characteristics of an ML 2 road. It is wide, clear, compacted, and bordered by degraded habitat. Although it becomes uneven and covered by woody debris later on, it still remains noticeable as a logging road. Other unmapped logging road spurs lead off of Grizzly Mountain OHV Trail, characterized by deep ruts in the soil left behind from logging equipment. At its eastern entrance, Grizzly Mountain OHV Trail is not noticeable as a trail. It is not compacted and is being overgrown by huckleberry oak and red fir and lodgepole pine saplings. The developed recreation site it leads to in the roadless area cannot be seen from satellite imagery and is most likely not noticeable.

Further south, Pine Creek OHV Trail runs east into the Grizzly Peak Roadless Area off of Argentine Taylorville Road. Pine Creek OHV Trail appears to be an old logging trail leading to the nearby group selection cut that can be seen from satellite view. Its wide and compacted roadbed along with large log piles alongside it would make this area appear substantially unnatural to the average visitor.

Continuing south on Argentine Taylorville Road, Griz OHV Trail runs a third of a mile into Grizzly Peak Roadless Area. Griz OHV Trail no longer has the characteristics of a compacted roadbed, and is being overgrown by lodgepole pine and red fir saplings as well as lupines. If left to continue being overgrown, it will not be substantially noticeable to the average visitor and can easily be included in the roadless area.

Grizzly Spur OHV Trail is the southernmost OHV trail within Grizzly Peak Roadless Area, forming a loop off of Argentine Taylorville Road. Grizzly Spur OHV Trail does not show any signs of recent use, as a small berm is at its entrance and it looks slightly overgrown. This most likely means that the other trails it connects with are not well-maintained. One of these connector trails, Oliver OHV Trail, could not be located along Oregon Road. Along Beckwourth Taylorville Road in the east, several small, unmapped roads lead into the roadless area. These roads are marked by federal mining claim signs and most likely lead to Little Grizzly Creek in the Grizzly

## Peak Roadless Area.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

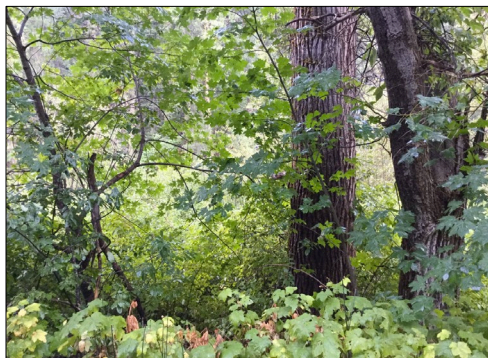
Mountaineers can enjoy the challenge of climbing the over 7,000 foot Grizzly Peak, and the Grizzly ridgeline is known to be a good rock climbing spot due to its outstanding granite features. The nearby Devil’s Punchbowl will also entice visitors to get off the beaten path and off-trail hike to view and even climb this geologic feature. After a hot day of adventure, visitors can splash around in the cold waters of Little Grizzly Creek, which provides outstanding opportunities for swimming and floating in its pools, and could be a great spot for fly fishers. No other visitors were encountered while exploring the roadless area, which is full of the sounds of wind in the trees and the rushing of Little Grizzly Creek. Some signs of mining claims were seen along rushing streambeds, indicating a history of gold mining in the area and an opportunity for visitors to enjoy panning for gold in the Grizzly Peak Roadless Area.

The meadows of Grizzly Peak Roadless Area offer visitors the opportunity to engage in a wide range of activities. Hunters may enjoy exploring the area for game and apply for special permits to hunt elk. Meadows provide ample picnicking and painting opportunities, and visitors could thoroughly enjoy identifying the wide diversity of plant species found in the area.

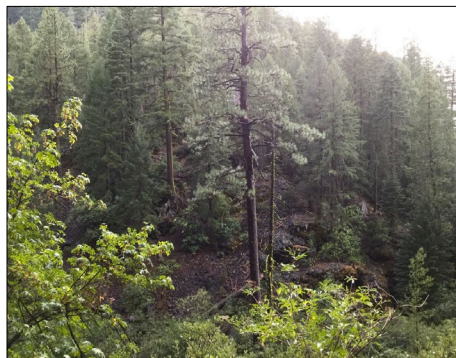
### Supplemental Values:

The Grizzly Peak Roadless Area contains outstanding views of mountains rising high above rushing streams, meadows of wildflowers and grasses, and old-age conifer forests. Mist rising from Little Grizzly Creek shrouds towering forests in mystery, while sunshine streams into nearby meadows.

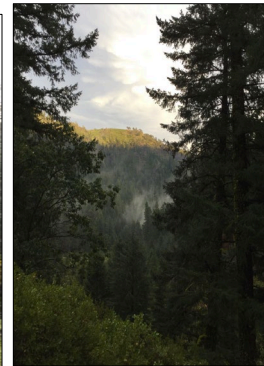
So few elk reside in Plumas County that their occasional presence makes the habitats within Grizzly Peak Roadless Area extremely important for conservation. This, along with Grizzly Peak Roadless Area being called a potential “little gem of wilderness” by Friends of Plumas Wilderness give the area substantial value.



A verdant stream bank is composed of thimbleberries, elderberries, and big leaf maples.



Misty mountains thick with conifer forests rise above streams.



A peak shrouded in mist.

## Recommendations:

The human improvement activities around Argentine Taylorsville Road along the western border of Grizzly Peak Roadless Area appeared, for the most part, highly degraded and unfit for wilderness. Areas covered by logging equipment tracks, logging spurs, exposed soil, piles of logs, cut stumps, and lacking overstory would appear significantly unnatural to the average visitor. Group selection cuts can be seen from satellite view as being areas cleared of vegetation, and commercial thin areas tended to be similarly noticeable. The effects of the sanitation cut become less noticeable traveling south along Argentine Taylorsville Road. Due to the stark unnaturalness of the majority of thinned areas along Argentine Taylorsville Road the roadless area boundary could be moved approximately one half mile east to exclude the logging spurs and substantially degraded areas. If the entire area along Argentine Taylorsville Road is deemed too large to exclude, then at least the area along Argentine Taylorsville Road north of Grizzly Mountain OHV Trail must be excluded from Grizzly Peak Potential Wilderness.

China Grade Road is a wide, clear, compacted, and well-travelled road that runs north through the northwest section of the roadless area to connect with Arlington Road in Taylorsville. Both of these roads do not appear on the GIS roads layer. China Grade Road should not be included in Grizzly Peak Potential Wilderness and could become part of the roadless area's western boundary. When China Grade Road is excluded, Grizzly Peak Potential Wilderness will lose less than 100 acres.

The western entrance to Grizzly Mountain OHV Trail is substantially noticeable. The trail appears to be an old logging road with the characteristics of an ML 2 road. It is wide, clear, compacted, and bordered by degraded habitat. Although it becomes uneven and covered by woody debris later on, it still remains noticeable as a logging road. Although its eastern entrance is not noticeable as a trail and is overgrown by shrubs and saplings, its western entrance must either be excluded from the roadless area or converted into a non-motorized trail.

Pine Creek OHV Trail's wide and compacted roadbed is lined with large piles of logs and would appear substantially unnatural to the average visitor. If the area is not restored, the boundary of Grizzly Peak Potential Wilderness should be moved 0.2 miles east to exclude this unnatural area.

Griz OHV Trail is barely discernible due to being overgrown by saplings and forbs, and if it is left to continue being overgrown, it will not be substantially noticeable to the average visitor and can easily be included in Grizzly Peak Potential Wilderness.

Grizzly Spur OHV Trail does not show any signs of recent use; this most likely means that the other trails it connects with are not well-maintained. A small berm is at its entrance, and it looks slightly overgrown. Although this trail does not appear well-used, nearby Brady's Camp had a sign that said the campground is supported by OHV funds and the area may be popular for OHV users. Grizzly Spur OHV Trail could easily be converted into a wide hiking trail. Oliver OHV Trail, which connects with Grizzly Spur OHV Trail, could not be located along Oregon Road.

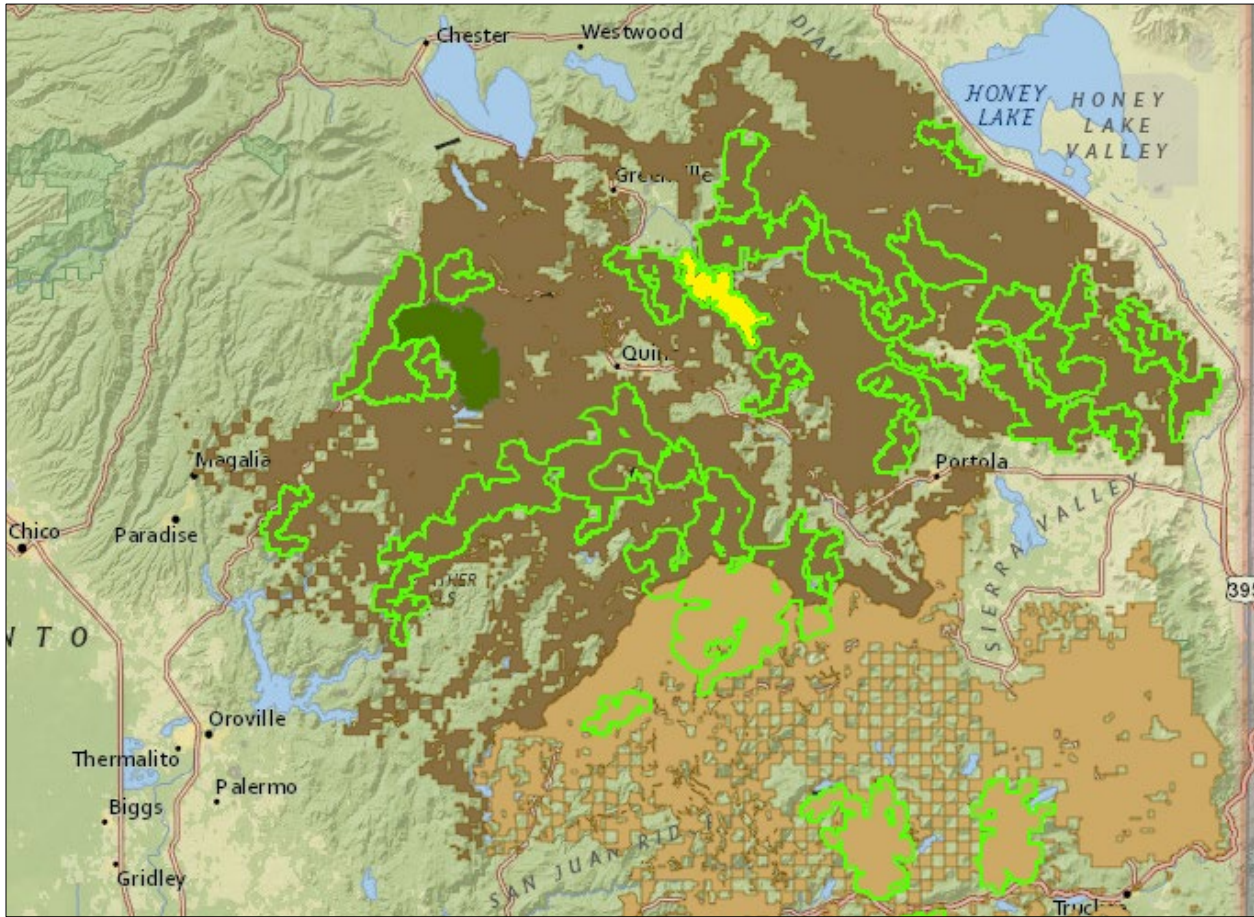
Oliver OHV Trail is not noticeable and can be included in Grizzly Peak Potential Wilderness without issue.

Several small roads off of Argentine Taylorsville Road lead to mining claims found near Little Grizzly Creek. If the roadless area boundary is moved approximately 150 feet south of Argentine Taylorsville Road to Little Grizzly Creek, these unnatural roadbeds will be excluded from Grizzly Peak Potential Wilderness.

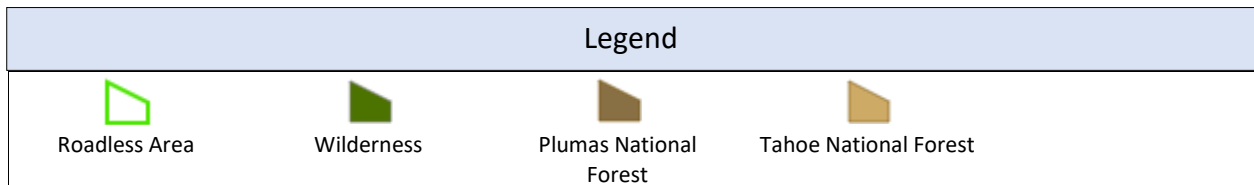


Grassy meadows strewn with granite give way to forests and a great blue sky.

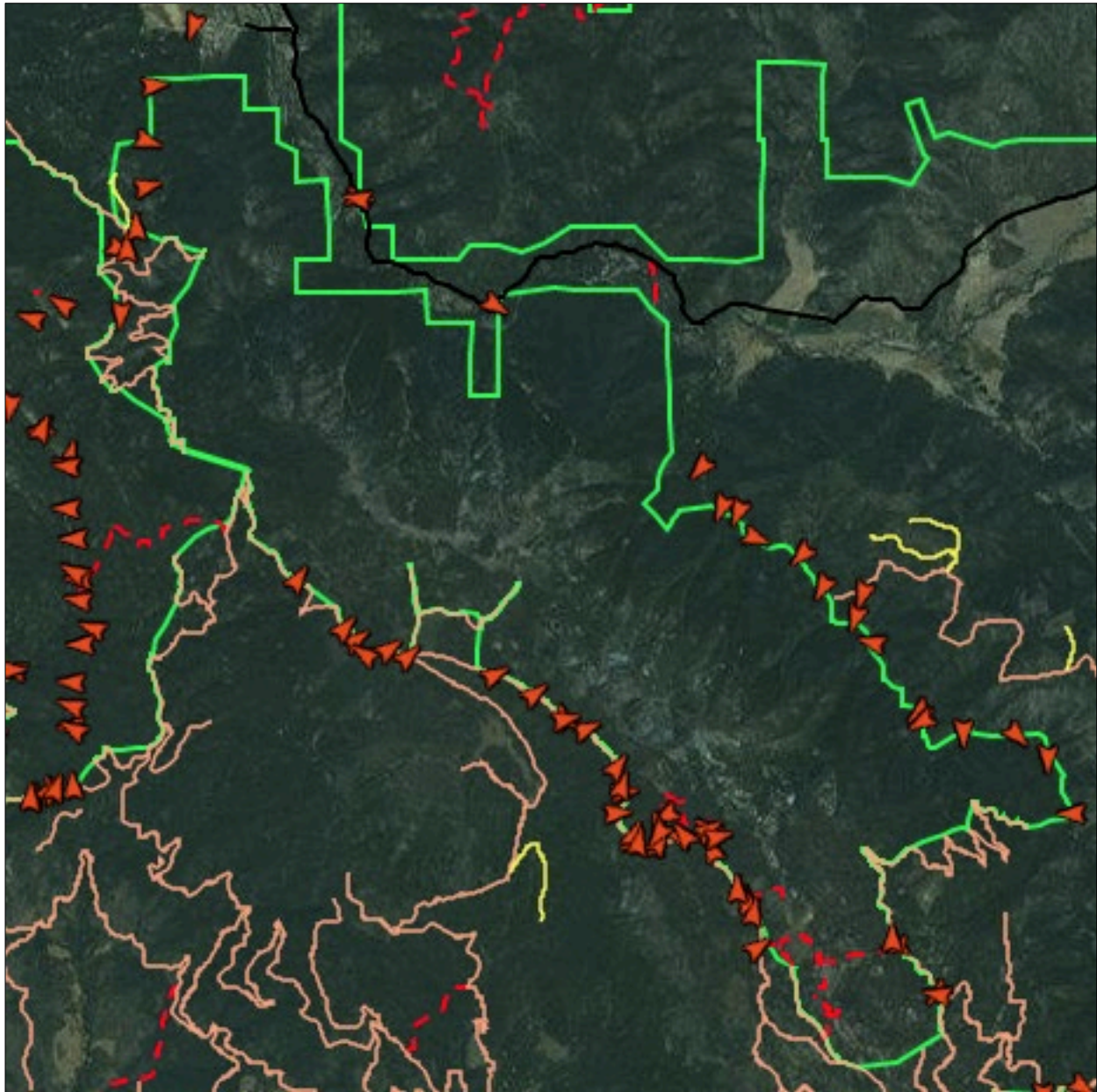
Area Overview Map:



Tahoe National Forest overview, with Grizzly Peak Roadless Area highlighted in yellow.

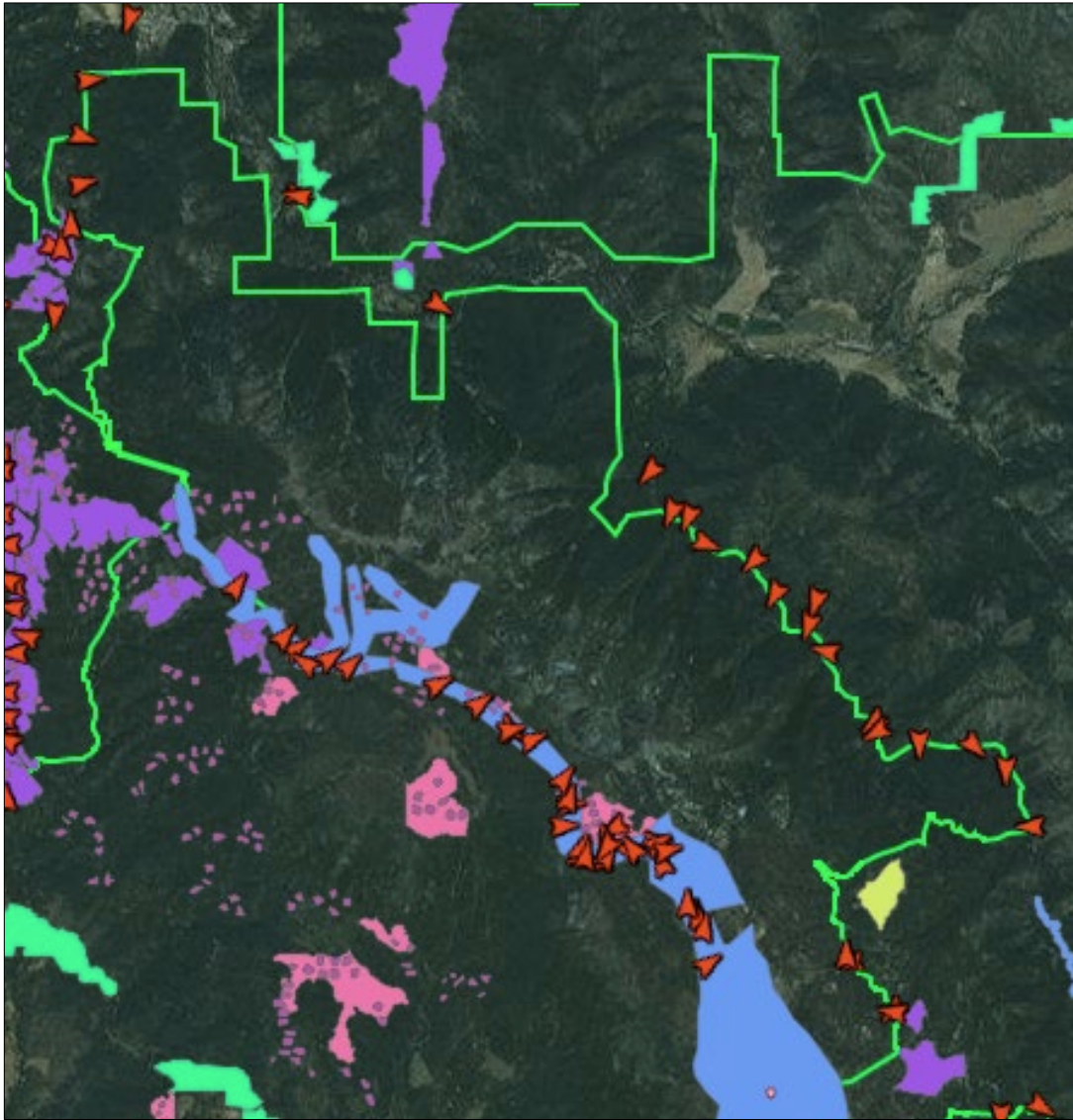











Grizzly Peak Roadless Area Roads and Trails Map:



Legend				
				
Waypoint	Important Local Road	ML 1 Road	ML 2-5 Road	Freeway or Other Major Road
				
OHV Trail	Roadless Area			

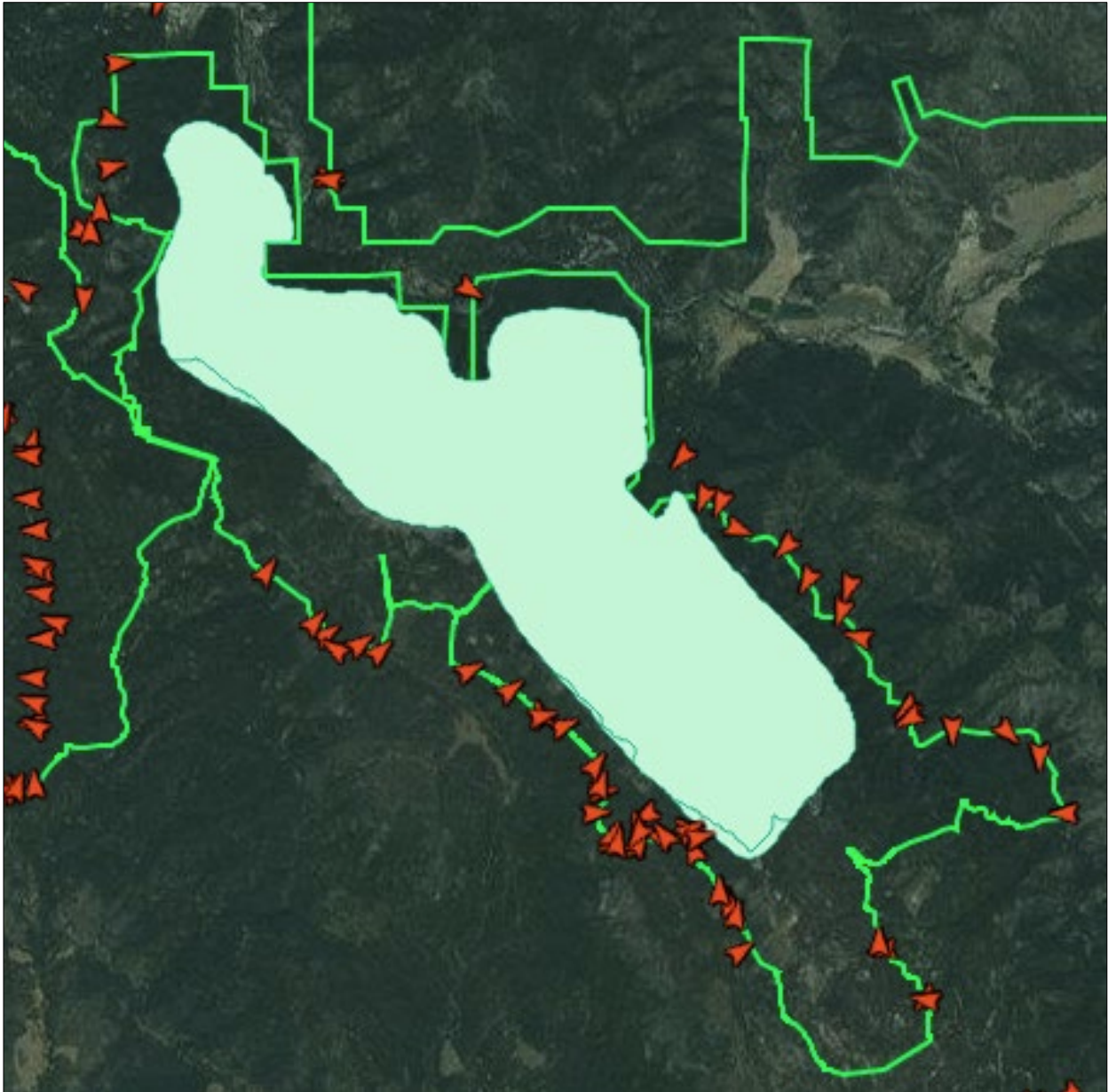
Grizzly Peak Roadless Area Potentially Noticeable Activities and Improvements Map:






Legend				
				
Waypoint	Precommercial Thin	Commercial Thin	Sanitation Cut	Thinning for Hazardous Fuels Reduction
				
Group Selection Cut	Plant Trees	Developed Recreation Sites	Roadless Area	

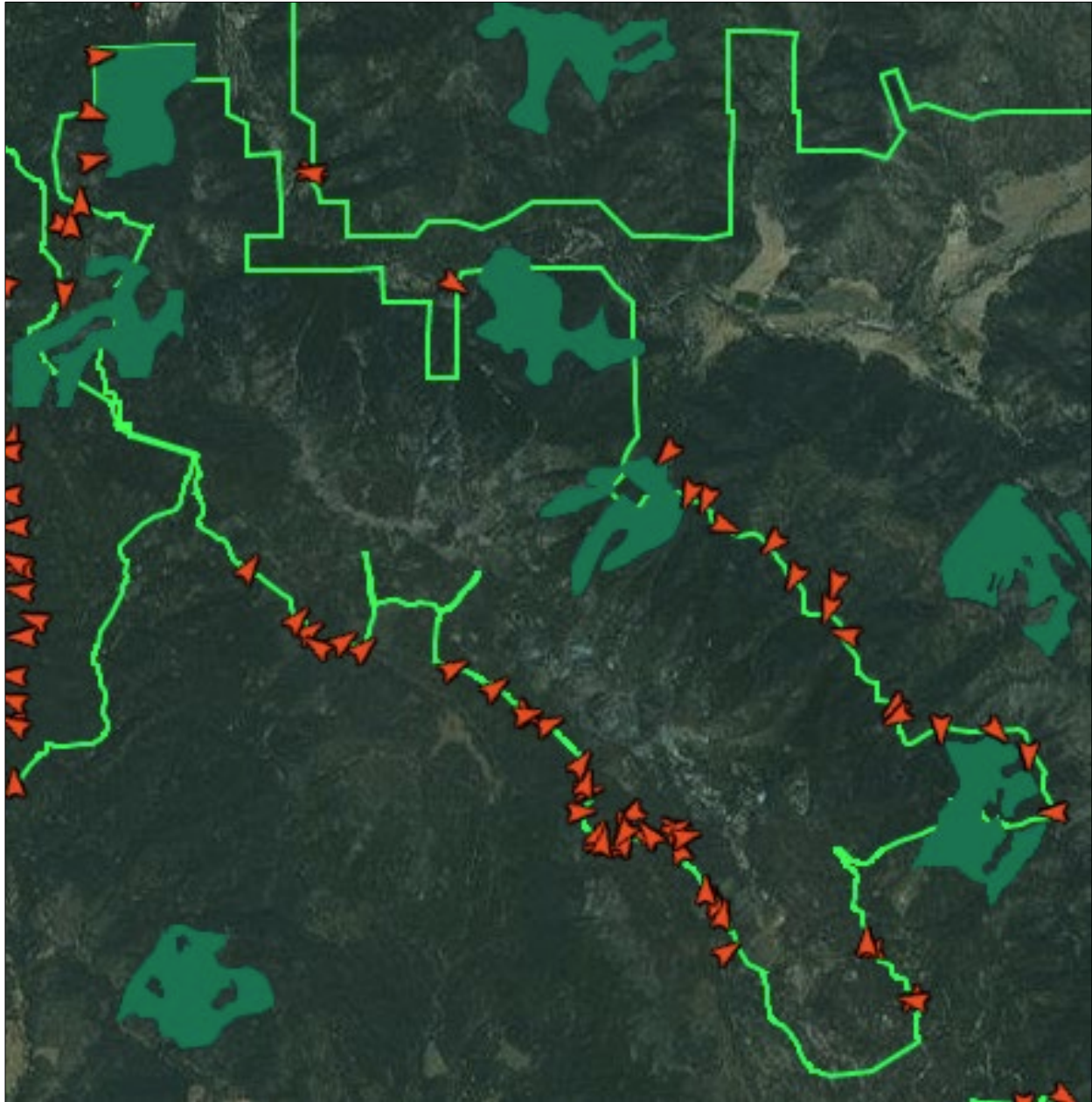





Grizzly Peak Roadless Area Conservation Designations Map:



Legend		
		
Waypoint	Forest Service IRA	Roadless Area

Grizzly Peak Roadless Area Important Species Habitat Map:



Legend		
		
Waypoint	Spotted Owl Protected Activity Center	Roadless Area





Bitterbrush, sagebrush, and grass meadows dominate the valley, fading into conifer-clad mountains beyond.

## Red Clover Roadless Area

**Size:** 11,275 acres

**Elevation Range:** 5141–6371 feet

**Location:** Plumas National Forest, Beckwourth Ranger District ([Web Map](#) Roadless Area 26)

**Area Overview:** Red Clover Roadless Area, teeming with serene meadows of sage and grasses, arid pine forests, waterways frequented by birds flying in the afternoon breeze, and striking volcanic outcrops framed by gnarled juniper trees, provides visitors with opportunities to drink in the dry, quiet breeze as they hike over beds of pine needles and grasses. The day is steeped with harsh sun and the smell of sage, and sunsets, and sunrises grace the valleys of Red Clover Roadless Area with hues of blues and pinks. Chittering grasshoppers and warbling birds greet these cooler periods of the day, and the sound of running water enhances the serenity of the rising and falling of the sun.

## Apparent Naturalness:



Jeffrey pines shade a dense understory of bitterbrush and sagebrush.

Red Clover Roadless Area, which is dominated by arid pine forests and sagebrush meadows, also houses the occasional riparian area. In the west, mule deer (*Odocoileus hemionus*) travel through stands of alders (*Alnus* spp.), junipers (*Juniperus occidentalis*), Jeffrey pines (*Pinus jeffreyi*), aspens (*Populus tremuloides*) willows (*Salix* spp.), and elderberries (*Sambucus* spp.) that frame quiet Red Clover Creek. As it winds through the southwestern part of the roadless area, Red Clover Creek provides habitat for water-loving birds, amphibians, and mammals. Snowberries (*Symphoricarpos* spp.), corn lilies (*Veratrum californicum*), mule's ears (*Wyethia* spp.), vetch, asters, and grasses grace the edges of Red Clover Creek. A bordering meadow composed of grass, sagebrush (*Artemisia tridentate*), scouring rush (*Equisetum* spp.), and bitterbrush (*Purshia tridentate*) teams with birds and insects springing in and out of their grassy refuge. Traveling up the hillside, wolfsbane lichen (*Letharia vulpine*) coats a forest of white firs (*Abies concolor*), incense cedars (*Calocedrus decurrens*), junipers (*Juniperus occidentalis*), and Jeffrey pines in striking colors. Manzanitas (*Arctostaphylos* spp.), mahala mats (*Ceanothus prostrates*), and mule's ears mingle in a sparse understory of dry Jeffrey pine and juniper dominated forests.

Along Beckwourth Genesee Road (an ML 2) in the west, cut stumps, OHV trails, unmarked roads, and pullouts can be found extending into Red Clover Roadless Area. Notson Camp OHV Trail has a somewhat wide, compacted road base. Some tire tracks were seen on this trail that extends approximately one-tenth of a mile into Red Clover Roadless Area. Continuing south, Red Clover OHV Trail is substantially noticeable due to its wide and compacted roadbed. Quarry OHV Trail is similarly wide and compacted, and an adjacent unnatural clearing is covered in tire tracks. Although a layer of pine needles covers the roadbed and reduces Clover Creek Loop OHV Trail's unnatural appearance, it is also visible as a wide roadbed with recent tire tracks. Several other unmarked, unnatural dirt clearings and roads were found along Beckwourth Genesee Road, characterized by bare soil, tire tracks, and the occasional piles of logs. These roads were often visible from satellite imagery, and appeared substantially noticeable.

Several barbed wire fences travel through Red Clover Roadless Area, and it is unknown how far they extend or if any of them connect to one another. Two barbed wire fences were seen extending from McReynolds Road into the southeast section of the roadless area. One was bordered by a small, overgrown, and unnoticeable dirt path with tire tracks running into Red Clover Roadless Area, and may be used by cattle herders. Another was seen traveling at least 400 feet into Red Clover Roadless Area from McReynolds Road, which may connect with the barbed wire fence leading into the roadless area from Janesville-Frenchman Road. Cows were seen grazing in meadows throughout the area, but the impacts of their presence on the environment could not be seen from a distance.

Spring Cabin Road (an ML 2) cherry-stems through the center of Red Clover Roadless Area. While most of the area surrounding the road appears natural, a 50-foot buffer zone around the road would exclude the unnatural clearings, occasional cut stumps, and metal Forest Service gates found at the entrance to road spurs. A Forest Service gate blocks Spring Cabin Road approximately four miles from where it extends off of McReynolds Road. West of the gate, the road appears to remain substantially noticeable and have the characteristics of an ML 2 road. No recent tire tracks were seen, and pine needles and pinecones lightly covered the roadbed.

The surveyed Spring Cabin Spurs (ML 1 roads) extending off of Spring Cabin Road are all noticeable as wide and compacted roadbeds, but some are covered in pine needles and occasional small sagebrush and mahala mats. The dry soil in the area does not allow grasses, herbs, and shrubs to rapidly grow, and if these ML 1 roads were left unused, it would take a substantial amount of time for vegetation to return to and obscure these roadbeds. Metal and wood posts mark the entrance to several of these spurs, while metal gates block several other spurs. The three ML 1 spurs that were not surveyed are likely similarly noticeable as the ML 1 spurs to the east of the gate that blocks motorized vehicles from further traveling Spring Cabin Road.

The timber harvesting activities conducted in Red Clover Roadless Area did not appear, for the most part, substantially unnatural. Scattered cut stumps from a precommercial thin that occurred along McReynolds Road would, for the most part, not be substantially noticeable to



Mount Ingells rises above forests of junipers, incense cedars, white firs, and Jeffrey pines growing among scattered volcanic rocks, bitterbrush, mahala mats, and sagebrush.

the average visitor due to their sparse distribution. The remnants of the precommercial thin become more noticeable near Janesville-Frenchman Road, where more cut stumps were visible and the occasional unnatural clearing indicated past logging activities. The surveyed group selection cuts appeared to have naturally regenerated and were not noticeable. Areas planted with trees were not investigated and do not appear unnatural from satellite imagery.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

The steep, rocky slopes that rise up in Red Clover Roadless Area could provide challenging scrambles to adventurous backcountry explorers, where solitude is enhanced by the pure sound of wind rushing through Jeffrey pines. Around the creeks in the west, the sound of water traveling down streambeds provides a tranquil setting for visitors wishing to bird watch and picnic. The area appears to be popular for bow hunters, as eight individuals were seen scouting and hunting in Red Clover Roadless Area during the survey. Little understory is present under the dense, towering trees, making off-trail exploring easy.

### Supplemental Values:

Volcanic rock outcroppings will amaze visitors with their unique and stunning geology. These outcroppings emerge as distinctive features on the dry landscape and are often rimmed with aspens and other water-loving plants. Although several visitors were seen hunting in Red Clover Roadless Area, the area offers visitors experiences many opportunities for solitude among its creeks, rocky outcrops, forests, and meadows.



A diversity of lichens growing on volcanic rocky outcrops emerge from the dry landscape, while gnarled junipers and Jeffrey pines break their way through the rocky soil.



A grass and sagebrush meadow dominates the scenery before fading into a conifer forest.

## Recommendations:

The mapped OHV trails as well as many other unmarked roads and pullouts found along Beckwourth Genesee Road have recent tire tracks on them and appear substantially unnatural. It is recommended that the border of Red Clover Potential Wilderness be adjusted at least one-half mile east of Beckwourth Genesee Road to exclude many of these unnatural features. To ensure complete exclusion of all unnatural areas, the boundary of Red Clover Potential Wilderness could be placed immediately west of Red Clover Creek, which would remove approximately less than 800 acres from Red Clover Potential Wilderness. Otherwise, these mapped and unmapped roads/trails will need to be converted into non-motorized trails allowing visitors access to Red Clover Potential Wilderness.

The cattle grazing in Red Clover Roadless Area does not seem to have significantly degraded the area and all grazing meadows can most likely be left included in Red Clover Potential Wilderness. Several barbed wire fences running an unknown distance into Red Clover Potential Wilderness may appear unnatural to the average visitor, and although cattle grazing is allowed on wilderness land, these fences may need to be removed to maximize the area's natural appeal.

The human improvement activities in Red Clover Roadless Area appeared, for the most part, substantially natural. The majority of the precommercial thin areas found along McReynolds Road and Janesville Frenchman Road did not substantially detract from the natural feel of Red Clover Roadless Area, with only scattered cut stumps and burnt bases of trees being visible. Piles of logs were occasionally seen, and to ensure that visitors experience a largely natural area, it is recommended that the boundary of Red Clover Potential Wilderness be adjusted at least 50 feet west of these two roads to exclude the majority of cut stumps and piles of logs. The surveyed group selection cuts may or may not detract for the natural appearance of Red Clover Potential Wilderness, as only an occasional decayed stump was seen in the surveyed areas, but some of the group selection cuts can be seen from satellite view as noticeably devoid of vegetation. These areas may or may not need to be removed from Red Clover Potential



Wilderness. The section planted with trees is not noticeable from satellite imagery and may or may not appear unnatural to the average visitor.

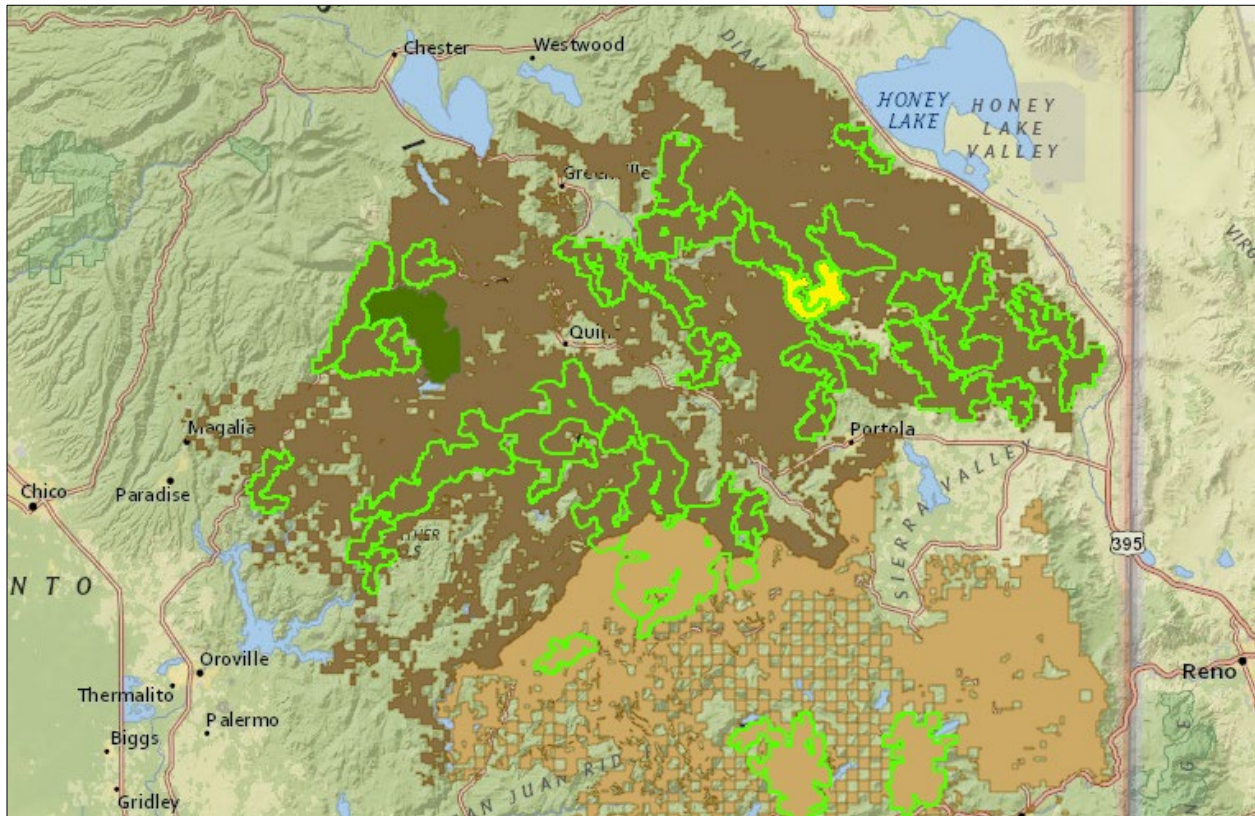
The area surrounding Spring Cabin Road generally appeared natural, and a 50-100-foot buffer could be made around the road to exclude several unnatural clearings and the gated entrances to the Spring Cabin Spurs (ML 1 roads). The Spring Cabin Spurs were all noticeable due to their compacted roadbeds. Some of these spurs were more concealed by beds of pine needles, and some were more obvious due to the roadbed lacking coverage by vegetation or pine needles. The unmaintained roads covered in pine needles and occasional shrubs may become unnoticeable over time as vegetation slowly returns, but most likely should be converted into non-motorized trails. The rocky roads that are currently devoid of vegetation would very likely need to be converted into non-motorized trails to remain within Red Clover Potential Wilderness. These roads could serve as short hiking and equestrian trails for visitors wishing to get a glimpse into the dry landscape typical of the Eastern Sierra. Spring Cabin Road (an ML 2) is blocked by a Forest Service gate approximately four miles off of McReynolds Road, indicating that the road may no longer be maintained. West of the gate, the road appears to remain substantially noticeable and would have to be converted into a non-motorized trail if it were included in Red Clover Potential Wilderness, as it has the characteristics of an ML 2 road.

A one-half-mile wide roadless section exists between Red Clover Road and Beckwourth-Genesee Road. This section currently serves as a border between the two roadless areas. If this section was absorbed into the roadless areas, it could connect Red Clover Potential Wilderness and Elephant's Playground Potential Wilderness (Roadless Area 27) to form a 22,822-acre potential wilderness area.

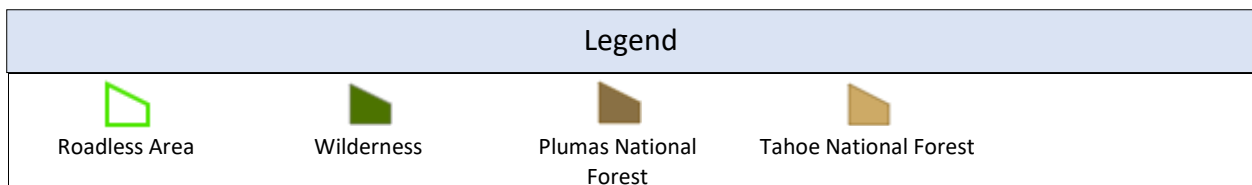


Flowing through the southwestern part of Red Clover Roadless Area, willows and riparian grasses grace Red Clover Creek.

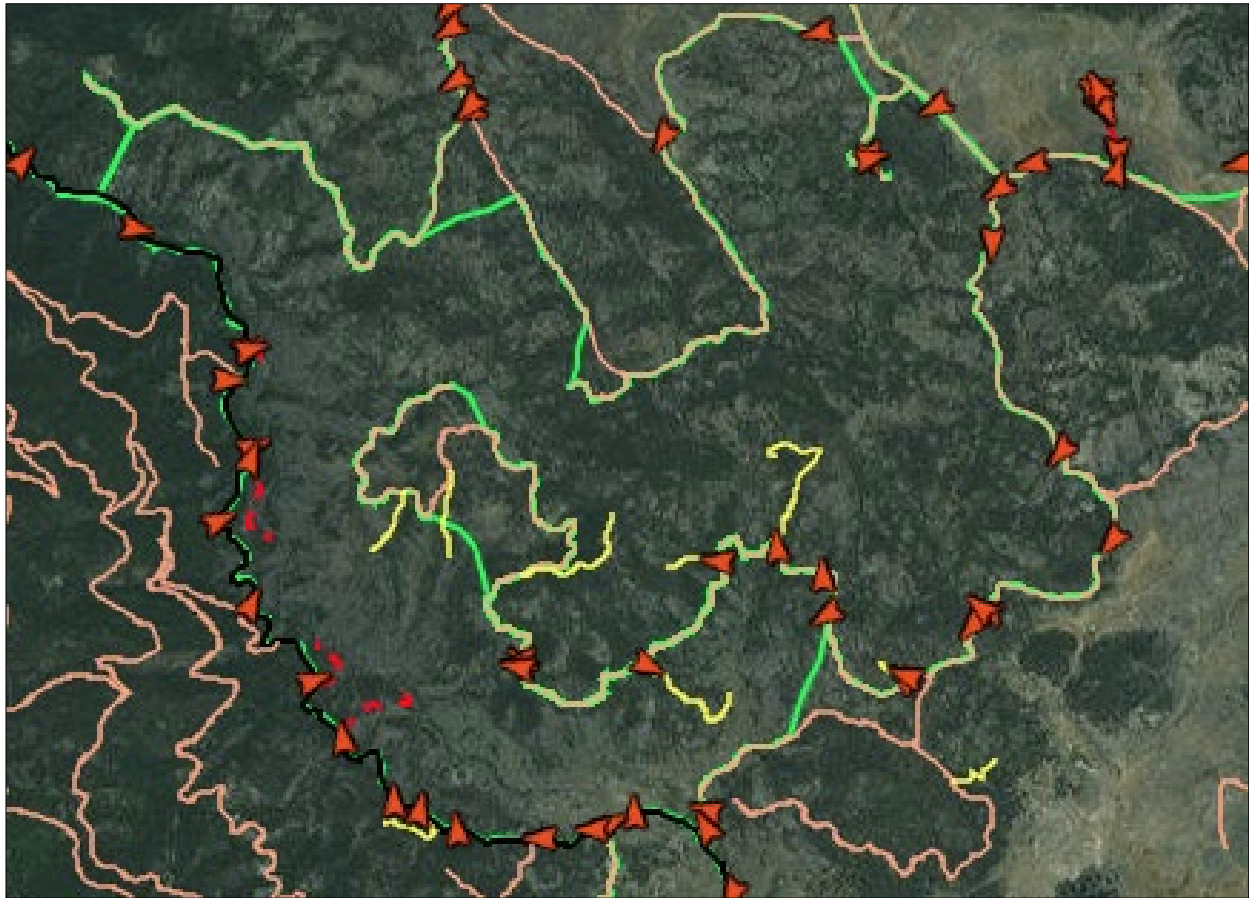
## Area Overview Map:



Plumas National Forest overview, with Red Clover Roadless Area highlighted in yellow.

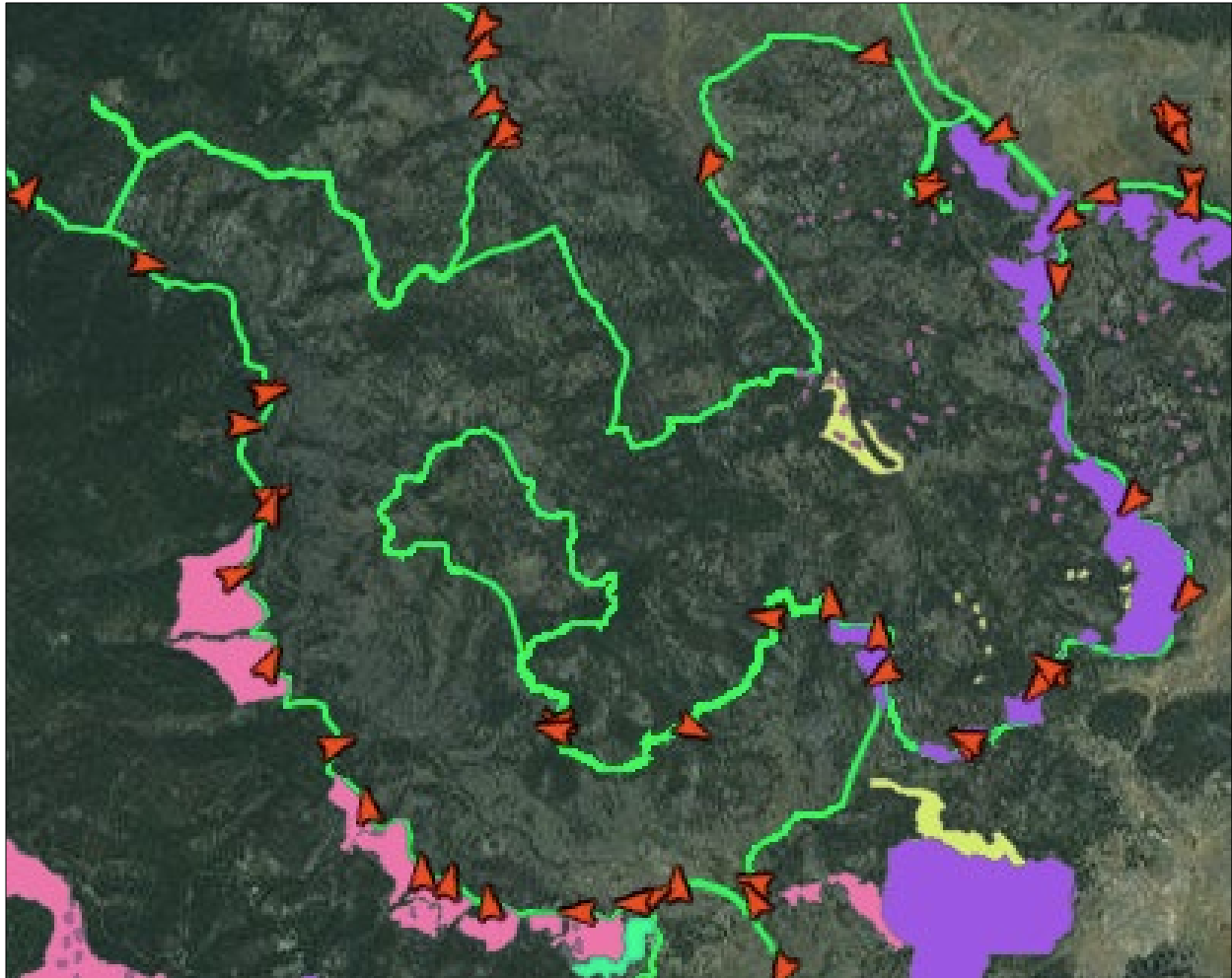









Red Clover Roadless Area Roads and Trails Map:



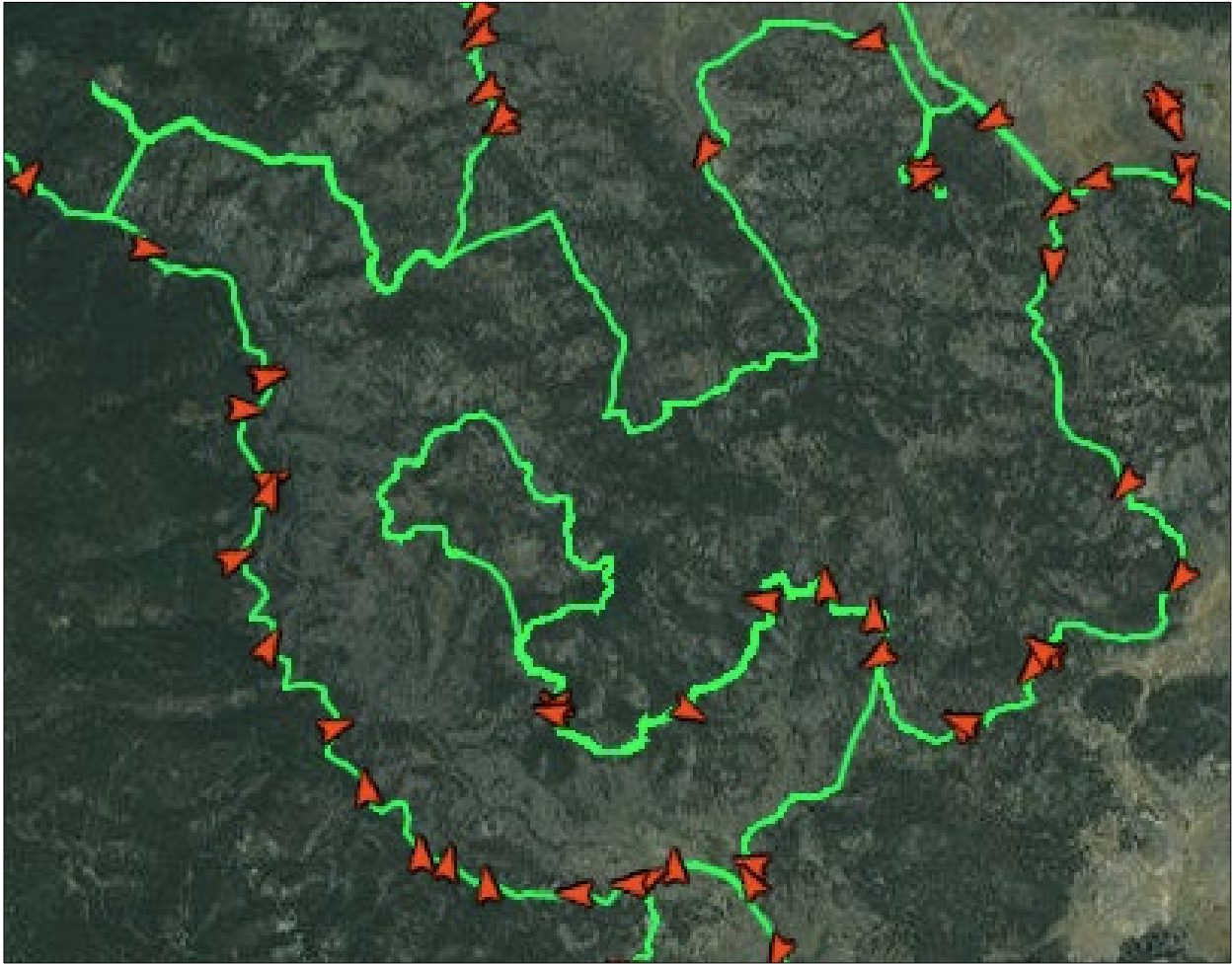
Legend				
				
Waypoint	Important Local Road	ML 1 Road	ML 2-5 Road	OHV Trail
				
Roadless Area				



# Red Clover Roadless Area Potentially Noticeable Activities and Improvements Map:



Legend				
				
Waypoint	Precommercial Thin	Commercial Thin	Thinning for Hazardous Fuels Reduction	Plant Trees
				
Group Selection Cut	Roadless Area			

Red Clover Roadless Area Conservation Designations Map:



Legend	
	
Waypoint	Roadless Area

Red Clover Roadless Area Important Species Habitat Map:



Legend		
		
Waypoint	Spotted Owl Protected Activity Center	Roadless Area



Visitors can enjoy scrambling over lichen-covered boulders surrounded by a diversity of species, including Jeffrey pines, Douglas firs, and manzanitas.

## Elephant's Playground Roadless Area

**Size:** 11,547 acres

**Elevation Range:** 3720–6634 feet

**Location:** Plumas National Forest, Beckwourth Ranger District ([Web Map](#) Roadless Area 27)

**Area Overview:** Elephant's Playground Roadless Area, known for containing unique rock formations that resemble herds of elephants, is full of canyons where pines and oaks thrive. Riparian zones flourish around creeks and the presence of a Spotted Owl Protected Activity Center indicates healthy forests exist within Elephant's Playground Roadless Area. Contrasting formations of black, jagged volcanic rocks and white, smoothed granite boulders indicate a unique geologic history, and the lack of both trails and substantially noticeable activities in the roadless area makes it attractive, as it is largely untrammelled and unexplored.

## Apparent Naturalness:

Tightly packed, rounded boulders distinguish the northeastern section of Elephant's Playground Roadless Area from the landscapes found throughout Plumas National Forest. Manzanitas (*Arctostaphylos* spp.), Jeffrey pines (*Pinus jeffreyi*), Douglas firs (*Pseudotsuga menziesii*), bitterbrush (*Purshia tridentate*), and black oaks (*Quercus kelloggii*) spilling into dry rocky canyons paint the roadless area's steep slopes in shades of green and gold. Moving west, these canyons become covered in dense stands of white firs (*Abies concolor*), Jeffrey pines, black oaks, and canyon live oaks (*Quercus chrysolepis*).

Big leaf maples (*Acer macrophyllum*), incense cedars (*Calocedrus decurrens*), sugar pines (*Pinus lambertiana*), bitter cherries (*Prunus emarginata*), willows (*Salix* spp.), Jeffrey pines, Douglas firs, and black oaks thrive along riparian areas in the southwest, where quails (*Callipepla californica*) scurry amongst scattered boulders. Above the creek, a red-tailed hawk (*Buteo jamaicensis*) was observed soaring over steep, boulder-strewn slopes stabilized by black oaks, Jeffrey pines, incense cedars, bitterbrush, manzanitas, Douglas firs, and mule's ears (*Wyethia* spp.). In the southeast, birds call from canopies of junipers (*Juniperus occidentalis*), lodgepole pines (*Pinus contorta*), ponderosa pines (*Pinus ponderosa*), and Jeffrey pines while lizards (*Lacertilia* spp.) and chipmunks (*Tamias* spp.) scurry among sagebrush (*Artemisia tridentate*), mahala mats (*Ceanothus prostrates*), bitterbrush, and manzanitas in the understory. These areas appear to be in natural ecological condition, with forests of trees diverse in ages and understories diverse in species.

Beckwourth Genesee Road creates the western border of the roadless area. Some unnatural features were observed occurring along the road, including a large dirt pullout, which is visible from satellite view, and a rusted metal structure. Humdrum Road (an ML 1) that extends from Beckwourth Genesee Road into the roadless area retains some of the characteristics of a roadbed and is becoming overgrown by grasses. Last Chance Ridge OHV Trail is a wide, compacted trail paved by gravel at its entrance off of Beckwourth Genesee Road. The trail is substantially noticeable and appears well-maintained.

The mapped human improvements in Elephant's Playground Roadless Area, including an ML 1 road and commercial thin included in the roadless area, are hardly noticeable. No remnants of the commercial thin noted to have occurred along Babcock East-West Road (an ML 2) were noticed. In the northeast, Elephant Spur Road (an ML 1) is a compacted dirt road that does not



A Nuttall's sheep moth (*Hemileuca nuttalli*) clings to a flowerhead in a meadow of sagebrush and bitterbrush, framed by Jeffrey pines and volcanic rock outcrops.



show any signs of recent use. Ponderosa pines encroach the sides of the narrow roadbed and woody vegetation is occasionally found growing in the roadbed, which is intermittently blocked by woody debris. These areas would not be considered unnatural by the average visitor.



Volcanic rock outcrops framed by aspens, willows, bitter cherries, and wildflowers provide stunning contrast to the surrounding arid landscape.

Several unmapped, unnatural features are included in Elephant's Playground Roadless Area. Elephant's Playground Road (an ML 2) can be seen extending farther into the roadless area than mapped in GIS. In the north, a dirt and gravel clearing in the roadless area with several small road spurs leading off of it is present off of Sanitation Dump Road (an ML 2). These unnatural clearings are visible from satellite imagery and would appear unnatural to the average visitor.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

Last Chance Creek, which runs through the center of Elephant's Playground Roadless Area, Red Clover Creek, found in the southwest, and Indian Creek, found in the northeast, provide exceptional opportunities for bathing, swimming, and picnicking amongst dry canyons of pines and oaks. Anglers and hunters can enjoy the rushing waters and undisturbed forests of Elephant's Playground Roadless Area. Visitors can enjoy scrambling up the boulders strewn along these canyons and off-trail exploring in a landscape that has not experienced human improvement activities.

### Supplemental Values:

Jagged, black volcanic rock features and smoothed, white boulders allude to the interesting geologic history of the region. These contrasting geologic features will attract visitors from far and wide and may inspire and investigation of the areas geologic history. Visitors to Elephant's Playground Roadless Area will enjoy the absence of signs of human impacts in these thick, forested environments and the sounds of Indian Creek rushing through canyons.



Streams create cool, lush areas amongst the predominantly dry canyons of pines and oaks.



The evening light ricochets off mountains into the valleys and canyons below.

## Recommendations:

The ML 1 roads included in Elephant's Playground Potential Wilderness were substantially unnoticeable. Humdrum Road (an ML 1) is becoming overgrown by grasses beyond the entry point and is slightly noticeable. If deemed too unnatural, it could be converted into a short, non-motorized trail, enabling hikers and equestrians to enter the steep slopes of Elephant's Playground Potential Wilderness and then explore the rest of the potential wilderness area off-trail. Elephant Spur Road (an ML 1) shows no signs of recent use. Due to it being encroached on the sides by ponderosa pines, blocked at points by woody debris, and woody vegetation occasionally growing in the middle of the roadbed, it will most likely become even less noticeable over time and appears natural enough to be left in Elephant's Playground Potential Wilderness.

Last Chance Ridge OHV Trail is substantially noticeable as a wide and compacted trail paved with gravel at its entrance off of Beckwourth Genesee Road. The well-maintained OHV trail extends approximately three miles into the western section of the roadless area. If deemed necessary, the boundary of Elephant's Playground Potential Wilderness can be adjusted to exclude the trail entirely. If left included in the roadless area, the trail would need to be converted into a non-motorized trail, which would be appreciated by equestrians and cross-country skiers wishing to travel Elephant's Playground Potential Wilderness on level ground.

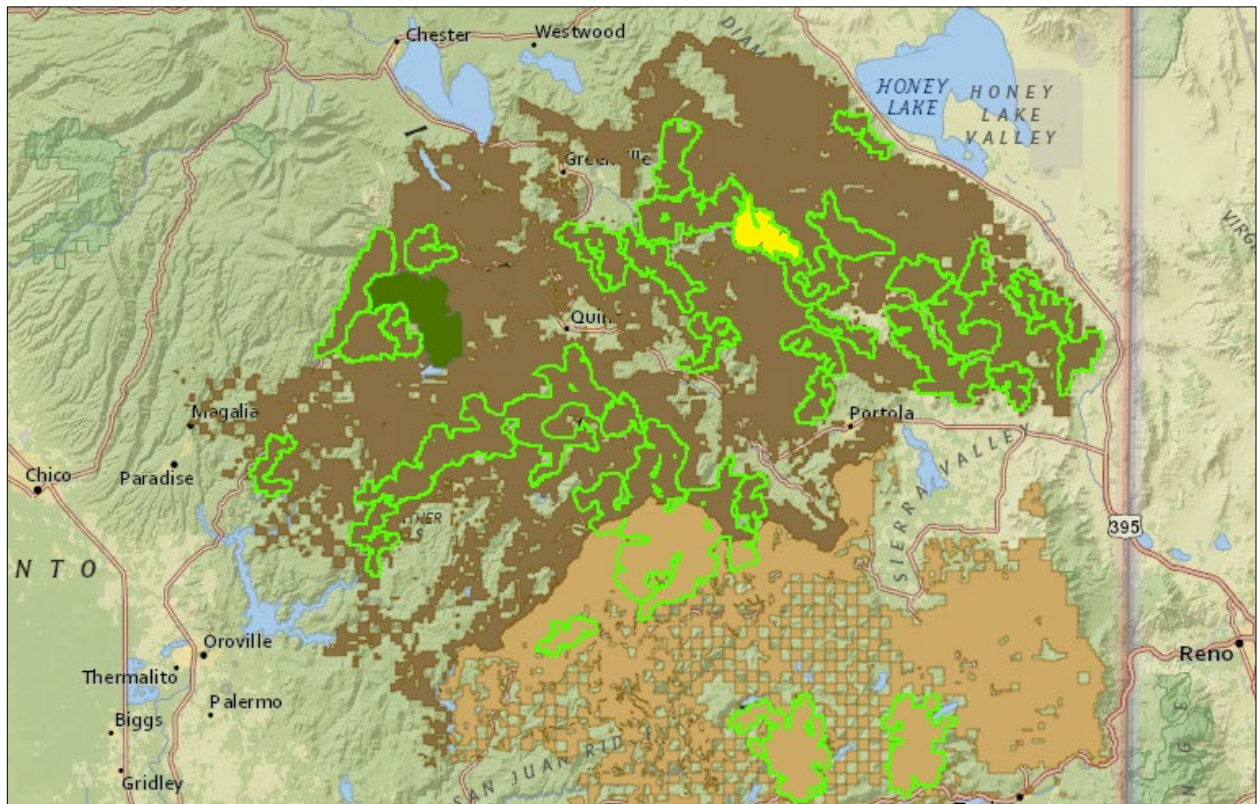
It is recommended that Elephant's Playground Potential Wilderness have several boundary adjustments to ensure exclusion of unnatural features. The western boundary of Elephant's Playground Potential Wilderness needs to be adjusted to ensure that it excludes Beckwourth Genesee Road entirely, as the well-used road occasionally runs within the boundary of Elephant's Playground Potential Wilderness. To exclude several unnatural features found along Beckwourth Genesee Road from the potential wilderness area, including a rusted metal structure and large pullout, it is recommended that Elephant's Playground Potential Wilderness boundary be adjusted at least 50 feet north of Beckwourth-Genesee Road. Elephants Playground Road (an ML 2) can be seen extending at least one-half mile farther into Elephant's Playground Potential Wilderness than mapped on satellite imagery. The cherry-stemmed boundary along the road needs to be extended to ensure complete exclusion of this ML 2 road.

The potential wilderness boundary should be adjusted 100 feet east of Sanitation Dump Road (an ML 2) to exclude the several unnatural dirt and gravel-paved clearings with several small road spurs leading off of it into the potential wilderness area. This unnatural area is visible from satellite imagery. Elephant's Playground Potential Wilderness and Red Clover Potential Wilderness (Roadless Area 26) could be combined to make a 22,822-acre potential wilderness area.

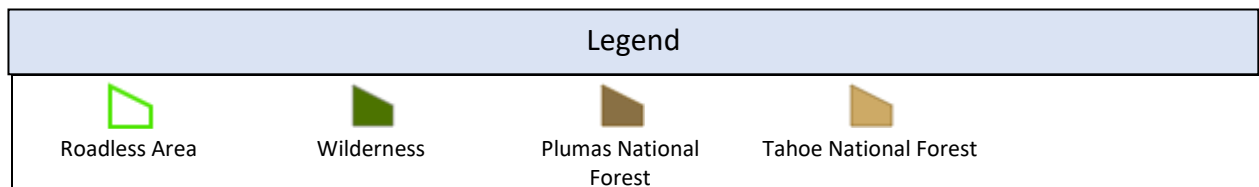


Dramatic views of the roadless area's mountains and canyons unfold below a cloudy sky.

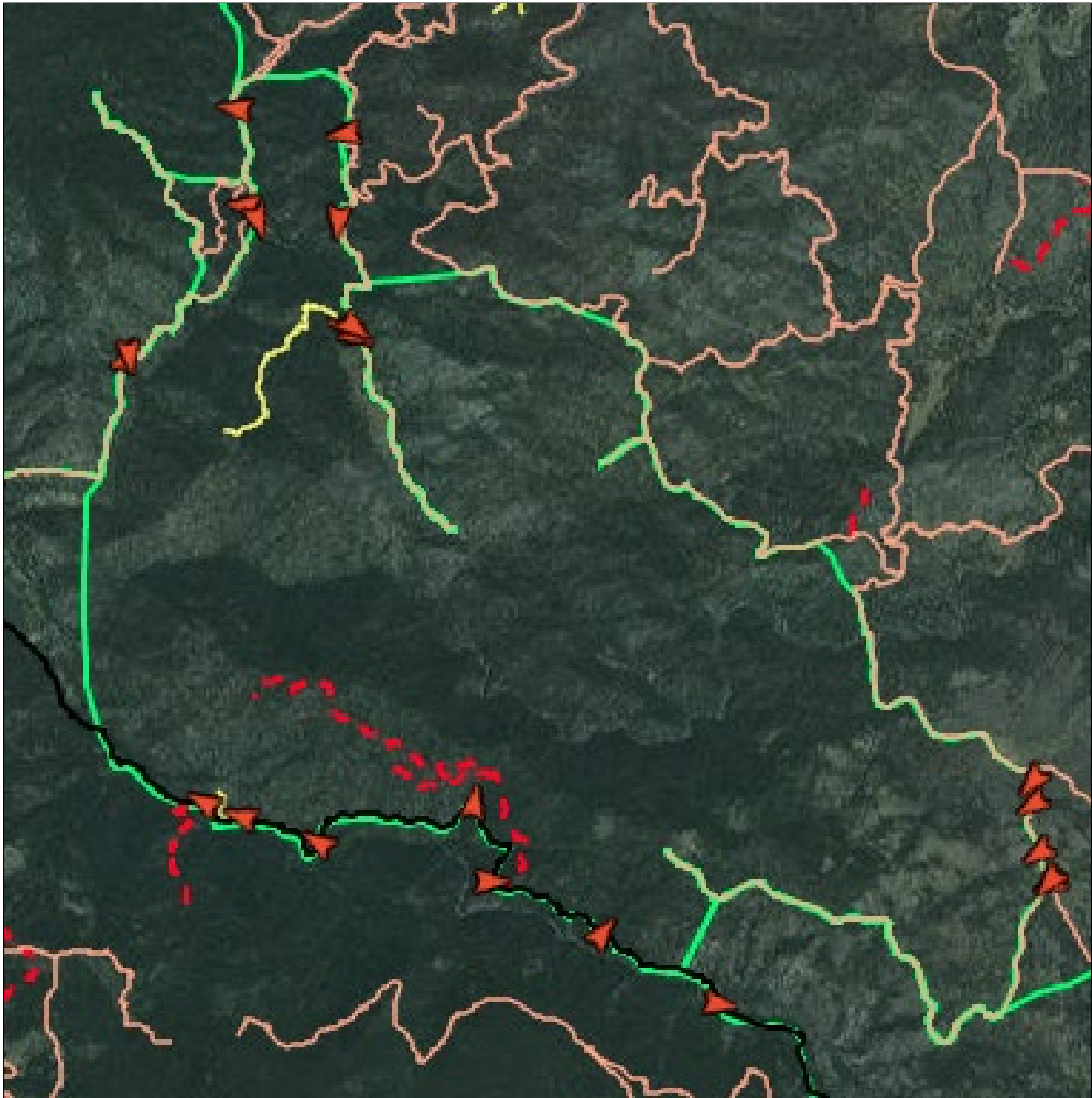
### Area Overview Map:



Plumas National Forest overview, with Elephant's Playground Roadless Area highlighted in yellow.

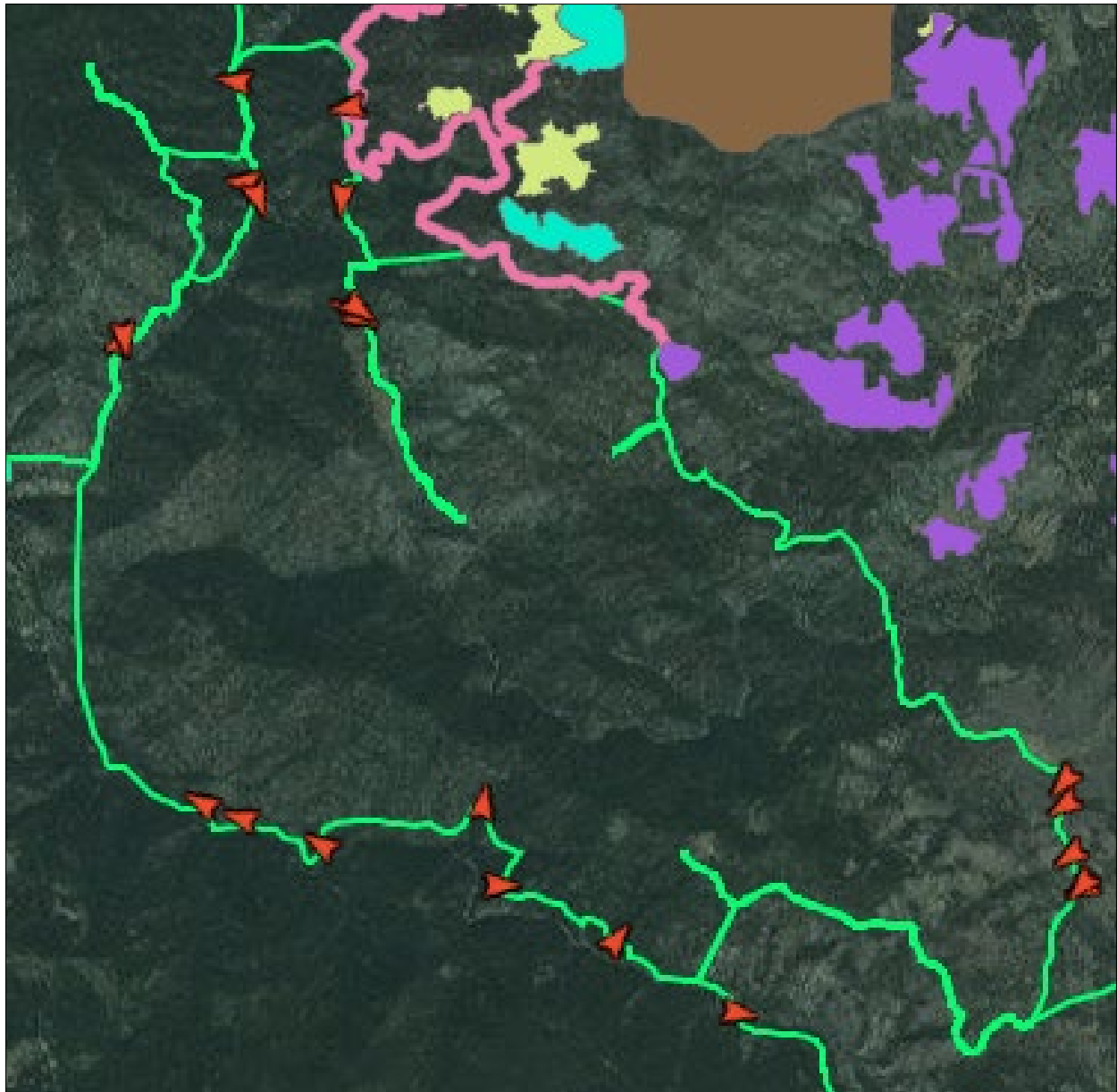









Elephant's Playground Roadless Area Roads and Trails Map:



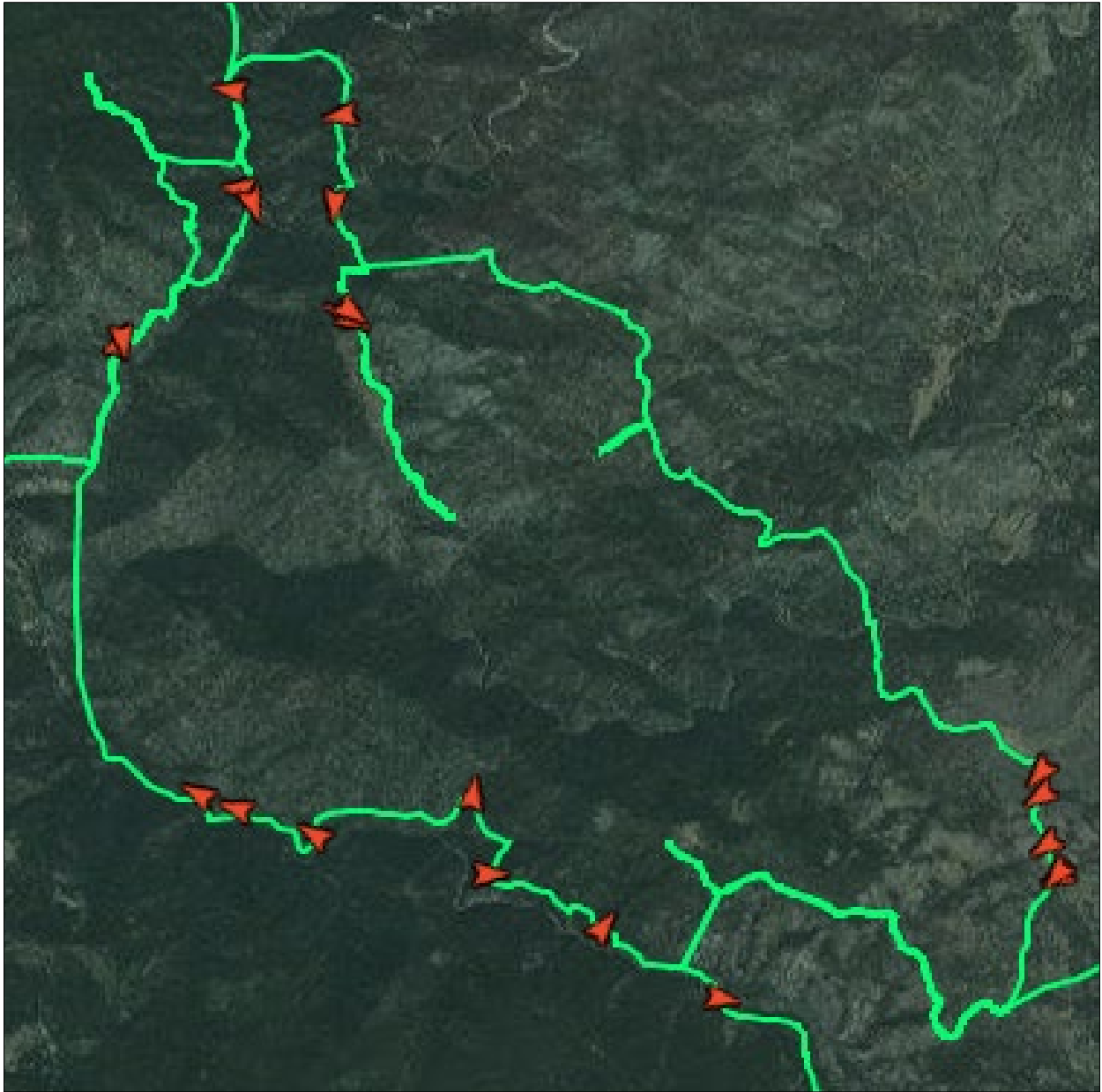
Legend				
				
Waypoint	Important Local Road	ML 1 Road	ML 2-5 Road	OHV Trail
				
Roadless Area				

Elephant's Playground Roadless Area Potentially Noticeable Activities and Improvements Map:



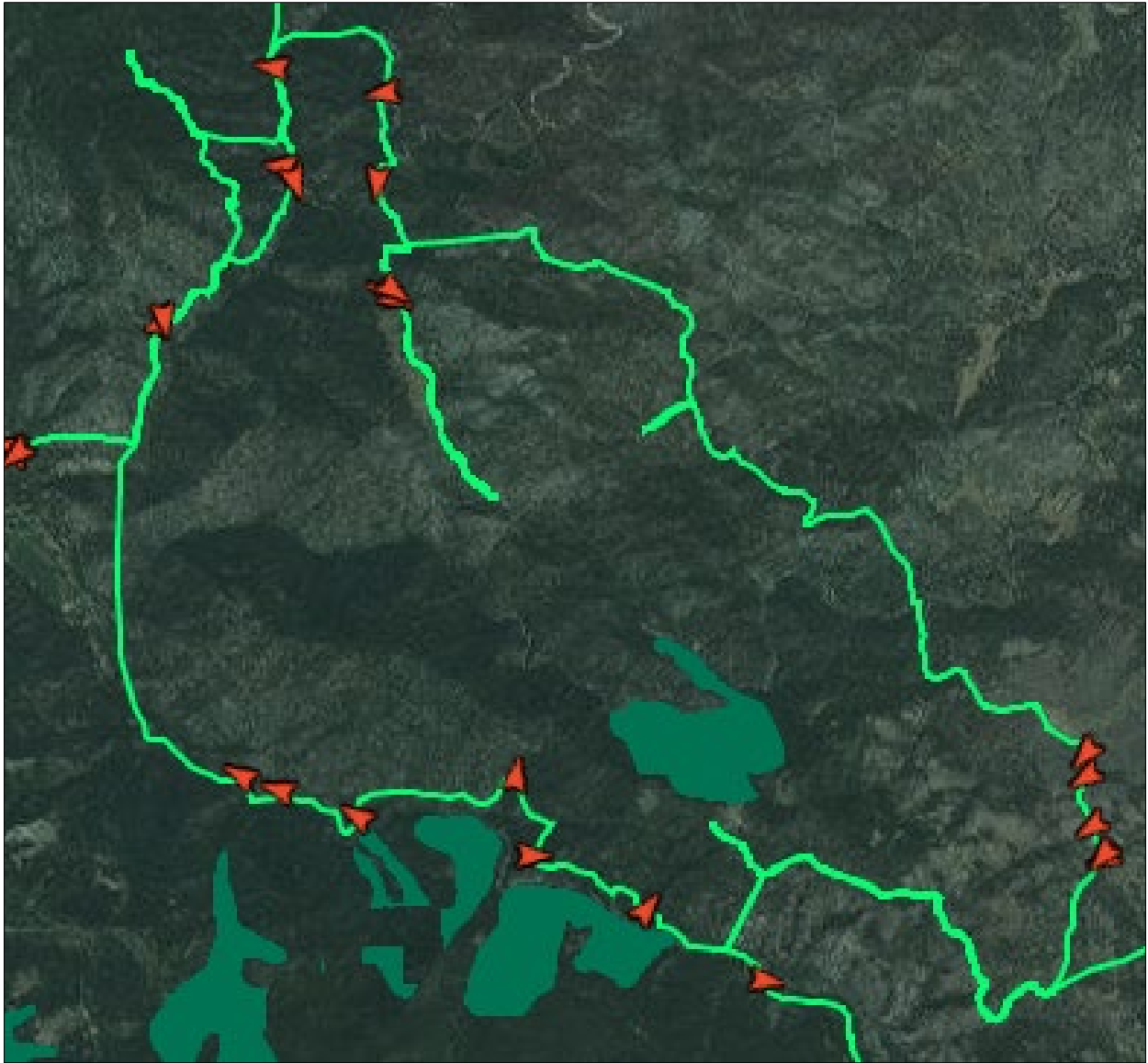
Legend				
				
Waypoint	Precommercial Thin	Commercial Thin	Sanitation Cut	Range Fences Area
				
Plant Trees	Roadless Area			




Elephant's Playground Roadless Area Conservation Designations Map:



Legend	
	
Waypoint	Roadless Area

Elephant's Playground Roadless Area Important Species Habitat Map:



Legend		
		
Waypoint	Spotted Owl Protected Activity Center	Roadless Area





Meadows of sagebrush fade into great blue mountains in Papoose Peak Roadless Area.

## Papoose Peak Roadless Area

**Size:** 11,780 acres

**Elevation Range:** 5469–6706 feet

**Location:** Plumas National Forest, Beckwourth Ranger District ([Web Map](#) Roadless Area 28)

**Area Overview:** The Papoose Peak Roadless Area, brimming with sagebrush meadows and arid pine forests, is incredibly remote and ripe for exploration and discovery. Mountaineers and climbers will appreciate the over 6000-foot Papoose Peak and Squaw Peaks as well as the boulders scattered throughout the roadless area. Visitors can also enjoy picnicking in abundant meadows and off-trail exploring, and OHV trails and unmaintained roads in Papoose Peak Roadless Area could be converted into access trails. The meadows and forests provide habitat types that foster some of California’s few elk populations, and lizards, birds, squirrels, chipmunks, and deer were seen throughout the area.

## Apparent Naturalness:

Junipers (*Juniperus occidentalis*), Jeffrey pines (*Pinus jeffreyi*), and ponderosa pines (*Pinus ponderosa*) flank meadows of sagebrush (*Artemisia tridentata*) and grasses in the northwest section of Papoose Peak Roadless Area. Meadows of sagebrush and bitterbrush (*Purshia tridentata*) bordered by junipers and pines continue to flow down the western corridors of the roadless area, occasionally graced by ephemeral streambeds where lizards sun themselves on rocks framed by asters (*Asteraceae* spp.), mahala mats (*Ceanothus prostrates*), sagebrush, bitterbrush, mule's ears (*Wyethia* spp.), and grasses. Moving east, Jeffrey and ponderosa pines eventually dominate the landscape, with occasional junipers rising above a sparse understory of manzanitas (*Arctostaphylos* spp.), sagebrush, curl leaf mountain mahogany (*Cercocarpus ledifolius*), bitterbrush, willows (*Salix* spp.), snowberries (*Symphoricarpos* spp.), and mule's ears. Birds, squirrels (*Sciuridae* spp.), and chipmunks (*Tamias* spp.) spring among the trees and meadows, and several deer (*Odocoileus hemionus*) were seen grazing in the evening in Papoose Peak Roadless Area.

These meadows and the dense forests that surround them provide optimal habitat for the herds of elk (*Cervus canadensis*) found in the area. California's elk populations were devastated by non-indigenous settlers, and elk are now returning to portions of their historical range due to protective conservation measures, successful translocation efforts, and natural dispersal of elk into suitable habitat. Few elk tags are given out in California, and Plumas National Forest was rated one of the top 10 places to hunt by Wide Open Spaces. One area in Papoose Peak Roadless Area had a sign warning visitors against hunting elk, which may or may not mean that hunters with elk tags are allowed to hunt in the area.



Boulders and pine trees rise above an understory of sagebrush and bitterbrush bright with morning light.



Golden mule's ears grow around stands of pines.

Several unnamed, unmapped roads pass through the southwestern section of the roadless area around a meadow off of Janesville-Frenchman Road. A few of these roads have narrow entrances that are beginning to become overgrown by shrubs and grasses and do not show any signs of recent use. An unmapped, unnamed two-track road north of this meadow stems off of Janesville-Frenchman Road east into the roadless area for an unknown distance. Forest Route 26N50, also known as Seigfried Canyon Road, is not marked on the GIS layer or Forest Service Plumas

National Forest Visitors map, but is marked on the National Geographic Basemap and can clearly be seen from the satellite view. It retains the characteristics of a wide and compacted dirt roadbed with some sections becoming two-track, and has multiple recent tire tracks on it. In the meadow between this road and Janesville-Frenchman road, a herd of cattle was seen grazing. This road is probably used by cattle herders to park the trailer and maintain the cattle fences that can be seen in Papoose Peak Roadless Area in the vicinity of the unknown road. A barbed wire fence runs from the road to a creek.

Several impacts from grazing cattle are noticeable in the meadow along Janesville-Frenchman Road in the southwest section of Papoose Peak Roadless Area besides abundant cow pies, hoofprints, and cow trails running throughout the prairie. Near the network of OHV trails in the northwest, narrow cow trails run into the roadless area. These appear slightly unnatural but do not substantially detract from the naturalness of the meadows.

Squaw Canyon Road (an ML 2) forms the northern border of Papoose Peak Roadless Area. At its southern entrance, is a two-track road that shows no signs of recent use. At this entrance, it is blocked at several points by large fallen trees and has large sagebrush growing in the old roadbed. Squaw Canyon Road is a wide, compacted, and substantially noticeable road at its northern entrance, and it is unknown where the road becomes degraded.

A network of OHV trails is present in the northwest section of Papoose Peak Roadless Area. Poison Springs Tie is a two-track OHV Trail, scattered with cow pies and cow hoof prints rather than tire tracks. Shrubby vegetation grows in the middle of the trail, and sections of it are covered in pine needles, reducing the unnatural appearance of it. The southwestern entrance to Poison Spring Tie OHV Trail is basically nonexistent. Though a sign marks the beginning of the trail, a roadbed does not exist. The old trail is covered with sagebrush, bitterbrush, and mule's ears. Nearby, Papoose OHV Trail, though wide and compacted, is covered by pine needles and looks only lightly used by motor vehicles and cows.



Boulders strewn throughout the natural dips and rises of the landscape offer smooth surfaces for sunbathing and bouldering.

In the southwest, Camp 13 OHV Trail appears as a wide, noticeable dirt trail at its entrance into Papoose Peak Roadless Area. After traveling for approximately one half of a mile, the OHV Trail ends at a large dirt clearing. Several small clearings with stone fire rings are present nearby, indicating that people have likely camped here in the past. Although it is not mapped, the trail continues on as a two-track road without signs of recent vehicle use.

Areas that experienced precommercial thins are scattered throughout the northern and western sections of Papoose Peak Roadless Area. Remnants of these thins, including cut stumps and cut logs, are more noticeable in areas with a lack of understory. The section of the precommercial thin that borders Poison Spring Road and Papoose OHV Trail in the north appears to be the most noticeable due to the high number of stumps and logs. Some sections are less noticeable due to the minimal number of cut stumps being obscured by sagebrush, bitterbrush, and boulders rising above mahala mats. These

occasional remnants do not make the landscape appear unnatural.

Although there are many pine saplings in an area that was replanted in the southeast, they are not even-aged and do not appear unnatural. Nearby, scattered cut stumps, which are mostly hidden by the understory, show evidence of a commercial thin. The cut stumps do not significantly detract from the natural feel of Papoose Peak Roadless Area.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

Adventurous visitors can set out to climb the two major over-6000-foot peaks in Papoose Peak Roadless Area, Papoose and Squaw Peak, giving them outstanding views and mountaineering challenges. Visitors in Papoose Peak Roadless Area will also have outstanding opportunities to scramble up granite boulders scattered throughout the roadless area and sunbathe on their warm, rounded surfaces. Networks of meadows throughout Papoose Peak Roadless Area offer fantastic picnicking and botanizing opportunities for visitors wishing to experience the roadless area. Hunters will appreciate the populations of deer supported by meadows within Papoose Peak Roadless Area, as well as the presence of elk if they are allowed to hunt elk in the area. In

the winter, the abundant meadows and unmaintained roadbeds will entice cross-country skiers and snowshoers to take to the area, and in the summer, equestrians will enjoy exploring the prairie and forest ecosystems found within the roadless area. No other visitors were seen frequenting Papoose Peak Roadless Area, indicating that this largely unexplored area is ripe for discovery and solitude. The meadows and forests of Papoose Peak Roadless Area offer boundless opportunities to off-trail explore and come upon the contrasts of rounded boulders and sharp volcanic outcrops found scattered across the landscape.

### Supplemental Values:

The volcanic outcrops strewn throughout Papoose Peak Roadless Area give the area a special feel of remote wonder. The shocking contrast of forests strewn with smoothed boulders and arid sage meadows accented by jagged volcanic outcrops gives the area an attractive, wild appeal. Mule's ears and asters add a softer tone, bringing colors of violet and yellow to the pale meadows and arid forests of the landscape. The dry blue sky offers few chances of escape from the harsh sun typical of the Sierra Nevada range, and occasional shaded forests offer yet another way to experience the contrasts of Papoose Peak Roadless Area.



Asters spring up around grasses and sagebrush.

### Recommendations:

In order to exclude actively used Route 26N50, also known as Seigfried Canyon Road, from Papoose Peak Potential Wilderness, approximately 1,300 acres between Route 26N50 and Janesville-Frenchman Road will have to be removed. Route 26N50 is wide, compacted, and two-track, with sections of the road occasionally washed out by ephemeral streams. It is unknown what grade level this road is. If this area is excluded, the cattle fences and corrals, as well as Camp 13 OHV Trail and several other small, unmapped roads, will also be excluded from Papoose Peak Roadless Area. If Route 26N50 is not an actively maintained Forest Service road and can easily be closed and included in Papoose Peak Potential Wilderness, Route 26N50, nearby two-track roads, and Camp 13 OHV Trail will have to be converted into wide trails or replanted due to the unnatural appearance of the roadbeds.

Squaw Canyon Road (ML 2), which forms the northern border of Papoose Peak Roadless Area, is barely discernable as a roadbed at its southern entrance, yet is wide and compacted at its northern entrance. Although it is unknown at what point the character of the road changes, if

Papoose Peak Potential Wilderness were expanded to include Squaw Canyon Road, its northern entrance would have to be converted into a wide, non-motorized trail allowing equestrians, hikers, skiers, and snowshoers access to Papoose Peak Potential Wilderness.

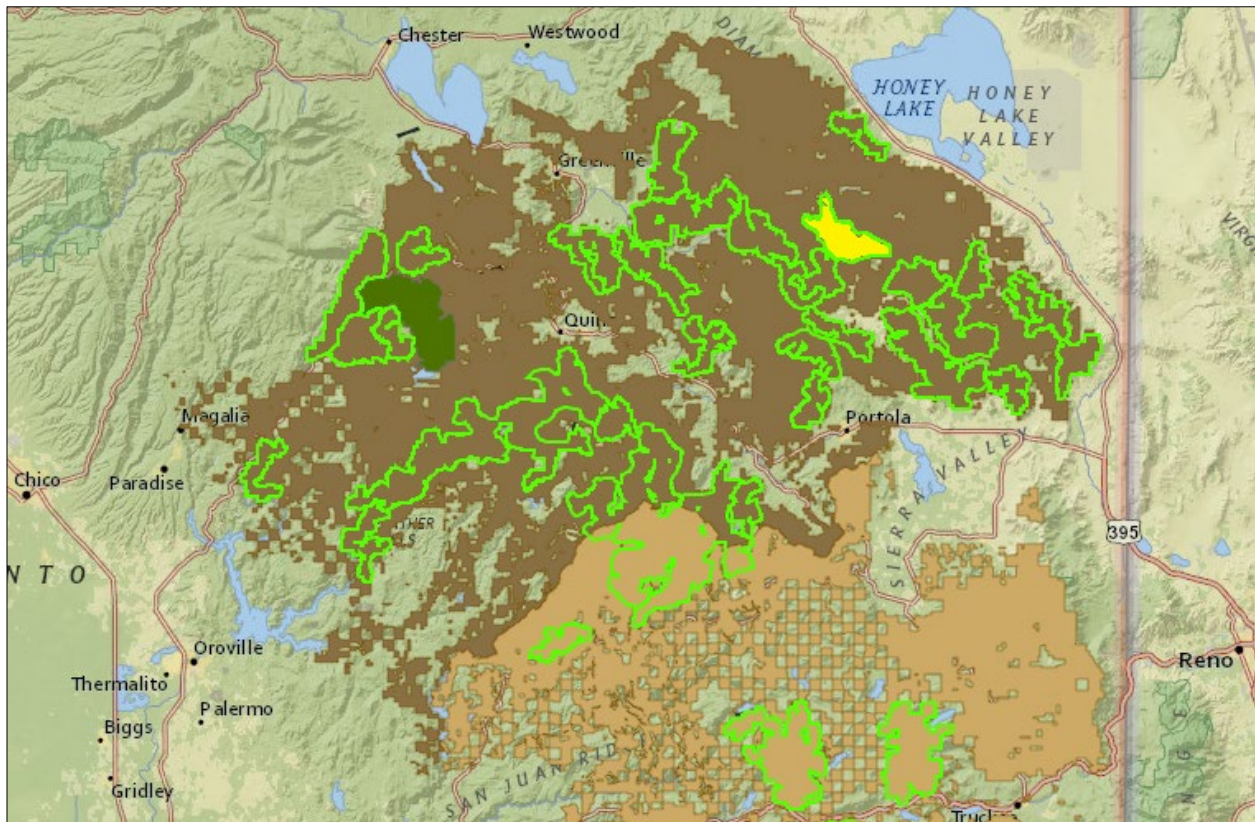
The network of OHV trails in the northeast section of Papoose Peak Roadless Area do not appear to be well-used and could be converted into an outstanding network of trails for visitors wishing to explore Papoose Peak Potential Wilderness by foot, horse, snowshoe, or ski. Some of these OHV trails are so overgrown that they will not appear as unnatural features on the landscape and thus do not need to be made into trails. The northern entrance to Poison Springs Tie shows great potential for being converted into a hiking or equestrian trail due to its modest width and lack of recent tire tracks, while the southwestern entrance is basically nonexistent and can easily be included in Papoose Peak Potential Wilderness as is. Papoose OHV Trail, though wide and compacted, appears to be only lightly used and could easily be converted into an equestrian trail that weaves through fields of granite boulders and stands of Jeffrey and ponderosa pines.

The areas that experienced human improvement activities may or may not be noticeable to the average visitor. Cut stumps and cut logs are visible in the precommercial and commercial thin areas, but will continue to be obscured by returning vegetation. Stands of pine saplings are present in replanted areas but are not noticeably unnatural. If these areas are deemed too unnatural, the border of Papoose Peak Potential Wilderness can be adjusted to exclude them.

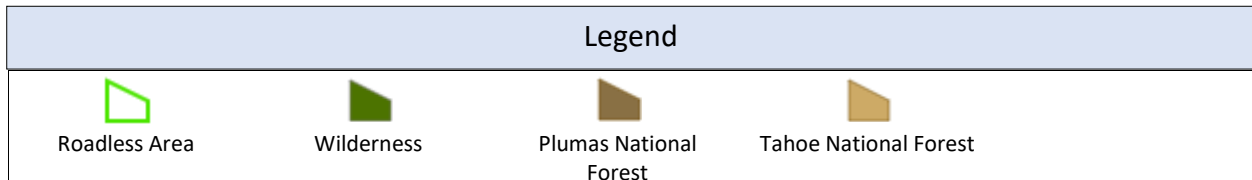


Mountains and meadows grace Papoose Peak Roadless Area with a variety of ecosystem types.

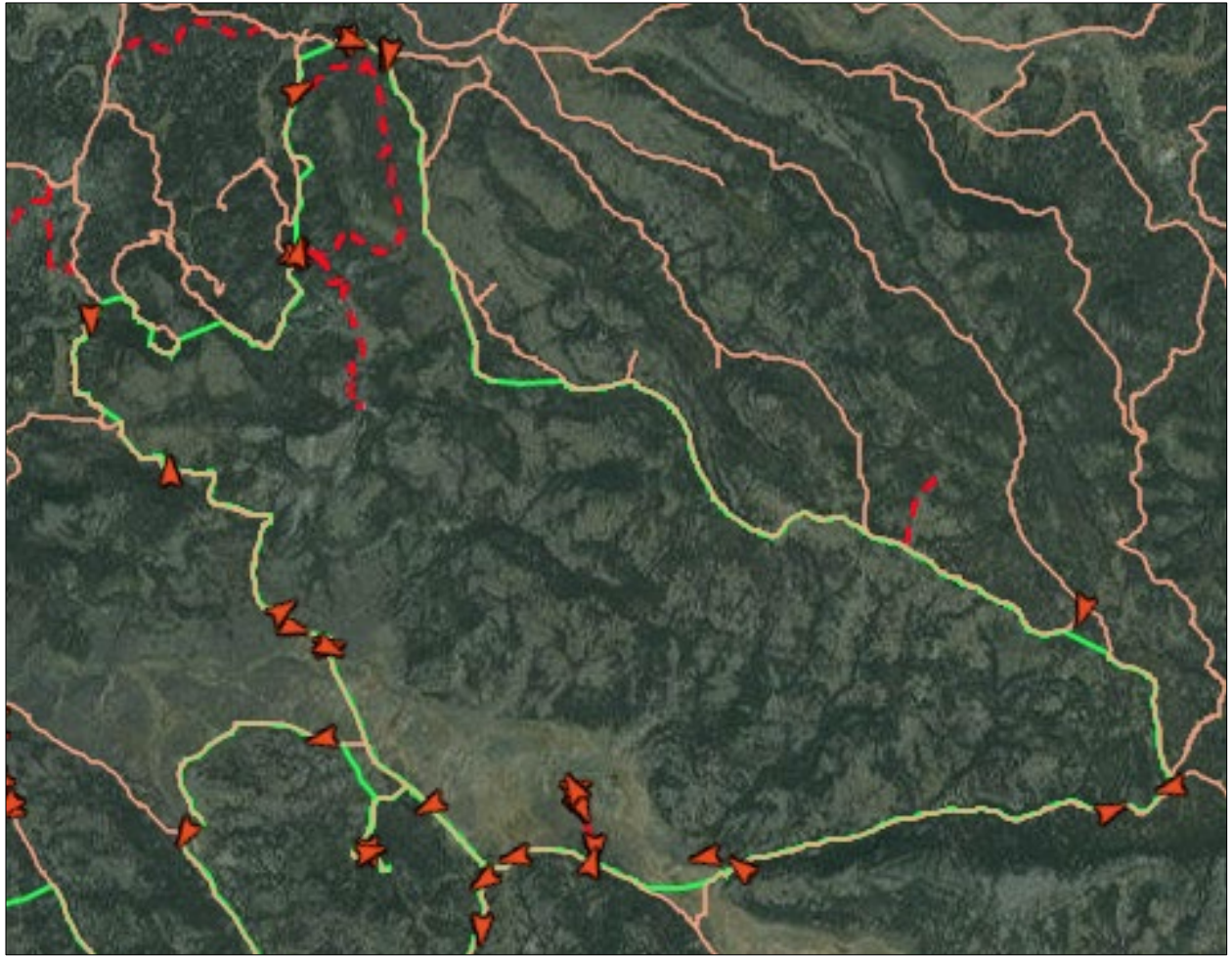
## Area Overview Map:



Plumas National Forest overview, with Papoose Peak Roadless Area highlighted in yellow.



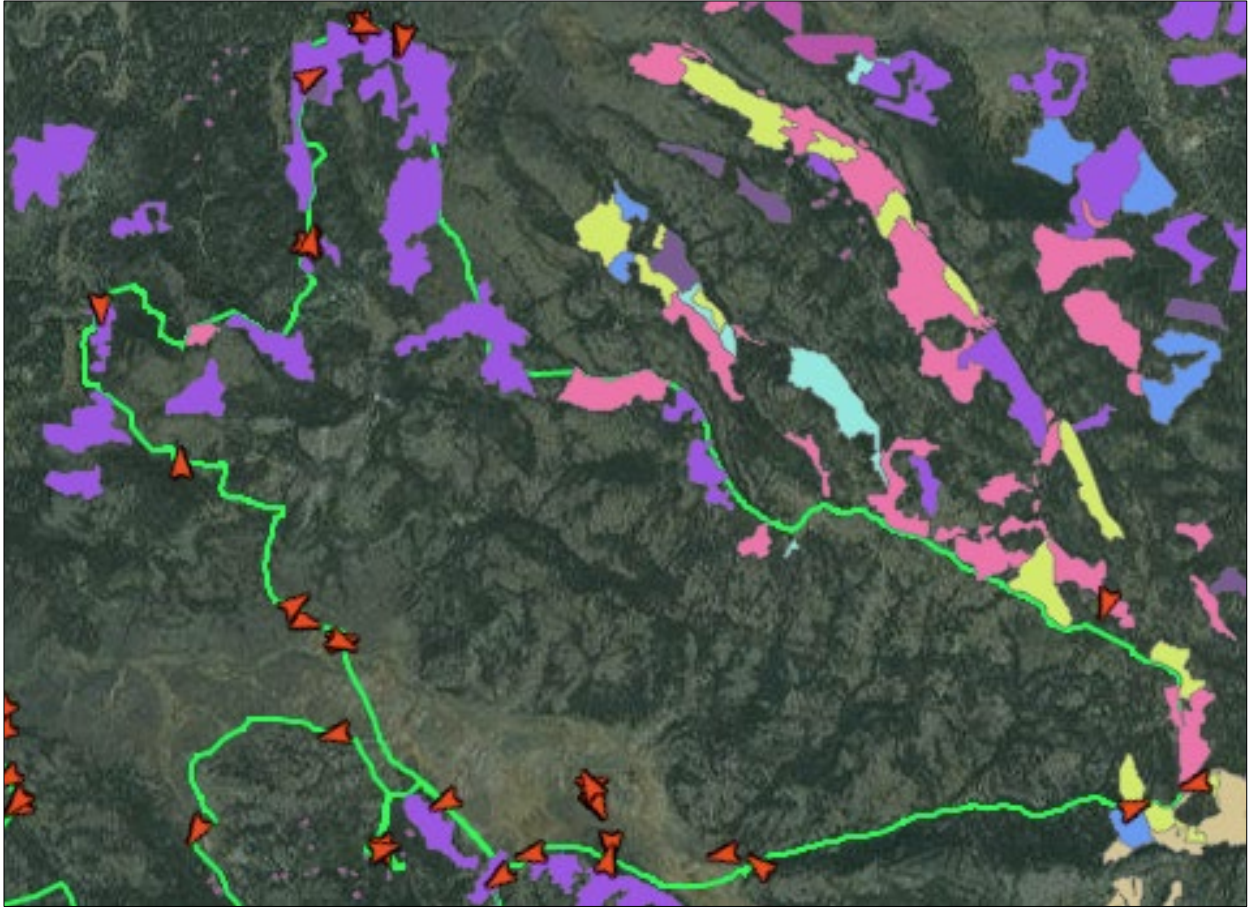
Papoose Peak Roadless Area Roads and Trails Map:












Legend				
				
Waypoint	ML 1 Road	ML 2-5 Road	OHV Trail	Roadless Area

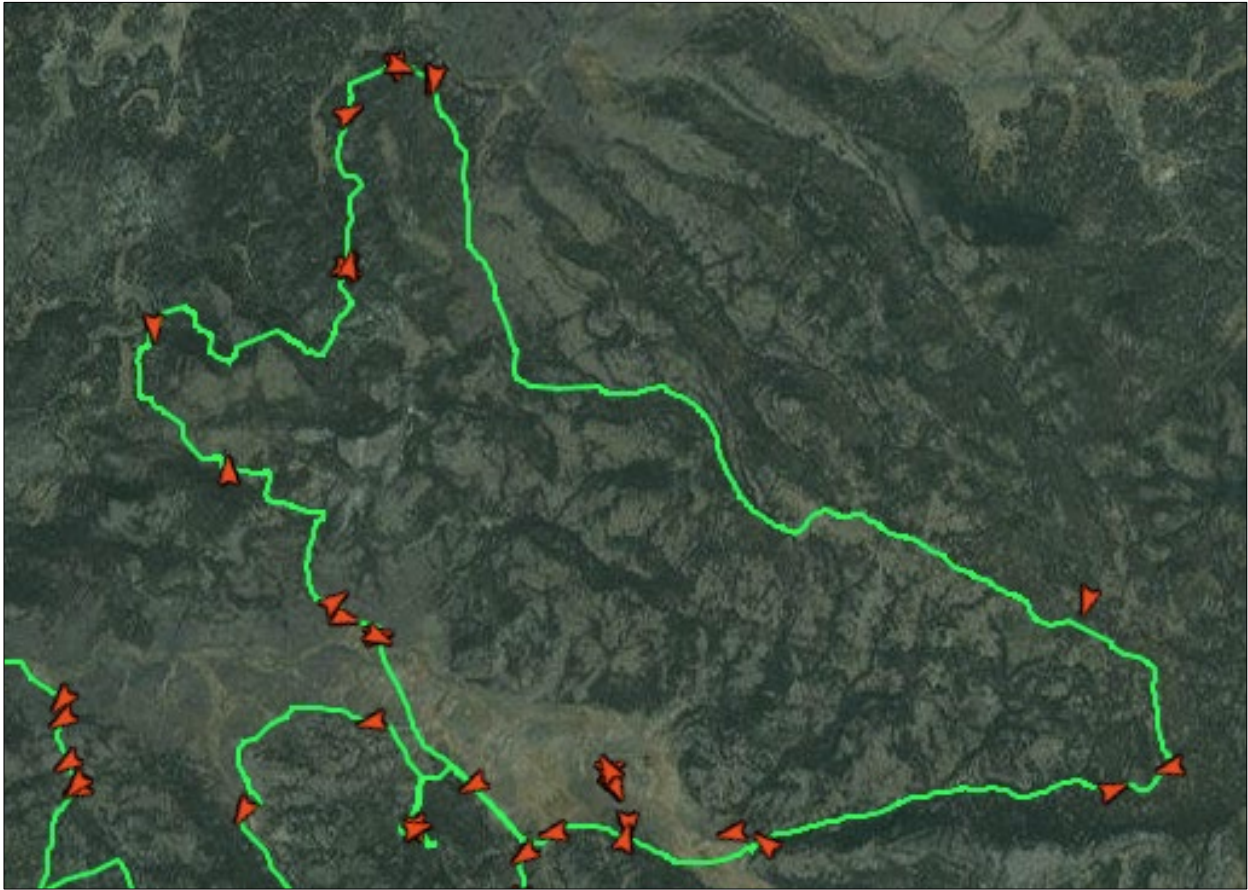




Papoose Peak Roadless Area Potentially Noticeable Activities and Improvements Map:



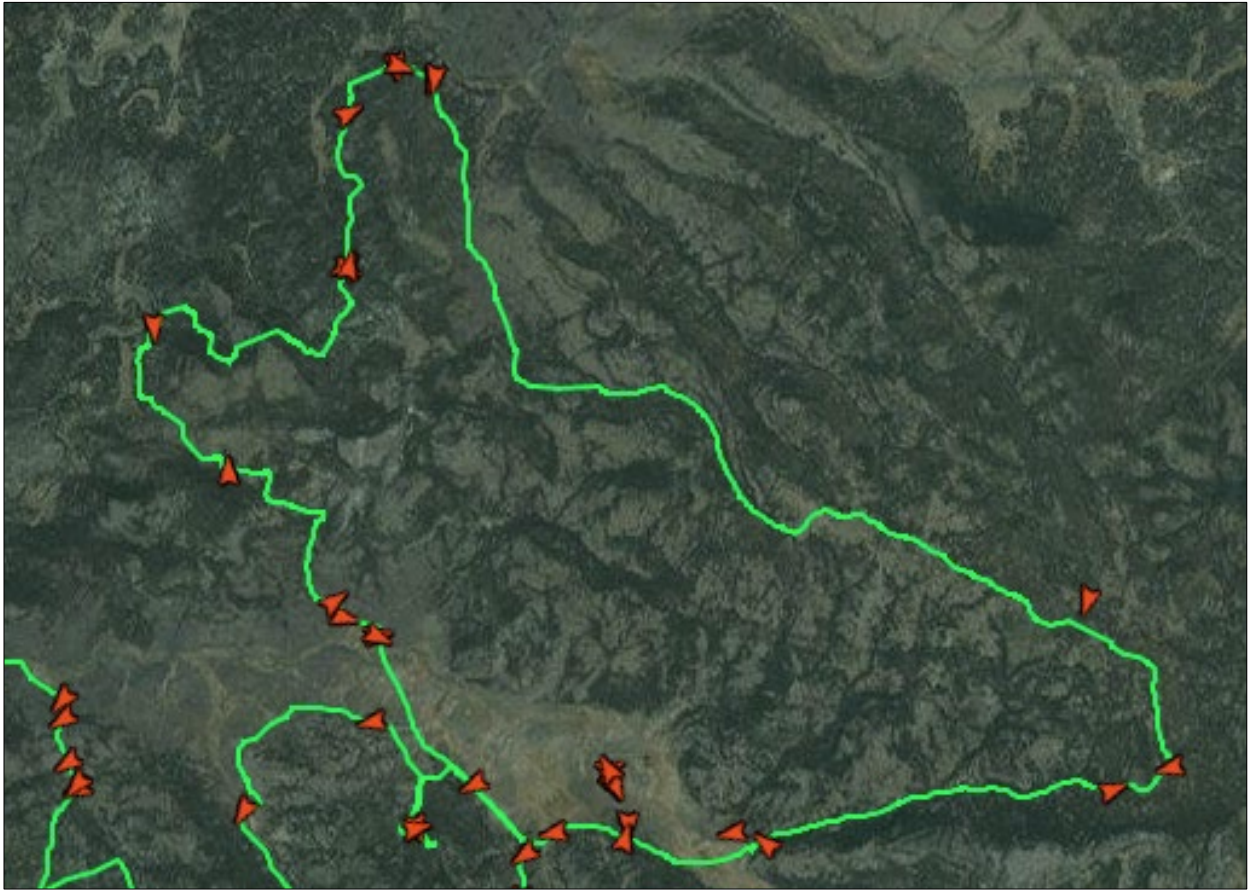
Legend				
				
Waypoint	Precommercial Thin	Commercial Thin	Sanitation Cut	Plant Trees
				
Salvage Cut	Stand Clearcut	Fill-in or Replant Trees	Roadless Area	



Papoose Peak Roadless Area Conservation Designations Map:



Legend	
	
Waypoint	Roadless Area

Papoose Peak Roadless Area Important Species Habitat Map:



Legend	
	
Waypoint	Roadless Area



An arid forest dominated by ponderosa pines rises above an understory of bitterbrush and grasses in Mount Jura Roadless Area.

## Mount Jura Roadless Area

**Size:** 19,140 acres

**Elevation Range:** 3556–7395 feet

**Location:** Plumas National Forest, Mt. Hough Ranger District ([Web Map](#) Roadless Area 33)

**Area Overview:** Mount Jura Roadless Area, graced with canyons of oaks and conifer forests, contains a plethora of opportunities for hunting and bird watching. Mount Jura, Kessler Peak, and Wheeler Peak rise over 6,000 feet in the roadless area. Visitors can climb the high mountains or gaze at them from afar as they travel through Mount Jura Roadless Area. Several Spotted Owl Protected Activity Centers are found scattered throughout the Mount Jura Roadless Area, indicating the existence of older forests. The Mud Lake Modoc Cypress RNA, home to one of the two stands of Modoc cypress in Plumas County, contains Modoc cypress trees that tower over 90 feet tall and add a valuable natural feature to the landscape.

## Apparent Naturalness:

At an elevation of 6,274 feet, Mount Jura rises high above conifer forests and canyons in the northwest section of Mount Jura Roadless Area. Forests of ponderosa pines (*Pinus ponderosa*), Douglas firs (*Pseudotsuga menziesii*), and black oaks (*Quercus kelloggii*) grow above a low-lying understory of deerbrush (*Ceanothus integerrimus*), lupines (*Lupinus* spp.), poison oak (*Toxicodendron diversilobum*), *Ribes* spp., grasses, and mule's ears (*Wyethia* spp.). Canyons of manzanitas (*Arctostaphylos* spp.), canyon live oaks (*Quercus chrysolepis*), and black oaks (*Quercus kelloggii*) spill off Taylor's Lake Road into the roadless area, where magpies (*Artimidae* spp.) and jays (*Corvidae* spp.) call from the treetops.

In the eastern section of Mount Jura Roadless Area, white firs (*Abies concolor*), alders (*Alnus* spp.), incense cedars (*Calocedrus decurrens*), ponderosa pines, Douglas firs (*Pseudotsuga menziesii*), and willows (*Salix* spp.), rise above a landscape thick with manzanitas (*Arctostaphylos* spp.), thistles (*Asteraceae* spp.), whitethorn ceanothus (*Ceanothus cordulatus*), mahala mats (*Ceanothus prostrates*), tobacco brush (*Ceanothus velutinus*), bracken ferns (*Pteridium aquilinum*), thimbleberries (*Rubus parviflorus*), and snowberries (*Symphoricarpos* spp.). Rabbits (*Lagomorpha* spp.), lizards, and chipmunks (*Tamias* spp.) were seen traveling through this dense, lush understory. Coarsely shaped boulders along Antelope Road transform into mountainsides covered by grasses, shrubby groundsel, bitterbrush, pines, black oaks, and canyon live oaks.

Mount Jura Roadless Area is rich with habitat for notable bird species. The roadless area contains around 1,954 acres of Spotted Owl (*Strix occidentalis*) Protected Activity Centers. A hawk (*Accipitridae* spp.) cry was heard far above the southern forests of ponderosa pines, black oaks, deerbrush, bitterbrush, and yellow star thistle (*Centaurea solstitialis*). These sightings and designations signify the existence of intact forests within Mount Jura Roadless Area.



Lizards and squirrels were seen scampering among mountain whitethorn, willows, and ponderosa pines.



Douglas firs and black oaks flourish in the arid forests of Mount Jura Roadless Area.



Oaks and conifers rise above rocky canyons in the evening.

The Mud Lake Modoc Cypress (*Cupressus bakeri*) Research Natural Area (RNA) holds the only cypress in the state found above 6000 feet. The Mud Lake Modoc Cypress RNA marks the southernmost range limit for this species, and the cypress trees may experience colder temperatures and higher snowfall than any other cypress in the world. Genetic testing is currently being done to investigate the genetic composition of this stand, possibly special in that it survives cold temperatures and is approximately 76 miles from the

next cypress stand in Shasta County. Some of the tallest known Modoc Cypress trees are found in these stands, measuring over 90 feet.

All OHV trails were noticeable. All OHV trails in the west seem especially well-maintained and formed a network of trails. Mt Jura OHV Trail, Foreman Ravine OHV Trail, and Jura Pass OHV Trails are all wide, compacted, and have recent tire tracks at their entrances. Foreman Ravine OHV Trail has signs that say "Private Property, No Trespassing" on both sides of the trail. This network of OHV trails may or may not retain these significantly unnatural characteristics as they travel deeper into Mount Jura Roadless Area. Green Flat Spur OHV Trail in the northeast is noticeable two-track trail in the central-north section of Mount Jura Roadless Area. All OHV trails are at least slightly noticeable from satellite imagery.

Several unmapped, unmarked dirt roads exist in Mount Jura Roadless Area. Near Jura Pass OHV Trail, an unnamed, unmapped dirt road leads east into the roadless area from Taylor Lake Road. From satellite view, it appears to lead towards Kessler Peak, although this is not certain. Soon after its start, the dirt road becomes a narrow two-track trail that is starting to become overgrown by grasses and shrubs. Recent tire tracks are not present. Another small, unmarked dirt road enters into the roadless area from Antelope Road. It is narrow and not visible from satellite view. These roads may or may not become obscured by vegetation in the absence of use.

The ML 1 roads in Mount Jura Roadless Area did not appear significantly unnatural. Green Flat Spur in the north is not substantially noticeable. It is becoming overgrown by grasses, herbs, and woody seedlings, and is blocked at its entrance by a small berm. Wheeler Road, which leads to Wheeler Spur, in the northeast is almost indiscernible due to it being almost completely overgrown by grasses and forbs. A large fallen tree blocks its entrance. These roads will continue to return to a natural state if left unused.

Rocky Ridge Ranch falls within the boundary of Mount Jura Roadless Area in the northwest. From satellite imagery, several permanent structures can be seen in a clearing. An unnamed and unmarked road, also included in the roadless area, leads to this ranch.

Cut stumps were visible but not substantially noticeable in most of the human improvement activities areas. Although some stumps can be seen along Taylor's Lake Road in the north as a result of a commercial thin, ponderosa pines and incense cedars grow high above a low-lying understory of mule's ears and grasses, obscuring most of the stumps. Any remnants of the sanitation cuts that occurred in the north and east are obscured by dense greenery. In the south, a few cut stumps and logs are the only indicators that a hazardous fuel reduction thinning project and commercial thin were conducted. Most of the cut stumps are being overgrown by shrubs and grasses and are not substantially noticeable. Logging treatments conducted in Mount Jura Roadless Area do not, for the most part, detract from the area's natural character.

#### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

The presence of game trails and heavy browsing in the northwest indicates that the area could provide outstanding opportunities for hunters. Hunters could access the depths of Mount Jura Roadless Area via non-motorized, converted OHV trails. The network of OHV trails offers visitors several entry points into Mount Jura Roadless Area, and the width of the trails would serve especially well for cross-country skiers and equestrians. Ambitious hikers could go off trail and climb up Mount Jura (rising 6,274 feet) for an expansive view into the roadless area, and avid bird-watchers can explore the forests and canyons.

Mount Jura Roadless Area is filled with potential trails but is also lush with opportunities for visitors to experience solitude. The mountains and canyons, streams and giant cypress trees, offer visitors many chances to escape any anthropogenic sights and sounds. At night, visitors can gaze up into the starry night sky through towering trees and from high peaks.

#### Supplemental Values:

The forests and canyons of Mount Jura Roadless Area provide several habitat types that nurture a large number of oak trees. Oak forests are not highly represented in existing wilderness areas, and the Mount Jura Roadless Area could contribute to conserving these forest types.

Several notable natural and cultural sites are found in Mount Jura Roadless Area. Mud Lake Modoc Cypress RNA houses some of the tallest cold-climate-adapted Modoc cypress trees in the world. The trees, towering over 92 feet tall and some being around 150 years old, offer an immense opportunity to experience these rare species in a rare environment. Taylor Diggings, a mine found within Mount Jura Roadless Area, may house historic artifacts from the gold rush

days. These history-bearing sites add environmental and cultural value to Mount Jura Roadless Area.

### Recommendations:

Green Flat Spur OHV Trail in the northeast and the network of OHV trails in the west consisted of wide and compacted trails with recent tire tracks on them. If the OHV trails are to remain in Mount Jura Potential Wilderness, they must be converted into non-motorized trails, as they appear significantly unnatural and are not likely to become overgrown soon. If these trails are too popular to close, Mount Jura Potential Wilderness would lose approximately 4,513 acres and have enough acreage to still be considered for potential wilderness.

The several unmapped, unmarked roads in the roadless area, along with the ML 1 roads, are becoming overgrown. If vegetation continues to return, these unused roads should not detract from the natural feel of Mount Jura Potential Wilderness. These roads can easily be left included in the potential wilderness.

The boundary of Mount Jura Potential Wilderness could be adjusted to include Rock Source Road (ML 2) in the southeast. Rock Source Road is blocked by large boulders at its entrance, is overgrown by grasses, and is not substantially noticeable. It does not appear unnatural and does not need to be excluded from Mount Jura Potential Wilderness.

In the northwest, Rocky Ridge Ranch and the unnamed, unmarked road that leads to it is included in Mount Jura Roadless Area. From satellite imagery, several buildings and a large clearing make up the ranch. The boundary of Mount Jura Potential Wilderness should be adjusted so that it does not include the ranch or the road. Excluding the Rocky Ridge Ranch will remove approximately nine acres from the potential wilderness.

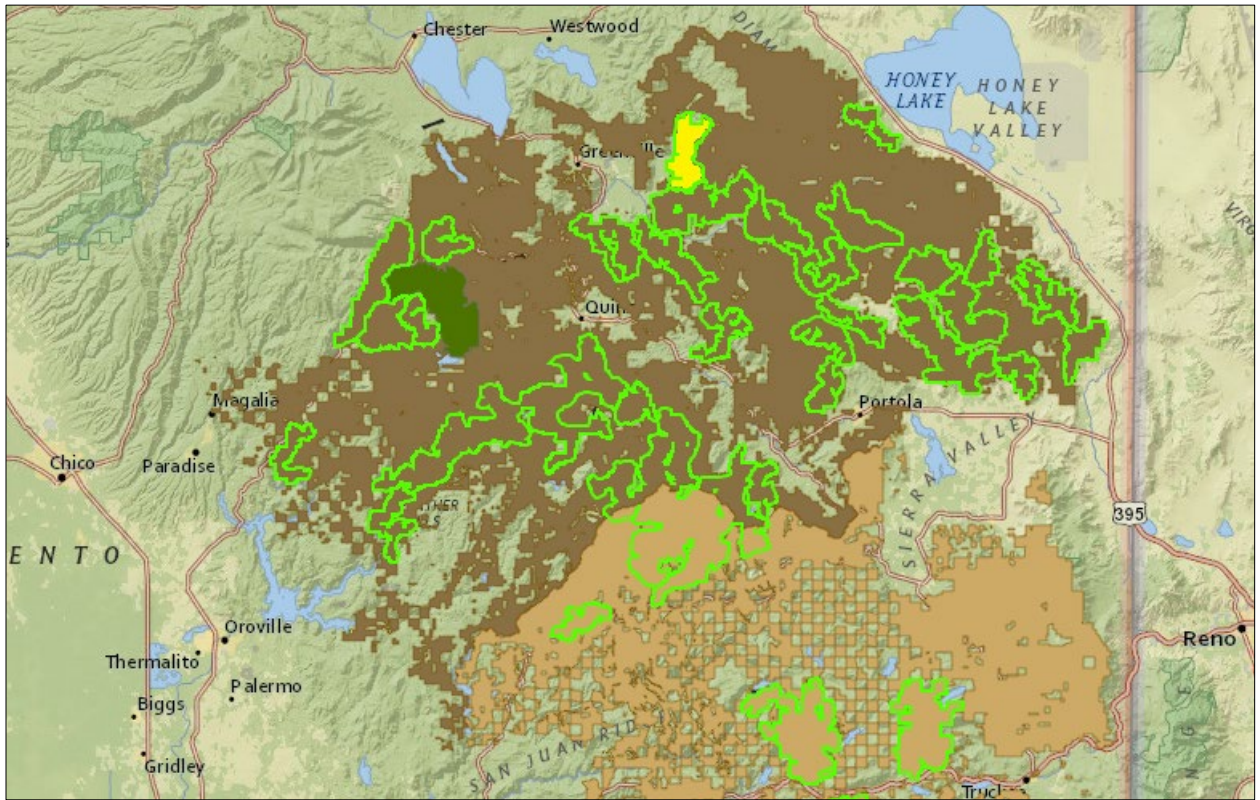
Areas that experienced timber harvests in Mount Jura Roadless Area were not noticeably unnatural for the most part. Cut stumps in the northern commercial thin were mostly concentrated along Taylor's Lake Road. If the boundary of Mount Jura Potential Wilderness is moved 100 feet south of Taylor's Lake Road any noticeable impacts from the commercial thin may be removed. Most of the human improvement activity areas can be left within Mount Jura Potential Wilderness, as they would most likely not detract from a visitor's experience of Mount Jura Potential Wilderness.



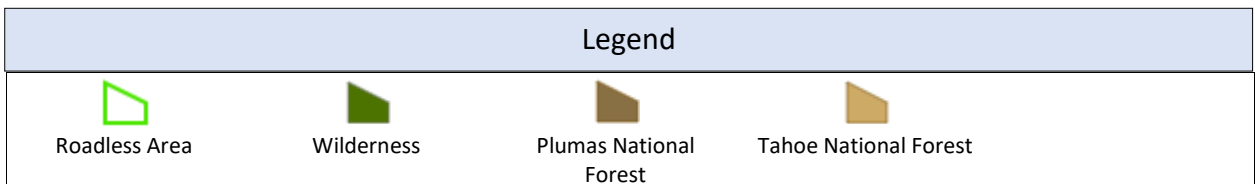


Ponderosa pines and incense cedars shade a sparse understory of mule's ears and grasses.

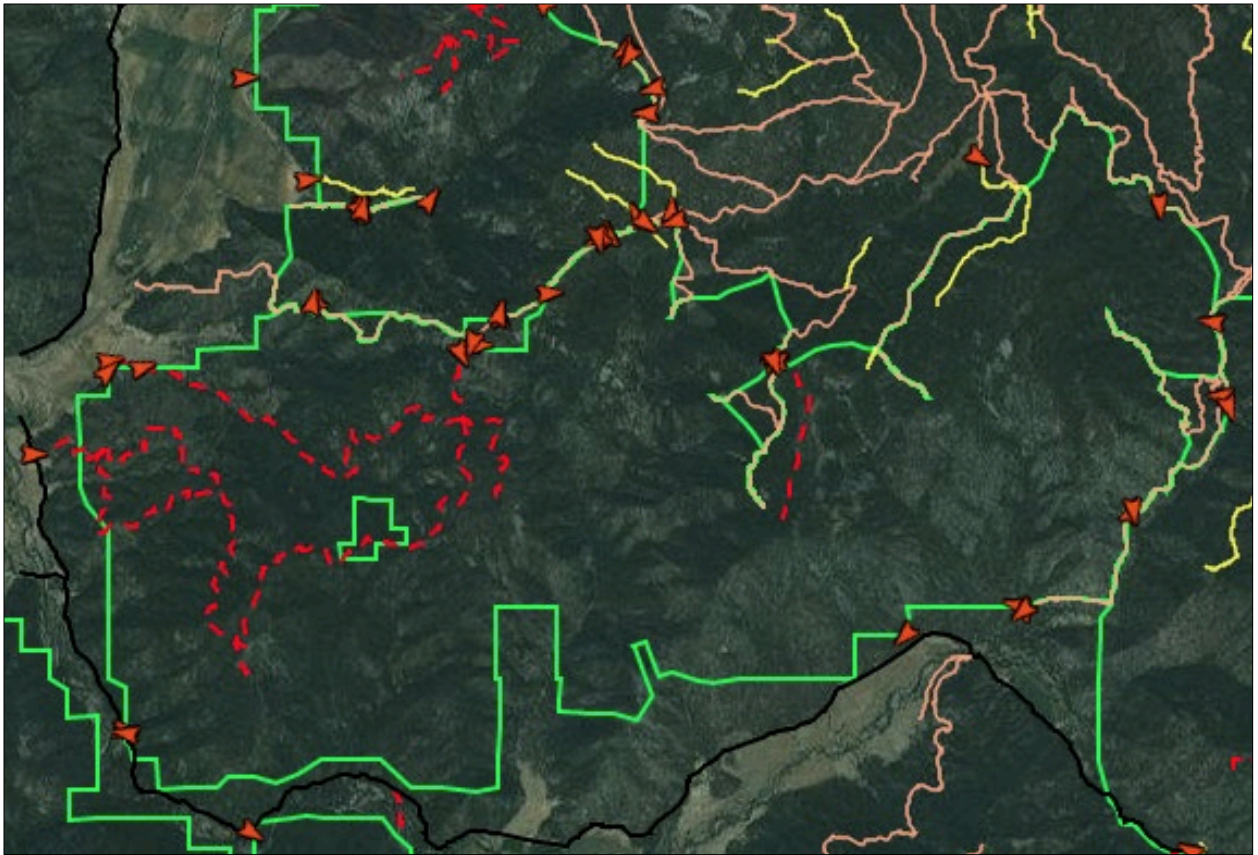
Area Overview Map:



Plumas National Forest overview, with Mount Jura Roadless Area highlighted in yellow.

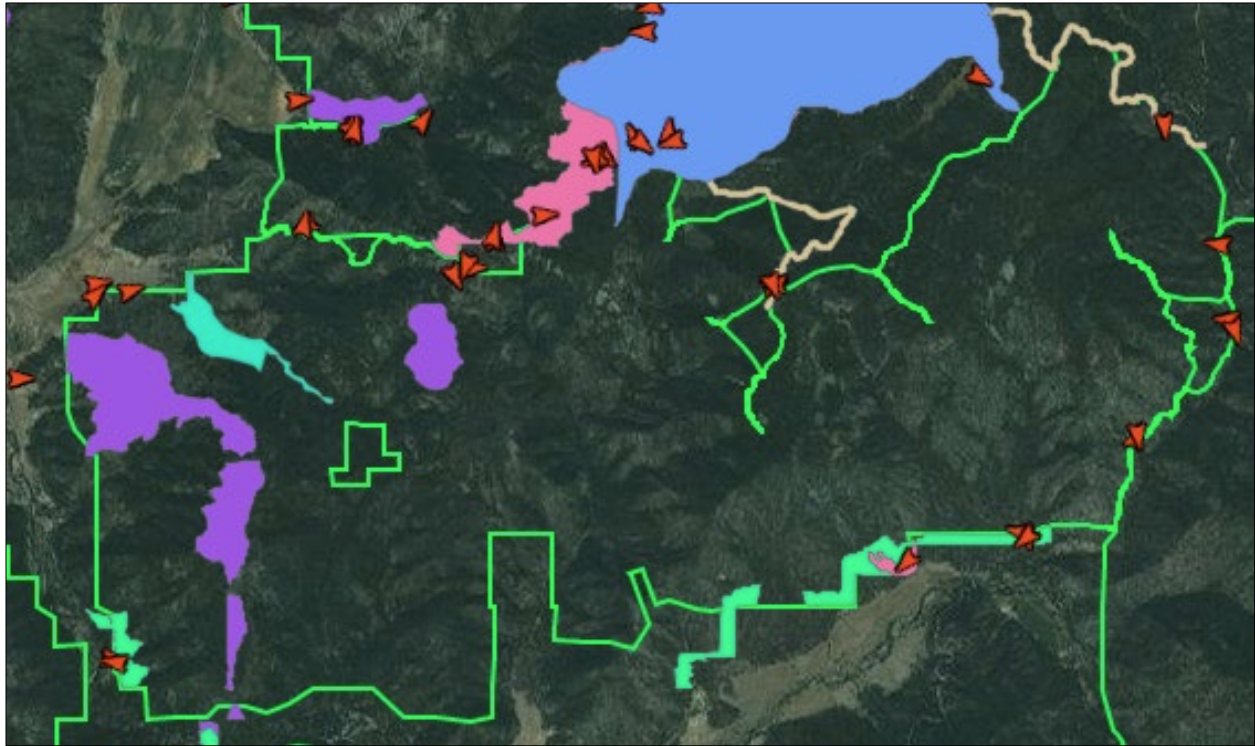










Mount Jura Roadless Area Roads and Trails Map:



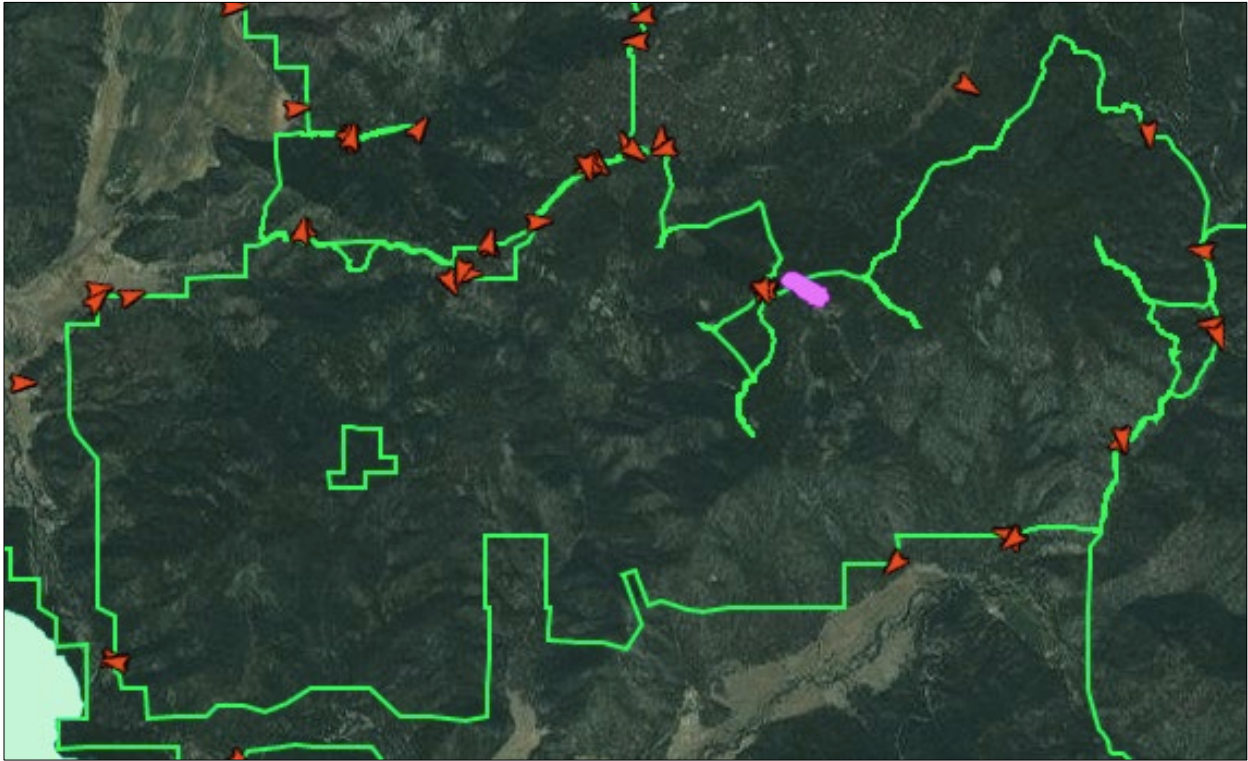
Legend				
				
Waypoint	Important Local Road	ML 1 Road	ML 2-5 Road	OHV Trail
				
Roadless Area				





Mount Jura Roadless Area Potentially Noticeable Activities and Improvements Map:



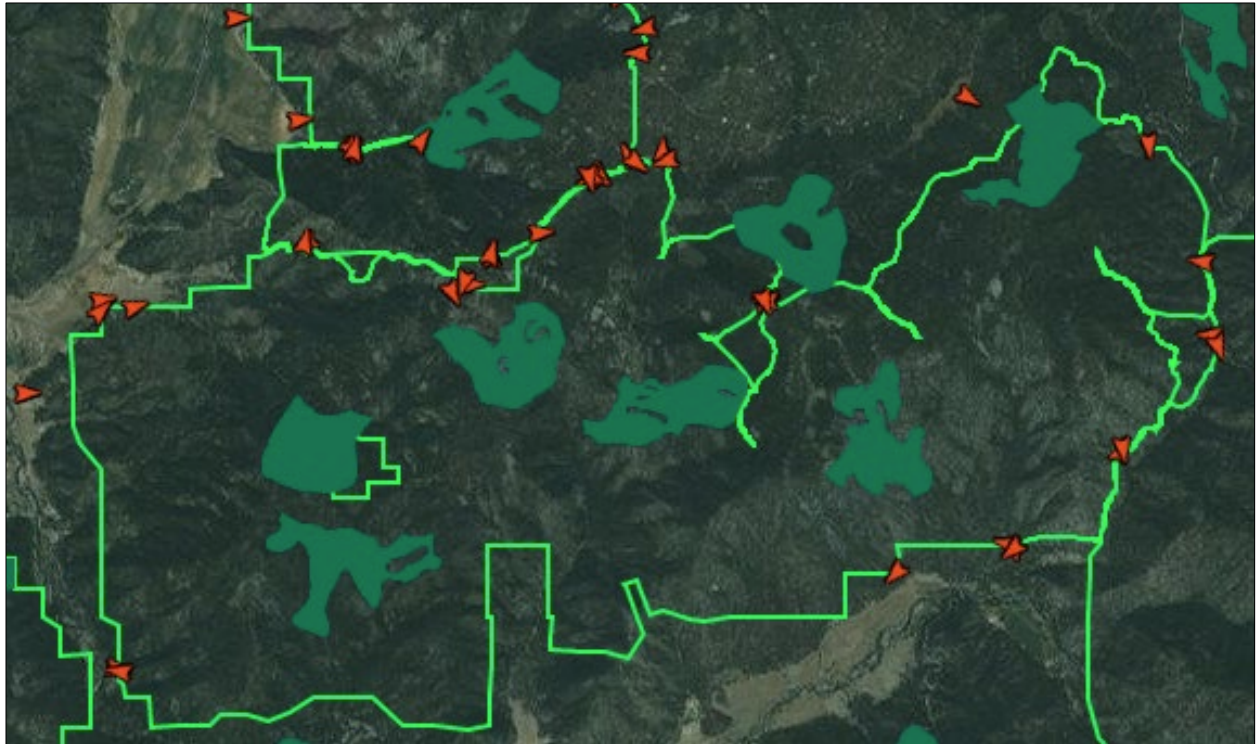
Legend				
				
Waypoint	Sanitation Cut	Precommercial Thin	Commercial Thin	Group Selection Cut
				
Tree Planting	Tree Release and Weed	Roadless Area		




Mount Jura Roadless Area Conservation Designations Map:



Legend			
			
Waypoint	Research Natural Area	Forest Service IRA	Roadless Area

Mount Jura Roadless Area Important Species Habitat Map:



Legend		
		
Waypoint	Spotted Owl Protected Activity Center	Roadless Area



In Peter's Creek Roadless Area, a smoky sunset casts rolling valleys in pastel colors.

# Peter's Creek Roadless Area

**Size:** 10,623 acres

**Elevation Range:** 3583–7418 feet

**Location:** Plumas National Forest, Mt. Hough Ranger District ([Web Map](#) Roadless Area 36)

**Area Overview:** Peter's Creek Roadless Area is rich with post-fire patches at a variety of successional stages. The area houses oak-filled canyons, conifer forests, meadows, and riparian zones. A Spotted Owl Protected Activity Center exists in the roadless area, indicating the presence of intact, old-growth forests. As Peter's Creek Trail travels through the thick forests of the roadless area, it opens onto meadows of mule's ears and finally arrives at Lucky S Mines, a historical mining ghost town. The area is attractive for its remoteness, diversity of ecosystem types, and its historical sites.



A smoky sunset framed by towering conifers casts remarkable hues of blue and gold throughout the roadless area.

## Apparent Naturalness:

Ponderosa pines (*Pinus ponderosa*) and Douglas firs (*Pseudotsuga menziesii*) over 50 feet tall and black oaks (*Quercus kelloggii*) around 30 feet tall rise in the western section of Peter's Creek Roadless Area, shading a thick understory of incense cedar (*Calocedrus decurrens*) saplings and deerbrush (*Ceanothus integerrimus*).

Nearby, jays (*Corvidae* spp.) and songbirds can be heard calling from a canopy of incense cedars, ponderosa pines, Douglas firs, and black oaks, with canyon live

oaks (*Quercus chrysolepis*), deerbrush, elderberries (*Sambucus* spp.), and Douglas fir seedlings making up a sparse understory below. In the east, narrow streams run through thickets of alders (*Alnus* spp.), bracken ferns (*Pteridium aquilinum*), wax currants (*Ribes cereum*), and willows (*Salix* spp.), while white firs (*Abies concolor*) and ceanothus flourish nearby. A diversity of wildflowers proliferates in the area, including yarrows (*Achillea millefolium*), yellow cinquefoils (*Potentilla* spp.), and self-heals (*Prunella vulgaris*).

In the southeast, meadows of mule's ears (*Wyethia* spp.) descend down steep slopes punctuated by white firs (*Abies concolor*) and Jeffrey pines (*Pinus jeffreyi*). Quails (*Oreortyx pictus*) run among thick forests of towering white firs, sugar pines (*Pinus lambertiana*), and Douglas firs beneath which big leaf maples (*Acer macrophyllum*), deerbrush, manzanitas (*Arctostaphylos* spp.), bitter cherries (*Prunus emarginata*), and Sierra currants (*Ribes nevadense*) thrive. Moving southward, incense cedars and Jeffrey pines rise over a grassy meadow strewn with mahala mats (*Ceanothus prostrates*), snowberries (*Symphoricarpos* spp.), and mule's ears. Canyon live oaks and black oaks dominate the hillside around dry streambeds, while manzanitas, deerbrush, and pine seedlings flourish in the understory. Bats (*Chiroptera* spp.) were seen hunting the night sky above the meadows, and Spotted Owl (*Strix occidentalis*) Protected Activity Centers are scattered throughout Peter's Creek Roadless Area.

Areas naturally regenerating following wildfires can be seen throughout the roadless area. In the east, white firs, Jeffrey pines, blue elderberries (*Sambucus nigra* ssp. *caerulea*), red currants (*Ribes* spp.) deerbrush, yarrows, pennyroyals (*Mentha pulegium*), and grasses thrive in the post-burn environment. Birds call from the oak canopies, and fallen logs strewn across the forest floor provide excellent natural cover for a variety of small mammals and herptiles. The west-facing slope of Rattlesnake Peak, located in the northeast section of Peter's Creek Roadless Area, appears to have experienced a mixed-intensity wildfire, as its slopes flourish





In an area recovering post-fire, snags jut into a blue sky.

with secondary successional species and standing dead wood. The southwest-facing slopes are covered in snags and shrubs, while the slopes leading into ravines are dominated by standing conifers. In the southeast, live trees with scorched trunks grow over snags and a recovering understory, and little to no soil is exposed. The burned areas in the Peter's Creek Roadless Area represent a range of successional stages following what appear to be mixed and low severity wildfires.

Several unmarked, unmapped roads extend into the roadless area in the west. One extends off of Peter's Creek Road (an ML 2), and another is found approximately one mile north of Peter's Creek Road. Both are somewhat wide and have a clear and compacted roadbed, but do not have signs of recent use and are beginning to be

overgrown by grasses. Peter's Creek North (an ML 1) runs behind someone's personal residence and was inaccessible to survey. At its entrance point it is a two-track dirt road, and it can be seen from satellite view. Another unnamed, unmapped gated road in the northwest can be seen extending approximately one tenth of a mile northeast from satellite view.

A major paved road with permanent structures along the border can be seen running along the boundary of Peter's Creek Roadless Area in the western section south of Valley Road (an ML 2).

In the east, Hungry Spur (an ML 1) is barely visible as an old roadbed, with a fallen tree blocking the completely overgrown roadbed. A Forest Service sign reads that the road is meant to be obliterated in 2018. Two Cabins (an ML 1) is indiscernible as a road. It is overgrown by forbs, grasses, and ceanothus, is blocked by fallen snags, and does not retain the characteristics of a roadbed. It does not look like it has been used in a very long time. Two Cabins Road leads into Post Pile OHV Trail, which is most likely in similar condition.

In the southeast, Taylor Lake Spur F (an ML 1) off of Taylor Lake Spur Road is a two-track road that may or may not be visible when it enters the roadless area. Nearby, Green Flat Spur (an ML 1) off of Taylor Lake Road is wide, compacted, and occasionally a two-track road. It has recent tire tracks on it and is substantially noticeable. The sanitation cut conducted here is obscured due to the tall grass, mountain whitethorn, and conifer seedlings and saplings growing around the cut stumps. Nearby, an unmapped, unmarked, overgrown road most likely fades one hundred feet off of Taylor's Lake Road.

Peter's Creek North (an ML 1) appeared as a two-track road at its entrance off of North Arm Road. It was not surveyed due to it extending behind private residences. It can be seen following its mapped course from satellite imagery.

Fred's Creek OHV Trail is a wide, compacted road with a gravel road base. It can clearly be seen from satellite imagery running in the northwest section of Peter's Creek Roadless Area. Tire tracks are present, although they do not appear very noticeable. Fred's Creek Spur OHV Trail is also wide, compacted and substantially noticeable.

Sooner Spur OHV Trail is a wide, compacted two-track trail with faded tire tracks. A second Sooner Spur OHV Trail to the south has a wide, clear, and compacted road base. It has recent tire tracks on it and appears well-used.

The human improvement activities in the roadless area tended not to be substantially noticeable. In the west, some cut stumps can be seen in the precommercial thin area off of Peter's Creek Road. While the stumps that are present are noticeable due to the sparse understory, overall relatively few stumps were seen. In the east, any signs of a precommercial thin or sanitation cut in this area are not noticeable due to the thick regeneration of ceanothus following a wildfire. Though there is a lack of canopy, fields of mule's ears give the commercial thin area in the east the feel of a natural meadow, and no cut stumps are visible.

Cut stumps from the sanitation cut in the southeast were more noticeable off of Sooner Spur OHV Trail. As the understory vegetation continues to regenerate, these may or may not be noticeable. In the southeast, no signs of commercial thinning are substantially noticeable under the thick vegetation that carpets the steep hillsides. Some stumps can be seen from Taylor's Lake Road due to the lack of understory. Overall, the human improvement activities observed in the roadless area did not appear significantly unnatural.

### Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation:

Peter's Creek Trail provides hikers with outstanding opportunities to explore the dense forests found in the southern section of the roadless area. Peter's Creek Trail is a four-mile trail leading to Lucky S Mines off of Peter's Creek Road. Peter's Creek Trail appears on the Forest Service Plumas Visitors Map. This wild and overgrown trail provides opportunity for adventurers to hike on a quiet path and be immersed in the solitude of the area.



Meadows of mule ears surrounded by tall conifers reflect the afternoon light.

Peter's Creek Roadless Area is filled with opportunities for solitude. At 7,431 feet, Rattlesnake Peak provides ample opportunity for off-trail exploring and scenic viewpoints. Visitors can observe several stages of post-fire succession and smell the sweet scents of tobacco brush naturally returning to this area. Meadows of mule's ears found scattered throughout the roadless area offer outstanding opportunities for stargazing and wildlife viewing. No visitors were seen in Peter's Creek Roadless Area, and water rushing through creeks and birdsongs are often the only sounds that fill the ears.



Peter's Creek Trail meanders through mossy conifer forests.

### Supplemental Values:

Lucky S Mines, a small mining ghost town located outside the eastern border of Peter's Creek Roadless Area, is rich with cultural history. Gold miners began prospecting around Lucky S Mines in the 1850s but didn't have any recorded success until the 1880s. The Moonlight Fire of 2007 burnt down several of the cabins but most of the historical structures remain intact.

The Maidu tribe originally inhabited Indian Valley, located west of Peter's Creek Roadless Area. The Indian Valley Museum in Taylorsville showcases the historical value of the area. The Indian

Valley Museum has exhibits on the history of mining, logging, ranching, and farming in the region from 1852 to present, as well as exhibits of rocks, gems, and fossils that were found in the region. Historical gold mining equipment, a fire engine from 1932, a collection of Maidu baskets, and a rebuilt blacksmith shop are just some of the cultural artifacts that can be found in this museum.

### Recommendations:

All four of the unmarked, unmapped roads in the western section of the roadless area may or may not be noticeable in years to come. If they become overgrown by grasses to the point of being indiscernible they can be left in Peter's Creek Potential Wilderness, but if they do not become overgrown they need to be converted into non-motorized trails or excluded from Peter's Creek Potential Wilderness. These roads are not clearly discernable from satellite imagery.

The boundary of Peter's Creek Potential Wilderness needs to make sure it excludes major roads, including paved Diamond Mountain Road and North Arm Road, that run along its western border. The permanent, manmade structures that lie along these roads in Peter's Creek Roadless Area also must be excluded from the potential wilderness. These can clearly be seen from satellite imagery.

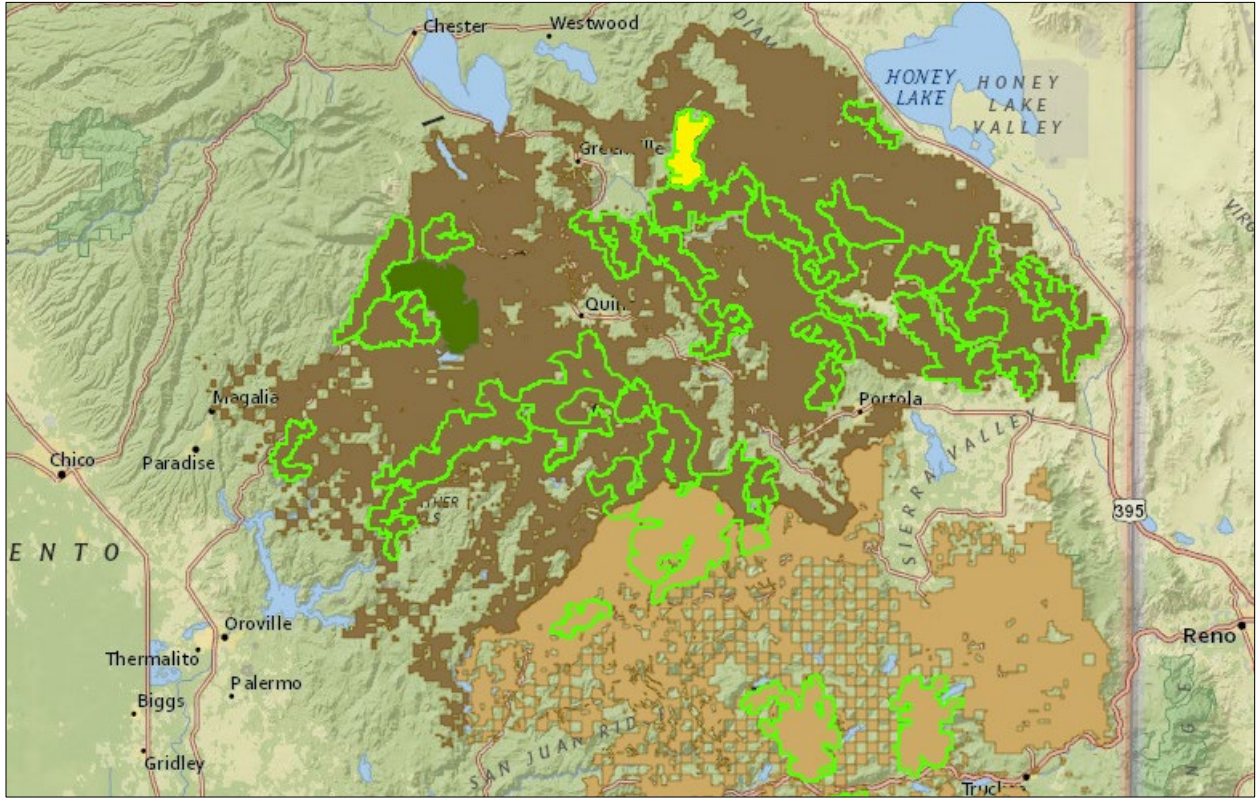
The OHV trails in Peter's Creek Roadless Area vary in their noticeability. Fred's Creek OHV Trail appears substantially unnatural and would have to be converted into a non-motorized trail if left included in Peter's Creek Potential Wilderness. Sooner Spur OHV Trails, Green Flat Spur (an ML 1), Peter's Creek North (an ML 1) and Taylor Lake Spur F (an ML 1) are substantially noticeable two-track roadbeds and should either be converted into trails enabling access to visitors entering the roadless areas, replanted, or excluded from Peter's Creek Potential Wilderness. Two Cabins (an ML 1) and Hungry Spur (an ML 1) are barely discernable as roadbeds and do not make the landscape appear unnatural. Superior Ridge (an ML 2) is a two-track road that is becoming overgrown by grasses. It does not have recent tracks. It is not necessary to exclude this road from Peter's Creek Potential Wilderness as it will eventually become overgrown to the point of being indiscernible.

Peter's Creek Roadless Area generally appeared natural. Remnants of the human improvement activities observed did not appear significantly unnatural and most likely will become even more obscured as vegetation continues to return to the areas. These would most likely not detract from the average visitor's experience of Peter's Creek Potential Wilderness and can be left within the potential wilderness boundaries.

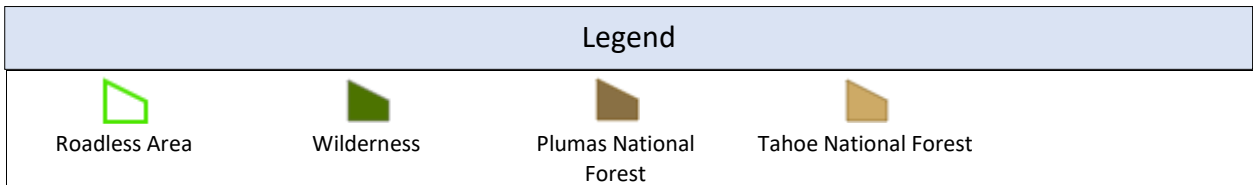


White firs, their bases burned by a wildfire, tower over a verdant forest floor of whitethorn ceanothus, mule's ears, and grasses.

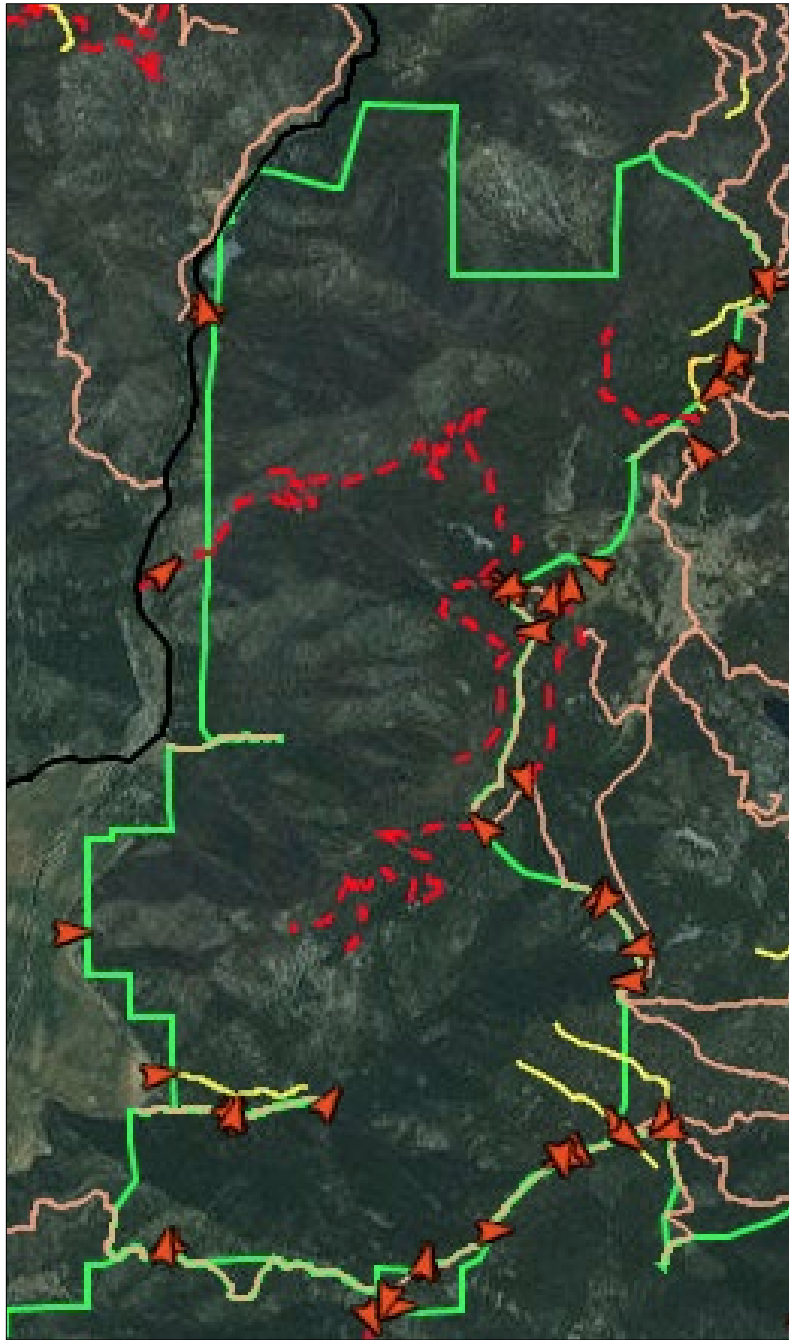
Area Overview Map:



Plumas National Forest overview, with Peter's Creek Roadless Area highlighted in yellow.

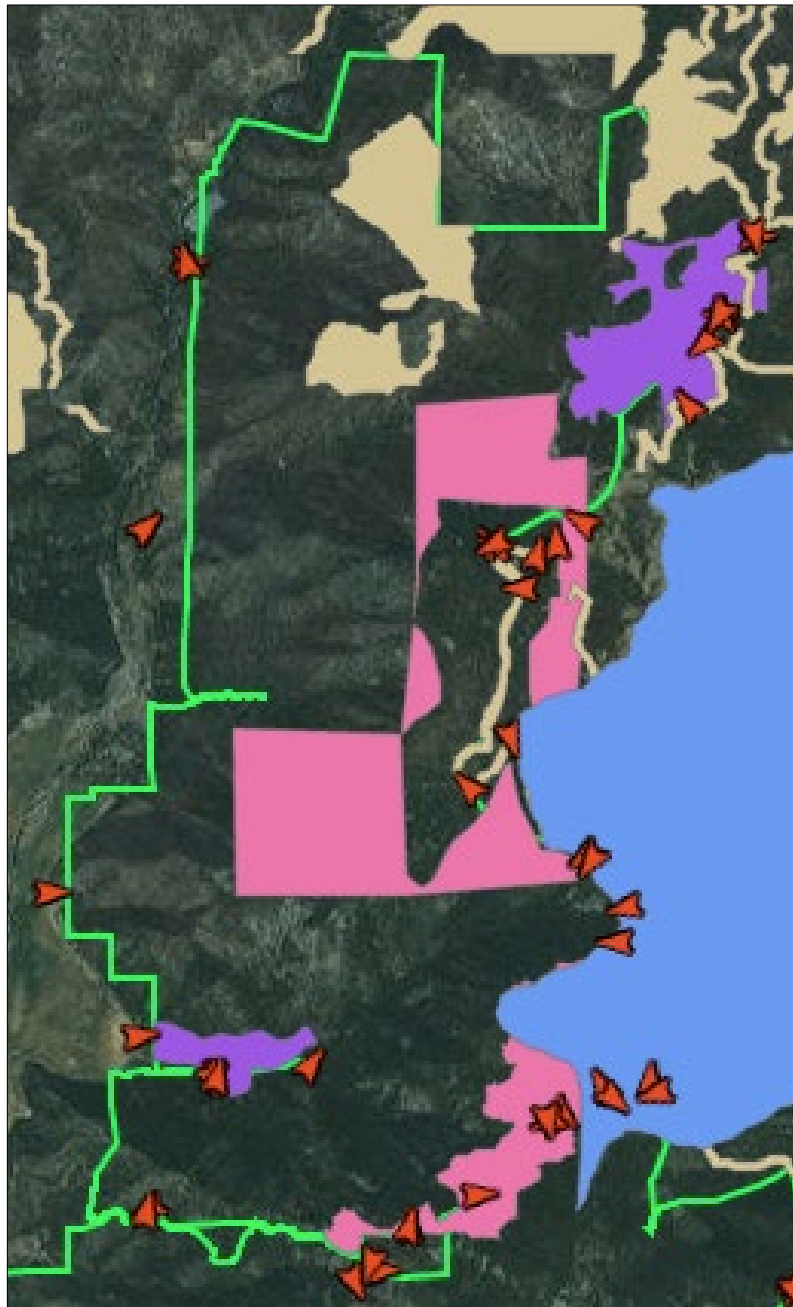



Peter's Creek Roadless Area Roads and Trails Map:



Legend				
 Waypoint	 Important Local Road	 ML 1 Road	 ML 2-5 Road	 OHV Trail
 Roadless Area				

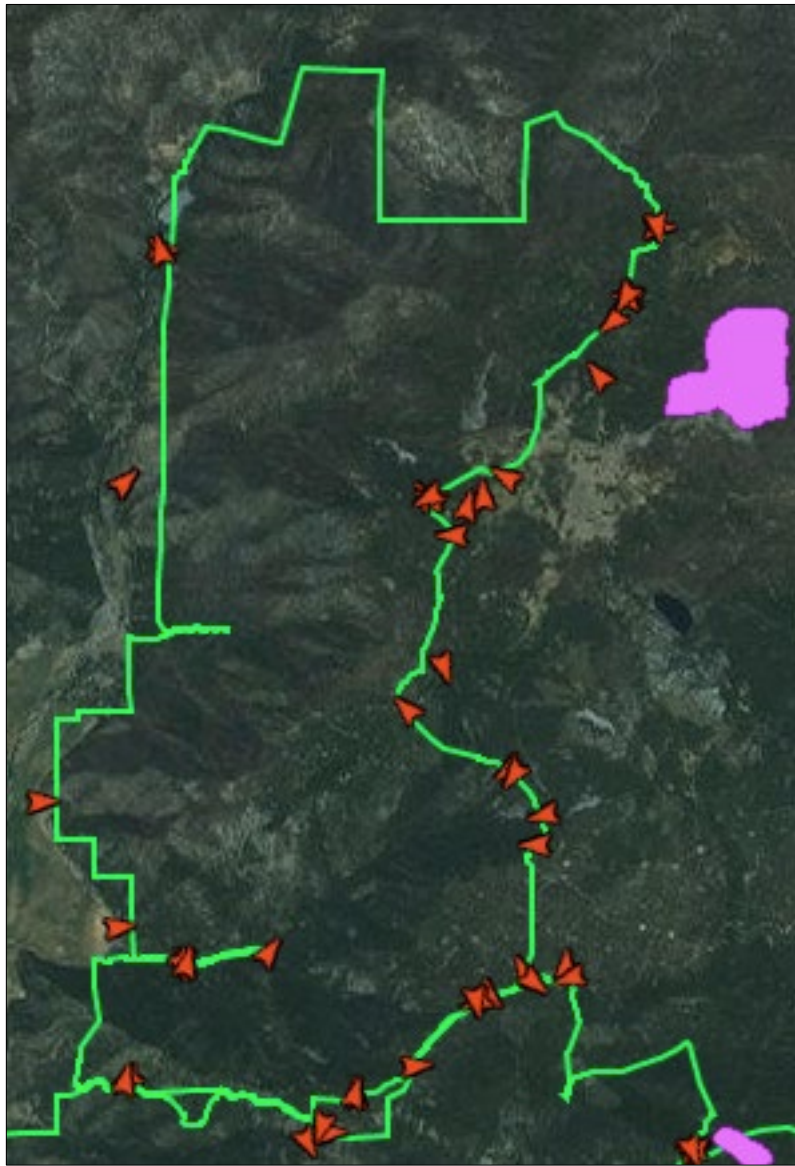
Peter's Creek Roadless Area Potentially Noticeable Activities and Improvements Map:






Legend				
				
Waypoint	Sanitation Cut	Precommercial Thin	Commercial Thin	Salvage Cut
				
Roadless Area				

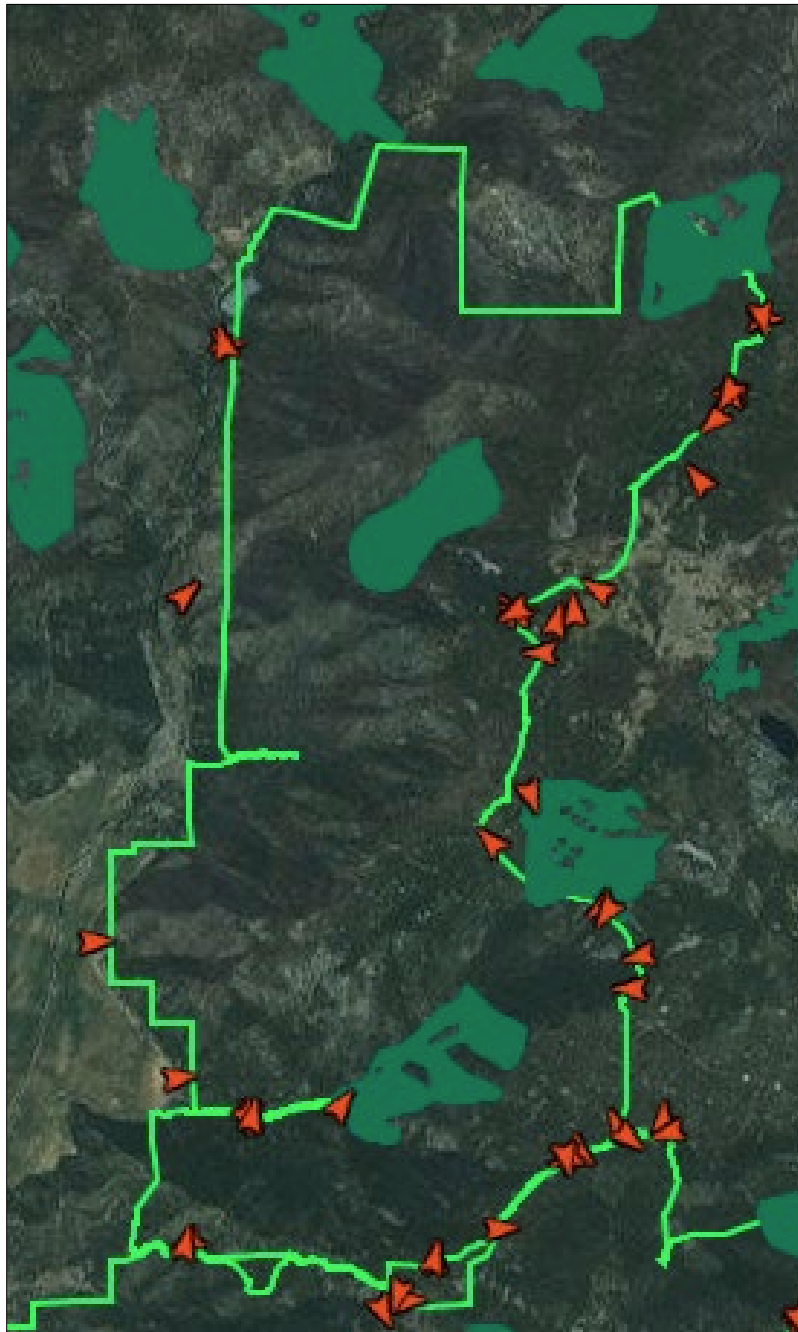





Peter's Creek Roadless Area Conservation Designations Map:



Legend		
		
Waypoint	Research Natural Area	Roadless Area

Peter's Creek Roadless Area Important Species Habitat Map:



Legend		
		
Waypoint	Spotted Owl Protected Activity Center	Roadless Area