



Decision Memo

Three Meadows Restoration Project

USDA Forest Service
Amador Ranger District, Eldorado National Forest
Amador County, CA

Background

The Three Meadows Restoration Project encompasses three relatively small, high elevation meadows in Amador County, California on lands administered by the USDA Forest Service, Amador Ranger District, Eldorado National Forest. The Three Meadows Restoration Project Areas includes: Upper Onion Valley (elevation 7,480 feet, 27 acres), High Onion Meadow (elevation 8,000 feet, 10 acres), and Tyler Meadow (elevation 6,800 feet, 10 acres), which are located 45 miles east of Jackson, California, and five miles south of State Highway 88, in the vicinity of the Upper Bear River Reservoir (T8N, R16E, Sections 1, 3, and 11) (Reference Figure 1).

Three Meadows Restoration Project would restore the natural morphology of three relatively small, high elevation meadows. The purpose of the project is to improve hydrologic functions of the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of flora and fauna and downstream users by reducing downstream flood peaks. When implemented this project would halt or reduce the encroachment of upland plant species, particularly lodgepole pine, while increasing the extent and quality of wet meadow and riparian vegetation. By improving the meadow hydrology, the project would also improve and increase habitat potentially available for Sierra Nevada yellow-legged frogs, expand willow habitat for songbirds, including the willow flycatcher, improve habitat quality for sensitive species associated with wet meadows such as broad-nerved hump-moss (*Meesia uliginosa*), moonworts (*Botrychium* spp.) and Bolander's candle moss (*Bruchia bolanderi*), and increase the production of aquatic invertebrates and insects that provide food for amphibians, and songbirds.

Decision

I have decided to implement meadow restoration activities for the Three Meadows Restoration Project. The Three Meadows Restoration Project is expected to benefit multiple resources by restoring the hydrological and ecological functions of the wet meadow system.

Meadow Restoration Component

To achieve the above restoration goals, each of the three meadows has its own management action plan to resolve specific resource concerns as described below.

Upper Onion Valley

The restoration actions for Upper Onion Valley include installation of rock riffles and log weirs. The constructed rock riffles and log weirs would be located in existing, incised channels to stabilize the profile grade within the meadow channel, encourage aggradation, restore the hydraulic continuity of flow through the meadow, and raise the groundwater table (reference Figure 2). Rock riffles would be placed in greater than one foot in depth, forming a system of short rock riffle segments interspersed with longer pools. For the constructed riffles, a four foot long riffle crest would be established that is keyed into the streambed and banks. Rock ramps are then constructed upstream and downstream of the riffle crest that conform to the existing streambed at a 10% maximum slope downstream of the crest and at a 1:1 slope at the upstream end. Riffles would consist of fine material borrowed from the surrounding upland areas and coarser rock that would be from other Forest Service rock staging areas in the district. Approximately twenty-one (21) constructed rock riffles would be placed within Onion Creek, the main channel through the Upper Onion Valley.

Additionally, the project activities at Upper Onion Valley include the installation of twenty-five (25) log weirs as grade control located primarily within lower energy, less incised portions of the channel network. It is estimated that approximately seventy-three (73) logs less than 30" diameter at breast height (dbh) would be needed to construct the weirs and would be harvested from trees within the meadow, along the designated access routes, or near the meadow margins. Harvested trees would be hand felled, bucked, and limbed. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable and not on saturated soil conditions. Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the project area to a depth not to exceed 30".

To provide downstream grade control for the meadow, a roughened channel will be constructed at the outlet of the meadow. The purpose of the structure is to actively raise water surfaces through the channels and meadow, but rely on passive delivery of fine and coarse sediment from upstream reaches to ultimately aggrade the meadow channels and bury the upstream grade control structures. The roughened channel will be constructed at a 4.4% gradient and will tie into existing grade approximately 65 feet downstream of the crest and extend upstream of the crest at a 1:1 slope for approximately 10 feet to protect against undermining of the roughened channel. The roughened channel should be a minimum of three feet thick, composed of rock material of various sizes, and would look like a long sloping riffle when completed. Rock would either be imported to the site from Forest Service rock staging areas in the district or collected from borrow site locations pre-approved by the Forest Service.

In addition, the restoration within Upper Onion Valley includes stabilization and realignment of a tributary to Onion Creek where it crosses an existing road to the informal day use/camping area at the north end of the meadow (reference Figure 2). Currently, flow within the channel is captured and rerouted within the existing roadbed rather than the natural stream channel. To restore and contain the flows within the original stream channel, the restoration project would build up the road approaches to the crossing to reestablish the original thalweg alignment of the tributary channel. The berms on each side

of the stream channel would be built up two feet with a 1.5 inch aggregate base material. The placement of the base material above the stream bank at 5:1 slopes will contain the streamflow in the original channel and prevent the water from flowing within the existing roadbed. The aggregate base material will be located within the roadbed above the stream channel.

The Upper Onion Valley site would be accessed by FS Road 8N03, a well-developed road that runs along the entire western and northern sides of the meadow. Staging of equipment and materials would occur at an existing primitive campground located at the northern (up gradient) edge of the meadow. Temporary access routes originating from the staging area and FS Road 8N03 would be utilized to access the interior of the site for placement of log weirs on the smaller, interior channels. Access routes would be field fit to minimize impacts caused by potential tree felling, removal of stumps, and light grading. Where access routes cross a stream channel, temporary bridge crossings, such as corduroy road, steel plates, or marsh mats would be used. Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, forest access routes would be restored by ripping, seeding, and placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions and elevation.

High Onion Meadow

The restoration action for High Onion Meadow includes the installation of low weir grade control structures in the primary meadow channel to limit additional downcutting, and protect seepage sources from cattle grazing (reference Figure 3). Approximately twenty-six (26) log grade control weirs spaced at approximately 25-foot intervals will be installed along the unnamed creek to enhance sedimentation and limit future risk of channel incision. It is anticipated that the structures would be built with hand tools and hand labor given the relatively narrow channel widths.

Approximately seventy-five (75) conifers not to exceed 12-15 feet in length and with diameters ranging from 8 to 12 inches may be selected for harvest near the meadow margins, along the designated access routes, or in and around the High Onion Meadow. Harvested trees would be hand felled, bucked, and limbed. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable, and not on saturated soil conditions. Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the project area to a depth not to exceed 30".

High Onion Meadow is accessible from FS Road 8N03 and staging of materials and equipment would be located within an existing primitive campground adjacent to the road. Temporary access routes originating from the staging area adjacent to the FS Road 8N03 would skirt the upper edge of the meadow and cross over Onion Creek. Access routes would be field fit to minimize impacts to the meadow caused by potential tree felling, removal of stumps, and light grading. Within High Onion Meadow, access routes are to be constructed along the upper northwestern edge and no stream crossings are required. Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, forest access routes would be restored by ripping, seeding, and

placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions.

Tyler Meadow

The restoration actions for Tyler Meadow include management of the timing and duration of grazing, limit access by off-highway vehicles (OHVs), and installation of approximately eleven (11) log weir grade control structures to limit additional downcutting (reference Figure 4). The log weir grades would be in the primary channel located in the forested area upstream of the meadow. Approximately Thirty (30) conifers less than 30" dbh may be selected for harvest near the meadow margins, along the designated access routes, or in and around the Tyler Meadow project area. Stump heights will be as close to flush cut as is feasible, but not to exceed 6" height. Yarding (transport) from the harvest location to the weir construction site will utilize available construction equipment. Logs will either be fully suspended or be suspended by the lead end during transport to minimize soil disturbance. Yarding will only occur when the ground is stable, and not on saturated soil conditions. Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the project area to a depth not to exceed 30".

One temporary access route will be constructed adjacent to 8N03F along the east side of the meadow to the stream channel. The access route will cross through the intermittent stream channel and will be located along the northwestern edge of the stream within an existing disturbance corridor. The access route would be field fit to minimize impacts to soil caused by potential tree felling, removal of stumps, and light grading. One crossing of the intermittent stream channel will occur at the upstream end of the meadow. A corduroy stream crossing will be constructed to protect the channel and streambanks. There would be no access routes or construction equipment within the meadow.

To limit future access to the Meadow by off-road vehicles, either boulders or logs buried by sediment will be placed around the margin of the parking area (reference Figure 4).

Table 1 summarizes the action items to restore the hydrologic functions at each of the three meadows.

Table 1. Action items of the Three Meadows Restoration Project

Action Item Number	Action
1	<p>Construction of log weirs and constructed rock riffles within existing incised channels to raise base level of channel, encourage aggradation, reduce overall channel capacity and raise the groundwater table (Figures 2 through 4):</p> <ul style="list-style-type: none"> • Construction of log weirs: 11 at Tyler Meadow (intermittent stream), 25 at Upper Onion Valley (intermittent streams), and 26 at High Onion (intermittent streams). Logs will be felled from suitable trees located along the meadow edge, along temporary access routes or from within the meadows. Trees used for log weirs will be hand felled, bucked, and limbed. Transport from the harvest location to the weir construction will utilize various construction equipment. Log weirs will be installed by hand crews. • Construct 21 rock riffles along Onion Creek and two tributaries within Upper Onion Valley. It is expected that rock for the riffles will be imported from the Tragedy Pit. Construction of rock riffles will be completed using motorized equipment in the meadow.
2	<p>Construct Roughened Channel To control overall base level of Upper Onion Valley meadow (Figure 2)</p> <ul style="list-style-type: none"> • Placement of rock within 90 lf / 720 sq. ft. of perennial streams and 0.01 acre of adjacent wet meadow at the outflow from Upper Onion Valley. Rock will likely be imported from Tragedy Pit for this component. Motorized equipment would be used in order to accomplish this action item.
3	<p>Construct Road Berm on FS Road 8N03 (Figure 2)</p> <ul style="list-style-type: none"> • Placement of 5:1 sloped rock berms to direct stream flow to original channel and into meadow.
4	<p>Installation of OHV barrier at Tyler Meadow (Figure 4)</p> <ul style="list-style-type: none"> • Log or rock barriers will be placed along upper meadow edge to prevent OHV access from adjacent roadway.
5	<p>Construction of Temporary Access Routs (Figures 2-4)</p> <ul style="list-style-type: none"> • Access to the meadow restoration areas will be via temporary forest access routes (approx. 3,875 lf / 1.3 acres) and meadow access routes (1,170 lf / 0.40 ac) to be restored upon project completion.

Material Sourcing

The primary materials needed for the construction of the restoration project are logs for the log weirs and the stream bed material for the constructed riffles and roughened channels. All the logs are anticipated to be sourced from on site, both adjacent to and within the meadow. The streambed material is expected to be sourced from currently active Forest Service rock staging areas in the district or Forest Service pre-

approved borrow sites. Rock transported to the site would be delivered to the staging areas and mixed on site to achieve the desired gradation for either the constructed riffles or the roughened channel.

Revegetation

The project will require areas of revegetation. Prior to final demobilization, access routes will be restored. Access routes through the meadows are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed as determined necessary by the ENF Botanist. Willow stakes will be planted next to stream channels and disturbed areas following construction to reduce immediate post project vulnerability to erosion. During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow sites, and other heavily disturbed areas as needed.

Forest access routes are to be ripped, seeded with native species approved by the ENF Botanist, and covered with coarse woody debris (e.g. logs and slash). Unutilized limbs, tops, and rounds will be lopped and scattered along the designated access routes to a depth not to exceed 30" following completion of restoration activities to stabilize disturbed soils. Unutilized woody material may also be lopped and scattered within the project area to a depth not to exceed 30".

Post-Project Monitoring

All revegetated areas would be monitored for three years following project completion. Monitoring will quantify willow survival and percent cover of native meadow vegetation. Successful revegetation will be achieved with 70% survival of willow cuttings and 50% cover of seeded areas. Any areas that do not meet the survival or cover area would be replanted.

Design Criteria

The following design criteria are incorporated into the Three Meadows Restoration Project:

Air Quality

- All ground disturbing activities shall be effectively controlled of fugitive dust emissions utilizing good housekeeping methods described by the Amador Air District:
 - Application of water and/or approved chemicals to road surfaces.
 - Using vegetation and other barriers to contain and to reduce fugitive emissions.
 - Maintaining reasonable vehicle speeds while driving on unpaved roads in order to minimize fugitive dust emissions.
 - Other precautions not specifically listed in this rule but have been approved in writing by the Air Protection Control Officer (APCO) at prior to implementation.

Range Resources

- The meadows, or portions of the meadows, may be excluded from grazing use temporarily depending on need. Any grazing restrictions or modifications would be coordinated between the USFS and the current allotment permittee.

Heritage Resources

- Heritage resources would be avoided. Known historic properties will be flagged with a buffer of at least ten meters for avoidance prior to project implementation. No ground disturbing activities will occur within the flagged area. The flagging will be removed post-project implementation.
- This does not fully eliminate the chance of discovering unrecorded sites or subsurface remains within the project boundary. If project ground disturbance should expose a cultural deposit, disturbance activities will be suspended until a qualified archaeologist can examine the area, evaluate the material, and adequate protection measures are incorporated. In the event that human remains are uncovered during project activity, project managers must stop work and contact ENF. If the remains are determined to be of Native American origin, both the Native American Heritage Commission and any identified descendants shall be notified (Health and Safety Code 7050.5, Public Resources Code Section 5097.94 and 5097.98).
- The only access roads to the project areas will be those shown by the plan set to reduce impacts to cultural sites.

Terrestrial Wildlife

- The USFS District Biologist will be on site during project construction and has the authority to adjust the project to protect Threatened, Endangered and Sensitive species.
- Trees and snags will be retained when possible with the exception of meadow encroaching trees, and those approved for use for livestock and OHV barriers.
- Retain all trees 30" dbh and greater, unless trees pose a safety risk, or are required to construct restoration structures that cannot utilize smaller diameter material.

Aquatic Wildlife

- 1) Project activities will conform to conservation measures and terms and conditions requirements as stated by the USFWS 12/19/2014 Programmatic Biological Opinion. Forest Service initiated consultation with USFWS February 2014, 2020. Project was submitted in the programmatic batch 2020a. The project was concurred upon by USFWS with a biological opinion issued back to the forest March 30, 2020. No further implementation instructions apply to this project from USFWS.
- If the Sierra Nevada yellow-legged frog (SNYLF) are found within the project area during project implementation, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in the 2014 Programmatic Biological Opinion issued by the USFWS.
 - Visual encounter surveys for SNYLF will be conducted by a Forest Service approved wildlife or aquatic biologist within 24 hours of any work proposed.
 - A Forest Service approved screen-covered drafting box, or other device to create a low entry velocity, would be used while drafting or dewatering to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. In perennial and intermittent streams, pump intake screens shall have openings not exceeding 3/32-inch (approximately 1/10 inch) and be sized according to the pump intake capacity. Place hose intake into bucket in the deepest part of the pool. Use a low-velocity water pump and do not pump natural ponds to low levels beyond which they cannot recover quickly (approximately one hour).

- The development of water drafting sources shall follow all applicable guidelines under BMP 2.5 (USFS 2012). Locate water drafting sites to avoid adverse effects to in-stream flows and depletion of pool habitat.
- In-channel water drafting locations would include rocking of approaches and barriers of rock or sloping of drafting pads away from water source to prevent spillage at vehicle from returning to the watercourse.
- Tightly woven fiber netting, plastic mono-filament netting, or similar material will not be used for erosion control or other purposes in suitable SNYLF habitat.

Hydrology

Construction activities would occur during the time of year when the flows are at their lowest. This typically occurs between August 1 and October 30. Required permits would be obtained, including a 404 permit for the U.S. Army Corps of Engineers and the 401 Permit from the Central Regional Valley Water Board. Watershed mitigation measures also would include the use of Best Management Practices (BMPs) to protect water quality as described in the *Nation Best Management Practices for Water Quality Management on National Forest System Lands* (USDA Forest Service 2012) and the California Stormwater Quality Association's *Stormwater Best Management Practice Handbook* (CASQA 2015).

- Materials and equipment will be staged within designated staging area within existing primitive campgrounds and parking areas. The downslope perimeter of staging areas and material stockpile areas will be contained with silt fence.
- The meadows and streams would be avoided to the extent feasible by using existing roads and staging areas.
- Where streams and meadows cannot be avoided, the following would be used to minimize impacts:
 - Corduroy stream crossings consist of laying logs in the channel and up onto the banks parallel to the flowline of the channel to provide a conformable surface for the constructed equipment to drive across without impacting the channel.
 - Locations of the corduroy stream crossings are shown on Figures 2-4.
 - Each of the crossings would be monitored to ensure that they are functioning. Remedial actions to address any deficiencies includes adding additional logs, as necessary, depending on the number of times the crossing is used.
 - Following construction, the logs would be removed from the crossing and placed as slash along the temporary forest access routes.
 - Marsh mats will be used to protect the meadow from excessive disturbance and rutting from heavy equipment on the meadow access areas (see Sheet C2 of the 60% Engineering Drawings for locations).
 - The mats would consist of slash material from the salvaged trees.
 - The slash should be layered to a depth of 1 to 1.5 feet and be a minimum of 15-feet wide to accommodate the construction.
 - Similar to the corduroy stream crossing, the condition of the marsh mats should be periodically inspected to determine if additional material should be added to provide continuous protection to the meadow.
 - The mats would be removed from the meadow and placed as slash along the temporary forest access roads.

- Low impact construction equipment would be used as described in the technical specifications and it will provide limits on the size and type of equipment that can be used in the meadow.
 - Only rubber tracked/tired low ground pressure equipment would be used for installation of the log weirs.
 - Larger equipment may be necessary to construct the roughened channel and the location would be accessed via the temporary forest route through uplands with only a single, short traverse across the meadow at the northern end of the project site.

Botanical Resources

Management of botanical resources, special habitats, and noxious weeds would follow the standards and guidelines in the Sierra Nevada Forest Plan Amendment Record of Decision (SNFPA ROD 2004). Specific design criteria and protection measures for the project include:

- Any new occurrences of sensitive plants identified within the project area would be flagged and avoided to the extent practical. The Forest botanist will be consulted on appropriate avoidance and minimization measures for sensitive plants.
- A Forest Service watchlist species, *Botrychium simplex*, occurs within the project area. Under the supervision of the District Botanist, all known occurrences will be flagged and avoided to the extent practicable during project implementation. Should any new threatened, endangered, sensitive (TES), or watchlist species be located during the Proposed Action, available steps will be taken to evaluate and mitigate effects.
- All off-road equipment would be cleaned to ensure it is free of soil, seeds, vegetative matter or other debris that could contain seeds before entering the project area.
- Infestations of invasive plants that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest botanist.
- Rock for riffle construction would be weed free. On site sand, gravel, rock, or organic matter would be used where possible or from documented weed free sources.
- Any seed used for restoration or erosion control would be from a locally collected source (ENF, Seed, Mulch and Fertilizer Prescription, 2000).
- All temporarily disturbed areas will be revegetated and monitored for three years following project completion for the presence of noxious weeds.

Soil Resources

- Standard mitigation measures will be employed to protect soil resources and have been developed under consultation with soil scientists and engineers as an integral component of meadow floodplain restoration. These mitigation measures have been monitored and refined based on previous projects of this type.
- The installations will be sequenced beginning with the downstream structures and moving in the upstream direction. This will allow the downstream structures to functionally capture the sediment caused by bank and bed disturbance for the upstream structures.
- Access routes would be field fit to minimize impacts to the meadow caused by potential tree felling, removal of stumps, and light grading. Where access routes cross a stream channel, temporary bridge crossings, such as corduroy road or marsh mats would be used. Each crossing would be monitored to ensure they function to limit significant disturbance to the bed and banks of the channel and remedial actions will be taken to address any deficiencies. Following

construction, the logs would be removed from the crossing and placed as slash along the temporary access roads.

- Construction equipment located within the meadow will utilize rubber tracked/tired low ground pressure equipment. Prior to final demobilization, access routes would be restored such as ripping, seeding, and placement of coarse wood cover, such as logs and slash. Meadow access routes would be restored to preconstruction conditions.
- The project will require revegetation. Access routes are expected to have residual sod, and thus not require seeding, but may receive mulching and possibly seed, as determined necessary. Revegetation will consist of the following measures:
 - During the spring and summer following project completion, locally collected seeds would be dispersed along access roads, borrow pits, and other heavily disturbed areas.
 - All revegetation areas would be monitored for three years following project completion. Successful revegetation of seeded area would have at least 50% cover of native vegetation. Any areas that do not meet the survival or cover criteria would be reseeded.
 - Erosion control would be accomplished using locally collected materials (wood chips, duff, pine needles, etc.). Straw would not be used.

Fire and Fuels Management

- While the project area is located in a meadow and outside of state identified very high fire hazard severity zones, portions of the meadow are expected to be dry, with a risk for wildfire associated with the use of any internal combustion engine. A trash pump and/or water truck will be on site to assist with vegetation transplants and dust control, as well as to reduce the risk of wildfire. In addition, equipment would be re-fueled and serviced at the designated staging area, which is outside of the riparian area and meadow. No fuel would be stored on site. In the event of an accidental spill, hazmat materials for quick on-site clean-up would be kept at the project sites during all construction activities, and in each piece of equipment.
- A fire plan will be put in place for all activities, which will meet USFS standards and be overseen by Amador Ranger District fire and resource staff.

Environmental Analysis

This action is categorically excluded from documentation in an environmental impact statement (EIS) or an environmental assessment (EA). The applicable category of actions is identified in agency procedures as 36 CFR 220.6(e)(6), timber stand and/or wildlife habitat improvement activities that do not include the use of herbicides or do not require more than one mile of low standard road construction.

This category of action is applicable because the purpose of the Three Meadows Restoration Project is to restore the hydrologic functions of the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit of flora and fauna and downstream users by reducing downstream flood peaks. Implementation of the Three Meadows Restoration Project would halt the encroachment of upland plant species, particularly lodgepole pine, while increasing the extent and quality of wet meadow and riparian vegetation. By improving the meadow hydrology, the project would also improve and increase habitat potentially available for Sierra Nevada yellow-legged frogs, expand willow habitat for songbirds, including the willow flycatcher, improve habitat quality for sensitive species associated with wet meadows such as broad-nerved hump-

moss (*Meesia uliginosa*), moonworts (*Botrychium* spp.) and Bolander's candle moss (*Bruchia bolanderi*), and increase the production of aquatic invertebrates and insects that provide food for amphibians, and songbirds.

It has been determined that there are no extraordinary circumstances that would warrant further analysis and documentation in an EA or EIS. The interdisciplinary effects analysis available in the project record shows that the project, as designed, will have no significant environmental effects. Resource conditions that were considered in determining whether extraordinary circumstances exist related to the Proposed Action are as follows:

- a) **Federally listed threatened or endangered species or designated critical habitat, species proposed for federal listing or proposed critical habitat, or Forest Service sensitive species**

Botanical Species

This section is summarized from the Biological Assessment/Biological Evaluation for Plant Species dated February 5, 2020.

Threatened, Endangered or Proposed Species

Layne's ragwort (*Packera layneae*) is a perennial herb in the sunflower family (CNPS, 2001; USFWS, 2002) found in foothill woodland and chaparral habitats along the west slope of the Sierra Nevada in El Dorado and Tuolumne Counties at elevations between 60 and 3,000 feet. There is no potential habitat for this listed species within the proposed analysis area.

Forest Sensitive Species

There is no potential habitat for *Allium tribracteatum*, *Arctostaphylos nissenana*, *Balsamorhiza macrolepis* var. *macrolepis*, *Calochortus clavatus* var. *avius*, *Cypripedium montanum*, *Dendrocollybia racemosa*, *Draba asterophora* var. *asterophora*, *Draba asterophora* var. *macrocarpa*, *Eriogonum tripodum*, *Horkelia parryi*, *Lewisia kelloggii* ssp. *hutchisonii*, *Lewisia kelloggii* ssp. *kelloggii*, *Lewisia longipetala*, *Lewisia serrata*, *Mielichhoferia elongata*, *Navarretia prolifera* ssp. *lutea*, *Peltigera gowardii*, *Phacelia stebbinsii*, *Phaeocollybia olivacea*, *Pinus albicaulis*, and *Poa sierrae*. Therefore, the Proposed Action would not affect these species.

Suitable habitat for *Botrychium ascendens*, *Botrychium crenulatum*, *Botrychium lunaria*, *Botrychium minganense*, *Botrychium montanum*, *Botrychium paradoxum*, *Botrychium pendunculolum*, *Botrychium pendunculolum*, *Bruchia bolanderi*, *Helodium blandowii*, *Meesia uliginosa*, and *Ophioglossum pusillum* occurs within the Three Meadows Project. None of these species have been detected within the project area in past or recent surveys. Because past surveys cannot positively state the absence of a sensitive plant species, it is possible that the Proposed Action could affect undetected individuals in the project area. Therefore, the Proposed Action may affect undiscovered individuals, but is not likely to result in a trend toward federal listing or loss of viability for the 12 species listed above.

Watchlist Species

Botrychium simplex has been observed in High Onion growing along the mainstream channel and Upper Onion Valley within stream channels on both the eastern and western meadow edges in past surveys.

The occurrences were revisited in August 2019, but no individuals were observed. Any new occurrences of this species identified within the project area would be flagged and avoided to the extent practical. The Forest botanist will be consulted on appropriate avoidance and minimization measures.

Terrestrial Wildlife Species

This section is summarized from the Biological Evaluation and Biological Assessment for Threatened, Endangered, and Sensitive Wildlife Species for the Three Meadows Restoration Project dated February 5, 2020.

Threatened, Endangered or Proposed Species and Critical Habitat

There are no proposed, endangered, or threatened terrestrial wildlife species or designated critical habitat within or adjacent to the project area.

Forest Sensitive Species

The following Region 5 Sensitive Species were considered for effects from this proposal:

Mammals

California wolverine (*Gulo gulo luscus*)
 Pacific fisher (*Martes pennant pacifica*)
 fringed myotis (*Myotis thysanodes*)
 American marten (*Martes americana*)
 pallid bat (*Antrozous pallidus*)
 Townsend's big-eared bat (*Corynorhinus townsendii*)

Birds

American bald eagle (*Haliaeetus leucocephalus*),
 California spotted owl (*Strix occidentalis occidentalis*)
 great gray owl (*Strix nebulosa*)
 northern goshawk (*Accipiter gentilis*)
 willow flycatcher (*Empidonax traillii*)

Invertebrates

western bumble bee (*Bombus occidentalis*)

The Three Meadows Restoration Project would not affect the Pacific fisher because the project area does not occur within the known or suspected range of this species. The species is not known to be present on the Amador Ranger District.

The Three Meadows Restoration Project would not affect California wolverine, American bald eagle, or willow flycatcher because there is no suitable habitat within the project area.

The Proposed Action may affect/impact individuals of the following species, but is not likely to result in a trend toward federal listing or loss of viability:

California spotted owl, northern goshawk, and American marten

Preferred habitat for these species is very similar and was analyzed the same way for all three species in the Terrestrial Wildlife BE/BA. The Proposed Action would have minimal effect on suitable habitat for these species. The Proposed Action is to treat meadow habitat and restore meadow hydrology. Trees

encroaching within the meadow and along the meadow edges will be removed for construction of log weirs and access roads, but overall impact to canopy closure or reduction in nesting trees would be minimal in the areas of suitable habitat surrounding the meadow sites.

The project could disturb individuals of these species and may temporarily displace individuals, should they be active near project activities, primarily from equipment use and increased human activity. The project areas are not located within northern goshawk or spotted owl PACs and would only likely temporarily displace foraging individuals.

Should disturbance to these species occur, disturbance is unlikely to affect more than one or two individuals, due the small scale of the project, timing of the project, and the design features in place to reduce likelihood of impacts to reproduction. Should disturbance occur during foraging or travel activities, the result could be temporary displacement of individuals. Effects on reproduction and population numbers, or species viability would not be expected to occur for California spotted owl, northern goshawk, or marten.

Great gray owl

Preferred great gray habitat is characterized by mixed conifer habitat, with a combination of meadow and other vegetation opening utilized for foraging. Nests are usually in broken topped medium to large trees or snags which provide a protected platform. The habitat surrounding the Three Meadows project area is believed to currently provide the structure necessary for this species to utilize the area. Based on incidental survey responses of GGO within meadows in the area, there is potential for GGO to be present within the Three Meadows project area. However, there is no documentation of reproduction within any of the nearby meadows, and therefore, no protected activity centers have been delineated for GGO.

Direct impacts to suitable foraging habitat may occur from the proposed restoration treatments with the stream channels (primarily installation of log weirs and rock riffles). The project would have a short term impact on approximately 12 acres of suitable foraging open meadow habitat would be directly affected by project activities. Revegetation of this area is expected to be rapid. The effect on GGO prey from this short-term loss of vegetation should be minimal, as there is other meadow vegetation in close proximity to provide prey during this short period. This species foraging behavior would unlikely be affected, as much of the foraging for great GGO is nocturnal when project activities would not be taking place. Prey density is expected to increase post project, as the treated stream channel and surrounding vegetation responds to the increased water table and associated changes to vegetation. Project generated disturbance effects are not likely, reduced by planned timing of the implementation, late in summer/fall, and design criteria associated with other species, should there be any, are expected to not affect individuals, and not affect long-term reproduction.

Pallid bat

Foraging habitat within the project area would be maintained and enhanced by restoring the Three Meadows Project Area, which should increase prey species diversity and availability. Roosting habitat would not be greatly impacted, as few large diameter trees and snags would be removed. This project may result in some level of disturbance to a very low number of individuals during implementation. However, because implementation would occur after the insect population has peaked, foraging activity is at a minimum during project construction hours and is unlikely to result in any disturbance to foraging bats. No impacts to reproduction would be anticipated from implementing this project, due to timing of

implementation and limited potential impacts. The project would not be expected to affect local population or species viability.

Fringed myotis

Fringed myotis are considered to be foraging generalists but do seem to be tied to day-roost habitat associated with old forest conditions, especially large diameter snags. Fringed myotis often forage in meadows and along secondary streams, in fairly cluttered habitats. This project would have a minimal effect on potential roosting sites, large trees and snags in this case. Although trees will be removed at all three meadow sites for construction of log weirs, construction of temporary access roads, and along the meadow edges, the number is minimal relative to the surrounding forest. Additionally, design criteria have been included within the project to minimize impacts to fringed myotis habitat.

The potential for disturbance to foraging bats would be unlikely from the proposed activities, as project activities would take place during daylight hours, when bat foraging activity is not occurring or is at a minimum (dusk/dawn). Disturbance from project activities are not likely to affect reproduction, and there is a low chance of individuals being affected, due to timing of activities in the year and the low likelihood of species being present in any numbers in the project area. Temporary displacement would be possible where roosting sites and project activities coincide. Due to the wide variety of roosting habitats used, this alternative would not be expected to have any long-term population effects on this species, as few individuals would be likely to be affected.

Townsend's big-eared bat

Townsend's big-eared bats are associated with a variety of habitats including desert, native prairies, coniferous forests, mid-elevation mixed conifer, mixed hardwood-conifer forests, riparian communities, agricultural lands, and coastal habitats. This species has foraging associations with edge habitats along streams, which the project includes. For this reason, the entire project area is believed to provide suitable foraging habitat; however, no roosting habitat is known to occur in the project area and would not be affected by this project. Potential for disturbance to foraging bats would be unlikely from the proposed activities, as project activities would take place during daylight hours, when bat foraging activity is not occurring or is at a minimum (dusk/dawn). In the long term, foraging habitat within the project area would be enhanced by the Proposed Action. This project is very unlikely to result in any disturbance to foraging Townsend's big-eared bats and would not affect roosting bats or reproduction.

Western bumblebee

Within the project area, the meadow habitat provides high quality foraging habitat, and the edge of the meadow and surrounding conifer stands provide nesting and overwintering habitat for this species. Western bumble bee, if present in the project area, are believed to be in low numbers. Existing past and foreseeable future modifications of habitat are not expected to reduce the local western bumble bee population. The short term, likely single season impacts to foraging habitat quality and availability, and temporary displacement to individual bees from disturbance, would not be expected to affect reproduction, or local populations of this species. Longer term, in seasons following implementation, the project would increase both habitat quality and quantity for this species and may prolong the availability of the habitat as the meadow condition improves.

Aquatic Species

This section is summarized from the Biological Assessment/Biological Evaluation for Aquatic Species dated February 5, 2020.

Threatened, Endangered or Proposed Species

The following Federally Listed species and Critical Habitat were considered for effects from this proposal:

Sierra Nevada yellow-legged frog (*Rana sierrae*; Endangered)
Sierra Nevada yellow-legged frog Designated Critical Habitat,
Yosemite toad (*Anaxyrus canorus*, Threatened)
Delta smelt (*Hypomesus transpacificus*; Threatened)

No populations of delta smelt occur on the Eldorado National Forest land; therefore, there would be no effects to these species from the project. The project area is located within Yosemite Toad habitat distribution but does not contain suitable habitat. The nearest occurrence to the project area is 10.7 miles east of High Onion Valley at Wheeler Lake. Designated critical habitat is located approximately 3.0 miles to the east. No impacts to Yosemite Toad or critical habitat are expected.

The project area is located within the elevation range of suitable habitat and designated critical habitat for the Sierra Nevada yellow-legged frog (*Rana sierrae*). Three Meadows Restoration project contains approximate 27 acres of suitable/Critical Habitat wet meadow habitat with a 25m buffer that includes 6,765 linear feet of intermittent stream habitat. Recent surveys (2019) did not detect any species in the project area; however, a previous survey of Upper Onion Valley in 1997 detected one adult SNYLF.

Short-term impacts from construction activities could include localized increases in turbidity and minor scale ground disturbance to designated Critical Habitat. Of the 27 acres of Critical Habitat for SNYLF within the project boundary, including 6,765 linear feet of intermittent stream, approximately 1.95 acres (7.2%) would be directly impacted by project activities resulting in short term adverse effects. However, the project will be completed under low to no-flow conditions in late summer and fall and would minimize any increase in local turbidity. Upon completion, the installation of in-channel rock riffles and log weirs is a restorative action, and should result in flow velocity reduction, bank stabilization and subsequently reduce the potential for future erosion, incision and sedimentation. Implementation of these actions would also increase and prolong the duration of late season flows for the benefit SNYLF habitat. Short-term direct and indirect impacts to acres of suitable and critical habitat are minimal compared to the positive long-term indirect impacts to 27 acres through improvement of hydrologic functions within the meadow systems by improving water quality, timing of flows, recovery of sediment deposition, and arrest channel head cutting. For these reasons, it was determined that the Three Meadows Restoration Project may affect but is not likely to adversely affect the designated Critical Habitat of the Sierra Nevada yellow-legged frog.

Mechanical operations within suitable habitat may cause a risk to SNYLF through disturbance, injury or mortality (e.g., crushing from equipment) in the short-term. There is potential for SNYLF individuals to be crushed or injured by the excavator driving through the meadow. If present, disturbance from work activities may flush any frogs from the in-stream construction site, either downstream or into cover away

from activities, reducing the likelihood of mortality. Direct effects to individuals would be short-term occurring during operations when equipment and personnel are in close proximity and within suitable habitat; however, likelihood of injury or take is relatively low as recent surveys (2019) found no detections of SNYLF within any of the three meadows and construction would occur under dry conditions when SNYLF are not likely to be present. For these reasons, it was determined that the Three Meadows Restoration Project may affect but is not likely to adversely affect the Sierra Nevada yellow-legged frog.

Forest Sensitive Species

The project will have no effect on the following Forest Sensitive Species:

The project area is not within the elevation range of Foothill yellow-legged frog (*Rana boylei*) or the western pond turtle (*Actinemys marmorata*). Therefore, no effects would occur to these species or suitable habitat.

The Hardhead Minnow (*Mylopharodon conocephalus*) and the Pacific lamprey (*Lampetra tridentata*) do not occur within the project area and are located far enough downstream so that there will be no measurable effects to this species or habitat.

b) Flood plains, wetlands, or municipal watersheds

Floodplains and wetlands: The Project Area is within the North Fork of the Mokelumne River watershed, a component of the greater San Joaquin River. The project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. The project, once complete, should improve water quality by reducing erosion. There may be a short duration increase in sediment to streams during and immediately following construction activities, but the Design Criteria incorporated into the project would eliminate long-term impacts to water quality.

The existing drainage patterns of the sites will not be altered. There are no impervious surfaces as a part of the project. No flood flows would be impeded. The project design should retain water on the meadows longer, and thus improve infiltration to groundwater. The rate of runoff would decrease as a result of the project. There will be no reduction in groundwater or groundwater recharge.

Construction activities will result in short-term impacts to wetlands during construction of access routes for the installation of constructed rock riffles, log weirs, and the roughened channel. The project design includes the use of marsh mats when crossing wet meadow areas and requires that low impact construction equipment (e.g. rubber tracked/tired with low ground pressure) be used to minimize ground disturbance and rutting. Timing of construction activities in late summer and fall under dry conditions will minimize soil compaction. All wet meadow access routes will be restored to pre-construction condition and revegetated as deemed necessary by the ENF Botanist.

Municipal watersheds: The Project Area is within the North Fork of the Mokelumne River watershed, a component of the greater San Joaquin River. Tyler Meadow drains into Upper Bear River Reservoir, which feeds into Bear River and then into the North Fork of the Mokelumne River. High Onion Meadow and Upper Onion Valley are located along Onion Creek which flows into Cole Creek and the North Fork Mokelumne River, approximately 1.7 miles downstream from Salt Springs Reservoir. The Salt Springs Reservoir is formed by a dam on the North Fork of the Mokelumne River and is owned by Pacific Gas

and Electric for the purpose of hydroelectricity production. Water returned to the river below the dam continues downstream for use in other powerhouses in PG&E's Mokelumne River Project (FERC Project 137). There are no municipal watersheds in the project area or larger watershed.

c) Congressionally designated areas such as wilderness, wilderness study areas, or national recreation areas

There are no congressionally designated areas within the project area.

d) Inventoried road less areas or potential wilderness areas

The project is not located in or nearby an inventoried roadless area or potential wilderness area.

e) Research natural areas

There are no Research Natural Areas in the project area.

f) American Indians and Alaska Native religious or cultural sites

There are no known American Indians and Alaska Native religious or cultural sites within the project area.

g) Archaeological sites, or historic properties or areas

A memo dated January 9, 2020, from the Amador District Archaeologist stated that the Class III Cultural Resources Inventory for the Proposed Amador Resource Conservation District Three Meadows Restoration Project, Eldorado National Forest, Amador County, California, by Mark Giambastiani Ph.D. and Michael Drews Great Basin Consulting Group, LLC. was sufficient for meeting the requirements of Section 106 for the Three Meadows Restoration Project. The Area of Potential Effect (APE) has been adequately inventoried and four historic properties were identified within the APE. The Amador District Archaeologist agreed with the recommendations provided in the report to avoid and buffer documented resources and concurred that there will be no adverse effects to historic properties by the implementation of this project if the recommendations are followed.

This project complies with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with the provisions of the Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region.

In addition, the project has limited context and intensity (40CFR 1508.27), and this action will produce little or no individual or cumulative environmental effects to either biological or physical components of the human environment (40 CFR 1508.14).

Public Involvement

This action was originally listed for public scoping on the Eldorado National Forest Schedule of Proposed Actions (SOPA) issued June 25, 2019. The public scoping document was also e-mailed to approximately

150 interested parties requesting comments and input on the project. Two comments were received, one from Trout Unlimited and one from California Forestry Association. Based on the comments received, there were no issues identified that would require the development of changes to the proposed action or alternatives.

Tribal Consultation

Tribal consultation for this project was initiated during the annual Amador Tribal meeting on May 13, 2019. At this meeting, representatives from the Washoe Tribe of Nevada and California (Washoe Tribe) and Jackson Rancheria (Jackson Rancheria) Band of Miwuk Indians expressed interest in the project and discussed taking a field trip to the project location prior to project implementation.

The Amador Ranger District submitted formal consultation letters to seven tribes on July 18, 2019 requesting information on potential cultural concerns. One tribe responded at that time requesting project information. The Forest provided the requested information.

As part of the California Environmental Quality Act (CEQA) process, letters were sent to Tribes about the project in February 2020. Jackson Rancheria and the Washoe Tribe confirmed they would still like a field trip prior to the project implementation. Additionally, they requested the project leaders and operators be made aware of the importance of cultural resources and the potential for sub-surface discoveries during ground disturbing activities.

Tribal consultation with Jackson Rancheria and the Washoe Tribe are considered ongoing, and will continue throughout the duration of the project. Interested Tribes will be kept informed of the project stages and implementation as the project progresses. As of March of 2020, there has been no other formal response from any of the other Tribal contacts.

Findings Required by Other Laws and Regulations

This action is found to be consistent with all applicable laws and the Eldorado National Forest Land and Resource Management Plan (1989), as amended by the Sierra Nevada Forest Plan Amendment (2004).

This project complies with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with provisions of the Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region (Regional PA 2013).

This project is consistent with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), and Clean Water Act. The Amador Ranger District submitted an Aquatic Biological Assessment and initiated consultation with the USFWS on February 15, 2020. The USFWS responded with a letter of concurrence on March 30, 2020 finding that any adverse effects to Sierra Nevada yellow-legged frogs and critical habitat PCEs are anticipated to be insignificant or discountable. Consultation with the USFWS required under section 7 of the ESA has been completed for this project.



In addition, the project will obtain coverage under the California Regional Water Quality Control Board, Central Valley Region's 401 Water Quality Certification program prior to implementation.

Administrative Review (Objection) Opportunities

This decision is not subject to legal notice and comment procedures of 36 CFR 218.22, and is not subject to the pre-decisional administrative review process pursuant to 36 CFR 218.

Implementation Date

Implementation is anticipated to begin during the low-flow period between August and October 2020-2021.

Contact

For additional information concerning this decision, contact Chuck Loffland, District Wildlife Biologist, Eldorado National Forest, 26820 Silver Dr., Pioneer, CA 95666; Phone 209-295-5954, email chuck.loffland@usda.gov.

April 26, 2020

RICHARD G. HOPSON

Date

District Ranger, Amador Ranger District

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Insert Figures:

- Figure 1. Location Map
- Figure 2. Upper Onion Valley Plan View
- Figure 3. High Onion Meadow Plan View
- Figure 4. Tyler Meadow Plan View