

Appendix 9C

Mitigation Measures Common To All Action Alternatives

To ensure that implementation of the action alternatives protects sensitive plant and animal species, a consistent set of mitigation measures would be applied to actions that result from the Fire Management Plan. These mitigation measures would also be applied to future actions that are guided by this plan. The National Park Service would prepare appropriate environmental review for those actions not covered in the Environmental Impact Statement for the Fire Management Plan. As part of the environmental review, the National Park Service would avoid, minimize, and mitigate adverse impacts when possible.

Wetlands

Fire Management activities, including mechanical fuels removal, would comply with Executive Order 11990 (Protection of Wetlands), the Clean Water Act, and Director's Order 77-1 (Wetland Protection).

Increased caution would be used to protect these resources from damage such as erosion or siltation caused by mechanized equipment used to remove fuel and vegetation.

- Wetlands would be delineated by qualified National Park Service staff or certified wetland specialists, and prior to the use of mechanized equipment for fuel reduction activities.
- Prescribed fires would not be ignited in riparian areas.
- Wood removed mechanically as part of wildland fire risk reduction projects would not be piled in riparian areas.

Vegetation (including Special-Status Species)

Mitigation would occur prior to, during, and/or after fuel and fire management activities to mitigate immediate and long-term impacts to vegetation. These activities would vary by fuel reduction project or intensity of wildland, depending on the types of species and habitat affected.

Mitigation would include the following:

- Develop rehabilitation plans for areas affected by unwanted wildland fire. Such plans would provide for an assessment of damage caused by the fire, the implementation of methods to stabilize and rehabilitate damage caused by the wildland fire, and the collection of monitoring information to evaluate the relative success of the program in the achievement of rehabilitation objectives. Protection of the area from further ignition or disturbance by park visitors, stabilization of soil through erosion control measures, or reseedling with native species are techniques that may be employed.
- Use native or seed-free mulch to minimize surface erosion and introduction of non-native plants.
- Locate firelines, helispots, fire camps, and other soil-disturbing fire management activities so that sensitive plant population are avoided, and erosion is minimized.

- Provide for the inspection of vehicles arriving from outside the park to assist in fire suppression activities, to avoid importation of non-native plants and seeds. Vehicles will be cleaned before entering any sensitive sites which are identified by resource advisers.
- Utilize prescribed fire to eradicate non-native plants and create or maintain habitat for native plant species.
- Confine mechanical fuel treatments to specified work areas. Install temporary barriers, guides, fencing, and signs to protect sensitive and natural surroundings, including plants, trees, and roots from damage.
- Protect meadows and other sensitive resource areas, by defining and avoiding these areas, especially with tracked or wheeled vehicles.
- Implement a dust abatement program for mechanical clearing project activities. Standard dust abatement measures could include the following elements: water or otherwise stabilize soils, employ speed limits on unpaved roads, minimize vegetation clearing, and revegetate post logging.
- Projects that generate high levels of noise and other disturbance will be scheduled, to the extent practicable, during periods of the year and times of day when effects on species sensitive to such disturbance would be minimized.

Wildlife: Conservation recommendations for special status species

General recommendations

Prior to mechanical fuels treatment or prescribed fire project implementation, evaluate habitat for sensitive species likely to occur and take steps to minimize impacts on those species determined to be especially vulnerable. This evaluation will be conducted by a qualified biologist.

Provide education and training for wildland fuel reduction contractors and fire management personnel to limit activities destructive to sensitive wildlife species and their habitat. Schedule fuels and fire management activities to occur when disruptive effects on wildlife would be less, such as after nesting season of birds.

Preserve, where possible, natural features with obvious high value to wildlife, such as tree snags.

For mechanical fuel reduction activities, limit the chance of pollution spills, especially where activities are near aquatic or wetland habitats.

Allow natural processes where possible to maintain the presence of very large old trees and snags, large diameter logs, and decaying wood across the landscape through a mosaic of fire effects. Large prescribed fires will also be planned and ignited to achieve a mosaic of fire effects.

Allow natural processes to maintain conditions and habitat features important to California spotted owls and their prey, including oak trees and oak snag trees with their cavities and large woody debris that supports fungal growth. Large prescribed fires will also be planned and ignited to achieve a mosaic of fire effects.

Specific Species Recommendations

Mountain yellow-legged frog

- Avoid filling aerial water buckets from lakes and ponds that contain mountain yellow-legged frogs (MYLF). Many of the remaining populations are composed of relatively small numbers of frogs. Removal of frogs and tadpoles through dipping could have an adverse effect on a remnant population. Chytrid fungus infection is causing further disappearance of MYLF populations. The dipping of a water bucket in an infected lake, and then in an uninfected lake could result in further extinctions of frog populations.
- Ensure that portable pumps used in lakes and ponds that contain MYLF have intake filters. Use of unfiltered pumps can cause mortality of tadpoles and frogs from being sucked up by pumps, Pumps can also cause a reduction of water in smaller ponds, and fuel and gas contamination of water.
- Avoid filling aerial water buckets from lakes and ponds that contain fish, or, if unavoidable, ensure that the helicopter avoids dropping any water from the bucket into any lakes or streams. Inadvertent introduction of fish into a lake or pond containing MYLF could result in the extinction of that MYLF population. Lakes and ponds that have reverted to a natural, fish-free state are possible locations for reintroduction of MYLF. Introduction of fish in such waters via aerial bucket drops would eliminate them as possible reintroduction sites. Maps will be used to denote bodies of water that should be avoided.
- Avoid retardant drops within 300 feet of water. Retardant could have an adverse effect on MYLF if it enters waters containing this species.
- Maps depicting known MYLF populations should be updated annually and provided to fire personnel. Fire crews should be briefed on the status of the MYLF, and the measures required to protect the MYLF and their habitat.
- Helispots, spike camps, and hand lines would be sited away from known MLYF habitat.

Yosemite toad

- Avoid filling aerial water buckets from lakes and ponds that contain Yosemite toads. Many of the remaining populations are composed of relatively small numbers of toads. Removal of toads and tadpoles through dipping could have an adverse effect on a remnant population. Chytrid fungus infection is causing further disappearance of Yosemite toad populations. The dipping of a water bucket in an infected lake, and then in an uninfected lake could result in further extinctions of populations.
- Avoid using portable pumps without intake filters in lakes and ponds that contain Yosemite toads. Such use can cause mortality of tadpoles and toads from being sucked up by pumps. The use of pumps can cause a reduction of water in smaller ponds, and fuel and gas contamination of water.
- Avoid filling aerial water buckets from lakes and ponds that contain fish, or, if unavoidable, ensure that the helicopter avoids dropping any water from the bucket into any lakes or streams. Inadvertent introduction of fish into a lake or pond containing Yosemite toads would result in the extinction of that Yosemite toad population. Lakes and ponds that have reverted to a natural, fish-free state are possible locations for reintroduction of Yosemite toads. Introduction of fish in such waters via aerial bucket drops would eliminate them as possible reintroduction sites. Maps will denote bodies of water to avoid.

- Avoid retardant drops within 300 feet of water and meadow. Retardant could have an adverse effect on Yosemite toads if it enters waters containing this species. Because most remaining populations of Yosemite toads are found in small, relatively shallow wetlands and ponds, these habitats may not be readily apparent from the air, so retardant drops in meadows should be avoided.
- Avoid cutting fire line, establishing spike camps and helispots, or altering water courses in meadows. Alteration of small streams and wetlands in meadows would have an adverse effect on Yosemite toads.
- Maps depicting known Yosemite toad populations should be updated
- annually and provided to fire personnel. Fire crews should be briefed on the status of the Yosemite toad, and the measures required to protect the Yosemite toad and their habitat.
- Helispots, spike camps, and hand lines would be sited away from MLYF habitat.

California spotted owl

- From existing fuel loading, predict fire intensity in known spotted owl nesting and roost sites, and conduct preparatory burns or mechanical fuel reduction in these specific sites prior to ignition to control fire intensity to avoid reduction in canopy closure and consumption of nesting snags or trees, which would affect habitat quality.
- In spotted owl habitat, when possible, limit burn size, and/or ensure these areas burn at a variety of intensities. If a burn reduces habitat quality for spotted owls in an area, adjacent areas should still provide suitable habitat. At lower elevations (<3,000 feet), wood rats are an important prey item, which are substantially reduced in fires.
- Avoid cutting fire line through known spotted owl nesting or roost sites, especially if trees and snags are to be felled. Disturbance and/or removal of canopy trees or nesting snags would affect current breeding efforts, and have an adverse effect on the long-term habitat quality of the site.
- Minimize the felling of snags in spotted owl habitat, and especially in known spotted owl nesting and roost sites. Hollows and cavities in snags and infirm trees (especially oaks) are the preferred nest sites of spotted owls in the central Sierra Nevada. Suitable nest sites are a limiting factor for spotted owls, with certain nest sites used for many years. Removal of these key features could have long-term effects on habitat quality.
- Minimize the consumption of coarse, down, woody debris. Such debris enables the growth of hypogeous fungi (“truffles”), which are an important food source for northern flying squirrels, an important prey item for spotted owls.
- Maps depicting known California spotted owl populations should be updated annually and provided to fire personnel. Fire crews should be briefed on the status of the California spotted owl, and the measures required to protect the California spotted owl and their habitat.
- Water and retardant drops would be avoided near known nest sites during the nesting season.
- Helispot and spike camps would be located away from known nest sites during the nesting season.

Pacific fisher

To minimize adverse impacts, the following measures should be incorporated into projects:

- All project related activities that may disturb fisher birthing and kit rearing should not occur within one-half mile of a known den site during the denning season (March 1 to June 30), unless a qualified biologist determines that activities will not disturb fishers.
- Maps depicting known fisher den sites should be updated annually and provided to fire personnel. Fire crews should be briefed on the status of the fisher, and the measures required to protect den sites.
- If a fire occurs near a known fisher den site, Yosemite National Park wildlife biologists should assess the effects of the fire on the fisher habitat, and the den site if affected.
- Minimize the loss of large trees and snags with cavities, especially black oaks. Large trees with cavities are the most important sites for dens, and the availability of such trees appears to be a limiting factor to fishers.
- Maintain canopy closure greater than 60% over trees and snags that provide potential den sites. Fishers avoid forest openings, and select habitat with a high degree of canopy closure. A potential den site tree or snag could be preserved, but if canopy closure over the site were reduce to below 60%, it would be unlikely that it would be used by a fisher.
- Minimize the consumption of coarse, woody debris, or ensure variable burn intensity over the area. Habitat complexity in the form of down trees of various sizes and understory vegetation are important fisher habitat features, providing cover, den sites, and subnivian (under snow) spaces hunting and cover in winter.
- In fisher habitat, when possible, limit burn intensity or size, and/or ensure the area burns at a variety of intensities. If a burn reduces habitat quality for fishers in an area through consumption of coarse woody debris, reduction in canopy closure, and reduction in understory complexity and potential den sites, adjacent areas should still provide suitable habitat.
- For known den sites, manage fuels around the site to avoid their loss, and minimize human activity around the site. Given the extremely low density of fishers in Yosemite, every den site is important (note: no fisher den sites have been found in Yosemite for decades, although their presence is suspected).

Terms and Conditions for listed species

Valley Elderberry Longhorn Beetle

All National Park Service personnel working in the areas in which the insect is found will be briefed on the status of the beetle, the need to protect to protects the host elderberry plants, requirements to avoid damaging elderberry bushes, and possible penalties for noncompliance with identified avoidance and mitigation measures.

Contractors and all contractor on-site personnel should be briefed on the location of elderberry shrubs, avoidance requirements, and penalties for noncompliance.

Before clearing or burning takes place in the El Portal WUI zone, a qualified NPS employee will flag all elderberry bushes in the project area. No mechanical clearing of elderberry bushes would occur within the VELB burn units.

Elderberry plants in El Portal burn units will be burned on a cycle of no less than five years, and monitored to ensure burn objectives are met.

California red-legged frog

California red-legged frogs have disappeared from Yosemite, but the park does have potential habitat. Retardant drops within 300 feet of surface water will be avoided unless there is a threat to human life. Dipping with helicopters from waters known to contain bullfrogs will not occur unless there is a threat to human life. Maps of bullfrog infested areas and potential red legged frog habitat will be used to avoid transportation of bullfrogs into red-legged frog habitat.

Bald eagles

There are no known nesting bald eagles in Yosemite National Park. Bald eagles forage inside the Park at Lake Eleanor, and nest outside the Park at Cherry Lake. Smoke from burns could disturb foraging bald eagles. No burning during the nesting season (from February 15 to August 15) near known nesting sites unless a qualified biologist determines that activities will not adversely affect the bald eagle.