



**US Army Corps
of Engineers** ®

Walla Walla District
BUILDING STRONG®

**AQUATIC INVASIVE SPECIES
WATERCRAFT INSPECTION STATIONS
GEOGRAPHIC EXPANSION TO INCLUDE
THE RUSSIAN RIVER BASIN**

**Federal Natural Resources Law Compliance
and
Biological Evaluation**

ADMINISTRATIVE RECORD – DO NOT DESTROY

January 2024

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SUMMARY

This biological evaluation was prepared pursuant to Section 7(a)(2) of the Endangered Species Act (ESA) to evaluate the effects of the U.S. Army Corps of Engineers (Corps) proposed geographic expansion of watercraft inspection stations to include the Russian River Basin (RRB) on listed species under the jurisdiction of the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The Corps proposes to cost-share establishment and operations of watercraft inspection stations within the Russian River Basin in California.

Watercraft inspection stations are established and operated in previously developed areas, easily accessible by vehicular traffic, and require no habitat disturbance or modification. In the event that habitat such as nearby herbaceous ground cover must be disturbed, surveys would be conducted for specific species identified herein, and no action taken in the event that those species are present at a given site.

The Corps reviewed the potential effects of the proposed action and determined there would be no effect on 39 species and associated critical habitats under the protection of the ESA.

The Corps has further determined that there would be no adverse effects to Essential Fish Habitat, the Fish and Wildlife Coordination Act does not apply, there would be no take under the Migratory Bird Treaty Act, and there would be no disturbance or take under the Bald and Golden Eagle Protection Act.

Should the proposed action change to involve the establishment of watercraft inspection stations within undisturbed habitats, further review and re-analysis of potential adverse effects on ESA-listed species and other federal resources will be necessary.

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1. Background

This Biological Evaluation (BE) presents the results of U.S. Army Corps of Engineers (USACE) evaluations of the potential effects associated with a proposed federal action to engage in several techniques to help prevent the spread of aquatic invasive species (AIS) into or out of the Russian River Basin (RRB). The proposed action calls for USACE participation in a cost-shared effort to coordinate the establishment of new (or bolster existing) watercraft inspection stations (WIS) maintained and operated by non-federal sponsors in the state of California. The proposed action also includes the establishment of invasive species monitoring and contingency planning, and rapid response planning and preparation to help reduce the risks associated with infestations of AIS in and out of waters of the United States (U.S.), as defined in 40 CFR 230.3(s), "within the RRB. The proposed action could also include the reimbursement of costs associated with a rapid response action, were such an action to occur. However, due to the uncertainty regarding the time, location, and means of rapid response the effects of rapid response would be evaluated in a future document, to be completed prior to the reimbursement of any rapid response.

2. Project Purpose and Need

The purpose of the proposed action is to assist non-Federal sponsors with establishing and operating watercraft inspection stations, monitoring, and rapid response efforts to aid in the preventing the spread of AIS into or out of waters of the U.S. within the RRB. The proposed action would be conducted in collaboration with regional partners as part of a larger, comprehensive defense strategy to protect water bodies in the RRB, pursuant to Section 104 of the RHA 1958 (33 USC 610).

The proposed action is needed because the risk of the spread of AIS to waters within the RRB is high, and the introduction and establishment of AIS (particularly dreissenids) has the potential to damage and create increased operation and maintenance costs to water-related infrastructure, recreation, and the ecosystems. Dreissenids present a direct threat to USACE authorized purposes in the basin. Once a waterway is infected, dreissenids can reproduce rapidly and spread throughout a reservoir, and downstream in the watershed (Wong et al. 2010).

3. Project Description

This BE focuses on the elements of the proposed action that could have direct effects to species – the establishment and operation of watercraft inspection stations. The indirect effects of preventing the spread of AIS would be greatly beneficial but are not considered in this evaluation.

The state of California and other non-federal sponsors in the state follows similar protocols and standards for watercraft inspections based on *Uniform Minimum Standards and Protocols for Watercraft Inspection and Decontamination Programs for Dreissenid Mussels in the Western United States* (Elwell and Phillips 2020). Watercraft inspection stations are one means to prevent dreissenids and other AIS from spreading.

Watercraft inspection stations are strategically located based on several factors: key entry points into states or watersheds (PNWER and PSMFC 2015); routes from infected water bodies to local water bodies; safety of personnel and public; ease of public access; infrastructure availability for setting up facilities (electricity, water, restrooms, etc.); and available space for decontamination, where applicable.

A typical station consists of a shelter/covering, such as a shipping container, a construction trailer, canopy, or tent; a transport vehicle; signage; a pressure washer; outreach materials; and applicable personnel amenities (e.g., heaters for cold weather, portable restrooms, etc.).

A watercraft inspection typically includes a screening interview to collect information pertaining to origination, boat usage, cleaning habits, knowledge of AIS, etc.; distribution of information about AIS; and a boat inspection. Based on the screening interview, a watercraft inspector will either inspect the boat, let the boat pass through, perform a hot wash, or perform a full decontamination.. Regulations for contaminated or “fouled” boats varies among states. The use of hot water (140°F, 60°C) and drying are highly effective tools to kill dreissenid mussels (Elwell and Phillips 2020).

Clean water will be hauled to each inspection site in a truck-mounted or trailer-mounted tank. Scientific research on dreissenid mortality indicates that 120°F (49°C) (internal) and 140°F (60°C) (engines/external) is necessary to achieve an effective decontamination (Elwell and Phillips 2020). This temperature is also used for hot washes. Hot water is applied with a high-pressure washer to kill and remove mussels and other AIS. A hot wash is typically performed when a vessel is grimy or contains dead mussels or weeds. It entails spraying hot water all over the surface of the vessel and into the engine to kill anything not seen and takes approximately 20 minutes to complete.

A decontamination is performed when live mussels are present. Decontaminations involve the same equipment, but are more detailed, taking hours instead of minutes. Some states perform decontaminations onsite at the inspection station, and other states send the boat to another location, such as shipyard or impound lot, either could be utilized in the RRB.

The temporary establishment of watercraft inspection stations allows them to be easily moved and placed in the most effective locations each year. Each year, the non-federal partners determine the need to add, relocate, or close inspection stations, or if hours of operation should be adjusted. The effectiveness of a station is determined by the criteria in the preceding paragraph, as well as the degree of boat traffic and percentage of fouled vessels. A station’s proximity to other stations is another factor that influences its effectiveness because of the importance of maintaining a degree of redundancy in the event boats pass a station without stopping. As stated in the report by PNWER and PSMFC (2015), “It is important to understand that no one station is the key to prevention efforts. There are examples of fouled conveyances passing through stations or avoiding stations on certain roadways. As a result, a network of perimeter and interior

stations, including permanent and roving stations, is integral to preventing a dreissenid introduction.”

Watercraft inspection stations are typically set up in existing paved or gravel areas. Any runoff from cleaning a vessel will either percolate directly into the ground, evaporate, or go into a retention basin where it will percolate into the ground. No new ground disturbance will occur to establish watercraft inspection stations (without first performing an ESA-listed plant evaluation or survey). Also, there will be no possibility of water or debris from a hot wash or other decontamination from entering any waterbody. There are instances where a wash/decontamination will be performed at a watercraft owner’s residence. In such instances, trained staff will evaluate the location, including where any runoff could go. If there is any chance of discharging to an uninfected waterbody, the watercraft will be hauled to an area where no water or debris from the wash/decontamination will be discharged to a waterbody. Wash water will also not be allowed to flow over land with any type of vegetation without first performing an ESA-listed plant evaluation or survey.

4. Project Location

The location of the proposed action is the RRB (as defined by the legislative authority) within the state of California (Figure 1). There are two reservoir projects within the RRB, Coyote Valley Dam, which created Lake Mendocino, and Warm Springs Dam, which created Lake Sonoma. Both projects are owned by USACE and co-operated by USACE and Sonoma Water, formerly known as the Sonoma County Water Agency.

The RRB encompasses 1,500 square miles (3,850 kilometers²) of Mendocino County and Sonoma County, California. This region is bounded by the Maycamas Mountains (east), the Mendocino Range or Mendocino Highlands (west and north), and the Laguna de Santa Rosa (south). The major tributaries include Forsythe Creek (14 linear miles with 48.16 square miles of drainage), Big Sulphur Creek (21.8 linear miles with 53.64 square miles of drainage), Dry Creek (42.8 linear miles with 122.04 square miles of drainage), Austin Creek (15.6 linear miles with 37.96 square miles of drainage), and Laguna de Santa Rosa, which terminates at Mark West Creek (13.6 linear miles with 93.01 square miles of drainage). The headwaters of the Russian River begin at Busch Creek near Pontiac Peak, and the East Fork of the Russian River near Foster Mountain, California. The rivers and creek flow south through the California Coastal Range. The East Fork flows through Potter Valley and empties into Lake Mendocino, converging with the main stem of the Russian River in Ukiah, California. The Russian River continues south, meandering along Highway 101 corridor until just south of the city of Healdsburg where the river flows to the southwest before emptying into the Pacific Ocean at Jenner, California.

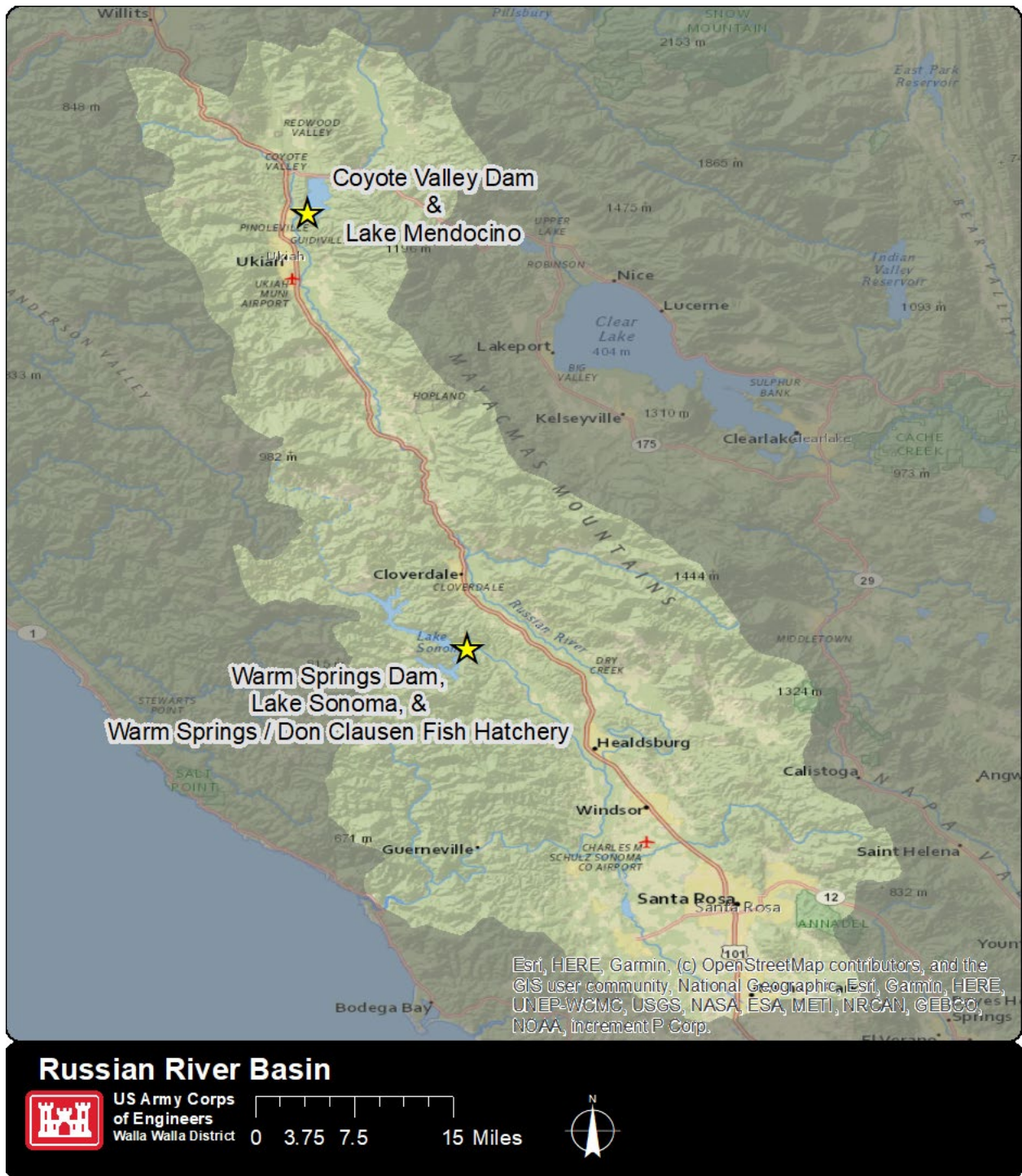


Figure 1. The Russian River Basin

5. Federal Natural Resource Laws

5.1. Mammals

5.1.1. Salt Marsh Harvest Mouse

The salt marsh harvest mouse, *Reithrodontomys raviventris*, is a species of mouse that faces conservation challenges, as it was listed as a federally endangered species under the Endangered Species Act on July 13, 1970. This small rodent is characterized by its grayish-brown fur, large eyes, and a bicolored tail. The salt marsh harvest mouse is native to the tidal marshes surrounding the San Francisco Bay area in California. It occupies a specialized niche within these ecosystems, preferring areas with dense vegetation, such as pickleweed and cordgrass, which provide both shelter and food.

The salt marsh harvest mouse is known to inhabit the tidal marshes in the San Francisco Bay area, including some areas just south of the RRB in California. Critical habitat has been designated for the salt marsh harvest mouse in California to ensure the protection and preservation of the areas essential for its survival. The proposed action is not within salt marsh harvest mouse critical habitat. Threats to this species include habitat loss due to urban development, sea-level rise, and changes in tidal marsh dynamics caused by human activities.

Currently, the salt marsh harvest mouse is restricted to pickleweed dominated saline marsh habitats around the San Francisco Bay Estuary and mixed saline or brackish areas in the Suisun Bay area. The proposed action would not be sited within these habitats and would in any case, be located in upland and paved areas. **There would be no effect to the salt marsh harvest mouse.**

References:

U.S. Fish and Wildlife Service. (2008). salt marsh harvest mouse (*Reithrodontomys raviventris*) 5-Year Review: Summary and Evaluation.

California Department of Fish and Wildlife. (2022). Salt Marsh Harvest Mouse.

United States Geological Survey. (2019). Salt Marsh Harvest Mouse.

5.2. Birds

5.2.1. Hawaiian Petrel

The Hawaiian petrel, *Pterodroma sandwichensis*, is listed as an endangered species under the Endangered Species Act, with its protection status declared on October 13, 1967. This seabird boasts a striking appearance with a dark cap, white face, and a contrasting black "M" across its back and wings. The Hawaiian petrel is well adapted for life at sea, possessing a keen sense of smell to locate prey over vast oceanic expanses.

Endemic to the Hawaiian Islands, the Hawaiian petrel primarily nests in high-altitude areas on the islands of Hawaii, Maui, and Kauai. The species gravitates toward montane and subalpine ecosystems, nesting in burrows on steep, grassy slopes. These birds are nocturnal, leaving their nests at night to forage for fish and squid in the surrounding marine environment. Unfortunately, their limited distribution makes them highly vulnerable to environmental changes and anthropogenic threats.

The Hawaiian petrel does not have a documented presence in the Russian River basin in California. Furthermore, critical habitat for this species is not designated in the state of California. The Hawaiian petrel may be a rare visitor to the Russian River estuary. The proposed action would not be sited in the estuary, and would in any case, be located in upland and paved areas. **There would be no effect to Hawaiian petrel.**

References:

U.S. Fish and Wildlife Service. (2022). Hawaiian Petrel (*Pterodroma sandwichensis*).

BirdLife International. (2022). *Pterodroma sandwichensis*. The IUCN Red List of Threatened Species.

5.2.2. Marbled Murrelet

The Marbled murrelet, *Brachyramphus marmoratus*, was listed as a threatened species under the Endangered Species Act on October 1, 1992. This small, elusive seabird displays a unique appearance, characterized by a marbled black-and-white plumage. Marbled murrelets are known for their distinctive nesting behavior, with individuals choosing old-growth or mature coniferous trees near coastal areas for nesting sites. These birds have a vast distribution, spanning the Pacific Northwest of North America, from Alaska to California. Critical Habitat has been designated for the marbled murrelet, including in the RRB.

The primary conservation focus for the marbled murrelet remains on its breeding habitats in coastal forests, where logging and habitat loss have posed significant threats. The major threats to the Marbled Murrelet include habitat loss due to logging of old-growth forests, oil spills, and climate change impacting marine food availability. Conservation efforts aim to protect and restore the coastal forest habitats crucial for nesting, alongside measures to mitigate the impacts of human activities on marine environments.

The Marbled Murrelet may nest in coastal forests near or in the Russian River estuary. The proposed action would not be located in in potential nesting habitat for marbled murrelets. No activities would take place within 100 meters of occupied marbled murrelet habitat. WS would only be sited at developed areas with frequent boater traffic, such as boat launches. **There would be no effect to marbled murrelet.**

References:

U.S. Fish and Wildlife Service. (2022). Marbled Murrelet (*Brachyramphus marmoratus*) 5-Year Review.

Pacific Seabird Group. (2004). Marbled Murrelet (*Brachyramphus marmoratus*).

5.2.3. Northern Spotted Owl

The northern spotted owl, *Strix occidentalis caurina*, was listed as a threatened species under the Endangered Species Act on June 26, 1990. Recognized by its distinctive brown plumage covered in white spots, this medium-sized owl is native to the old-growth forests of the Pacific Northwest in North America. Northern spotted owls exhibit a broad distribution, ranging from southwestern British Columbia through western Washington and Oregon to northern California. These birds have specific habitat requirements, preferring mature and old-growth coniferous forests for nesting. Critical habitat has been designated for the Northern spotted owl, including in the RRB.

The conservation focus for the northern spotted owl is primarily on maintaining suitable nesting and foraging habitats, particularly those with large, unfragmented tracts of old-growth forest. The major threats to the northern spotted owl include habitat loss due to logging, habitat fragmentation, and competition with the Barred Owl (*Strix varia*). Conservation efforts aim to manage and protect its forested habitats, implement sustainable forestry practices, and address the impact of invasive species, especially the Barred Owl.

The northern spotted owl does occur within mature and coastal forests within the Western Portions of the Russian River basin. However, WIS would not be establish in forests, but instead and boat launches and other developed areas with substantial existing boat traffic. **The would be no effect to Northern spotted owl.**

References:

U.S. Fish and Wildlife Service. (2022). Northern Spotted Owl (*Strix occidentalis caurina*) 5-Year Review.

U.S. Forest Service. (1994). Recovery Plan for the Northern Spotted Owl.

5.2.4. Western Snowy Plover

The western snowy plover, *Charadrius nivosus*, is a small shorebird that was listed as a threatened species under the Endangered Species Act on March 5, 1993. Recognized for its pale plumage and distinctive dark patches on its forehead and behind its eyes, the western snowy plover inhabits sandy beaches and dune systems along the Pacific coast of North America. Its range extends from Washington to Baja California, Mexico.

These birds depend on coastal habitats, specifically sandy beaches, sparsely vegetated foredunes, and coastal lagoons for nesting and foraging.

Conservation efforts for the western snowy plover primarily focus on habitat protection and management, including predator control and measures to reduce human disturbance in nesting areas. Climate change, habitat loss, and disturbance by humans and pets are identified as significant threats to the Western Snowy Plover's survival.

Just outside of the proposed action area, western snowy plover are present at beaches where the Russian River meets the Pacific Ocean. Dillon Beach and portions of Point Reyes national seashore are designated critical habitat for the western snowy plover. WIS would not be located in western snowy plover habitat, including critical habitat. WIS would be located in developed boat ramps and other areas upland with high densities of freshwater boating traffic. **There would be no effect to Western snowy plover.**

References:

U.S. Fish and Wildlife Service. (2022). Western Snowy Plover (*Charadrius nivosus*) 5-Year Review.

California Department of Fish and Wildlife. (2019). Western Snowy Plover Monitoring Program.

U.S. Geological Survey. (2019). Coastal Change Hazards: Western Snowy Plover.

5.2.5. Yellow-billed Cuckoo

The Yellow-billed cuckoo (*Coccyzus americanus*) is listed as a threatened species under the Endangered Species Act since 2014. This medium-sized cuckoo species has a long tail and distinctive yellow lower mandible, giving it its name. It has a slim build, gray-brown upperparts, and a white belly with black and white barring on the chest. Yellow-billed cuckoos are found across the Americas, with their breeding range extending from the central and western United States to southern Canada, and their winter range reaching into South America. They primarily inhabit riparian forests and woodlands near streams, rivers, and wetlands.

The yellow-billed cuckoo faces several threats that have contributed to its threatened status. Habitat loss and degradation, particularly the loss of riparian woodlands due to land development, river channelization, and alteration of water flows, are major concerns for the species. Other threats include the reduction of suitable nesting sites, predation, climate change impacts, and pesticide use, which affects the availability of prey.

Historically, yellow-billed cuckoo was present in parts of the Russian River basin, though it has not been documented within the basin in some time. There is no designated in the proposed action area for yellow-billed cuckoo. The proposed action

would be very unlikely to be located near areas where yellow-billed cuckoo may be present as they require large (40+ hectare) contiguous stretches of riparian forest to support a sufficient forage base for nesting. WIS would not be sited in areas suitable for yellow-billed cuckoo nesting. **There would be no effect to yellow-billed cuckoo.**

References:

U.S. Fish and Wildlife Service. (2014). Yellow-billed Cuckoo (*Coccyzus americanus*) 5-Year Review: Summary and Evaluation.

United States Geological Survey. (2021). Yellow-billed Cuckoo.

5.3. Reptiles and Amphibians

5.3.1. Green Sea Turtle

The green sea turtle (*Chelonia mydas*) is a charismatic marine species that has been listed as threatened under the Endangered Species Act since 1978. Known for its distinctive greenish skin, this species is distributed globally in both tropical and subtropical waters. Green sea turtles are easily recognizable due to their large size, streamlined shell, and paddle-like limbs. They are primarily herbivores, feeding on seagrasses and algae, contributing to the health of coastal ecosystems. These turtles play a crucial role in maintaining the balance of marine ecosystems.

The main threats to green sea turtles include habitat loss, pollution, climate change, and accidental capture in fishing gear. Conservation efforts focus on protecting nesting sites, implementing sustainable fishing practices, and raising awareness about the importance of marine conservation.

While the green sea turtle is not typically found in freshwater environments like the Russian River basin, it is known to frequent coastal waters of California. Critical habitat has been designated for the green sea turtle, but not in the proposed action area. WIS would not be sited in a marine area and **there would be no effect to green sea turtles.**

References:

U.S. Fish and Wildlife Service. (2016). Green Sea Turtle (*Chelonia mydas*) 5-Year Review: Summary and Evaluation.

National Oceanic and Atmospheric Administration. (2021). Green Sea Turtle (*Chelonia mydas*).

5.3.2. Northwestern Pond Turtle

The Northwestern Pond Turtle (*Actinemys marmorata*) is a freshwater turtle species that has been proposed for listing as threatened under the Endangered Species Act. No

critical habitat has been designated. Native to the western United States, these turtles are characterized by their dark-colored, highly domed shells and distinctive yellow markings on their heads and limbs. They are relatively small, with adults typically reaching a shell length of 6 to 8 inches. Northwestern pond turtles inhabit a variety of aquatic environments, including ponds, lakes, slow-moving rivers, and marshes.

Northwestern pond turtles are found along the Pacific Coast, ranging from Washington to northern Baja California in Mexico. They are well-adapted to both aquatic and terrestrial life, often basking on rocks or logs in the sun. The threats to northwestern pond turtles include habitat loss due to urbanization, water pollution, and introduced predators. Conservation strategies involve protecting and restoring essential habitats, managing water quality, and implementing measures to control the spread of non-native species.

Northwestern pond turtles are found throughout California, including in the RRB. WIS would be necessarily sited near potential areas of Northwestern pond turtle occupation. WIS would not be sited within northwestern pond turtle habitat. Further stipulations listed in Section 6 would ensure that there would be **no effect to northwestern pond turtle**.

References:

United States Geological Survey. (2009). Northwestern Pond Turtle (*Actinemys marmorata*).

California Department of Fish and Wildlife. (2016). Northwestern Pond Turtle (*Actinemys marmorata*).

5.3.3. California Red-legged Frog

The California red-legged frog (*Rana draytonii*) was listed as threatened under the Endangered Species Act in 1996. These frogs exhibit a distinctive appearance with a reddish hue on their hind legs, which intensifies during the breeding season. Their range historically extended from Baja California in Mexico to the northern parts of California. The proposed action area overlaps the designated critical habitat for this species.

The California red-legged frog faces several threats, including habitat loss due to urbanization and agriculture, introduction of non-native species, and disease. These threats have led to a decline in their populations over the years. Conservation efforts involve habitat restoration, predator control, and captive breeding programs to support the recovery of this iconic amphibian species.

The California red-legged frog is known to inhabit a variety of aquatic environments, including ponds, streams, and marshes. This species may be present in suitable freshwater habitats within the RRB. Ground disturbance related to WIS and associated

infrastructure would not be conducted in occupied habitats. No WIS would be sited in occupied special-status amphibian habitats without further review and possible consultation with the US Fish and Wildlife Service. **There would be no effect to California red-legged frog.**

References:

United States Fish and Wildlife Service. (2002). California Red-legged Frog (*Rana draytonii*) 5-Year Review: Summary and Evaluation.

California Department of Fish and Wildlife. (n.d.). California Red-legged Frog (*Rana draytonii*).

5.3.4. California Tiger Salamander

The California tiger salamander (*Ambystoma californiense*) has been listed as endangered under the Endangered Species Act in Sonoma County since 2002, and as threatened in central California since 2004. These salamanders exhibit a striking appearance with bold yellow or cream-colored markings against a dark background, making them easily identifiable. Historically, their range encompassed various habitats in California, from grasslands to vernal pools. Their life cycle requires breeding in seasonal pools, where larvae develop into adults. Critical habitat has been designated for the California tiger salamander, including in the RRB.

The RRB is part of the historical range of the California tiger salamander. However, habitat loss due to agricultural expansion and urban development, as well as the introduction of non-native species, pose significant challenges to their survival.

The California tiger salamander is known to inhabit a variety of aquatic and upland environments. This species may be present in suitable freshwater habitats within the RRB. Ground disturbance related to WIS and associated infrastructure would not be conducted in occupied habitats. No WIS would be sited in occupied special-status amphibian habitats without further review and possible consultation with the US Fish and Wildlife Service. **There would be no effect to California tiger salamander.**

References:

United States Fish and Wildlife Service. (2004). Final Rule to List the California Tiger Salamander as Threatened.

California Department of Fish and Wildlife. (n.d.). California Tiger Salamander (*Ambystoma californiense*).

5.4. Fish

5.4.1. California Coastal Chinook Salmon

The California Coastal Evolutionary Significant Unit (ESU) of Chinook salmon, *oncorhynchus tshawytscha*, was listed as threatened under the Endangered Species Act in 1999. This ESU plays a crucial role in the ecological health of California's coastal watersheds. Chinook salmon are anadromous fish, meaning they migrate from freshwater to the ocean and back to freshwater for spawning. They are characterized by their streamlined bodies, silver scales, and distinct black spots on their tails and upper body. The primary threats to the California Coastal Chinook salmon ESU include habitat degradation due to urbanization, agriculture, dams, and water diversions. Overfishing, pollution, and climate change also contribute to the decline of their populations. Critical habitat has been designated for California Coastal and includes the RRB.

Chinook salmon historically inhabited various rivers and streams along the California coast, including the Russian River. The species relies on clean, cool, and well-oxygenated waters for successful spawning. Chinook salmon spawn in both the mainstem river and its larger tributaries. The Chinook population in the Russian River follows a fall-run pattern, typically entering the river system to spawn during the autumn season. However, the precise timing of this migration is significantly influenced by the annual variation in rainfall. Given that the mouth of the river remains unobstructed, Chinook may commence their migration as early as August or as late as January.

The proposed action would not affect aquatic habitats. All WIS would be sited in upland areas a minimum of 50 feet from any waterbody. Any runoff from washing or decontaminating a vessel will either evaporate, percolate directly into the ground, be collected in a retention basin with no possibility of reaching waterbodies or wetlands or be transferred to a location away from any waterbody. There would be no effects to aquatic environments. **There would be no effect to Chinook salmon.**

References:

NOAA Fisheries. (2016). 2016 5-Year Review: Summary & Evaluation of California Coastal Chinook Salmon and Northern California Steelhead.

NOAA Fisheries. (2016). Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead.

5.4.2. Central California Coast Coho Salmon

The Central California Coast Coho salmon (*Oncorhynchus kisutch*) was designated as a threatened species under the Endangered Species Act in 1996 and upgraded to threatened in 2005. This ESU of Coho salmon is crucial for maintaining the ecological balance in California's coastal watersheds. Coho salmon are anadromous, undertaking migrations from freshwater to the ocean and back for spawning. Recognizable by their distinct silver bodies and the characteristic red coloration during spawning, these

salmon are dependent on clean, cool, and well-oxygenated waters for successful reproduction. Threats to the Central California Coast Coho salmon include habitat degradation due to urbanization, agriculture, dams, and water diversions. Overfishing, pollution, and the impacts of climate change pose additional challenges to the survival of this species.

Historically, Central California Coast Coho salmon inhabited various rivers and streams along the coastal region. Their life cycle involves spawning in both mainstem rivers and larger tributaries. Migration into the Russian River peaks in December to January each winter. Critical habitat has been designated for central California Coast Coho salmon and includes the RRB.

The proposed action would not affect aquatic habitats. All WIS would be sited in upland areas a minimum of 50 feet from any waterbody. Any runoff from washing or decontaminating a vessel will either evaporate, percolate directly into the ground, be collected in a retention basin with no possibility of reaching waterbodies or wetlands or be transferred to a location away from any waterbody. There would be no effects to aquatic environments. **There would be no effect to Coho salmon.**

NOAA Fisheries. (2016). Science, Service, Stewardship 2016 5-Year Review: Summary & Evaluation of Southern Oregon/Northern California Coast Coho Salmon.

NOAA Fisheries. (2014). Final Recovery Plan for the Southern Oregon/Northern California Coast Evolutionarily Significant Unit of Coho Salmon (*Oncorhynchus kisutch*).

5.4.3. Central California Coast Steelhead

The Central California Coast steelhead (*Oncorhynchus mykiss*) was listed as a threatened species under the Endangered Species Act in 1997. This anadromous species exhibits a complex life cycle, migrating multiple times from freshwater to the ocean and back to freshwater for spawning. Recognized by its silvery sides and a distinctive pink to red stripe along its lateral line, the steelhead plays a critical role in maintaining the ecological balance of California's coastal watersheds. Critical habitat has been designated for central California Coast steelhead and includes the RRB

Historically, Central California Coast steelhead inhabited numerous rivers and streams, including the Russian River. The migration timing of steelhead can vary, with some individuals undertaking ocean migrations in the fall and others in the spring. The timing is influenced by factors such as water temperature and flow conditions. These steelhead require clean, cool, and well-oxygenated waters for successful spawning. Habitat degradation due to urbanization, agriculture, dams, and water diversions poses a significant threat to their survival. Overfishing, pollution, and climate change further contribute to the decline in their populations.

The proposed action would not affect aquatic habitats. All WIS would be sited in upland areas a minimum of 50 feet from any waterbody. Any runoff from washing or decontaminating a vessel will either evaporate, percolate directly into the ground, be collected in a retention basin with no possibility of reaching waterbodies or wetlands or be transferred to a location away from any waterbody. There would be no effects to aquatic environments. **There would be no effect to steelhead.**

References:

NOAA Fisheries. (2016). 2016 5-Year Review: Summary & Evaluation of California Coastal Chinook Salmon and Northern California Steelhead.

NOAA Fisheries. (2016). Final Coastal Multispecies Recovery Plan for California Coastal Chinook Salmon, Northern California Steelhead and Central California Coast Steelhead.

5.4.4. Tidewater Goby

The tidewater goby (*Eucyclogobius newberryi*) was listed as endangered under the Endangered Species Act in 1994, this species inhabits the coastal areas of California. The tidewater goby is characterized by its small size, typically reaching lengths of about 2 inches, and exhibits a slender, elongated body. Their coloration is variable but generally includes shades of brown or olive. Critical habitat has been designated for Tidewater Goby, but not in the RRB.

The tidewater goby historically thrived in lagoons and estuaries along the California coast, including areas within the RRB. These gobies require a delicate balance of saline and freshwater conditions, making them particularly susceptible to habitat alterations. The primary threats to the Tidewater Goby include habitat loss due to urbanization, agriculture, and changes in water flow patterns. Climate-related factors, such as sea-level rise and changes in precipitation patterns, further exacerbate the challenges facing this species.

The proposed action would not affect aquatic habitats. All WIS would be sited in upland areas a minimum of 50 feet from any waterbody. Any runoff from washing or decontaminating a vessel will either evaporate, percolate directly into the ground, be collected in a retention basin with no possibility of reaching waterbodies or wetlands or be transferred to a location away from any waterbody. There would be no effects to aquatic environments. **There would be no effect to tidewater goby.**

References:

United States Fish and Wildlife Service. (1994). Determination of Endangered Status for Three Plants and the Tidewater Goby on Vandenberg Air Force Base, California.

California Department of Fish and Wildlife. (n.d.). Tidewater Goby (*Eucyclogobius newberryi*).

5.5. Invertebrates

5.5.1. Behren's Silverspot Butterfly

The Behren's silverspot butterfly (*Speyeria zerene behrensii*) is a captivating and endangered species protected under the Endangered Species Act since 1997. This butterfly species is native to California and is known for its distinctive and intricate wing patterns. The upper side of its wings features a combination of black, orange, and silver spots, creating a visually striking appearance. The main threats to the Behren's silverspot butterfly include habitat destruction due to urbanization, agriculture, and invasive plant species. Additionally, the alteration of natural fire regimes, which play a role in maintaining suitable habitats, poses a significant challenge. Critical habitat has not been designated for this species.

The historically documented range of Behren's silverspot butterfly spans from the vicinity of the City of Mendocino in Mendocino County to the region around Salt Point State Park in Sonoma County. This butterfly species is predominantly found in the coastal terrace prairie habitat situated to the west of the Coast Range in the southern parts of Mendocino and northern areas of Sonoma counties in California. These habitats exhibit a strong influence from their proximity to the ocean, characterized by mild temperatures, moderate rainfall, and frequent summer fog. For a site to be considered suitable for occupancy or potential colonization by Behren's silverspot butterfly, it must provide two crucial resources: caterpillar host plants; and adult nectar sources.

The RRB, historically part of the Behren's silverspot butterfly's range, has witnessed a decline in its population due to habitat loss and degradation. Critical habitat has not been designated. It inhabits areas of coastal dunes and meadows, which are essential for the butterfly's larval host plants and nectar sources. However, despite conservation efforts, the butterfly faces ongoing threats that jeopardize its existence.

WIS would be located away from coastal areas and would not be located in coastal meadow or dunes. WIS would be located in upland areas of high freshwater boating traffic. No ground disturbing activities would be permitted in areas of known occupancy by Behren's silverspot butterfly. **There would be no effect to Behren's silverspot butterfly.**

References:

United States Fish and Wildlife Service. (1997). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Behren's Silverspot Butterfly.

California Department of Fish and Wildlife. (n.d.). Behren's Silverspot Butterfly (*Speyeria zerene behrensii*).

5.5.2. Myrtle's Silverspot Butterfly

Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*) is an endangered species protected under the Endangered Species Act since 1992. This butterfly species, native to the western United States, is renowned for its intricate wing patterns. The upper side of its wings features a striking combination of black, orange, and silver spots, creating a visually captivating appearance. Historically, Myrtle's silverspot butterfly had a broader distribution, including coastal areas from Northern California to Baja California, with specific habitat preferences for coastal dune ecosystems. Presently, it is limited to coastal grasslands and scrub, with the larval host plant (western dog violet) in the immediate vicinity of Point Reyes, Main County. Critical habitat has not been designated for this species.

WIS would be located away from coastal areas and would not be located in coastal grasslands. WIS would be located in upland areas of high freshwater boating traffic. No ground disturbing activities would be permitted in areas of known occupancy by Myrtle's silverspot butterfly. **There would be no effect to Myrtle's silverspot butterfly.**

References:

United States Fish and Wildlife Service. (1992). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Myrtle's Silverspot Butterfly.

California Department of Fish and Wildlife. (n.d.). Myrtle's Silverspot Butterfly (*Speyeria zerene myrtleae*).

5.5.3. California Freshwater Shrimp

The California freshwater shrimp (*Syncaris pacifica*) was listed as endangered under the Endangered Species Act in 1988. However, it is crucial to monitor its status due to potential threats to its habitat and population. This freshwater shrimp species has a distinctive appearance, characterized by a robust body and a reddish-brown coloration. It typically inhabits freshwater habitats such as streams, rivers, and creeks with clean, well-oxygenated water. The distribution of this species extends across various regions of California, including parts of the RRB. Critical habitat has not been designated for this species.

The main threats to the California freshwater shrimp include habitat degradation, pollution, and alterations to natural water flow patterns. Urbanization, agricultural activities, and water extraction can negatively impact the quality of freshwater habitats, potentially jeopardizing the survival of this species. Conservation efforts should focus on

habitat restoration, water quality management, and sustainable water use practices to safeguard the California freshwater shrimp.

The proposed action would not affect aquatic habitats. All WIS would be sited in upland areas. There would be no effect to **California freshwater shrimp**.

References:

United States Geological Survey. (n.d.). California Freshwater Shrimp (*Syncaris pacifica*).

California Department of Fish and Wildlife. (n.d.). California Freshwater Shrimp (*Syncaris pacifica*).

5.5.4. Conservancy Fairy Shrimp

The Conservancy fairy shrimp (*Branchinecta conservatio*) was listed as endangered under the Endangered Species Act in 1994. Critical habitat has been designated, but not in the RRB. This small crustacean exhibits a unique and delicate appearance, characterized by its translucent body and distinctive swimming motion. The species is well-distributed across vernal pools and seasonal wetlands in various regions, especially in the western United States. The Conservancy fairy shrimp is known for its preference for ephemeral water bodies, particularly those found in grasslands and coastal areas. Critical habitat has been designated for this species, but not in the RRB.

Conservancy fairy shrimp are endemic to vernal pools in California, and this species is restricted to the Central Valley except for one population along the Central Coast in Ventura County. The majority of sites inhabited by the Conservancy fairy shrimp are relatively large and turbid vernal pools, often referred to as playa pools. Conservancy fairy shrimp are not known to occur in the RRB.

The proposed action would not affect aquatic habitats. All WIS would be sited in upland areas. No WIS would be located in a wetland or vernal pool. **There would be no effect to Conservancy fairy shrimp.**

References:

United States Fish and Wildlife Service. (2004). Conservation Guidelines for the Conservancy Fairy Shrimp (*Branchinecta conservatio*) in the Western United States.

United States Fish and Wildlife Service (2005). Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon

5.6. Flowering Plants

5.6.1. Baker's Larkspur

Baker's larkspur (*Delphinium bakeri*) was listed as an endangered species under the Endangered Species Act in 1980. This delicate flowering plant is characterized by its tall stem adorned with distinctive blue-purple flowers and is endemic to certain regions of California. The species primarily inhabits open woodlands, grassy slopes, and meadows, favoring well-drained soils.

The distribution of Baker's larkspur is primarily concentrated in northern and central California. It can be found in various counties, including those within the lower Russian River basin. Critical habitat has been designated for the Baker's larkspur, but not within the RRB.

The threats to Baker's larkspur include habitat destruction due to urbanization, agriculture, and invasive species. Additionally, changes in hydrological patterns, such as alterations in water flow regimes, pose challenges to its survival. Conservation strategies should prioritize habitat restoration and protection, aiming to mitigate these threats and ensure the continued existence of Baker's larkspur.

WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Baker's larkspur.**

References:

United States Fish and Wildlife Service. (2001). *Delphinium bakeri* (Baker's larkspur) 5-Year Review: Summary and Evaluation.

California Native Plant Society. (n.d.). *Delphinium bakeri*.

5.6.2. Burke's Goldfields

Burke's goldfields (*Lasthenia burkei*) was listed as an endangered species under the Endangered Species Act in 1991. This native California plant is characterized by its vibrant yellow flowers and plays a crucial role in supporting pollinators. Burke's goldfields are found predominantly on the Santa Rosa Plain, which is located in central Sonoma County, California, and is characterized by seasonal wetlands, predominately in the form vernal pools, and associated upland grassland habitat. The main threats to the species arise from the destruction and fragmentation of its habitat due to urban expansion, building roads, converting land for agriculture, and degrading habitat through inappropriate grazing practices, agriculture, and other human-induced alterations to

vernal pool hydrology. Other less direct threats include damage from off-road vehicles and erosion. Critical Habit has not been designated for Burke's goldfields.

WIS would not be located in seasonal wetlands of the Santa Rosa Plain. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Burke's goldfields.**

References:

California Native Plant Society. (n.d.). *Lasthenia burkei*.

U.S. Fish and Wildlife Service. 2016. Recovery Plan for the Santa Rosa Plain: *Blennosperma bakeri* (Sonoma sunshine); *Lasthenia burkei* (Burke's goldfields); *Limnanthes vinculans* (Sebastopol meadowfoam); California Tiger Salamander Sonoma County Distinct Population Segment (*Ambystoma californiense*).

5.6.3. Clara Hunt's Milk-vetch

Clara Hunt's milk-vetch (*Astragalus claranus*) was listed as an endangered species under the Endangered Species Act in 1997. This native California plant is a petite annual herb belonging to the pea family (Fabaceae). Historically, it thrived in grasslands and clearings within whiteleaf manzanita - blue oak woodlands, particularly on rocky clay soils derived from volcanic or serpentine substrates in Napa and Sonoma Counties. This species was spread across an elevation range of 75 to 225 meters. Presently, its habitat has dwindled, and it is confined to five locations in northwestern Napa and eastern Sonoma County. The primary threats to Clara Hunt's milkvetch are habitat destruction and alteration due to urbanization, along with competition from invasive plant species. Critical Habit has not been designated for Clara Hunt's milk-vetch.

WIS would not be located in in the grasslands or woodland clearings of Napa and Sonoma Counties. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Clara Hunt's milk-vetch.**

References:

California Native Plant Society. (n.d.). Clara Hunt's milk-vetch (*Astragalus claranus*).

5.6.4. Clover (Tidestrom's) Lupine

Clover (Tidestrom's) lupine (*Lupinus tidestromii*) was listed as an endangered species under the Endangered Species Act in 1992. This native lupine species is characterized by its distinctive appearance, featuring vibrant, blue to violet flowers and palmate leaves. Clover (Tidestrom's) lupine occurs in two disjunct areas: the Monterey Peninsula in Monterey County, and northwest Mairn county to the Russian River, Sonoma County. The plant thrives on partially stabilized coastal dunes, reaching heights of up to 8 meters. Notably, several occurrences on the Monterey Peninsula are found on remnants of dunes within private residential areas. Flourishing in the mild maritime climate of the central California coast, it populates coastal dune communities alongside other native species such as Menzies' wallflower, sand gilia, beach evening-primrose, beach-bur, beach sagewort, sand verbena, and mock heather. The main threats to Clover (Tidestrom's) lupine include the invasion of non-native plants like iceplant and European beachgrass, along with habitat loss due to development and trampling by hikers and equestrians. Critical habitat has not been designated for Clover (Tidestrom's) lupine.

WIS would not be located in coastal areas. WIS would be located in areas frequented by freshwater boaters. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Clover (Tidestrom's) lupine.**

References:

U.S. Fish and Wildlife Service. (1998). Seven Coastal Plants and the Myrtle's Silverspot Butterfly Recovery Plan.

California Native Plant Society. (n.d.). Tidestrom's lupine (*Lupinus tidestromii*).

5.6.5. Contra Costa Goldfields

Contra Costa goldfields (*Lasthenia conjugens*) was listed as an endangered species under the Endangered Species Act in 1997. This California native plant species is known for its vibrant yellow flowers and is primarily found in annual grasslands. Contra Costa goldfields are found in seven vernal pool systems in central California and are confined to specific areas by factors like topography, soil types, and climatic conditions. The surrounding upland habitat plays a crucial role in maintaining the ecological balance of these vernal pool habitats. The primary threats to these species include habitat loss and fragmentation resulting from urban development, associated

infrastructure, agricultural conversion, altered hydrology, nonnative invasive species, inadequate regulatory mechanisms, exclusion of historic grazing areas, and inappropriate grazing practices (either overgrazing or undergrazing). The resulting small population sizes make these species vulnerable to extinction due to random, naturally occurring events. Critical habitat has been designated for Contra Costa goldfields, but not with the RRB.

WIS would not be located in vernal pools or associated habitats. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Contra Costa goldfields.**

References:

U.S. Fish and Wildlife Service. (2013). *Lasthenia conjugens* (Contra Costa Goldfields) 5-Year Review: Summary and Evaluation

U.S. Fish and Wildlife Service. (2005). Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon

5.6.6. Few-flowered Navarretia

Few-flowered navarretia (*Navarretia leptalea*) was listed as an endangered species under the Endangered Species Act in 1997. This delicate annual herb is characterized by its slender stems and few, small flowers. The species is found in volcanic ash substrate, clay pan vernal pools in chaparral, grassland, or mixed coniferous forest in southern Lake and Napa Counties. The species occurs over a 20 square-mile area at elevations of 1,400 to 2,800 feet and is confined to specific areas by factors like topography, soil types, and climatic conditions. The surrounding upland habitat plays a crucial role in maintaining the ecological balance of these vernal pool habitats. The primary threats to these species include habitat loss and fragmentation resulting from urban development, associated infrastructure, agricultural conversion, altered hydrology, nonnative invasive species, inadequate regulatory mechanisms, exclusion of historic grazing areas, and inappropriate grazing practices (either overgrazing or undergrazing). The resulting small population sizes make these species vulnerable to extinction due to random, naturally occurring events. Critical habitat has not been designated for few-flowered navarretia.

WIS would not be located in vernal pools or associated habitats. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that

may be occupied by special-status flowering plants. **There would be no effect to few-flowered navarretia.**

References:

U.S. Fish and Wildlife Service. 2023. 5-Year Review: Few-Flowered Navarretia (*Navarretia leucocephala* ssp. *pauciflora*)

U.S. Fish and Wildlife Service. 2005. Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon. Portland, Oregon

5.6.7. Kenwood Marsh Checker-mallow

The Kenwood Marsh Checker-mallow (*Sidalcea oregana*) was listed as an endangered species under the Endangered Species Act in 1997. This herbaceous perennial is characterized by its vibrant pink to lavender flowers and is a member of the mallow family. The Kenwood Marsh checker-mallow is a narrow-range endemic originally documented in two valleys in Sonoma County, California: the privately owned Kenwood Marsh and Knight's Valley. This plant thrives in freshwater marshes and riparian areas at elevations below 150 meters. Despite efforts to establish new colonies in potentially suitable habitats, failed attempts suggest that Kenwood Marsh checker-mallow may have specific soil and hydrologic requirements. Critical habitat has not been designated for Kenwood Marsh checker-mallow.

WIS would not be located in the marshes or riparian wetlands of Kenwood Marsh or Knight's Valley. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas on publicly owned land. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Kenwood Marsh checker-mallow.**

References:

US Fish and Wildlife Service. (2009). *Sidalcea oregana* ssp. *valida* (Kenwood marsh checker-mallow) 5-Year Review: Summary and Evaluation.

California Native Plant Society. (n.d.). Kenwood Marsh Checker-mallow (*Sidalcea oregana*).

5.6.8. Lake County Stonecrop

The Lake County stonecrop (*Sedum eastwoodiae*) was listed as an endangered species under the Endangered Species Act in 1997. This perennial succulent is native to the western United States and is known for its fleshy, rounded leaves and clusters of white

to pinkish flowers. Lake County stonecrop occurs in more or less level areas within shallow depressions that retain water seasonally. Its life cycle is intricately connected to the hydrology of these wetlands. This species is exceptionally rare, with its historical range spanning six collection localities in a 16-kilometer (10-mile) radius from Siegler Springs near Lower Lake, Lake County, California . The elevations of these occurrences range from 395 to 790 meters. The existing marsh sandwort occurrences, covering less than 1.2 hectares in total, are all situated on private lands. The primary threats to the species include habitat loss and fragmentation resulting from urban development, associated infrastructure, agricultural conversion, altered hydrology, nonnative invasive species, inadequate regulatory mechanisms, exclusion of historic grazing areas, and inappropriate grazing practices (either overgrazing or undergrazing). The resulting small population sizes make these species vulnerable to extinction due to random, naturally occurring events. Critical habitat has not been designated for Lake County stonecrop.

WIS would not be located in the depressional wetlands of Lake County. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas on publicly owned land. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Lake County stonecrop.**

References:

US Fish and Wildlife Service. (2009). *Parvisedum leiocarpum* (= *Sedella leiocarpa*) (Lake County Stonecrop) 5-Year Review: Summary and Evaluation

U.S. Fish and Wildlife Service. (2005). Recovery Plan for Vernal Pool Ecosystems of California and Southern Oregon.

5.6.9. Loch Lomond Coyote-Thistle

The Loch Lomond coyote-thistle (*Eryngium constancei*) was listed as an endangered species under the Endangered Species Act in 1985. This perennial thistle is native to California and is characterized by its spiny leaves and cone-shaped flower heads. It typically thrives in open, grassy areas, often in sandy or loamy soils. The Loch Lomond coyote-thistle is currently distributed across several known occurrences, with its primary habitat located within the bed of a 7-acre vernal lake near the mountain community of Loch Lomond in southern Lake County, California. In addition to this historic population, there are occurrences in Dry Lake south of Clear Lake, near the town of Cobb, and the Diamond Mountain area near Calistoga in Sonoma County.

WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. No activities would be conducted outside of existing paved areas if surveys indicate the presence of Loch Lomond coyote-thistle. All areas with the potential for

occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Loch Lomond coyote-thistle.**

References:

U.S. Fish and Wildlife Service. (2009). Loch Lomond Coyote-thistle (*Eryngium constancei*). 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office, Sacramento, California. 22 pp

California Native Plant Society. (n.d.). *Eryngium constancei*.

5.6.10. Many-flowered Navarretia

Many-flowered navarretia (*Navarretia leucocephala*) was listed as an endangered species under the Endangered Species Act in 1997. This annual herbaceous plant is characterized by its delicate, white to lavender flowers, and it belongs to the phlox family. The many-flowered navarretia is an exceptionally rare species, and exists exclusively on volcanic substrates, relying on the presence of vernal pools, vernal lakes, and swales for survival. Its life cycle intricately aligns with the hydrology of these wetlands. Presently, this species exists only in a handful of locations in Lake and Sonoma counties. Threats to the species include activities that result in the direct destruction of the plants and their habitat or hydrologic change in its vernal pool habitat. Such activities included wetland drainage, off-highway vehicle use, effects from road maintenance activities, residential development, and competition from invasive weedy plant species. Critical habitat has not been designated for the many-flowered navarretia

WIS would not be located in vernal pools or associated habitats. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. No activities would be conducted outside of existing paved areas if surveys indicate the presence of many-flowered navarretia. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to many-flowered navarretia.**

References:

U.S. Fish and Wildlife Service. (2009). Many-flowered Navarretia (*Navarretia leucocephala* ssp. *plieantha*). 5-Year Review: Summary and Evaluation. U.S.

Calflora. (n.d.). *Navarretia leucocephala*.

5.6.11. Monterey Clover

Monterey clover (*Trifolium trichocalyx*) was listed as an endangered species under the Endangered Species Act in 1998. This perennial herb is characterized by its trifoliate leaves and pinkish-purple flowers. It is found only in a 206-acre area in the central portion of the Monterey Peninsula.

Monterey clover is a typical fire-following plant, thriving in the aftermath of forest fires when reduced canopy cover allows more light to reach the ground. This species becomes less abundant as the forest canopy closes, existing mainly as seeds in the soil. Documented occurrences from 1988 to 1996 reveal that Monterey clover is often found on slopes with a grade ranging from 15 to 30 percent. It prefers openings within Monterey pine forests, specifically on poorly-drained Narlon loamy fine sand, as well as on well-drained Sheridan coarse loamy sand.

The primary threat to Monterey clover is the loss of potential habitat resulting from urban and recreational development, including golf courses. Additionally, fire suppression is a significant concern, as natural fire cycles are disrupted by the close proximity of residential buildings to the current population. The survival of this fire-following species between fire cycles depends on maintaining the plant's habitat and seed bank relatively intact and undisturbed. The precarious state of the remaining habitat, coupled with the ephemeral nature of the plant's reappearance after fires, increases the risk of extinction.

Monterey clover is not found in the RRB. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Monterey clover.**

References:

U.S. Fish and Wildlife Service. (2004). Recovery Plan for Five Plants from Monterey County, California.

California Native Plant Society. (n.d.). *Trifolium trichocalyx*.

5.6.12. Pennell's Bird's-beak

Pennell's bird's-beak (*Cordylanthus tenuis subsp. capillaris*) was listed as an endangered species under the Endangered Species Act in 1995. This annual herb is characterized by its slender stems and clusters of small, tubular flowers. Pennell's bird's-beak is documented solely within the Outer North Coast Ranges floristic province in Sonoma County, California. The historical range of this species is limited to a small

area of a few square miles. It is consistently found in conjunction with closed-cone coniferous forests and chaparral, specifically on serpentine soils.

The primary threat to Pennell's bird's-beak is the loss and deterioration of its habitat. The serpentine habitat, crucial for the species, is often patchy and fragmented, potentially hindering gene flow. Development-related activities, such as the construction of roads and infrastructure, have encroached upon sites inhabited by Pennell's bird's-beak, exacerbating habitat fragmentation. Recent trends, marked by the expansion of residential and vineyard developments, pose a growing menace to serpentine habitats.

WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. No activities would be conducted outside of existing paved areas if surveys indicate the presence of Pennell's bird's-beak. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Pennell's bird's-beak.**

References:

U.S. Fish and Wildlife Service. (1998). Recovery Plan for Serpentine Soil Species of the San Francisco Bay Area.

Calflora. (n.d.). *Cordylanthus tenuis* subsp. *capillaris*.

5.6.13. Pitkin Marsh Lily

The Pitkin Marsh lily (*Lilium pardalinum pitkinense*), was listed as an endangered species under the Endangered Species Act in 1997. The Pitkin Marsh lily is a rhizomatous perennial in the lily family, and a narrow-range endemic found in shaded, riparian areas that are seasonally inundated by water. Presently, there's only one confirmed population at Cunningham Marsh, protected by a conservation easement. Two other occurrences north of Cunningham Marsh have uncertain extant status due to restricted access. Cunningham Marsh, once a stronghold, shows a decline in the annual abundance of Pitkin Marsh lilies over recent years. At the time of listing, threats included small population size, urban development, hydrological changes, non-native plant invasion, and ungulate browsing. While browsing and urban development were considered mitigated threats in 2009 due to fenced exclosures, potential lapses in funding for conservation measures raise concerns about potential browsing impacts if the fencing is not maintained.

WIS would not be located at known locations of Pitkin Marsh lilies. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas on publicly owned land. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from

entering areas that may be occupied by special-status flowering plants. **There would be no effect to Pitkin Marsh lily.**

References:

U.S. Fish and Wildlife Service. (2018). Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews for 50 Species in California, Nevada, and the Klamath Basin of Oregon.

California Native Plant Society. (n.d.). *Lilium pardalinum* ssp. *pitkinense*.

5.6.14. Sebastopol Meadowfoam

The Sebastopol meadowfoam (*Limnanthes vinculans*) was listed as an endangered species under the Endangered Species Act in 1980. This rare plant species is endemic to California and is known for its small white flowers with yellow centers. Sebastopol meadowfoam is found predominantly on the Santa Rosa Plain, which is located in central Sonoma County, California, and is characterized by seasonal wetlands, predominately in the form vernal pools, and associated upland grassland habitat. The main threats to the species arise from the destruction and fragmentation of its habitat due to urban expansion, building roads, converting land for agriculture, and degrading habitat through inappropriate grazing practices, agriculture, and other human-induced alterations to vernal pool hydrology. Other less direct threats include damage from off-road vehicles and erosion.

WIS would not be located in seasonal wetlands of the Santa Rosa Plain. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Sebastopol meadowfoam.**

References:

U.S. Fish and Wildlife Service. (2016). Recovery Plan for the Santa Rosa Plain: *Blennosperma bakeri* (Sonoma sunshine); *Lasthenia burkei* (Burke's goldfields); *Limnanthes vinculans* (Sebastopol meadowfoam); California Tiger Salamander Sonoma County Distinct Population Segment (*Ambystoma californiense*).

California Plant Society. (n.d.). California's Native Plants *Limnanthes vinculans*.

5.6.15. Showy Indian Clover

The showy Indian clover (*Trifolium amoenum*) was listed as an endangered species under the Endangered Species Act in 1997. This annual plant species is recognized for its striking, showy pink flowers and trifoliate leaves. The species previously occurred in a variety of habitat including low, wet swales, grasslands, and grassy hillsides up to 1,020 feet in elevation.

Showy Indian clover was presumed extinct, until it was rediscovered in 1993 with a single plant in Occidental, Sonoma County. Unfortunately, this population was lost due to development. Another population was found in Dillon Beach, Marin County, in 1996. Dillon Beach was the sole known population at the time of listing. As of the 2023 5-year review, the Dillon Beach population was still present, and efforts led by USFWS and its partners successfully established an outplanted population at Point Reyes National Seashore. Critical habitat has not been designated for showy Indian clover.

WIS would not be located on private property, nor would WIS be located in the Point Reyes National Seashore. WIS and associated infrastructure would primarily be located in paved and heavily trafficked upland areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to showy Indian clover.**

References:

U.S. Fish and Wildlife Service. (2022). Endangered and Threatened Wildlife and Plants; Initiation of 5-Year Status Reviews of 40 Species in California, Nevada, and Oregon.

United States Department of Agriculture. (n.d.). Plants Profile for *Trifolium amoenum* (showy Indian clover).

5.6.16. Slender Orcutt Grass

The slender Orcutt grass (*Orcuttia tenuis*) was listed as a threatened species under the Endangered Species Act in 1997. This native grass species is characterized by its slender, wiry stems and inconspicuous flowers. The slender Orcutt grass is distributed across disjunct occurrences in northeastern California, extending west to Lake County and south through the Central Valley to Sacramento County. It thrives in vernal pools on various substrates, including alluvial fans, high stream terraces, and recent basalt flows from the Modoc Plateau. While it has been reported in other seasonal wetlands like creek terraces and stock ponds, these are generally altered vernal pools. The species is adaptable to a wide range of elevations, from 90 to 5,761 feet, with a primary association with vernal pool habitat on specific volcanic substrates. Typically, it favors

larger or deeper vernal pools, typically deeper than 11.8 inches, requiring prolonged inundation followed by gradual desiccation to meet its physiological requirements.

The primary threats to this species include habitat loss and fragmentation resulting from urban development, associated infrastructure, agricultural conversion, altered hydrology, nonnative invasive species, inadequate regulatory mechanisms, exclusion of historic grazing areas, and inappropriate grazing practices (either overgrazing or undergrazing). The resulting small population sizes make these species vulnerable to extinction due to random, naturally occurring events. Critical habitat has been designated for slender Orcutt grass, but not in the RRB.

WIS would not be located in vernal pools or associated habitats. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to slender Orcutt grass.**

References:

U.S. Fish and Wildlife Service. (2009). Slender Orcutt Grass (*Orcuttia tenuis*). 5-Year Review: Summary and Evaluation. U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office,

U.S. Fish and Wildlife Service. (1997). Determination of Threatened Status for Three Plants from Vernal Pool Habitats in California.

5.6.17. Sonoma Alopecurus

The Sonoma alopecurus, (*Alopecurus aequalis sonomensis*) was listed as an endangered species under the Endangered Species Act in 1997. Sonoma alopecurus is a tufted perennial grass in the Poaceae family. The plant occurs in freshwater marshes and swamps and riparian scrub within Marin and Sonoma Counties, California. The primary threats to the Sonoma alopecurus include habitat degradation due to urbanization, agriculture, and alterations in hydrological patterns.

The historical range of Sonoma alopecurus was approximately 48 kilometers (30 miles), reaching north from Point Reyes Peninsula to Guerneville and east to Cunningham Marsh. There are currently six known populations of the species, with five located at Point Reyes National Seashore in Marin County, and one at Annapolis State Park in Sonoma County. Since the species was listed, the number of populations in Sonoma County has decreased, with Annapolis State Park now being the sole remaining known population in the county. Critical habitat has not been designated for Sonoma Alopecurus.

WIS would not be located in Point Reyes National Seashore. There are no boating facilities in Annadel State Park and WIS would not be located there. WIS and associated infrastructure would primarily be located in paved and heavily trafficked areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Sonomoa Alopecurus.**

References:

U.S. Fish and Wildlife Service. 2011. U.S. Fish and Wildlife Service. 2009. Sonomoa alopecurus (*Alopecurus aequalis sonomensis*). 5-Year Review: Summary and Evaluation.

California Native Plant Society. (n.d.). *Alopecurus aequalis* var. *sonomensis*.

5.6.18. Sonoma Spineflower

The Sonoma spineflower (*Chorizanthe valida*) was listed as an endangered species under the Endangered Species Act in 1992. The Sonoma spineflower is a distinctive annual herb known for its slender, reddish stems and small clusters of white to pink flowers. Sonoma spineflower occurs in annual coast-prairie grassland on Sirdrak sand. Sirdrak sand is a well-drained Pleistocene soil type found in dunes with a 2-4% slope bearing to the north-northwest. Successfully introduced populations of Sonoma spineflower have been established on Sirdrak soil. Critical habitat has not been designated for Sonoma spineflower.

The primary threat to Sonoma spineflower is habitat degradation. Both non-native and native grasses, herbs, and shrubs vie for sunlight, potentially modifying the nutrient composition of dune soils. This alteration can create conditions conducive to the rapid expansion of non-native annual species, intensifying competition and posing a significant challenge to the Sonoma spineflower.

WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Sonoma spineflower.**

References:

U.S. Fish and Wildlife Service. (1998). Seven Coastal Plants and the Myrtle's Silverspot Butterfly Recovery Plan.

U.S. Fish and Wildlife Service. (1997). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for Two Plants From Vernal Pools and Grasslands of California.

5.6.19. Sonoma Sunshine

Sonoma sunshine (*Blissia sonomensis*) was listed as an endangered species under the Endangered Species Act in 1991. This perennial herb is characterized by its yellow flowers and is known for its limited distribution in the North Coast region of California. Sonoma sunshine is found predominantly on the Santa Rosa Plain, which is located in central Sonoma County, California, and is characterized by seasonal wetlands, predominately in the form vernal pools, and associated upland grassland habitat. The main threats to the species arise from the destruction and fragmentation of its habitat due to urban expansion, building roads, converting land for agriculture, and degrading habitat through inappropriate grazing practices, agriculture, and other human-induced alterations to vernal pool hydrology. Other less direct threats include damage from off-road vehicles and erosion. Critical habitat has not been designated for Sonoma sunshine.

WIS would not be located in seasonal wetlands of the Santa Rosa Plain. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Sonoma sunshine.**

References:

U.S. Fish and Wildlife Service. (2004). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Sonoma Sunshine (*Blissia sonomensis*).

5.6.20. Vine Hill Clarkia

Vine Hill Clarkia (*Clarkia imbricata*) was listed as an endangered species under the Endangered Species Act in 1997. Vine Hill clarkia is an annual herb in the evening-primrose family (Onagraceae), which stands up to two feet tall with lavender-pink flowers during its June to July bloom. Each flower possesses four fan-shaped petals that transition to a paler hue toward the center, distinguished by a dark purple to red triangular spot extending from the middle to the upper edges. Notably, its flowers exhibit an inferior ovary structure, positioning the ovary beneath sepals, petals, and stamens. Vine Hill clarkia thrives at elevations of approximately 250 feet on acidic, sandy loam soils within the Sonoma Barrens.

Endemic to the Vine Hill area in Sonoma County, Vine Hill clarkia historically thrived in three wild populations: the Lewis-type, Sequoia Circle, and Pitkin Marsh localities. Unfortunately, the Lewis-type and Pitkin Marsh populations were likely extirpated due to agricultural and urban development. The status of the Sequoia Circle population, situated on private land, is uncertain. Seeds from the Sequoia Circle locality were collected in 1974, introducing Vine Hill clarkia to the 1.5-acre Vine Hill preserve owned by the California Native Plant Society. This preserve currently hosts the sole surviving population, ranging from 500 to 9,000 plants annually.

WIS would not be located in the Vine Hill preserve. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to Vine Hill clarkia.**

References:

U.S. Fish and Wildlife Service. (2015). Recovery Plan for *Clarkia imbricata* (Vine Hill Clarkia).

U.S. Fish and Wildlife Service. (1980). Determination of Threatened Status for the Plant *Clarkia imbricata* (Vine Hill Clarkia).

5.6.21. White Sedge

White Sedge (*Carex albida*) was listed as an endangered species under the Endangered Species Act in 1997. This perennial sedge is distinguished by its grass-like appearance and is restricted to wet hillside meadows and freshwater wetlands between 45 and 60 meters in elevation. Critical habitat has not been designated for white sedge.

Presently, there's only one confirmed population at a privately owned marsh, protected by a conservation easement. Though protected by the easement, the white sedge has declined in annual abundance over recent years. At the time of listing, threats included small population size, urban development, hydrological changes, non-native plant invasion, and ungulate browsing.

WIS would not be located at known locations of white sedge. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas on publicly owned land. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. There would be no effect to Pitkin Marsh lily. WIS and associated infrastructure would primarily be located in paved and heavily traffic areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two

years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to white sedge.**

References:

U.S. Fish and Wildlife Service. (2009). *Carex albida* (White sedge), *Lilium pardalinum* ssp. *pitkinense* (Pitkin Marsh lily) 5-Year Review: Summary and Evaluation.

5.6.22. Yellow Larkspur

Yellow Larkspur (*Delphinium luteum*) was listed as an endangered species under the Endangered Species Act in 2000. is a perennial in the Ranunculaceae (buttercup family). This species g inhabits coastal prairie and coastal scrub, which typically have no overstory, at elevations ranging from sea level to about 100 meters (300 feet) within northwestern Marin and southwestern Sonoma counties, California). The species occurs on moderate to steep slopes with evidence of some level of disturbance, including landslides of various ages, in close proximity. The historic range is Marin and Sonoma counties. Critical habitat has been designated for yellow larkspur, but not within the RRB.

Yellow larkspur is currently known to occur at only two locations, both on private land. Loss of habitat due to quarrying, livestock grazing, development, and overcollecting are the primary threats to the species.

WIS would not be located on the privately owned land currently hosting yellow larkspur. WIS and associated infrastructure would be located in publically owned paved and heavily trafficked upland areas. All areas with the potential for occupation by special-status flowering plants would be surveyed during the growing season for two years prior to the initiation of ground disturbing activities. Water and seepage from WIS would be prevented from entering areas that may be occupied by special-status flowering plants. **There would be no effect to yellow larkspur.**

References:

U.S. Fish and Wildlife Service. (2011). 5-Year Review Yellow larkspur (*Delphinium luteum*)

5.7. Essential Fish Habitat

The consultation requirement of Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such

modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH. Though primarily focused on marine species, anadromous fishes like the Pacific salmon have EFH that can occupy freshwater habitats critical to their life cycle.

5.7.1. EFH Affected by the Project

The action area includes areas designated as EFH for both California Coastal Chinook salmon and Central California Coast Coho. EFH in the RRB for these species includes the Russian River below Coyote and Warm Springs Dam.

5.7.2. EFH Impacts

WIS would be established in paved, gravel, or compacted areas. Any runoff from cleaning a vessel would be contained. Runoff would either be collected, percolate directly into the ground, evaporate, or go into a retention basin where it would evaporate or percolate into the ground. No new ground disturbance would occur to establish additional watercraft inspection stations or decontamination stations without further environmental review.

Monitoring reservoirs for the early detection of dreissenid veligers would have no effect on fisheries or aquatic resources. Early detection monitoring includes seasonal veliger sampling, plankton tows, and solid substrate inspections and monitoring. These activities would occur episodically and involve no or only minor, temporary (during the few hours at a monitoring site) disturbance to the aquatic environment.

On occasion, watercraft owners may request a decontamination at their home if they have been at infested water bodies. In such instances, trained staff would evaluate the location, including where any runoff could go. If there is any chance of discharging to an uninfested water body, the watercraft would be hauled to an area where no water or debris from the wash/decontamination would be discharged to a water body.

A coordinated rapid response/control plan strategy would be developed in collaboration with Federal and state wildlife, fisheries and water agencies and local contacts (see Section 3.4.2 Comprehensive Adaptive Improvements). A dreissenid infestation would be extremely undesirable; therefore, measures to prevent and a response to eliminate an infestation would be positive for the RRB, hatchery operations, and fisheries habitat downstream of the lakes.

Contingency planning and rapid response preparation and planning would not have significant adverse effects to fish habitat. Most planning activities are administrative in nature and would not have direct effects to the environment. Purchased equipment would be stored in existing facilities. Rapid response training exercises could have minimal, short-term effects to water bodies if training included in-water activities such as deployment of silt barriers or isolation bladders. These effects could include brief periods of localized turbidity. Training locations would be chosen to minimize adverse

effects to aquatic ecosystems and to avoid ESA-listed species. Training locations would most likely be selected upstream of Coyote and Warms Springs dams and located outside EFH.

The proposed action would not negatively affect Essential Fish Habitat.

6. Required Stipulations

- Prior to any action establishing a new WIS or any related ground disturbance a qualified biologist will conduct a desk audit to determine if special-status species habitat is present or adjacent to the proposed location.
- If the biologist determines that a special-status species could occur in the proposed activity area, a qualified biologist will perform species-appropriate survey(s) prior to the onset of activities or ground disturbance.
- If the presence of special-status species is confirmed, then a qualified biologist will be consulted to determine an appropriate buffer distance and required measures to ensure that no effects to the listed species would occur.
- If the presence of nesting migratory birds is confirmed, a minimum buffer distance of 100 meters would be maintained between the nest locations and any new ground disturbing activities between April 1 and July 15.
- A minimum buffer of 100 meters would be maintained from any habitat occupied by marbled murrelets.
- No ground disturbance would occur in areas where threatened or endangered flowering plants may be present.
- Water or debris from a hot wash or other decontamination will be prevented from entering any waterbody.
- Wash water will not be allowed to flow over land covered by any type of vegetation without performing a survey of the area for ESA-listed plants in specific areas.
- WIS, staging areas, and access routes would be located at least 50 meters from waterbodies.
- Any runoff from washing/decontaminating a vessel will either evaporate, percolate directly into the ground, be collected in a retention basin with no possibility of reaching waterbodies or wetlands or be transferred to a location away from any waterbody.

- Should northwestern pond turtles be formally listed under the ESA as threatened or endangered the following stipulations would apply:
 - A qualified biologist would survey the vicinity of proposed WIS locations for evidence of northwestern pond turtle presence or nesting.
 - WIS, staging areas, or access routes would not be sited within 150 meters of occupied northwestern pond turtle habitat.
 - WIS, staging areas, and access routes would be fenced to ensure that northwestern pond turtles are excluded from the project area. A qualified biologist will be consulted to determine appropriate turtle exclusion fencing design.

- Should suitable habitat for special-status invertebrates be identified in the desktop survey, a qualified biologist would assess the work area for potential special-status invertebrate habitat. Areas in the vicinity of the proposed activities would be surveyed for occupancy and for the presence of larval food plants for special-status butterflies (*Viola adunca*). Occupancy of listed species will be assumed in all suitable habitat located within 2 km (1.2 miles) of known occupied habitats.
 - WIS and related infrastructure should not be located in habitat suitable for special-status invertebrates.
 - If a potential site for a WIS located in suitable habitat, but deemed essential, then prior to conducting ground disturbing activities in special-status invertebrate habitat, a minimum of 2 years of surveys would be conducted to determine the presence or absence of special-status invertebrates. Ground disturbance will be permitted only in areas where neither the presence of special-status invertebrates nor their larval host plant are detected.
 - WIS and associated infrastructure would not be located in occupied special-status invertebrate habitat without further environmental review and potential Section 7 consultation under the ESA.

- Should suitable habitat for special-status amphibians be identified in the desktop survey a qualified biologist would assess the work area for potential special-status amphibian habitat. All potential breeding ponds and upland areas within 1.3 miles of a potential breeding pond will be considered suitable habitat. Should the activities be located in suitable habitat for special-status amphibians, the following stipulations would apply:
 - WIS and related infrastructure should not be located in habitat suitable for special-status amphibians.

- If a potential site for a WIS is deemed essential, then prior to conducting ground disturbing activities in special-status amphibian habitat a minimum of 2 years of surveys would be conducted to determine the presence or absence of special status amphibians. Ground disturbance will be permitted only in areas where the presence of special-status amphibians is not detected.
- WIS and associated infrastructure would not be located in occupied special-status amphibian habitat without further environmental review and potential Section 7 consultation under the ESA.
- There could be instances where a wash/decontamination will be performed at a watercraft owner's residence. In such instances, trained staff will evaluate the location, including where any runoff could go. If there is any chance of discharging to an uninfected waterbody, the watercraft will be hauled to an area where no water or debris from the wash/decontamination will be discharged to a waterbody.
- There will be no wetland disturbances or other negative effects to wetlands.
- No activities will be conducted outside of existing paved surfaces where field surveys indicate the occurrence of special-status flowering plants.

7. References

Elwell, L. C. and S. Phillips, eds. 2020. Uniform Minimum Protocols and Standards for Watercraft Inspection and Decontamination Programs for Dreissenid Mussels in the Western United States (UMPS IV). Pacific States Marine Fisheries Commission, Portland, OR.

PNWER (Pacific Northwest Economic Region) and PSMFC (Pacific States Marine Fisheries Commission). 2015. Advancing a Regional Defense against Dreissenids in the Pacific Northwest.

Wong WH, Tietjen T, Gerstenberger S, Holdren GC, Mueting S, Loomis E, Roefer P, Moore B, Turner K, Hannoun I. 2010. Potential ecological consequences of invasion of the quagga mussel (*Dreissena bugensis*) into Lake Mead, Nevada–Arizona. *Lake Reserv Manage.* 26:306–315.