

COASTAL CONSERVANCY

Staff Recommendation  
December 1, 2022

**US FISH AND WILDLIFE SERVICE WADULH UNIT RESILIENCE PROJECT**

Project No. 22-019-01  
Project Manager: Su Corbaley

**RECOMMENDED ACTION:** Authorization to disburse up to \$350,000 to Friends of the Dunes to restore 80 acres of dune habitat to increase sea-level rise resiliency on the US Fish and Wildlife Service's Wadulh Unit on the north spit of Humboldt Bay in Humboldt County and adoption of findings under the California Environmental Quality Act.

**LOCATION:** North Spit of Humboldt Bay, Humboldt County

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EXHIBITS

- Exhibit 1: [Project Location Maps](#)
  - Exhibit 2: [Map showing extent of lupine coverage](#)
  - Exhibit 3: [Site Photos](#)
  - Exhibit 4: [Project Letters](#)
  - Exhibit 5: [USFWS NEPA Environmental Assessment / Finding of No Significant Impact](#)
  - Exhibit 6: [CEQA Notice of Intent to Use NEPA Document](#)
  - Exhibit 7: [Mitigation Monitoring and Reporting Program](#)
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**RESOLUTION AND FINDINGS**

Staff recommends that the State Coastal Conservancy adopt the following resolution and findings.

Resolution:

The State Coastal Conservancy hereby authorizes a grant of an amount not to exceed three hundred fifty thousand dollars (\$350,000) to Friends of the Dunes to enable the US Fish and Wildlife Service to restore 80 acres of dune habitat to increase sea-level rise resiliency on US Fish and Wildlife Service's Wadulh Unit on the north spit of Humboldt Bay in Humboldt County.

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**US FISH AND WILDLIFE SERVICE WADULH UNIT RESILIENCE PROJECT**

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Prior to commencement of the project, the grantee shall submit for the review and written approval of the Executive Officer of the Conservancy (Executive Officer) the following:

1. A detailed work program, schedule, and budget.
2. Names and qualifications of any contractors to be retained in carrying out the project.
3. A plan for acknowledgement of Conservancy funding.
4. Evidence that all permits and approvals required to implement the project have been obtained.
5. Evidence that the grantee has entered into agreements sufficient to enable the grantee to implement, operate, and maintain the project.

Findings:

Based on the accompanying staff recommendation and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed authorization is consistent with Chapter 3 of Division 21 of the Public Resources Code, regarding the Climate Ready Program.
2. The proposed project is consistent with the current Conservancy Project Selection Criteria.
3. Friends of the Dunes is a nonprofit organization organized under section 501(c)(3) of the U.S. Internal Revenue Code.
4. Consistent with the California Environmental Quality Act, the Conservancy has considered the United States Fish and Wildlife Service's Environmental Assessment and Finding of No Significant Impact for the Restoration of the Northern Dune Additions to Humboldt Bay National Wildlife Refuge project, attached as Exhibit 5 to the accompanying staff recommendation, as well as comments received. The Conservancy finds that the Environmental Assessment and Finding of No Significant Impact comply with the California Environmental Quality Act Guidelines; and, based on the whole record, that there is no substantial evidence that the proposed project will have a significant effect on the environment. The Conservancy adopts the Mitigation Monitoring and Reporting Program attached as Exhibit 7 to the accompanying staff recommendation.

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## **STAFF RECOMMENDATION**

### **PROJECT SUMMARY:**

Staff recommends the Conservancy authorize a \$350,000 grant to Friends of the Dunes to restore and enhance 80 acres of dune habitat to increase resiliency on the Wadulh Unit of the US Fish and Wildlife Service (USFWS) Humboldt Bay National Wildlife Refuge (Exhibit 1, page 1). Wadulh is the word for dunes in the Wiyot language. The name Wadulh was selected in recognition of the Wiyot Tribe's significant cultural connection to the project area. The project will remove invasive plants and replant the area with native dune species to restore dune ecosystem function and increase dune resilience to climate change and impacts from sea level rise.

The Wadulh Unit is situated at the northernmost end of more than 1,200 continuous acres of protected coastal dune habitat on the north spit of Humboldt Bay (Exhibit 1, page 2). These dunes are part of the barrier dune system of the Eureka littoral cell that extends 32 miles from Trinidad to Centerville beach (Exhibit 1, page 3). The dune system separates Humboldt Bay and the estuaries of the Mad, Little, and Eel Rivers from the Pacific Ocean and buffers these estuaries and surrounding communities and critical infrastructure from impacts of sea level rise and storm surges. In addition, these dune systems provide habitat for threatened and endangered plant and animal species and contain important archaeological sites. They are popular for hiking and nature walks and visited by thousands of people annually.

How a coastal barrier dune system behaves determines the resiliency of its shorelines to a changing climate. Normally, with long-term sea level rise, dunes will move inland and upward to keep pace with climate change. However, as established through the Humboldt Coastal Resilience Project (HCRP) the resilience of this barrier system is at risk from accelerated sea level rise. The HCRP is a 7-year study (2015-2022) funded by the Conservancy, the Ocean Protection Council, the Bureau of Land Management and USFWS to improve understanding of sediment movement along the entire Eureka littoral cell, a 32-mile stretch of coastline composed of barrier dune systems. The study identified potential vulnerabilities to climate change and pilot-tested restoration methodologies to measure dune response to severe weather and evaluate the efficacy of dune restoration to increase resilience to sea level rise and climate change. When combined with regional seismic subsidence, changes to the sediment supply, and the establishment of invasive plants such as European beach grass and yellow bush lupine, sea level rise will outpace the dune barrier's ability to respond and adapt.

Data collected during the HCRP demonstrated that reestablishing native vegetation substantially increases dune resilience by restoring sediment dynamics that allow for gradual landward migration of dunes with sea level rise. HCRP results also show that restored dunes recover and heal faster, when compared to unrestored dunes, following storm erosion events.

European beach grass and yellow bush lupine over-stabilize the dunes, impairing natural dune processes that underpin adaptation to sea level rise, putting the system at risk and vulnerable to failure. To begin to address this threat on the north spit, USFWS has already restored 600 acres on its Lanphere and Ma-le'l Dunes Units, immediately to the south, and intends to restore the entire 300-acre Wadulh Unit as funding becomes available. The proposed 80-acre project is part of that larger effort (Exhibit 2).

Yellow bush lupine was introduced to the site in the 1950s and has since completely displaced the dune mat community. Dune mat is a low growing community of perennial herbs and grasses that is rare and threatened by invasive species. When yellow bush lupine enters the system, it is a large, fast-growing, and short-lived plant that shades out natives. Lupine also contributes large quantities of nitrogen to the soil, which renders the habitat inhospitable to natives. The short-lived nature of the shrubs causes an accumulation of duff that further degrades the habitat. Restoration including duff removal and native species planting will return the habitat to a pre-invasion state.

The project objectives are to 1) eradicate 80 acres of invasive yellow bush lupine through manual methods over two years; 2) restore dune soils through the removal of the duff layer

under and around lupine plants and burying the duff to reduce seedbank resprouts over a two-year period; 3) plant native dune mat species in areas of degraded dune mat and dune forest species in areas of degraded forest in the third year; 4) document changes in topographic dune profiles to measure restored geomorphic process (sediment transport between the beach, foredune, and backdune); and 5) document changes in vegetation annually to measure success.

The topical, non-glyphosate herbicide Imazapyr will be used as needed on co-occurring non-native species and to control resprouts. It is spot applied using a hand pump applicator by individuals certified in the use of herbicides. Herbicides are ineffective as a treatment on lupine because only the leaves are affected, and the branching system still needs to be removed.

The Conservancy grant will fund a portion of this work including seed collection, growing out native species, and the labor to plant them. Matching funds from California Department of Fish and Wildlife and USFWS will pay for removing and managing the invasive plants and duff layer.

**Site Description:** The Wadulh Unit encompasses 300 acres at the north end of a continuous stretch of protected dunes totaling 1,200 acres on the north spit of Humboldt Bay. The 80-acre project site located within the Wadulh Unit is currently vegetated by dense lupine scrub (Yellow bush lupine alliance). This vegetation classification includes many species of non-native origin and native species that do not normally grow in the native dune mat community, such as coyote brush and California polypody (a coastal fern).

The Wadulh Unit is adjacent to and north of the USFWS's Lanphere and Ma-le'l Dunes. These two units comprise 600 acres that have been fully restored and are together one of the most pristine remaining dune systems on the west coast (Exhibit 3). They have been designated by the Department of the Interior as a National Natural Landmark.

**Grant Applicant Qualifications:** Friends of the Dunes has received more than a dozen Conservancy grants and has demonstrated its ability to administer public funds efficiently. It has administered the HCRP since 2015, coordinating all aspects of that work, and is therefore an appropriate grantee for the project.

#### **CONSISTENCY WITH CONSERVANCY'S PROJECT SELECTION CRITERIA:**

The proposed project is consistent with the Conservancy's Project Selection Criteria, last updated on September 23, 2021, in the following respects:

##### **Selection Criteria**

#### **1. Extent to which the project helps the Conservancy accomplish the objectives in the Strategic Plan.**

See the "Consistency with Conservancy's Strategic Plan" section below.

#### **2. Project is a good investment of state resources.**

This project is a good investment of state resources on several levels. It builds on significant state investment in the 7-year pilot project that validated the proposed approach to landscape-scale dune restoration, which will stand as a model for other dunes systems in California. It replaces environmentally damaging invasive and non-native plants to provide space for native

dune species to thrive and increase species diversity in the dunes, and restores the dune sand transport system resulting in resilient dunes that protect the inner Humboldt Bay system from the impacts of increased storm surge.

**3. Project includes a serious effort to engage tribes. Examples of tribal engagement include good faith, documented efforts to work with tribes traditionally and culturally affiliated to the project area.**

The USFWS consulted with the Wiyot Tribe when the project design was being developed and during its impact review under the National Environmental Policy Act (NEPA), from August-October 2020. Representatives of the Tribe toured the project site. A cultural resources survey was carried out in coordination with the Tribal Historic Preservation Officers representing the three local tribes, the Wiyot Tribe, Bear River Band of the Rhonerville Rancheria, and the Blue Lake Rancheria. Based on Tribal input, protocols for cultural resources protection will be established and field crews will be trained in the protocols. Protocols will include avoiding flagged exclusion areas, responding to inadvertent archaeological discoveries, and procedures to follow if human remains are found. A Tribal monitor will be present when work occurs in sensitive sites.

**4. Project benefits will be sustainable or resilient over the project lifespan.**

The proposed project will contribute to climate resiliency by reestablishing geomorphic processes that, over the long term, will contribute to the gradual migration of the dunefield. With increasing sea level rise, the dune system will translate (migrate inland and increase in elevation). The proposed restoration will allow the foredune to remain intact as the dunes migrate, decreasing the chance of foredune blowouts (failure of the foredune). Any new lupine recruits will be removed during the project. After project completion, removal of additional recruits can be carried out through the annual volunteer Lupine Bash, a longstanding tradition at the adjacent restored USFWS Lanphere Dunes Unit.

**5. Project delivers multiple benefits and significant positive impact.**

The proposed project will provide benefits to biodiversity as well as climate resilience. It adds to previous successful restoration projects, particularly on the restored adjacent 600-acre Lanphere and Ma-le'l Units of the USFWS Humboldt Bay National Wildlife Refuge. As seen from prior work, dune mat, once restored, increases diversity of plants, invertebrates, and vertebrates, and promotes ecosystem function. The restoration of underlying processes through the removal of over-stabilizing vegetation contributes to climate resiliency.

**6. Project planned with meaningful community engagement and broad community support.**

Community engagement for the research that led to this project was initiated through the HCRP when a group of stakeholders were convened to give input on the Eureka littoral cell vulnerability assessment. Friends of the Dunes operates the Humboldt Coastal Nature Center located in Manila, south of the project site and has, and will continue to, utilize the Nature Center and its website and ongoing newsletter to reach the interested public. Friends of the Dunes will engage the public and scientific communities through sponsored guided tours of the restoration project site annually.

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The project is supported by California Senator Mike McGuire, Assemblymember Jim Wood, and Humboldt County Supervisor Mike Wilson; letters are included in Exhibit 4.

**PROJECT FINANCING**

<b>Coastal Conservancy</b>	<b>\$350,000</b>
California Department of Fish and Wildlife (Office of Spill Prevention and Response)	\$229,517
U.S. Fish and Wildlife Service	\$200,000
<b>Project Total</b>	<b>\$779,517</b>

The anticipated source of Conservancy funds is a FY 2022/23 appropriation to the Conservancy from the General Fund for the purpose of climate resilience (Budget Act of 2022, SB 154 (2022); Section 52 of SB 155 (2021)). The proposed project is consistent with this funding source because it will restore coastal habitat and build sea-level rise resilience for coastal communities and endangered species. In addition, it will help restore and enhance the ecology of the Humboldt Bay dune ecosystem.

Friends of the Dunes and USFWS Humboldt Bay National Wildlife Refuge have secured two grants to support the project. Friends of the Dunes will receive \$229,517 in state funds from the California Department of Fish and Wildlife Office of Spill Prevention and Response and USFWS will receive \$200,000 in federal funds from the USFWS invasive plants management program.

Unless specifically identified as “Required Match,” the other sources of funding are estimates. The Conservancy does not typically require matching funds or in-kind services, nor does it require documentation of expenditures from other funders or of in-kind services. Typical grant conditions require grantees to provide any funds needed to complete a project.

**CONSISTENCY WITH CONSERVANCY’S ENABLING LEGISLATION:**

The proposed project would be undertaken pursuant to Section 31113 of Chapter 3 of Division 21 of the Public Resources Code, which authorizes the Conservancy to undertake projects to address the impacts and potential impacts of climate change on resources within the Conservancy’s jurisdiction.

Pursuant to Section 31113(b), the Conservancy is authorized to award grants to nonprofit organizations and public agencies to undertake projects, including those that reduce greenhouse gas emissions or address extreme weather events, sea level rise, flooding, and other coastal hazards that threaten coastal communities, infrastructure, and natural resources.

Pursuant to Section 31113(c), the Conservancy must prioritize grants for projects that maximize public benefits and have one of several purposes, including enhancing coastal natural lands.

Consistent with these provisions, the proposed authorization would award a grant to Friends of the Dunes, a nonprofit organization, to restore dune habitat and increase the resilience of Humboldt Bay’s natural resources to sea-level rise, increased storm surge, and other impacts

associated with climate change. The proposed project would also enhance coastal dune habitat by replacing invasive plants with native dune mat and dune forest species.

The proposed project addresses resources within the Conservancy's jurisdiction by restoring coastal resources that have suffered a loss of natural value due to the introduction of invasive species and other human-induced events (Chapter 6 of Division 21 of the Public Resources Code).

**CONSISTENCY WITH CONSERVANCY'S [2018-2022 STRATEGIC PLAN](#) GOAL(S) & OBJECTIVE(S):**

Consistent with **Goal 6, Objective B**, the project will restore 80 acres of coastal dune habitat.

Consistent with **Goal 8, Objective C**, the project will implement one nature-based adaptation project to increase resilience to sea level rise or other climate change impacts.

**CEQA COMPLIANCE:**

The proposed project will restore up to 80 acres of dune habitat on USFWS-owned and managed land on the north spit of Humboldt Bay, by manually removing invasive lupine and other invasive or nonnative plants and revegetating the dunes with native dune plants. USFWS completed an Environmental Assessment (EA) for the larger 300-acre project that this 80-acre proposed project falls within and adopted a Finding of No Significant Impact (FONSI) pursuant to the NEPA. (The EA and FONSI are attached as Exhibit 5; the FONSI follows page 65 of the EA.) USFWS also completed a CEQA initial study checklist for the project. Based on the checklist, USFWS concluded that the project could not have a significant effect on the environment and that a negative declaration is appropriate for the project. (See EA Appendix A.)

USFWS submitted the EA and FONSI to the State Clearing House (SCH # 2020069006) for public and state agency review from June 4 through July 8, 2020. USFWS advertised the availability of the Draft EA in the Eureka Times-Standard on June 8, 2020 and on the Refuge's Facebook page, and notified interested parties through email. The Draft EA was available electronically from June 8, 2020, through July 8, 2020. A total of seven comment letters were received including three from state resources agencies, one from a local environmental nonprofit organization, and two from members of the public. USFWS's responses to those comments are included in Appendix B to the EA. Two responses resulted in minor clarifying textual changes to the EA; none of the responses resulted in significant changes to the document.

Under 14 California Code of Regulations § 15221, the Conservancy may use a FONSI for CEQA purposes after providing notice, consistent with § 15087, of its intent to use the NEPA document in place of a CEQA Negative Declaration, and of its determination that the federal document complies with CEQA. In accordance with § 15087(a), on October 26, 2022, staff filed with the State Clearinghouse a "Notice of Intent to Use Finding of No Significant Impact In lieu of Negative Declaration" (Exhibit 6), and on October 18, 2022 published the notice in the Eureka Times Standard daily newspaper of its intent to use a FONSI in lieu of a negative declaration.

CEQA requires consideration of mitigation measures where applicable, and adoption of a mitigation monitoring and reporting program (MMRP) for any such measures. Conservancy

staff have prepared an MMRP incorporating measures identified in the EA to minimize environmental impacts. See Exhibit 7.

The environmental factors that could be potentially affected by this project, but which are less than significant impacts, are: Air Quality, Biological Resources, Cultural Resources, Geology/Soils, Greenhouse Gas Emissions, and Hazards and Hazardous Materials.

#### Air Quality

The project could cause a short-term impact to air quality if removed plant material is burned. Past projects have shown that smoke from pile-burning is quickly dispersed. Burning vegetation would release particulate pollution of less than 10 micrometers in diameter (PM10), for which Humboldt and Del Norte counties are classified as nonattainment; these areas therefore do not meet the required federal Clean Air Act standards for this pollutant. Burning invasive vegetation piles would be done only with a burn plan that is approved by the North Valley Air Pollution Management District. Therefore, there would be a less than significant impact to air quality from this project.

#### Biological Resources

In the short-term, this project would result in a reduction or loss of vegetative cover in a small area after invasive plants are removed and before new vegetation is mature. Immediate revegetation is expected to reduce the amount of time when open areas on the foredune are vulnerable to wind erosion.

This project will have a less than significant impact on federally and state protected species. All individuals of the endangered Humboldt Bay wallflower found adjacent to the impact area or in the transition area would be flagged and avoided, and barriers erected if sand movement could potentially affect any plants. Individual beach layia plants may be impacted. Other special status species are not known to be present. The project will result in increased habitat for all these species, which will be reintroduced to the site after restoration.

This project will have a less than significant impact on federally protected wetlands as defined by Section 404 of the Clean Water Act. Swales (seasonal wetlands) and riparian habitat occur within and adjacent to the project site. Buffer areas will be established around existing wetlands and riparian areas, and only manual removal will occur in buffer areas. The project is likely to result in burial of some swale areas by moving sand and creation of new areas where sand is ablated. Dune swales are naturally dynamic and migrate with moving dune features.

#### Cultural Resources

USFWS completed a cultural resources survey in 2019 to identify cultural resources within the proposed work areas. The USFWS is working closely with affected tribes, including the Wiyot Tribe, Blue Lake Rancheria, and Bear River Band of Rohnerville Rancheria. Consultation efforts have led to the proposal of avoidance and mitigation measures, the presence of tribal monitors during project implementation, and productive conversations about future conservation efforts. If any cultural materials, sites, or properties should be discovered, a qualified archaeologist will evaluate the finds and appropriate protection measures consistent with the requirements of 14 California Code of Regulations § 15064.5(f) will be taken, if necessary. In the



event that any human remains are encountered or in the event that unassociated funerary objects or grave goods are discovered, work in the immediate vicinity of the discovery, other than non-disturbing documentation, will cease and USFWS will comply with applicable state laws (14 California Code of Regulations § 15064.5(e), Health & Safety Code § 75050.5, and Public Resources Code § 5097.98), and federal laws (the Native American Graves Protection and Repatriation Act. and the Archaeological Resources Protection Act).

#### Geology/Soils

This project is expected to cause a less than significant impact from erosion. There is no topsoil on the dunes. The foredune is expected to be lowered after European beach grass (*Ammophila*) is removed, and the sharp peaks caused by *Ammophila* will become more rounded and merge into a single rounded crest like a native foredune. The elevation is expected to recover when vegetation is established and vegetation will be planted immediately after *Ammophila* removal, minimizing elevation loss.

#### Greenhouse Gas Emissions

Greenhouse gases would be emitted during burning of beachgrass/brush (no more than once per year), through the operation of heavy equipment and during transport of people, supplies and equipment to the site. These would be short-term emissions limited to the project implementation phase.

The removal of invasive lupine funded by the proposed project would be done by hand and therefore no emissions from machinery will occur.

#### Hazards/Hazardous Materials

USFWS will use a variety of Integrated Pest Management methods to restore coastal dunes, including the use of the topical herbicide Imazapyr. Before pesticides can be used to eradicate or control invasive plant species on USFWS owned land, a pesticide use proposal would be prepared and approved in accordance with Policy 569 FW1.

The USFWS employs several best management practices (BMPs) when applying herbicides to control invasive plant species. USFWS will require that all chemicals will be handled in strict accordance with label specification, chemical treatments will be applied during calm, dry weather, an unsprayed buffer will be maintained near any sensitive areas, and application equipment will be selected to provide site-specific delivery to target pests while minimizing/eliminating direct or indirect (e.g., drift) exposure to non-target areas.

USFWS also employs BMPs to minimize and avoid the potential accidental release of hazardous materials such as herbicides, fuels, or lubricants into the environment. For example, equipment must be stored, serviced, and fueled away from aquatic habitats and other sensitive areas. Appropriate materials must be available on site to clean up any small scale accidental hazardous spill. All hazardous materials and petroleum products will be stored in approved containers or chemical sheds and be located at least 100 feet from surface water in an area protected from runoff. Therefore, the project will involve a less than significant impact from hazards and hazardous materials.

The EA also considered cumulative impacts of the project and determined that these impacts would be either insignificant or beneficial. Finally, because the project involves habitat restoration without the development of any new public access or other infrastructure, staff has concluded that the project will not have any growth-inducing effects.

Staff has reviewed the EA and FONSI and has concluded that they comply with CEQA. Staff agrees with USFWS's conclusion that the project will not cause significant environmental impacts. Staff therefore recommends that the Conservancy find that there is no substantial evidence that the project will have a significant effect on the environment. Staff further recommends that the Conservancy adopt the MMRP attached as Exhibit 7.

Conservancy staff will file a CEQA Notice of Determination following project authorization.