RECLAMATION

Managing Water in the West

Environmental Assessment

Sand Ridge Preserve Habitat Restoration Project

18-03-MP

U.S. Bureau of Reclamation
Mid-Pacific Region
Sacramento, California

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Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitment to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The mission of the Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

List of Abbreviations and Acronyms

ATV	All-terrain vehicle
CNLM	Center for Natural Lands Management
CVP	Central Valley Project
HRP	Habitat Restoration Program
Preserve	Sand Ridge Preserve
Reclamation	Bureau of Reclamation
SJVAPCD	San Joaquin Valley Air Pollution Control District
SWRCB	State Water Resources Control Board
USFWS	U.S. Fish and Wildlife Service

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Section 1 Introduction

In conformance with the National Environmental Policy Act of 1969 (NEPA), Council on Environmental Quality regulations (40 CFR 1500-1508), and Department of the Interior regulations (43 CFR Part 46), the Bureau of Reclamation (Reclamation) prepared this Environmental Assessment to evaluate and disclose potential environmental impacts associated with the Sand Ridge Preserve Habitat Restoration Project. Reclamation proposes to provide funding from the Central Valley Project Improvement Act Habitat Restoration Program (HRP) to the Center for Natural Lands Management (CNLM) to conduct a habitat restoration project on approximately 19 acres of the Sand Ridge Preserve (Preserve) to benefit Bakersfield cactus (*Opuntia basilaris var. treleasei*) and the San Joaquin Valley giant flower loving fly (*Rhaphiomidas trochilus*). The 270-acre Preserve is located approximately 15 miles east of Bakersfield in eastern Kern County, California (Figure 1).

1.1 Background and Need for the Proposal

The HRP helps mitigate the past impacts of Reclamation's Central Valley Project (CVP) on threatened and endangered species, and helps minimize future impacts. The program also helps meet mitigation required of Reclamation by the California State Water Resources Control Board (SWRCB) Decision 1641 (D-1641). On December 29, 1999, through D-1641 the SWRCB concurred with a Reclamation petition to expand its authorized place of use to include certain areas already receiving CVP water. The HRP is a program through which Reclamation provides mitigation to meet D-1641 requirements.

The Bakersfield cactus and the San Joaquin Valley giant flower-loving fly (fly) would benefit from the Proposed Action. Populations of the Bakersfield cactus have declined throughout their range as a direct result of the conversion of arid grasslands and scrublands to irrigated agriculture in the San Joaquin Valley (USFWS 1998), in part due to the availability of CVP water. The cactus is listed as endangered under the Endangered Species Act (16 U.S.C. 1531 et seq.) and U.S. Fish and Wildlife Service (USFWS) has developed recovery actions needed to downlist the cactus. Actions include securing and protecting specified recovery areas from incompatible uses and monitoring populations in the recovery areas to demonstration stable or increasing populations for a 5-year period (USFWS 1998). The Preserve has been identified by the USFWS as a recovery area and the Proposed Action would directly contribute to the recovery of the species.

The fly is under review for listing under the Endangered Species Act by the USFWS. The species had been extirpated from all know sites and was thought extinct until it was discovered at the Preserve in 1997 (Osborn 2014). The major threats to the fly are habitat loss and degradation. The fly requires open areas of sandy soil in which to oviposit its eggs, after which larvae are known to burrow three to four meters below ground in which to develop before emerging as adults (Greg Warrick, personal communication, October 19, 2017). Therefore, it is important that open areas at the Preserve do not become overgrown with dense stands of annual grasses.

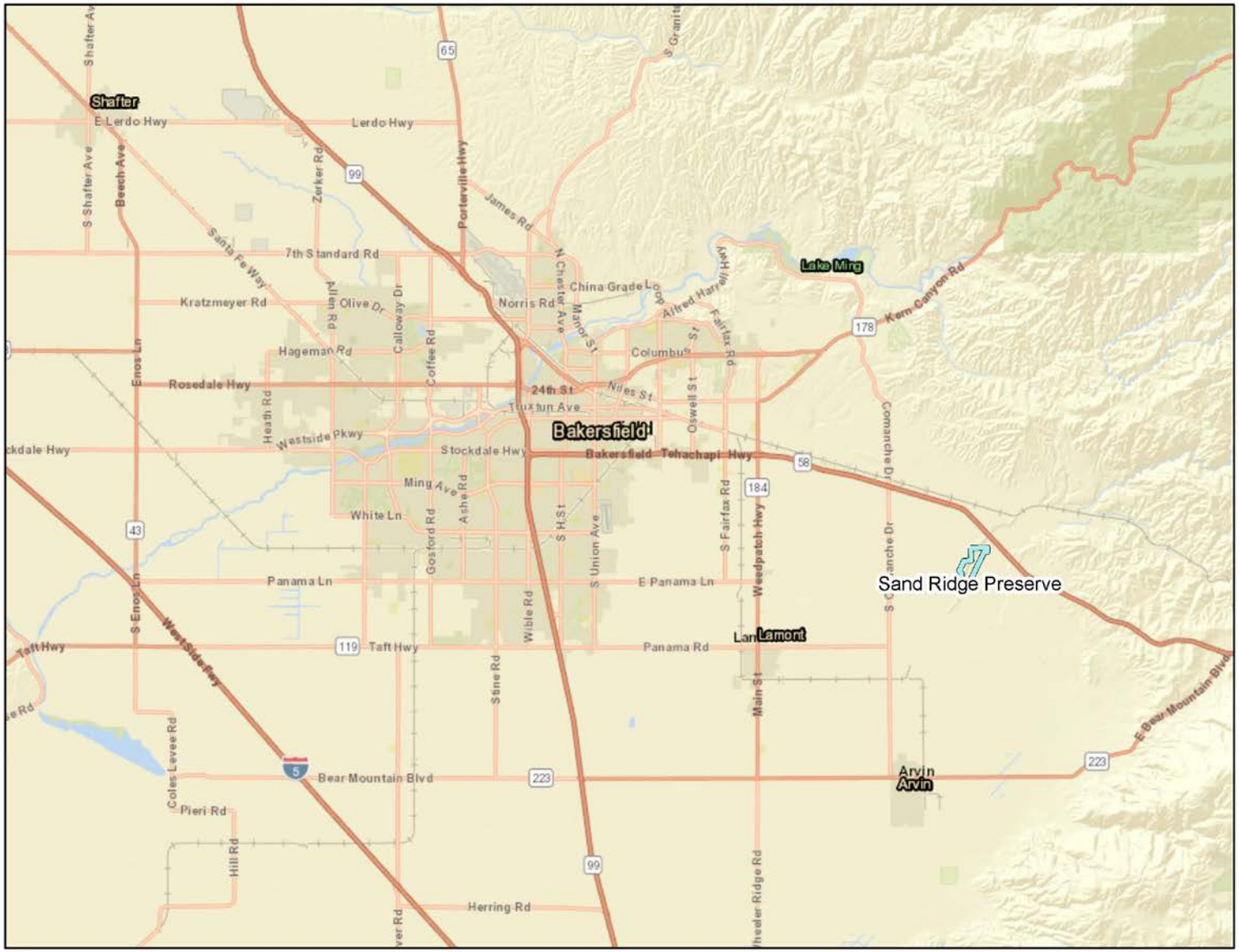

Figure 1. Project Location

Section 2 Alternatives Including Proposed Action

2.1 No Action Alternative

Under the no action alternative, Reclamation would not provide $254,161 from the HRP to CNLM to conduct habitat restoration activities at the Preserve. To undertake the project CNLM would need to obtain the $254,161 from other public or private sources. If the funding cannot be secured, CNLM would not be able to complete the restoration activities.

2.2 Proposed Action

Reclamation proposes to provide $254,161 to CNLM to conduct habitat restoration activities at the Preserve. CNLM would restore and enhance habitats on approximately 19 acres of the Preserve to benefit the Bakersfield cactus and the fly. Project activities include restoring habitats while testing different weed removal treatments, harrowing a trail, increasing the distribution of Bakersfield cactus, monitoring, and data analysis. Project work would be conducted and overseen by the Preserve Manager, an employee of CNLM. In addition to contributing labor to the project, the Preserve Manager would supervise subcontractors hired to assist with some components of the project. The restoration activities would occur over a five-year period.

2.2.1 Weed Removal Treatments

The habitat restoration component of the Proposed Action focuses on the removal of annual grasses and other nonnative invasive plants (collectively "weeds") to provide increased amounts of open sandy soil. Three treatments would be tested on 28 plots using a randomized block design on approximately 18 acres of the Sand Ridge Preserve (Figure 2). Treatments within a given block will be randomized. The treatments are harrowing, applying herbicide, and a "control" where no treatments would be applied so that the effectiveness of the harrowing and herbicide treatments can be compared to plots where no treatments are carried-out. Testing different treatments would allow CNLM to investigate which method is most effective at controlling weeds at the Preserve.

Harrowing treatment. The harrowing treatment involves weed-whipping followed by use of a harrow. Weed-whipping, through use of a "string trimmer" or similar powered landscaping tool, would be used to cut (to ground level) annual grasses, other nonnative invasive plants and their accumulated thatch. This activity would be conducted on approximately nine acres in March or April every year for five years. Weed-whipping would take place when it is determined by the Preserve Manager that most of the grass seed on the plots is about to mature and should be removed. During the first year, to reduce thatch levels and remove weed seeds from within the thatch, "clippings" from the weed-whipping would be gathered from the plots and removed from the Preserve. Removal of seeds prior to their maturing would reduce the amount of seed available to germinate, thereby greatly reducing the likelihood that grasses would grow in those areas the following year. In Years 2 through 5 of the project, clippings from the weed-whipping would not need to be removed from the plots because vegetation would be cut prior to the plants producing seed.

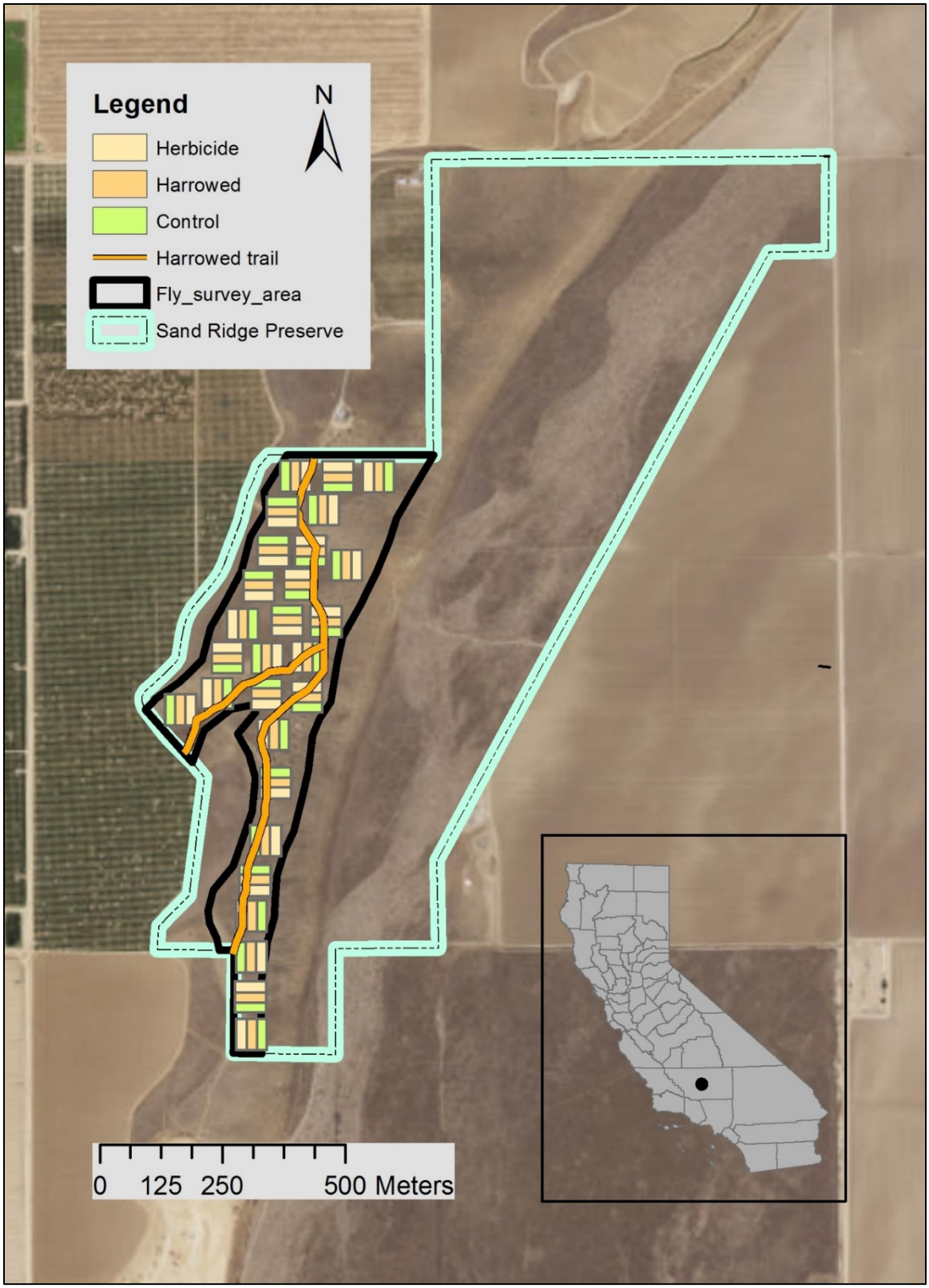

Figure 2. Proposed Weed Removal Treatments

Each year after weed-whipping is completed, a 4x4 all-terrain vehicle (ATV) dragging a harrow will be used to roughen the soil surface between areas of native brush and Bakersfield cactus to provide open areas to benefit Bakersfield cactus and San Joaquin Valley giant flower-loving flies. The disturbed soil surface resulting from the harrowing would provide a surface on which fallen cactus pads (flattened stems in cacti) can more easily root, and would provide a soil surface in which female flower-loving flies can more easily oviposit their eggs.

Herbicide treatment. A grass-specific herbicide (Fusilade®) would be used to reduce the cover of non-native grasses on nine additional acres, separate from the areas to be harrowed. The active ingredient in Fusilade is Fluazifop-P-butyl, which was developed for the control of grass weeds. It is a systemic herbicide which moves from the treated foliage into the shoots, roots, rhizomes, stolons, and growing points of treated grasses. The herbicide would be applied using an ATV mounted with a 26-gallon Northstar ATV boomless broadcast and spot sprayer equipped with a hose. Such a set-up will allow the herbicide to be sprayed in a concentrated stream that will allow for precise application on target weeds while minimizing drift and application onto non-target plants. Near complete control of ripgut brome and other grasses is possible with Fusilade. Each year, over the course of the five-year project, Fusilade would be applied to weeds when they begin actively growing (typically February), unless it is determined that the amount of weed seed in the plots has been so severely depleted by project work that herbicide application is no longer necessary.

Control. Control plots would be undisturbed and would have no intervention from project activities. The control plots would be used to identify the effectiveness of the harrowing and herbicide treatments by comparing those plots to where no treatments are carried-out.

2.2.2 Harrowed Trail

A corridor of loose sand along the top of the sand ridge would be constructed and maintained by harrowing each year over the course of the 5-year project to remove vegetation and provide areas of open sand. In addition, a well-developed trail runs along the top of the ridge that would be maintained by driving the trail with an ATV dragging a harrow to lightly loosen the surface of the sandy soil at least once per year. This would create areas of open sand along the ridge that would connect the treatment areas, thereby enhancing the ability of the San Joaquin Valley giant flower-loving fly to disperse to new areas and provide additional areas into which females can oviposit their eggs.

In addition, an overgrown foot trail that leads down one of the major drainages to the west would be widened and the soil surface roughened using an ATV pulling a harrow to provide additional enhanced open sand habitats to benefit the species. Harrowing these areas would affect approximately 0.6 acres in total.

2.2.3 Increase distribution of Bakersfield cactus

Bakersfield cactus reproduction is vegetative and occurs by the rooting fallen pads. That process will be used as part of the project to increase the number and distribution of Bakersfield cactus plants at the Preserve. Bakersfield cactus pads would be collected and propagated in a greenhouse under the supervision of a biologist familiar with propogation techniques, either at the Wind Wolves Preserve or at a CNLM's preserve manager's residence, both in Kern County.

After approximately one year in the greenhouse, the pads would be transplanted to appropriate areas of the Preserve. Bakersfield cactus pads generally develop well-developed root systems (Cypher et al., 2015) after one year in the greenhouse and survival rates are relatively high. During the first year of the project, a survey of cactus would be conducted to estimate the species' distribution and abundance. The survey would consist of surveyors walking transects spaced 100 feet apart throughout the entire Preserve and a GPS location for each cactus plant would be recorded. These data would be entered into a suitable computer software program as a GIS layer and analyzed to determine (1) the best areas from which to collect cactus pads for propagation, and (2) the areas of the Preserve at which it is determined to be most appropriate to plant the propagated cactus pads in order to best increase its distribution on the Preserve. After the cactus survey is completed, a maximum of 100 cactus pads would be collected (one pad per cactus). The cactus pads would be planted in plastic containers with cactus mix soil. Each container would be watered two to four times per month and allowed to grow for approximately 12 months, or until it is determined that the plants have attained sufficient size and root mass that the transplanting will likely be successful.

Once the pads are ready for out-planting and sufficient rain has fallen to moisten the upper portion of the soil column, they will be translocated (planted) within unoccupied areas of the Preserve using a hand shovel during winter or spring. A minimum of ten groups of five cacti would be planted-out, with spacing of at least ten feet between individual plants and at least 50 feet between groups. These translocated cacti would be monitored at least once per year for the remainder of the five-year project period.

2.2.4 Monitor success variables at sites to evaluate success

Effects of the treatments would be evaluated by comparing treatment areas with untreated control areas. Annual monitoring activities would include:

Conduct San Joaquin Valley giant flower-loving fly surveys. Surveys for flies would be conducted annually at project treatment areas and elsewhere at the Preserve. Changes in fly abundance and distribution within the treatment and control areas would be used to assess the effectiveness of the treatments. The surveys may also be useful in determining important habitat characteristics associated with fly locations. Surveyors would slowly walk the area (between 9:30a.m. and 2:00p.m.) along established transects and record locations of all flies sighted. The sex of individuals would be determined when possible and behavioral observations would be noted. Surveys would be conducted twice a week for a minimum of four weeks during July-September when peak emergence is expected.

Monitor Bakersfield cactus vigor. Plant vigor would be assessed on a minimum of 30 Bakersfield cacti with equal numbers on control and treatment sites to help assess the effectiveness of the treatments. Vigor would be determined by counting the number of pads by condition class (healthy-turgid or unhealthy-wrinkled/yellow) at least once per year. Average cactus vigor would then be compared among treatment sites and through time.

Monitor vegetative and abiotic factors. Depending on rainfall levels during the period of the project, the treatments should have significant effects on non-native and other herbaceous species as well as on the amounts of bare sand, residual dry matter, and vegetation litter.

Measuring these parameters would provide feedback as to whether the treated areas are moving toward the desired habitat characteristics or not. Residual dry matter of herbaceous cover would be measured by hand-clipping, drying, weighing, and recording all vegetation in plots on a minimum of 27 point-intercept transects. Vegetation transects would be established at random locations within the plots. Residual dry matter levels would be estimated on at least 80 clip plots with 12 clip-plots per treatment and control sites. Bare sand and amount of leaf and other vegetation litter would be measured and recorded as well.

2.2.5 Analyze data and report findings

Reports that summarize the data collected and current trends in response variables would be written annually. In addition, a final report summarizing all five years of the project would be written when the project is completed. Reports would be available to any interested party upon request.

2.3 Environmental Commitments and Best Management Practices

As part of the Proposed Action, the following environmental commitments and best management practices would be implemented to avoid and minimize potential effects to the environment:

- Prior to the start of any on-the-ground activities, project areas would be surveyed for listed plants. If any are found, the plants would be clearly marked for avoidance. Pre- and post-project surveys would be conducted to provide the current status of Bakersfield cactus and San Joaquin wooly threads on the Preserve.
- A qualified biologist would conduct environmental awareness training for all individuals working on the project before work begins. A qualified biologist is defined as someone with training, knowledge, and experience with Bakersfield cactus and the San Joaquin woolly-threads. The education program would cover the life history, habitat requirements, and conservation measures for the kit fox. The training would also include information on federal and state regulatory protections, restrictions, and guidelines that must be followed by crews to avoid and minimize impacts to threatened and endangered species and their habitat. The training would include the definition of “take”, potential penalties for violating environmental regulations, the benefits of compliance, and required reporting for sightings of potential listed species. Upon completion of training, crews would sign a form stating that they attended the training and understand all conservation measures. If new personal are added to the project, the new personal shall receive the training prior to starting work.
- Project activities shall occur only during daylight hours (one half hour prior to sunrise and one half hour after sunset.
- The use of any herbicides would be limited to dry weather and during wind speeds of under 5 miles per hour, as a safety precaution as well as to increase the effectiveness of the application. The application would also consider the weather forecast, such that herbicides would be applied only when the forecast calls for at least 72 hours of dry

weather following the application. The herbicides would be applied once during the early growing phase of annual grasses, in late fall or early winter (i.e., November to February). The herbicide chosen for this project is most effective during the early growth phases of grasses which is during fall and winter in the project area.

- Safety precautions to protect workers would follow recommendations on the product label, including the use of chemical proof gloves, pants, and long sleeves. In summary, all label instructions would be followed, including any additional precautions and prohibitions from all federal, state, and local jurisdictions regulating herbicide application.
- Vehicle access to the sites would be restricted to existing access roads and trails, which are traversed by truck and ATV. Access from roads to work areas would be on foot.
- All food-related trash items, such as wrappers, cans, bottles, and food scraps, shall be removed daily from the project site.
- Workers would not be permitted to bring pets into the action area.
- If the Bakersfield cactus or San Joaquin wooly threads are detected in the area where restoration activities would occur, the plant(s) would be marked and cordoned-off with an appropriate buffer area to completely avoid the plant(s) during weed-whipping, harrowing, and herbicide application.

Section 3 Affected Environment and Environmental Consequences

This section identifies the potentially affected environmental resources and the environmental consequences that could result from the Proposed Action and the No Action alternatives.

3.1 Resources Not Analyzed in Detail

Department of the Interior Regulations, Executive Orders, and Reclamation guidelines require a discussion of Indian sacred sites, Indian trust assets, and Environmental Justice, when preparing environmental documentation. Impacts to these resources, as well as, air quality and cultural resources effects, were considered and found to be minor or absent. Brief explanations for their elimination from further consideration are provided below.

3.1.1 Air Quality

The project is in the San Joaquin Valley Air Basin which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The air basin is in non-attainment status for ozone and particulate matter ($PM_{2.5}$) under both the California and Federal standards, and is in non-attainment under the California standard for particulate matter (PM_{10}). The air

basin is in attainment for all other listed air pollutants under both the California and Federal standards (SJVAPCD 2012).

Emissions associated with the project would be short-term in duration. Combustion emissions would result from the use of ATV's, and worker vehicle trips to and from the Preserve. Exhaust from these sources would contain reactive organic gases, carbon monoxide, nitrogen oxides, $PM_{2.5,}$ $PM_{10,}$ and carbon dioxide. Exhaust emissions would vary depending on the duration of use, and the number trips to and from the site. Restoration activities are anticipated to be completed within three months each year for five years.

The SJVAPCD has adopted screening level thresholds for small projects. Using project type and size, the SJVAPCD has pre-quantified emissions which it is reasonable to conclude that a project would not exceed SJVAPCD thresholds of significance for criteria pollutants. The activity size and vehicle trips for the Proposed Action are well below the activity levels for small actions screened by the air district for CEQA significance (SJVAPCD 2012). SJVAPCD adopted thresholds are more stringent than the *de minimis* threshold established by the U.S. EPA under the General Conformity Rule. Therefore, emissions generated by the restoration activities would also fall below federal general conformity thresholds. The Proposed Action does not require an in-depth conformity analysis to evaluate ambient air quality concentrations and instead is presumed to conform to the region's ozone, $PM_{2.5}$ and PM_{10} State implementation plan.

3.1.2 Cultural Resources

The expenditure of Federal funds for the proposed project constitutes an undertaking requiring compliance with 54 U.S.C. § 306108, commonly known as Section 106 of the National Historic Preservation Act (Appendix A). The Proposed Action is a type of activity that has the potential to affect historic properties. A records search, a cultural resources survey, and Tribal consultation identified no historic properties within the APE. Reclamation determined that there will be no historic properties affected pursuant to 36 CFR § 800.4(d)(1); therefore, no cultural resources would be affected as a result of implementing the Proposed Action.

3.1.3 Indian Trust Assets

Indian Trust Assets are legal interests in assets that are held in trust by the United States for federally recognized Indian tribes or individuals. The Table Mountain Rancheria is 22 miles from the project area. The Proposed Action would have no effect on Indian Trust Assets (Appendix B).

3.1.4 Indian Sacred Sites

Executive Order 13007 (May 24, 1996) requires that Federal agencies accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and avoids adversely affecting the physical integrity of such sacred sites. The Proposed Action would not be located on Federal lands and therefore would not affect access to or use of Indian sacred sites.

3.1.4. Environmental Justice

Executive Order 12898 requires each Federal agency to identify and address disproportionately high and adverse human health or environmental effects, including social and economic effects of its program, policies, and activities on minority populations and low-income populations. The

project area is located within the Preserve. Reclamation has not identified adverse human health or environmental effects on any population as a result of implementing the Proposed Action. Therefore, implementing the Proposed Action would not have a significant or disproportionately negative impact on low-income or minority individuals.

3.2 Biological Resources

3.2.1 Affected Environment

The Preserve encompasses a portion of a narrow sandy ridge and part of the floodplain of Caliente Creek. The ridge portion of the Preserve rises approximately 120-180 feet above the Caliente Creek floodplain and is composed of alluvial and wind-deposited sand.

The plant communities at the Preserve are a unique assemblage of San Joaquin Valley and Mojave Desert species. A variety of native wildflowers are present at the Preserve including Coulter's jewelflower (*Caulanthus coulteri*), lupines (*Lupinus* spp.), poppies (*Eschscholzia* spp.), Mojave sand verbena (*Abronia pogonantha*), chia sage (*Salvia columbariae*), sun cups (*Camissonia* spp.), and desert dandelion (*Malacothrix californica*). Bakersfield cactus are though out the Preserve but are most abundant on top of the ridge and along the eastern slope. Non-native grasses, including ripgut brome (*Bromus diandrus*), wild oats (*Avena fatua*), and Sahara mustard (*Brassica tournefortii*) dominate much of the herbaceous vegetation.

The Preserve contains the only known extant population of the fly (Osborn 2014). Although little information is known about the fly, where the fly has been found at the Preserve indicates it prefers areas of largely open sand (approximately 80%) with some shrub cover (5-10%) and very low herbaceous cover (approximately 10%). The species may require open sand and low vegetation which enable male flies to cruise for mates (performed relatively close to the ground) and enable females to find proper sites for egg-laying. Observations indicate larvae reside 1.8 to 3 meters below the surface. The flies are known to emerge from July to September (Osborn 2014).

A listing of federally listed endangered, threatened, proposed, and candidate species and critical habitat was obtained for the Edison 7.5-minute USGS quadrangle on via the USFWS website. Also, a search of the California Natural Diversity Database was conducted. In addition to the Bakersfield cactus, there is potential that the federally listed as endangered San Joaquin kit fox and San Joaquin woolly-threads are within the project area. The California Natural Diversity Database has documented kit foxes within five miles of the Preserve. However, kit foxes or signs of kit foxes have not been documented to be present on the Preserve (Greg Warrick, personal communication). The sandy conditions at the Preserve preclude any development of potential dens but the area could be dispersal habitat. The California Natural Diversity Database has documented San Joaquin woolly-threads within the Preserve, however, surveys have not been conducted to determine if they are present in the treatment areas.

3.2.2 Environmental Consequences

No Action

Under the no action alternative, Reclamation would not provide $254,161 from the HRP to complete restoration activities at the Preserve. Non-native grasses would continue to compete

with native plants for space, water, and nutrients. Non-native grasses form very dense stands and thick, persistent mulch layers, thereby changing the structure of the habitat. Competition with non-native grasses could prevent the recovery of the Bakersfield cactus and the San Joaquin woolly-threads.

In addition, non-native grasses are filling in open sandy areas at the Preserve which hinder the dispersal and establishment of new Bakersfield cactus and the San Joaquin woolly-threads plants. These effects could contribute to a decline in Bakersfield cactus and the San Joaquin woolly-threads populations at the Preserve. Also, non-native grasses increase fuel loads and fire frequency. Increase in fires could damage existing populations of the listed plants.

The San Joaquin Valley giant flower-loving fly requires fine sandy soil with relatively sparse native vegetation to complete its lifecycle. As the non-native grasses expand and fill in open areas, the San Joaquin Valley giant flower-loving fly would lose the open areas it requires for breeding and larval development. The loss of suitable habitat could result population decline.

Proposed Action

The restoration activities could result in a temporary disturbance to the Bakersfield cactus, San Joaquin woolly-threads, and San Joaquin kit fox due to harrowing and weed-whipping, the use of herbicides, and collection and transplanting of plant materials and container plants.

Plants. Direct effects to the Bakersfield cactus would occur during the collection of pads. Direct effects could also occur during the harrowing treatments, monitoring, transplanting, and the harrowing of the trail. Direct effects would be the damage, destruction, or uprooting of individual plants. Few impacts to the cactus are expected to occur from the herbicide application since the chemical has little or no direct effect on Bakersfield cactus (Greg Warrick, personal communication). The manufacturer's label for Fusilade includes Cholla cactus (*Opuntia cholla*) as a plant on which Fusilade can be directly sprayed without damage to the plant (SERA 2014). Bakersfield cactus is a member of the same plant genus as Cholla cactus. It is assumed the Bakersfield cactus would be equally as tolerant to the effects of the grass-specific herbicide and is therefore unlikely to be affected by indirect application that may occur. Direct application of herbicide on cactus plants will be avoided by marking of plants found in the action area and targeted application of herbicides to grasses.

Direct effects to San Joaquin woolly-threads could occur during the harrowing treatment and harrowing of the trail, if the plants begin growing in those areas. Direct effects would be the damage, destruction, or uprooting of individual plants. Indirect effects could occur from overspray or drift of herbicide during treatments. The manufacturer's label for Fusilade includes numerous and diverse members of the Aster plant family on which Fusilade can be directly sprayed without damage to the plant (SERA 2014). San Joaquin wooly-threads is a member of the Aster family. It is assumed the San Joaquin wooly-threads would be equally as tolerant to the effects of the grass-specific herbicide and is therefore unlikely to be affected by indirect application that may occur. Direct application of herbicide on wooly-thread plants will be avoided by marking of plants found in the action area and targeted application of herbicides to grasses.

The implementation of conservation measures would reduce potential adverse effects to the Bakersfield cactus and the San Joaquin woolly-threads. These measures include: pre-construction surveys; marking of plants for avoidance; environmental awareness training; and avoiding spraying of herbicides on cactus plants and the San Joaquin woolly-threads. The weed control measures would result in the removal of non-native grasses and emerging weed threats. A reduction in weeds would benefit the Bakersfield cactus and the San Joaquin wooly-threads by preventing them from being crowded out, and would improve their survival and growth. Propagation and translocation of the Bakersfield cactus would result in a direct improvement of the population on the Preserve by increasing the number and distribution of plants.

Wildlife. Short term effects to kit fox could occur such as disturbance from noise and activities by moving vehicles. Individual kit foxes, if present, may be subject to harassment resulting from increased levels of human disturbance and noise and activity from moving vehicles. The implementation of conservation measures would reduce potential adverse effects to the San Joaquin kit fox.

Effects to the fly from harrowing and weed-whipping are expected to be minor. The work is anticipated to begin in February when larvae are below the surface of the ground and would be completed prior to their emergence, typically in July. The harrowing would only disturb the top 2 to 4 inches of soil, and would be conducted in areas of dense vegetation and little open soil that do not provide optimal conditions for female flies to oviposit their eggs. Because of those two factors, harrowing would be of little risk to larvae.

Herbicide would be applied during fall or winter when fly larvae are below ground, so larvae will not be affected by the herbicide. If adult flies were exposed to the herbicide, the application of Fusilade is expected not to have adverse effects. Fusilade has a very low toxicity to bees and is not toxic to butterflies and, by proxy, to other terrestrial invertebrates (SERA 2014). The effect on flies is expected to have the same low toxicity and lack of effect on individual flies as found for those other insect groups.

Over the long-term, the Proposed Action would have a net positive impact on the San Joaquin Valley giant flower-loving fly. The harrowing and vegetation clearing would open areas to support the fly for breeding and larval development. Maintaining suitable habitat could help stabilize the population.

3.3 Cumulative Effects

According to CEQ regulations for implementing the procedural provisions of NEPA, a cumulative impact is defined as *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time* (40 CFR 1508.7).

The Proposed Action is exempt from General Conformity Regulations and would have no effect on cultural resources, ITAs, Indian sacred sites, or environmental justice. There would be a beneficial effect to biological resource. There are no adverse impacts associated with implementing the Proposed Action, and therefore there are no cumulative effects to consider.

Section 4 Consultation and Coordination

Reclamation consulted with the following parties regarding the Proposed Action:

- Center for Natural Land Management
- California Office of Historic Preservation
- U.S. Fish and Wildlife Service

4.1 Habitat Restoration Program Technical Team

The HRP program managers are guided by a Technical Team of biologists and natural resource specialists from Reclamation, USFWS, and the California Department of Fish and Wildlife. The purpose of the Team is to implement a collaborative and integrated multi-agency process to coordinate actions under State and Federal Laws to aid in recovery of CVP-impacted listed species. The Team helps insure the program is operated consistent with USFWS biological opinions (USFWS 2000) that guide implementation of the HRP and the jointly administered Central Valley Project Conservation Program which mitigate for past impacts to species from the CVP. The Team provides guidance and recommendations to HRP and Central Valley Project Conservation Program managers regarding which projects to fund each year among those proposed. The Proposed Action is supported by the Technical Team.

4.2 National Historic Preservation Act (54 USC § 306108)

Reclamation consulted under Title 54 USC § 306108, commonly known as Section 106 of the NHPA, which requires federal agencies to consider the effects of their undertakings on historic properties that are eligible for inclusion in the National Register. The 36 CFR Part 800 regulations implement Section 106 of the NHPA. Reclamation determined that there would be no historic properties affected by the Proposed Action pursuant to 36 CFR § 800.4(d)(1) and consulted with the State Historic Preservation Officer on this finding.

4.3 Endangered Species Act (16 USC § 1531 et seq.)

Section 7 of the Endangered Species Act requires Federal agencies to ensure that their actions do not jeopardize the continued existence of endangered or threatened species, or result in the destruction or adverse modification of the critical habitat of these species. In a memo dated February 2018, Reclamation initiated formal consultation with the USFWS. Reclamation determined the project may affect, and is likely to adversely affect, the Federally listed as

endangered the Bakersfield cactus. Reclamation also determined that the project may affect, but is not likely to adversely affect the Federally listed as endangered San Joaquin woolly-threads and San Joaquin kit fox (Appendix C).

Section 5 References

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Osborn Bological Consulting. 2014. A Petition to The United States Department of The Interior, Fish and Wildlife Service. https://ecos.fws.gov/docs/petitions/92210/665.pdf Accessed December 12, 2017.

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U.S. Fish and Wildlife Service (USFWS). 2010. Endangered Species List. http://ecos.fws.gov/ipac/. Accessed November 20, 2017.

Appendix A
Cultural Resources Compliance

CULTURAL RESOURCE COMPLIANCE
Mid-Pacific Region
Division of Environmental Affairs
Cultural Resources Branch

MP-153 Tracking Number: 18-SCAO-010

Project Name: Sand Ridge Preserve Habitat Restoration Project

NEPA Document: EA

MP 153 Cultural Resources Reviewer: Mark Carper

NEPA Contact: Jamie LeFevre

Determination: No Historic Properties Affected

Date: May 29, 2018

Reclamation proposes to provide funding to the Center for Natural Lands Management to conduct habitat restoration activities within the Sand Ridge Preserve in Kern County, California. Reclamation determined that the expenditure of Federal funding is an undertaking as defined in 36 CFR § 800.16(y) and involves the type of activity that has the potential to cause effects on historic properties under 36 CFR § 800.3(a).

The primary objective of the proposed project is to reduce non-native invasive plants within the preserve which out compete the native Bakersfield cactus and are detrimental to the native San Joaquin Valley giant flower loving fly (SJVGFLF). The proposed project will entail weed-whipping (commonly known as weed-whacking) of approximately 9 acres of invasive species in the spring, prior to the plants going to seed. Other vegetation will be removed through harrowing and applying a grass-specific herbicide. An open sand area will be created by harrowing the top of the ridge along the west side of a major drainage to connect the treatment areas. This will enhance the ability of the SJVGFLF to disperse into new areas. This process will be repeated annually for five years. In addition, pads from Bakersfield cacti will be collected, propagated, and ultimately translocated into unoccupied, but as yet undetermined, areas within the preserve.

Reclamation has determined the area of potential effects (APE) for this undertaking consists of all work areas and staging for the proposed project. Access into the APE will be from existing dirt roads. The APE encompasses approximately 56 acres and vertical disturbances will be approximately 4 inches deep for the harrowing and a foot deep for cacti pad translocation. The project is situated in Sections 19 and 30, T. 30 S., R. 30 E.,

Mount Diablo Meridian, as depicted on the Edison, California, 7.5' U.S. Geological Survey topographic quadrangle map.

In an effort to identify historic properties in the APE, the Center for Natural Lands Management contracted ASM Affiliates, Inc. (ASM) to conduct a cultural resources inventory to satisfy both their California Environmental Quality Act as well as Federal NHPA requirements for the proposed project. ASM conducted a record search and pedestrian surveys over the APE. Through these measures, ASM identified one historic-era resource consisting of four concrete blocks and a discrete concentration of mid-20th century refuse (SR-RA-1). ASM evaluated the find and recommended it as not eligible for inclusion on the National Register of Historic Places.

Pursuant to the regulations at 36 CFR § 800.3(f)(2), Reclamation identified the Santa Rosa Rancheria Tachi-Yokut Tribe, the Tejon Indian Tribe, and the Tule River Indian Tribe as potentially having interests in the project area. Pursuant to 36 CFR § 800.4(a)(4), Reclamation contacted these tribes by letter dated December 21, 2017, and invited their participation in the Section 106 process. To date there have been no responses from the tribes. Reclamation will work with these tribes to address any concerns that may arise regarding the proposed undertaking.

Reclamation initiated consultation with California the State Historic Preservation Officer (SHPO) on April 12, 2018 with a notification of a determination of no historic properties affected for the proposed project. SHPO concurred with the determination in a letter dated May 9, 2018.

After reviewing EA, 18-03-MP, dated March 2018, I concur that this action would not have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places

This memorandum is intended to convey the completion of the NHPA Section 106 process for this undertaking. Please retain a copy in the administrative record for this action. Should changes be made to this project, additional NHPA Section 106 review, possibly including consultation with the State Historic Preservation Officer, may be necessary. Thank you for providing the opportunity to comment.

Appendix B
Indian Trust Assets Compliance

Indian Trust Assets
Request Form

**Please send your request to: Kevin Clancy

Date:

Requested by	Jamie LeFevre, x 5035
Fund	14XR0680A1
WBS	RY30180006FIDCA4E
Cost Center	2015200
Region # (if other than MP)	(NA)
Project Name	Habitat Restoration for Bakersfield Cactus and the San Joaquin Valley Giant Flower Loving Fly at the Sand Ridge Preserve
CEC or EA Number	
Project Description	Reclamation proposes to provide grant funding to the CNLM to conduct a habitat restoration activities at the Sand Ridge Preserve. CNLM would complete the following activities: • Restore and enhance habitats for Bakersfield cactus and the San Joaquin Valley giant flower loving fly through weed removal and maintaining a sand corridor • Increase distribution of Bakersfield cactus through propagation and planting • Monitor success variables on treated and control sites to evaluate success • Analyze data and report findings

***Project Location (Township, Range, Section, e.g., T12 R5E S10, or XY cords)**	The project area is the Sand Ridge Preserve in Kern County, a generally north to south oriented ridge approximately south of Highway 58, approximately 15 miles east of Bakersfield. The central part of the Preserve is located at UTM 35o 18' 45.84"N and 118o 47' 34.25"W. (Figure 1)

*Please include map with request, if available.

ITA Determination:

The closest ITA to the Habitat Restoration for Bakersfield Cactus and the San Joaquin Valley Giant Flower Loving Fly at the Sand Ridge Preserve project is public land allotment (a parcel of land or real estate holding, that may or may not be affiliated with a particular tribe or is in the process of being recorded) which is approximately 23 miles to the east. (See attached image).

Based on the nature of the planned work it does not appear be in an area that will impact Indian hunting or fishing resources or water rights nor is the proposed activity on actual Indian lands. It is reasonable to assume that the proposed action will not have any impacts on ITAs.

K. Clancy	Kevin Clancy	11/20/2017
Signature	Printed name of approver	Date

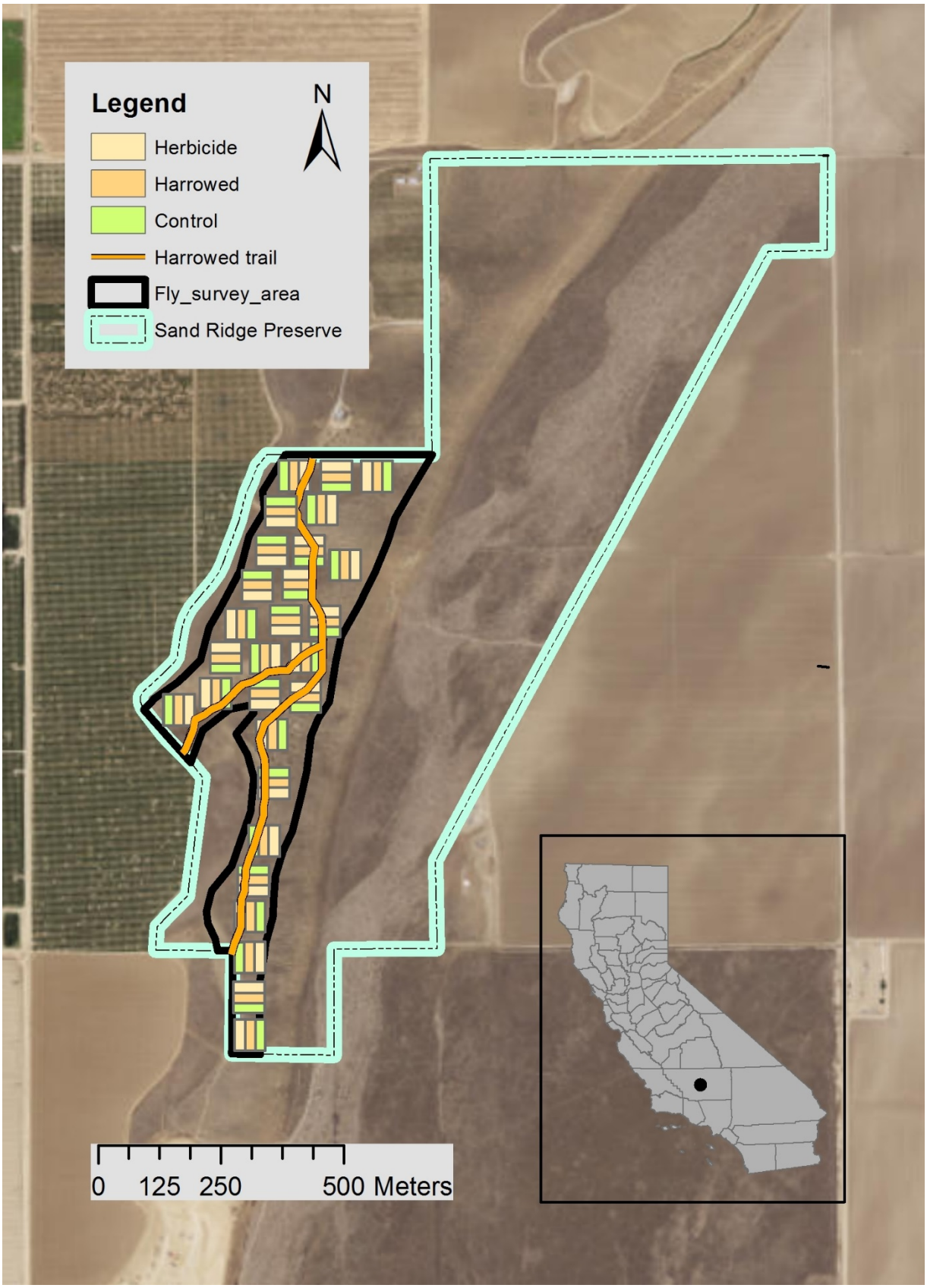
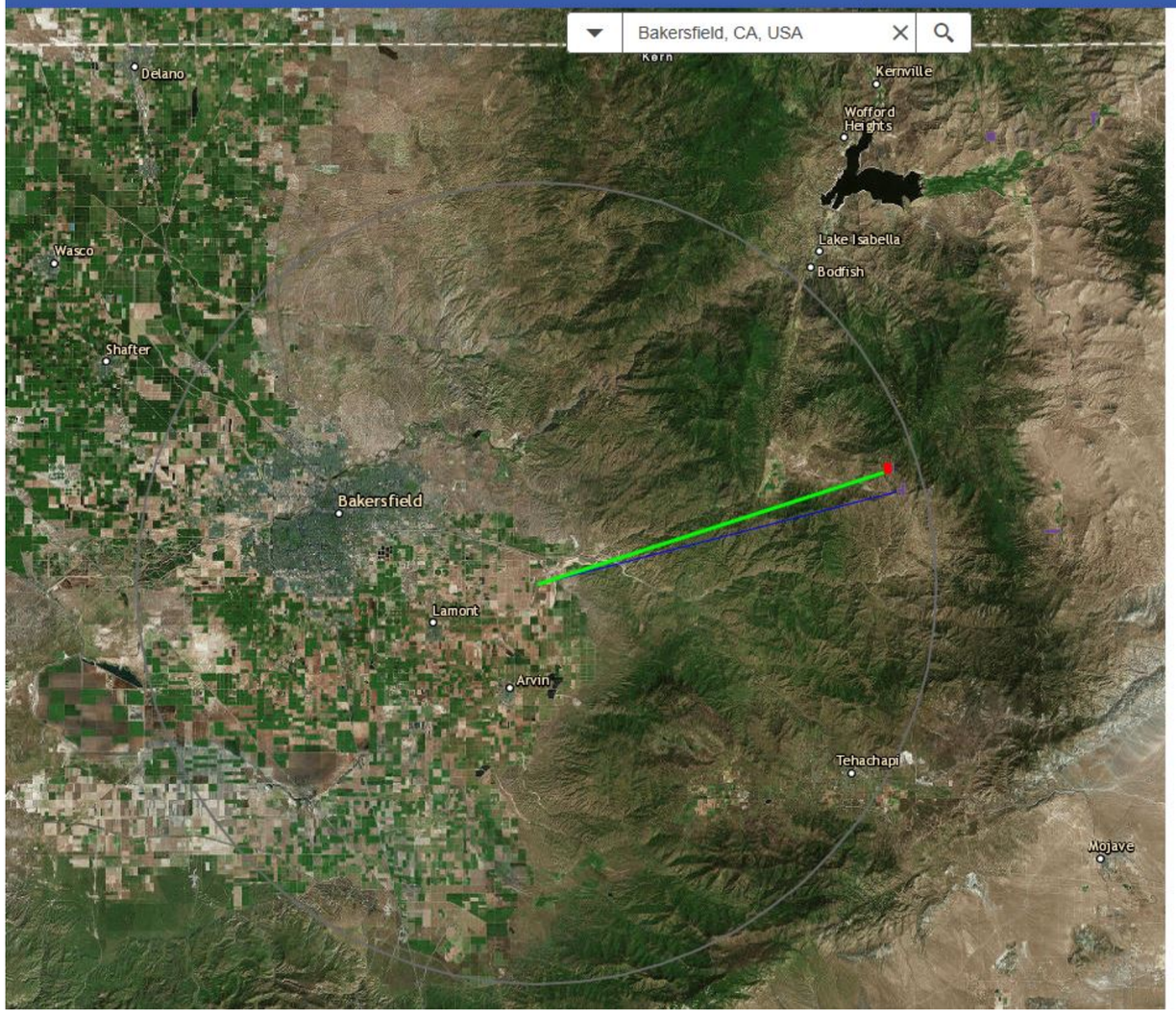


Figure 1. Project Location and Proposed Activities

RECLAMATION | tessel



Native American Lands

Close App

This application locates Native American Lands trust assets within the selected search radius and lists the results with distances.

Step 1. Select a search radius (miles)

25

Step 2. Longitude and Latitude

If you CLICK on the map, the coordinates for the location will be inserted below. Or, you can type them manually.

Longitude:
-118.79795

Latitude:
35.30282

Step 3. Find closest Native American Lands

Search

Distance to closest native american land: 22.91 miles
Name: 50H IN106
Tribe:

Help

Appendix C
Endangered Species Act Compliance

United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

IN REPLY REFER TO:
MP-150
ENV-7.00

FEB 16 2018

MEMORANDUM

To: Field Supervisor, Sacramento Fish and Wildlife Office
U. S. Fish and Wildlife Service

From: Anastasia T. Leigh
Regional Environmental Officer

Subject: Formal Endangered Species Act Consultation on the Habitat Restoration Project for Bakersfield Cactus (*Opuntia treleasei*) and the San Joaquin Valley Giant Flower Loving Fly (*Rhaphiomidas trochilus*) at the Sand Ridge Preserve in Kern County, California

The Bureau of Reclamation proposes to provide grant funding to the Center for Natural Lands Management to conduct habitat restoration activities at the Sand Ridge Preserve. Reclamation is requesting formal consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act, as amended (16 U.S.C. 1536), for the subject project. With Federal funding, the Center for Natural Lands Management would complete the following activities:

- Restore and enhance habitats for Bakersfield cactus and the San Joaquin Valley giant flower loving fly through weed removal and maintaining a sand corridor;
- Increase distribution of Bakersfield cactus through collecting, propagation, and planting;
- Monitor success variables on treated and control sites to evaluate success; and
- Analyze data and report findings.

Reclamation has determined the project may affect, and is likely to adversely affect, the federally-listed as endangered Bakersfield cactus. Reclamation has determined that the project may affect, but is not likely to adversely affect the federally-listed as endangered San Joaquin wooly-threads (*Monolopia congdonii*) and San Joaquin kit fox (*Vulpes macrotis mutica*).

The attached biological assessment provides a detailed project description, our analysis of potential effects on federally-listed species, and other information necessary for the Service to consult. If you need additional information or have questions regarding the project, please contact Ms. Jamie LeFevre, Natural Resources Specialist, at 916-978-5035 or jlefevre@usbr.gov. Thank you for your coordination on this project.

Attachment