

Supplemental Environmental Assessment for Big Game and Upland Game Hunting at San Diego National Wildlife Refuge

Date: June 2022

The Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the San Diego National Wildlife Refuge Final Comprehensive Conservation Plan (CCP) addressed all management actions and activities occurring or proposed to occur on the San Diego National Wildlife Refuge (Refuge; San Diego NWR). However, some of the actions or activities described in the CCP, such as hunting, were not analyzed in detail in the CCP, and the Refuge therefore has prepared a more detailed step-down plan to further describe how hunting will be implemented on the Refuge. This supplemental EA analyzes the effects of the step-down Hunt Plan and complies with the National Environmental Policy Act (NEPA) in accordance with Council on Environmental Quality regulations (40 CFR 1500-1509) and Department of the Interior (43 CFR 46; 516 DM 8) and U.S. Fish and Wildlife Service (550 FW 3) regulations and policies. NEPA requires examination of the effects of proposed actions on the natural and human environment.

Proposed Action

The U.S. Fish and Wildlife Service (Service) is proposing to open hunting opportunities for big game (deer), resident small game (rabbits and jackrabbits), and resident and migratory upland game birds (dove and quail) on the Refuge in accordance with the Refuge's Hunt Plan (USFWS 2022a).

This proposed action is often iterative and evolves over time during the process as the agency refines its proposal and learns more from the public, tribes, and other agencies. Therefore, the final proposed action may be different from the original. The final decision on the proposed action will be made at the conclusion of the public comment period for the EA and the Draft 2022-2023 Refuge-Specific Hunting and Sport Fishing Regulations. The Service cannot open a refuge to hunting and/or fishing until a final rule has been published in the Federal Register formally opening the refuge to hunting and/or fishing.

Background

National Wildlife Refuges are guided by the mission and goals of the National Wildlife Refuge System (NWRS), the purposes of an individual refuge, Service policy, and laws and international treaties. Relevant guidance includes the National Wildlife Refuge System Administration Act of 1966, as amended by the National Wildlife Refuge System Improvement Act of 1997, Refuge Recreation Act of 1962, and selected portions of the Code of Federal Regulations and Fish and Wildlife Service Manual.

The Refuge was established in 1996, under the authorities of the Fish and Wildlife Act of 1956, as amended (16 U.S.C. 742(a)-754), Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884), and Refuge Recreation Act of 1962, as amended (16 U.S.C. 460k-460k-4). The Refuge was established to protect a variety of native upland and wetland habitats. It plays a critical role in the regional effort to maintain the high biological diversity of southwestern San Diego County.

The mission of the NWRS, as outlined by the National Wildlife Refuge System Administration Act (NWRSA), as amended by the National Wildlife Refuge System Improvement Act (16 U.S.C. 668dd et seq.), is to:

“... to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans”

The NWRSA mandates the Secretary of the Interior in administering the System to (16 U.S.C. 668dd(a)(4):

- Provide for the conservation of fish, wildlife, and plants, and their habitats within the NWRS;
- Ensure that the biological integrity, diversity, and environmental health of the NWRS are maintained for the benefit of present and future generations of Americans;
- Ensure that the mission of the NWRS described at 16 U.S.C. 668dd(a)(2) and the purposes of each refuge are carried out;
- Ensure effective coordination, interaction, and cooperation with owners of land adjoining refuges and the fish and wildlife agency of the States in which the units of the NWRS are located;
- Assist in the maintenance of adequate water quantity and water quality to fulfill the mission of the NWRS and the purposes of each refuge;
- Recognize compatible wildlife-dependent recreational uses as the priority general public uses of the NWRS through which the American public can develop an appreciation for fish and wildlife;
- Ensure that opportunities are provided within the NWRS for compatible wildlife-dependent recreational uses; and
- Monitor the status and trends of fish, wildlife, and plants in each refuge.

Therefore, it is a priority of the Service to provide for wildlife-dependent recreation opportunities, including hunting and fishing, when those opportunities are compatible with the purposes for which the Refuge was established and the mission of the National Wildlife Refuge System.

Purpose and Need for the Action

The purpose of this proposed action is to provide compatible wildlife-dependent recreational opportunities on the San Diego NWR. The need of the proposed action is to meet the Service’s priorities and mandates as outlined by the NWRSA to “recognize compatible wildlife-dependent recreational uses as the priority general uses of the NWRS” and “ensure that opportunities are provided within the NWRS for compatible wildlife-dependent recreational uses.” 16 U.S.C. 668dd(a)(4)

Alternatives

Alternative A – Proposed Action Alternative

The Refuge has prepared a Hunt Plan (USFWS 2022a) which is presented in this document as the Proposed Action Alternative and is incorporated by reference to this EA.

Under the Proposed Action Alternative, the Service proposes to open approximately 160 acres of the San Diego NWR to upland hunting of southern mule deer (*Odocoileus hemionus fuliginosus*), brush rabbit (*Sylvilagus bachmani*), desert cottontail (*Sylvilagus audubonii*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), California quail (*Callipepla californica*), mountain quail (*Oreortyx pictus*), mourning dove (*Zenaida macroura*), white-winged dove (*Zenaida asiatica*), Eurasian-collared dove (*Streptopelia decaocto*), ringed-turtle dove (*Streptopelia risoria*), and spotted dove (*Streptopelia chinensis*). The designated hunting area is located in the eastern portion of the Otay Mesa and Lakes area within the Otay-Sweetwater Unit (figure 1). Hunting in this area would occur in accordance with California Department of Fish and Wildlife (CDFW) regulations and any Refuge-specific conditions. See Table 1 in the Hunt Plan for the CDFW and Refuge Hunt Season dates and daily bag limits. This hunting area abuts other public lands open to hunting that are managed by the CDFW and the Bureau of Land Management (BLM). Refuge-specific regulations would generally be consistent with State hunting regulations as they pertain to the CDFW Otay Mountain Ecological Reserve (California Code of Regulations, Title 14 [Public Resources] Section 630). Public access into the Refuge’s hunt area will be via foot from adjacent CDFW and BLM lands where hunting is also permitted. Figure 1 shows the hunt location on Service property as well as public hunting opportunities on adjacent properties.

The following special regulations will be published in the Federal Register as part of the 2022-2023-Refuge-Specific Hunting and Sport Fishing Regulations. They will also be published annually in CDFW's Hunting Regulations under "Federal Regulations."

(q) San Diego National Wildlife Refuge—

(2) Upland game hunting. We allow hunting of quail, mourning and white-winged dove, spotted and ringed turtle dove, and Eurasian-collared dove, brush rabbit, cottontail rabbit, and jackrabbit on designated areas of the refuge subject to the following conditions:

- i. Archery hunting of quail is limited to September 1 to the end date established by CDFW.
- ii. Hunting of brush rabbit and cottontail rabbit is limited to September 1 to the end date established by CDFW.
- iii. Hunting of Eurasian-collared dove and jackrabbit is limited to September 1 to last day of February.
- iv. We allow shotguns and archery only. Falconry is prohibited.
- v. You may not possess more than 25 shot shells while in the field.
- vi. We allow the use of dogs when hunting upland game.

(3) Big game hunting. We allow hunting of mule deer on designated areas of the refuge.

Mitigation Measures to Avoid Conflicts

Biological Conflicts

To avoid significant adverse effects to non-target species and species of conservation concern including Quino checkerspot butterfly (*Euphydryas editha quino*), Hermes copper butterfly (*Lycaena hermes*), coastal California gnatcatcher (*Polioptila californica californica*), Mexican flannelbush (*Fremontodendron mexicanum*), and their designated critical habitats, the following measures will be implemented as part of the hunt program:

- Limit hunting to the designated area within the Otay Mesa and Lakes Management Area.
- Limit shot permitted on the Refuge to approved non-toxic shot;
- Ensure periodic law enforcement presence in the area throughout the hunt season to minimize excessive harvest and other infractions (e.g., illegal use of lead shot; take of non-game species; littering, trespass into closed areas); and,
- Post information about the importance of protection non-target species at kiosks, on the Refuge website and in hunting-related Refuge outreach materials.

Administrative Conflicts

To avoid administrative conflicts arising from hunters not familiar with the Refuge specific regulations:

- Boundaries will be clearly posted in the field between hunting and non-hunting areas;
- Hunt program will be managed in accordance with all applicable Federal laws (50 CFR Subchapter C) and consistent with applicable State laws;
- Refuge law enforcement officers and CDFW wardens will coordinate on field checks to ensure compliance with all applicable hunting regulations;

- Information about the Refuge hunting program will be provided through signs, at kiosks with outreach materials and brochures, and the Refuge's website at https://www.fws.gov/refuge/San_Diego/visit/visitor_activities.html.

This alternative offers increased opportunities for public hunting and fulfills the Service's mandate under the National Wildlife Refuge System Improvement Act of 1997. The Service has determined that the Hunt Plan is compatible with the purposes of the Refuge and the mission of the NWRS.

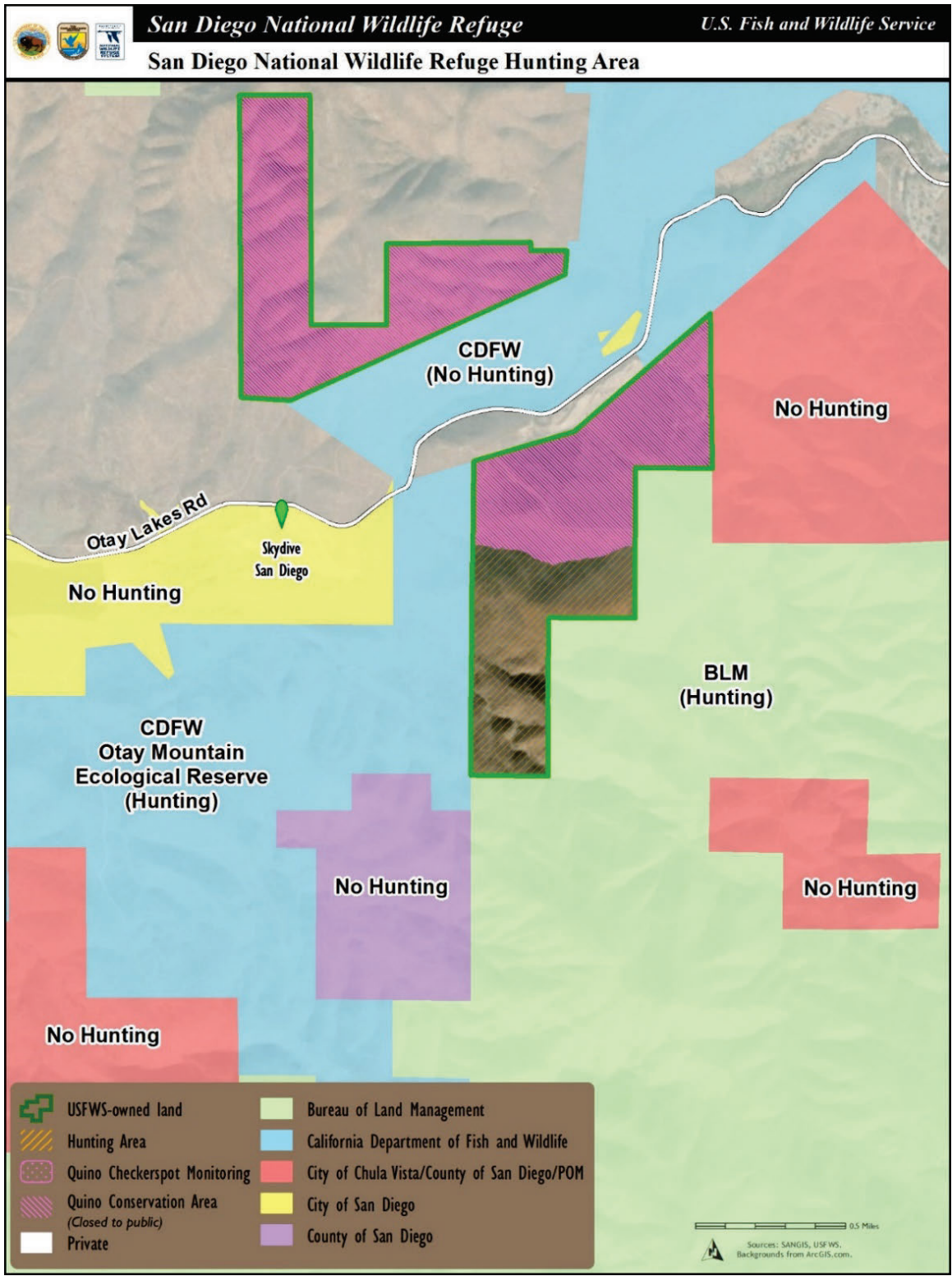


Figure 1. Designated Hunting Area on San Diego NWR.

Alternative B – No Action Alternative

Under the No Action Alternative, the Service would not open the Refuge to hunting in accordance with the Hunt Plan. Other priority wildlife-dependent public uses would continue on the Refuge. These uses include wildlife observation and photography, interpretation, and environmental education. The Refuge would remain closed to fishing.

Alternative(s) Considered but Eliminated from Detailed Analysis

During preparation of the 2017 Comprehensive Conservation Plan/Environmental Assessment (CCP/EA), the Service considered an alternative that would open the two other portions of the Otay-Sweetwater Unit for hunting as well. This alternative was eliminated from further consideration due to the need to protect large blocks of habitat to support the 13 federally listed endangered or threatened species and more than 30 other species covered by the San Diego Multiple Species Conservation Program (MSCP) known to occur on the Refuge, while also facilitating compatible wildlife-dependent recreational uses and other compatible uses in various areas throughout the somewhat disjunct lands that comprise the San Diego NWR.

Affected Environment and Environmental Consequences

Affected Environment

As of December 2021, the San Diego NWR included approximately 12,436 acres distributed among several non-contiguous land areas in San Diego County, California. The majority of these Refuge lands are concentrated along the southeastern edge of San Diego County's metropolitan area within the Otay-Sweetwater Unit. The proposed hunt area is located in the eastern portion of the Otay Mesa and Lakes Management Area within the Otay-Sweetwater Unit. The description of the affected environment is focused on the proposed hunt area.

For more information regarding the affected environment, please see Chapter 3 of the Final CCP and EA (USFWS 2017) which can be found here: [<https://ecos.fws.gov/ServCat/Reference/Profile/133810>].

Environmental Consequences of the Action

This section analyzes the environmental consequences of the action on each affected resource, including direct and indirect effects. This EA only includes the written analyses of the environmental consequences on a resource when the impacts on that resource could be more than negligible and therefore considered an "affected resource". Any resources that will not be more than negligibly impacted by the action have been dismissed from further analyses.

Impact Types:

- Direct effects are those which are caused by the action and occur at the same time and place.
- Indirect effects are those which are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable.
- Cumulative impacts result 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.

In 2017, the Service completed a Final CCP/EA for the San Diego NWR (USFWS 2017) which is incorporated by reference. The Service selected Modified Alternative D for implementation which includes hunting on 160 acres in the Otay Mesa and Lakes Management Area of the Otay-Sweetwater Unit. The Final CCP/EA addressed the impacts of public use, including hunting, on the physical

environment, biological resources, cultural resources, social and economic environment, and cumulative impacts. This supplemental EA focuses on the site-specific effects of hunting on wildlife, vegetation and habitats, visitor use, and management and operations.

Species to be Hunted—Upland Game Birds

Affected Environment

Description of Relevant General Features of Affected Environment

Both California quail and mountain quail would be hunted on the Refuge. The California quail can be found in habitats such as chaparral and coastal sage scrub characterized by a dense cover of shrubby perennials that are interspersed with patches of open areas supporting annuals and other low forms of vegetation. While no site-specific surveys have been conducted on the proposed hunt area, Refuge staff expects that the chaparral vegetation in this area supports California quail at abundance levels similar to those encountered in chaparral vegetation in the Las Montañas and San Miguel Mountain areas of the Refuge. Mountain quail are also found in chaparral communities; however, this species has not recently been documented on the Refuge. See pages 3-68 to 3-70 in the Final CCP/EA for a full description of these species (USFWS 2017).

Dove species that could be hunted under the proposed action alternative are mourning dove, white-winged dove, spotted and ringed turtle dove, and Eurasian collared dove.

The mourning dove is one of the most widely distributed and abundant bird species in North America (Droege and Sauer 1990). It can be found in a wide range of habitats, from urban areas to desert scrub. It is also the most important U.S. game bird in terms of numbers harvested. A 1991 survey indicated that the mourning dove provided about 9.5 million days of hunting recreation for 1.9 million people (USFWS and U.S. Bureau of Census 1993). The breeding range of the mourning dove extends from the southern portions of the Canadian Provinces throughout the continental United States into Mexico, the islands near Florida and Cuba, and scattered areas in Central America (Aldrich 1993). Although some mourning doves are nonmigratory, most migrate south to winter in the U.S. from northern California to Connecticut, south throughout most of Mexico and Central America to western Panama.

White-winged doves nest at relatively low densities throughout the Sonoran, Mohave, and Chihuahuan deserts of southern and western Arizona, southern California, and southern New Mexico. The number of white-winged doves present on the Refuge is not known and no breeding surveys have been conducted on the Refuge for this species.

Spotted doves were introduced from Asia to the Los Angeles area in about 1915 and found in San Diego County by 1950. It established as a local resident but was uncommon in number, and by the 1990s had significantly declined; it is considered extirpated from San Diego County (Unitt 2004). No surveys specific to the species have been conducted on the Refuge.

Ringed turtle doves have been reported in San Diego County as a domesticated bird, resident but in very limited numbers. Birds seen in San Diego may be escaped cage birds but a population of the species is not known to have established within San Diego County (Unitt 2004). No surveys specific to the species have been conducted on the Refuge.

The Eurasian-collared dove is a nonnative species that is a year-round resident of California. The number of Eurasian-collared doves present on the Refuge is not known. In California, there is no limit to the number of Eurasian-collared doves that a licensed hunter can take or possess during the hunting season.

Environmental Consequences

Alternative A – Proposed Action Alternative

Estimated hunter numbers per season: <1 for all quail species; <1 for all dove species

Quail hunter numbers were estimated by taking into account the annual estimated number of quail hunters in San Diego County (CDFW 2019b), estimated acres of huntable land in San Diego County, and the fraction of huntable land in San Diego County that the Refuge hunt area would comprise under this Alternative. We calculated an estimated 0.1 hunter would quail hunt on the Refuge hunt area in a season. We estimate that hunter numbers for all dove hunters on the Refuge would be similar to those for quail.

Estimated take: <1 California quail; <1 mourning dove, <1 white-winged dove, <1 Eurasian collared dove; <1 spotted dove; <1 ringed turtle dove

Applying the estimated success rate of quail hunters (for this calculation, we used 0.1 hunter) in San Diego County annually (CDFW 2019b) to the Refuge hunt area, we estimate that one quail would be taken on the Refuge hunt area approximately every 20 years. We estimate that the success rate for all dove species hunted on the Refuge would be similar to those for quail.

Upland game hunting would be permitted with some reductions of the State's seasons. The archery season for quail would run from September 1 to the end date established by CDFW. The season for the Eurasian-collared dove would extend from September 1 to the end of February. Hunting for other dove species would be permitted consistent with the State's season and limits. Hunting pressure would be light as mentioned above.

In addition to its direct lethal effects, hunting can also cause wildlife disturbance. On the Refuge, hunter access would only be allowed through neighboring public land and only by foot. This eliminates vehicle-related disturbance. Hunters traveling by foot, discharging weapons and the presence of hunting dogs can flush a variety of wildlife. Human and dog disturbance have differing effects on wildlife and is dependent on many variables, including the species involved and its age, the time of year, the breeding cycle, and the activity in which the animals are engaged. Disturbance related impacts on the Refuge are minimized because hunting will occur in the fall and winter when disturbance effects are less damaging to wildlife populations compared with the spring/summer breeding season.

Alternative B – No Action Alternative

Estimated hunter numbers: 0 for all species

Estimated take: 0 for all species

Under Alternative B, the Service would not open this portion of the Refuge to hunting and there would be no take of any upland game species. Areas of the Refuge currently open to other wildlife-dependent recreational uses would remain open to these uses. These uses include wildlife observation and photography, interpretation, and environmental education. There would continue to be temporary disturbance to wildlife from other wildlife-dependent recreation.

Species to be Hunted—Resident Small Game

Affected Environment

Description of Relevant General Features of the Environment

Resident small game species are the brush rabbit, desert cottontail rabbit, and San Diego black-tailed jackrabbit. These species are classified as resident small game by CDFW. Brush rabbits and desert cottontail are both abundant, year-round residents on the Refuge. Brush rabbits tend to occur in dense, brushy areas, particularly the chaparral vegetation on the Refuge, while desert cottontails occur in more open habitat areas (USFWS 2017).

Detailed rabbit population data is not available for the Refuge. However, in 2007, rabbit scat studies were conducted to establish the relative abundance of rabbits in various locations and habitats within the Otay-Sweetwater Unit of the Refuge. The survey data showed that oak riparian forest habitat has the highest observed abundance of scat pile, followed by chaparral and coastal sage scrub (USFWS 2017). While the hunt area was not included in the sampling transects, the chaparral and coastal sage scrub habitats in the hunt area likely host a similar abundance of these species.

The San Diego black-tailed jack rabbit is also considered a small game animal by the CDFW. Although this species exhibits natural fluctuations in population size and distribution, habitat loss associated with urban development has affected the total population size and distribution of this species throughout portions of its range. As a result, the San Diego black-tailed jackrabbit is included on the CDFW's list of species of special concern (CDFW 2021). The extent of the jackrabbit population on the Refuge is not currently known.

Environmental Consequences

Alternative A – Proposed Action Alternative

Estimated hunter numbers: <1 hunter for brush rabbit; <1 hunter for cottontail; <1 hunter for San Diego black-tailed jackrabbit

Rabbit hunter numbers were estimated considering the estimated number of rabbit hunters in San Diego County (CDFW 2019b), estimates of the amount of huntable land in San Diego County, and the fraction of huntable land in San Diego County that the Refuge hunt area would comprise under this Alternative. We estimate that nearly 0.1 hunter would hunt for rabbits on the Refuge hunt area in a season. Similarly, jackrabbit hunter numbers were estimated that 0.03 hunter would hunt for jackrabbits on the Refuge hunt area in a season. Both of these estimates were rounded to 1 hunter for this EA.

Estimated take: <1 brush rabbit; <1 desert cottontail; <1 San Diego black-tailed jackrabbit

Applying the estimated success rate of rabbit hunters in San Diego County (CDFW 2019b), we estimate that one rabbit would be taken on the Refuge hunt area approximately every 3.5 years. Applying the estimated success rate of jackrabbit hunters in San Diego County (CDFW 2019b), we estimate that 0.13 jackrabbit would be taken on the Refuge hunt area annually, or one jackrabbit approximately every 7.5 years.

Rabbit hunting on San Diego NWR would contribute to the overall harvest of these species, although within the limits set by CDFW. The hunt season for rabbits on the Refuge would be reduced from the State's seasons for these species to protect sensitive breeding birds. Hunting for brush rabbit and desert cottontail would be allowed from September 1 to the end date established by the CDFW and hunting for the black-tailed jackrabbit would be allowed from September 1 to the end of February. Hunting pressure on San Diego NWR annually is expected to be light as mentioned above. Indirect impacts would be similar to those described for upland game birds.

Alternative B – No Action Alternative

Estimated hunter numbers: 0 for all species

Estimated take: 0 for all species

Under Alternative B, the Service would not open this portion of the Refuge to hunting and there would be no take of any resident small game species. Areas of the Refuge currently open to other wildlife-dependent recreational uses would remain open to these uses. These uses include wildlife observation and photography, interpretation, and environmental education. There would continue to be temporary disturbance to wildlife from other wildlife-dependent recreation.

Species to Be Hunted—Big Game

Affected Environment

Description of Relevant General Features of the Environment

Mule deer is the only native species of deer in California. The most abundant and popular big game animals in California, mule deer have a keen sense of hearing and can easily detect motion. Their vision of stationary objects, however, is poor. The home range of bucks appears to be highly variable, with mean home ranges estimated at 705 acres. Smaller home ranges averaging 247 to 741 acres have been estimated for doe and fawn groups (Penrod et al. 2006). Actual home range sizes vary depending on the availability of food, cover, and water. In coastal San Diego County, mule deer are considered resident species, as they are not known to migrate distances. No surveys of mule deer abundance have been conducted in the proposed hunt area. See pages 3-75 to 3-78 in the Final CCP/EA for a detailed description of this species. (USFWS 2017).

The proposed hunt area is in CDFW's deer hunt zone D-16. Between 2013 and 2017, the population estimates for mule deer in this hunt zone range from 7,290 in 2017 and 12,210 in 2016. The statewide deer population between 1992 and 2011 has ranged from just over 400,000 in 2005 to just under 700,000 in 1993 (CDFW 2018). In 2018, CDFW issued the full quota of 3,000 tags for zone D-16. CDFW reports that in zone D-16 in 2018, 292 bucks were killed for a hunter success rate of 9.7 percent (CDFW 2018).

Environmental Consequences

Alternative A – Proposed Action Alternative

Estimated hunter numbers: <1 hunter

Deer hunter numbers were estimated by taking into account the number of hunters in D-16 (CDFW 2019a), estimates of the amount of huntable land in D-16, and the fraction of D-16 that the proposed Refuge hunt area would comprise under this Alternative. We estimate that 0.01 hunters would hunt deer on the Refuge hunt area in a season.

Estimated take: <1 mule deer

Applying the estimated success rate of deer hunters in Unit D-16 to the number of hunters expected, we estimate that one deer would be taken on the Refuge hunt area approximately every 100 years.

Indirect impacts related to disturbance would be low since there is likely to low numbers of hunters engaging in this activity. Indirect impacts would be similar to those described in the effects analysis for Alternative A for upland game birds.

Alternative B – No Action Alternative

Estimated hunter numbers: 0

Estimated take: 0

Under Alternative B, the Service would not open this portion of the Refuge to hunting and there would be no take of mule deer. Areas of the Refuge currently open to other wildlife-dependent recreational uses would remain open to these uses. These uses include wildlife observation and photography, interpretation, and environmental education. There would continue to be temporary disturbance to wildlife from other wildlife-dependent recreation.

Non-Target Wildlife

Affected Environment

Description of Relevant General Features of the Environment

Southwestern San Diego County includes a unique combination of physical features, climate, and hydrology that have resulted in a diversity of plants and wildlife unlike any other region in North

America. These characteristics also drive the desire to work and live in this region, resulting in the loss of native habitats to urban and suburban development. As such, the San Diego region has been identified as a major “hot spot” for biodiversity and species endangerments. Habitats within Southern California’s Mediterranean climate support the highest concentration of locally endemic species, along with the highest number of species listed as threatened or endangered, in the continental United States (USFWS 2017).

Non-hunted bird species that can be found in coastal sage scrub habitat include California gnatcatchers, and rufous-crowned sparrows. Species such as Costa’s hummingbird, greater roadrunner, western scrub-jay, wrentit, California thrasher, and California towhee can be found in both coastal sage scrub and chaparral habitats. Mammal species include the Pacific kangaroo rat in open areas of coastal sage scrub habitat. Dusky-footed woodrat nests have been observed in dense scrub and chaparral vegetation. Other species such as the San Diego pocket mouse, California pocket mouse, deer mouse, and California mouse have also been observed on the Refuge. More details and species lists can be found in the Final CCP (USFWS 2017).

Environmental Consequences

Alternative A – Proposed Action Alternative

Opening the Refuge to hunting would result in short-term disturbance to non-hunted wildlife over a larger area compared to the No Action Alternative. This could result in the temporary displacement of birds and small mammals. However, hunting would occur in the fall and winter months which is outside the active breeding seasons for most birds, therefore minimal to no conflict is expected.

Year-round resident golden eagles, nesting on Otay Mountain, are known to use the proposed hunt area for foraging (John Martin, Refuge biologist, pers. obs; Robert Fisher, USGS, unpubl. Data). Eagles are likely to avoid the area or suspend foraging while hunters are present. However, the proposed hunt area is an insignificantly small fraction of the area that these eagles are known to use (Robert Fisher, USGS, unpubl. Data), and the hunt area is not known to be a focal foraging area or of exceptionally high quality as eagle foraging habitat. The proposed hunt area is not sufficiently close to a known nest site for human activity to disrupt nesting activity.

Northern Harrier (*Circus hudsonius*) regularly winter in and migrate through the proposed hunt area. It is likely that the proposed hunt area constitutes some or all of one or more harriers’ winter range. Wintering harriers may temporarily avoid the area or suspend essential behaviors while hunters are present. Suitable nesting habitat for northern harriers occurs within approximately 250 m of the proposed hunt area. Harriers are thought to have nested in contiguous suitable habitat approximately 3,000 m west of the hunt area in 2021 (AECOM, unpubl. Data). Seasonal restrictions on hunting in the proposed hunt area will preclude potential disturbance to nesting harriers.

Any mammals present may temporarily leave the area or temporarily suspend essential behavior (e.g., foraging, thermoregulation, predator avoidance) while hunters are present. No significant impacts are anticipated.

Approximately one salamander, one spadefoot, one toad, one frog, eleven lizard, and fifteen snake species have the potential to occur on the proposed hunt area. Take of the majority of these species is regulated by CDFW, however, no collecting will be permitted in the Refuge’s proposed hunt area. The hunt program is not expected to significantly disturb these species or degrade habitat. No significant impacts are anticipated.

Thorne’s hairstreak (*Callophrys [Mitoura] grynea thornei* or *Callophrys [Mitoura] thornei*): This rare butterfly is endemic to Otay Mountain. The obligate host plant for the larvae of this species is Tecate cypress (*Hesperocyparis forbesii*). Both the host plant and the butterfly have the potential, but are not currently known, to occur on the proposed hunt area. During the hunting season, any Thorne’s hairstreak occurring in the area are likely to be in diapause as pupae buried in leaf litter under the canopy of Tecate

cypress (Brown 1982). Given the low number of hunters anticipated, the low number of Tecate cypress and Thorne's hairstreak anticipated, and the situation of pupae under the canopy of dense low shrubs where hunters are unlikely to walk, the likelihood of trampling of pupae by hunters is discountable.

An unknown but large number of invertebrate species not addressed above are likely to occur in the proposed hunt area. Though some are likely to be impacted by trampling, no significant population effects are anticipated.

Hunting can cause direct wildlife disturbance. However, on the Refuge, hunter access would only be allowed through neighboring public land and only by foot. This eliminates vehicle-related disturbance. Hunters traveling by foot, discharging weapons and the presence of hunting dogs can flush a variety of wildlife. Human and dog disturbance have differing effects on wildlife and is dependent on many variables, including the species involved and its age, the time of year, the breeding cycle, and the activity in which the animals are engaged. Disturbance related impacts on the Refuge are minimized because hunting will occur in the fall and winter when disturbance effects are less damaging to wildlife populations compared with the spring/summer breeding season.

Alternative B – No Action Alternative

Under Alternative B, the Service would not open this portion of the Refuge to hunting but other areas of the Refuge currently open to other wildlife-dependent recreational uses would remain open to these uses. These uses include wildlife observation and photography, interpretation, and environmental education. There would continue to be temporary disturbance to wildlife from other wildlife-dependent recreation in those areas.

Vegetation and Habitats

Affected Environment

Description of Relevant General Features of the Environment

Historically, the Refuge parcel proposed for hunting supported native grassland and coastal sage scrub, with coast live oak woodland occurring in the northern portion and southern mixed chaparral in a drainage across the center of the parcel. The site burned in 2003 and again in 2007, and currently non-native grasses dominate nearly all habitats. Only the southern section of the parcel is within the proposed hunt area (Figure 1). See the Final CCP/EA for more details on the vegetation communities on San Diego NWR (USFWS 2017).

Environmental Consequences

Alternative A – Proposed Action Alternative

Impacts to vegetation and habitats on the Refuge from the proposed hunt opening are anticipated to be minimal. Hunting is conducted on foot by individuals or small groups. This direct impact of foot travel by hunters on vegetation and habitat is often different from that of other wildlife-dependent recreation users because hunters tend to travel in dispersed patterns over wide areas, minimizing the chances of negatively impacting vegetation. This proposed hunt area is 160 acres, and the Service anticipates that a total of 0.34 hunters could use the site over approximately 6 months of the year. Since the Service does not anticipate that large numbers of hunters would use this area, vegetation and habitat impacts are anticipated to be minimal.

Alternative B – No Action Alternative

Under Alternative B, the Service would not open this portion of the Refuge to hunting and no impacts to vegetation and habitat would be anticipated. Areas of the Refuge currently open to other wildlife-dependent recreational uses would remain open to these uses.

Threatened and Endangered Species

Affected Environment

Description of Relevant General Features of the Environment

The Refuge provides habitat for a number of threatened and endangered species. See Chapter 3.3.6 in the Final CCP/EA for a complete description (USFWS 2017). The sensitive wildlife species that could be affected by opening the Refuge to a hunt program are the coastal California Gnatcatcher (*Polioptila californica californica*), Quino checkerspot butterfly (*Euphydryas editha quino*), Hermes Copper butterfly (*Lycaena hermes*), and Mexican flannelbush (*Fremontodendron mexicanum*).

Environmental Consequences

Alternative A – Proposed Action Alternative

The coastal California gnatcatcher is federally listed as threatened (USFWS 1993) and is known to occur on the proposed hunt area. Seasonal restrictions on hunting will avoid hunting-related disruption of breeding by gnatcatchers. Temporary disturbance of non-breeding gnatcatchers during hunting season is not anticipated to result in take. Critical habitat (Figure 2) for the species is designated within portions of the hunt area; however, as noted in the vegetation and habitat section above, impacts to vegetation and habitat are anticipated to be minimal.

The Quino checkerspot butterfly is federally listed as endangered (USFWS 1997). The proposed hunt area is situated within the Southwest San Diego Recovery Unit for this species. The butterfly is known to occur on many hilltops in the valleys to the east of Otay Reservoir. There are several documented occurrences within 1,000 m of the proposed hunt area. However, the hilltops in the proposed hunt area have been surveyed for high-quality Quino checkerspot habitat, and though the site likely supports the larval host plant (*Plantago erecta*), the combination of habitat features that make up high-quality habitat (i.e., dense *P. erecta*, secondary host plants, dense stands of flowering annual plants, relatively sparse coastal sage scrub or chamise chaparral, and intact cryptobiotic crusts) is not found on the proposed hunt area. Given the low number of hunters expected and the low likelihood of larvae on the site (due to the lack of high-quality habitat), the likelihood of a larva being trampled by a hunter is likely low. Critical habitat (Figure 2) for the species is designated within the hunt area; however, as noted in the vegetation and habitat section above, impacts to vegetation and habitat is anticipated to be minimal.

The Hermes copper butterfly is a rare butterfly is listed as threatened under the Endangered Species Act (USFWS 2021). It historically occurred on the lower slopes of Otay Mountain in the vicinity of the hunt area (Marschalek and Klein 2010); however, Hermes copper was extirpated from this area by wildfires that occurred in 2003 and 2007. Therefore, no impacts are anticipated to the species. While critical habitat has been designated for the species, none occurs on the hunt parcel, therefore, no impact to critical habitat would occur.

Mexican flannelbush is a federally listed as endangered (USFWS 1998) shrub that has a very localized distribution in the Otay Mountain area. About 12 individual plants are known within the very southeastern portion of the hunt area on the Refuge. Given the low number of individuals and highly localized distribution of the plants, it is likely that hunting-related impacts would be negligible to the species. While critical habitat has been designated for the species, none occurs on the hunt parcel, therefore, no impact to critical habitat would occur.

More details on the potential impacts to federally listed species can be found in the Draft Section 7 Biological Evaluation as a part of this hunt package (USFWS 2022b).

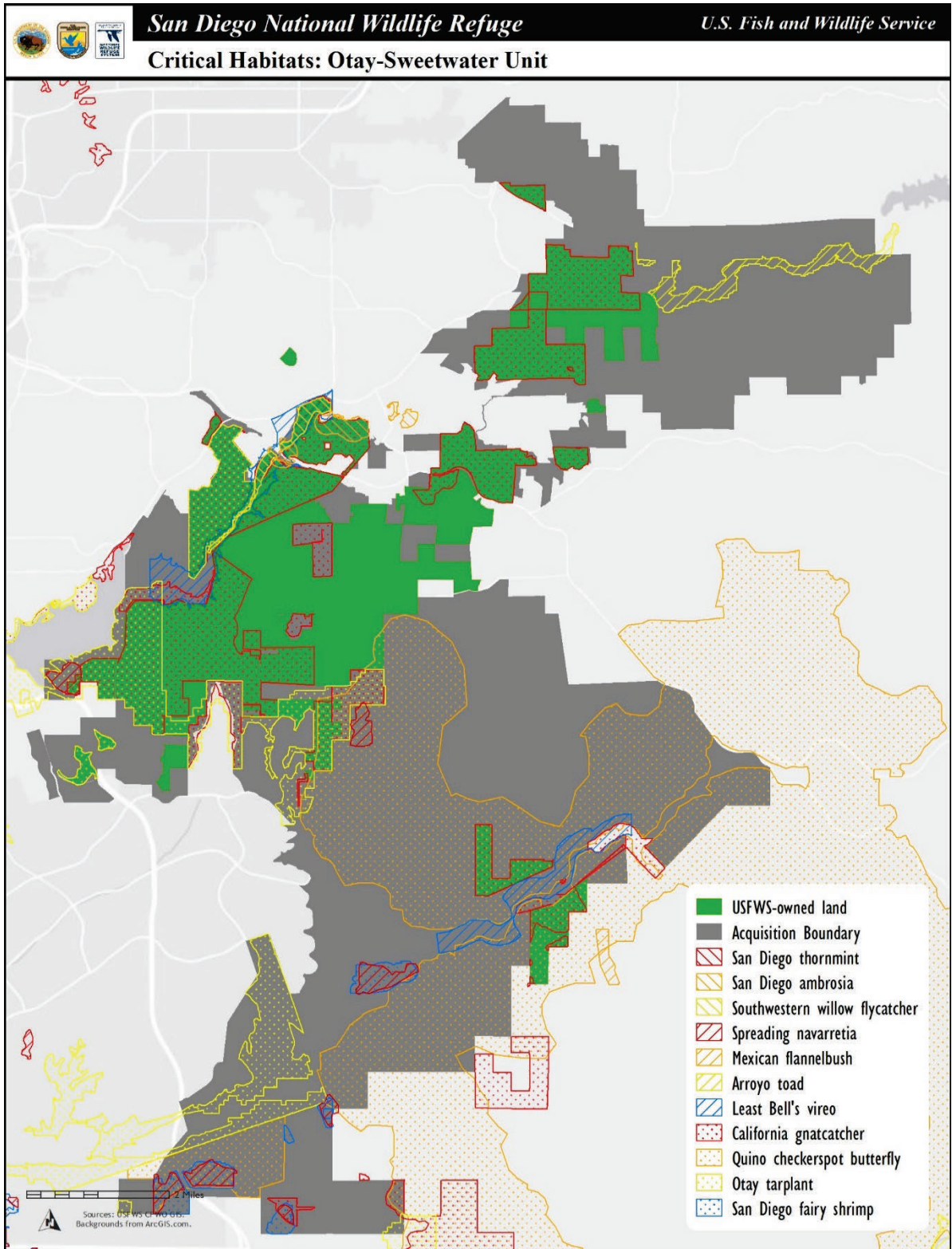


Figure 2. Threatened and Endangered Species in the Otay-Sweetwater Unit (with the exception of Hermes copper butterfly habitat which is not designated on the hunt parcel).

Alternative B – No Action Alternative

Under Alternative B, the Service would not open this portion of the Refuge to hunting and, therefore, no impacts to these listed threatened or endangered species would be anticipated, other than those discussed in the CCP due to other factors such as climate change, increased fire frequency and invasive non-native species.

Visitor Use

Affected Environment

Description of Relevant General Features of the Environment

There were an estimated 44,224 visitors to Refuge in 2021, as reported to the Fiscal Year 2021 NWRS Annual Performance Plan. The Refuge offers wildlife viewing/photography, hiking, mountain biking, equestrian riding, environmental education, and interpretation. Established trails to facilitate visitor use are congregated within the central and northeast portion of the Refuge. Visitor use access is centralized around key points of interest in the landscape such as San Miguel, Mother Miguel, and McGinty mountains, providing opportunities to use trails in the surrounding area of each respective peak. The Refuge is open from sunrise to sunset year-round.

Environmental Consequences

Alternative A – Proposed Action Alternative

With implementation of the proposed action alternative, we anticipate no significant impact on visitor use activities. Since other areas of the Refuge that are open to public use are far from the hunt area (about 5 miles) any detrimental impacts of hunting on those other users (e.g., gunshot noise, stray bullets) will not occur. Impacts to users of adjacent lands should be minimal as hunting is allowed by CDFW and BLM on their adjacent lands, and other nearby lands (i.e., City of San Diego Public Utility lands at Lower Otay Lake; County of San Diego and City of Chula Vista preserve lands; private land) are already experiencing those effects.

Alternative B – No Action Alternative

Under the no action alternative, no anticipated effects to visitor use and experience is proposed to occur given that no other visitor use activities will be allowed on other parts of the Refuge.

Refuge Management and Operations

Affected Environment

Description of Relevant General Features of the Environment

The parcel containing the proposed hunting area has been closed to all Refuge use aside from Refuge management and operations activity since its acquisition. Existing infrastructure includes two dirt roads that connect to adjacent CDFW and BLM parcels; these roads also facilitate U.S. Border Patrol access for border enforcement activities. Border Patrol will be implementing a project to improve one of these roads. Neither of the roads fall within the hunt area.

Environmental Consequences

Alternative A – Proposed Action Alternative

Under the proposed action alternative, Refuge management and operations would include maintenance of refuge boundary and hunt area signs and posts, posting information at the CDFW kiosk about Refuge hunting regulations, maintaining road infrastructure, habitat management, and species monitoring on the parcel. Monitoring the effects of the hunt program on the area will be done by Refuge staff. In addition, collaboration between Refuge wildlife officers, BLM rangers, CDFW game wardens, and Refuge staff is anticipated to effectively enforce hunting regulations to prevent unauthorized methods or timing of take. The Refuge has adequate staff and funding to implement the hunt program.

Alternative B – No Action Alternative

Under the no action alternative, no effects to Refuge management and operations are anticipated to occur.

Cultural Resources and Anticipated Impacts of the Alternatives

The Refuge contains both prehistoric and historic resources. A 1995 record search identified 151 prehistoric sites, 28 prehistoric isolates, 26 historic sites, and 6 multi-component sites within the Refuge. The affected environment of cultural resources is described in the Final CCP/EA, pages 3-144 through 3-151 (USFWS 2017).

Alternative A – Proposed Action Alternative

Opening the Refuge to hunting would not result in any ground disturbing activities that could impact cultural resources. Hunters (and other Refuge visitors) are prohibited from collecting or otherwise disturbing cultural resources. Therefore, opening San Diego NWR to hunting is not expected to impact cultural resources.

Alternative B – No Action Alternative

Under the No Action alternative, the hunt area would remain closed to all public use. There would not be any public use related impacts to hunting.

Environmental Justice

The mission of the Service is working with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people. The developing environmental justice strategy of the Service extends this mission by seeking to ensure that all segments of the human population have equal access to America's fish and wildlife resources, as well as equal access to information that will enable them to participate meaningfully in activities and policy shaping.

Alternative A – Proposed Action Alternative

The Service has not identified any potential high and adverse environmental or human health impacts from this proposed action or any of the alternatives. The Service has identified no minority or low-income communities within the impact area.

Alternative B – No Action Alternative

The effects of Alternative B would be the same as Alternative A.

Cumulative Impact Analysis

Cumulative impacts are 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” (40 CFR 1508.7).

The Environmental Assessment for the Refuge's CCP evaluated cumulative impacts associated with implementation of the CCP, including the hunting plan. See Section 5.11 of the EA for the CCP (USFWS 2017).

Monitoring

Refuge wildlife officers, in cooperation with CDFW wardens and BLM rangers, will monitor hunter compliance with Refuge hunt area regulations.

Effects of implementation of the hunt program on populations of hunted species are not expected to be meaningfully detectable on the scale of the hunt area at the Refuge, as the area is too small to support discreet populations of game species, independent of populations in contiguous habitat throughout southern coastal San Diego County. Populations of hunted species in the South Coast Region of

California (including the Refuge hunt area) are currently monitored by CDFW, cumulatively and at the regional scale. We anticipate that this monitoring program will continue and will be used to make changes to hunting seasons, bag limits, and other regulations as regional population data dictate.

Listed species and MSCP-covered species will continue to be monitored by Refuge staff, in cooperation with the San Diego Management and Monitoring Program.

Summary of Analysis

Alternative A – Proposed Action Alternative

As described above, the Proposed Action would have minor effects on biological resources. Hunting would occur generally following CDFW hunting regulations with additional seasonal restrictions to better protect the breeding season for federally listed species. The Proposed Action would not affect other wildlife-dependent recreation because no other uses are allowed or proposed for the hunt area. The Proposed Action offers increased public hunting opportunities and fulfills the Service's mandate under the NWRS Improvement Act. The Service has determined that the Hunt Plan is compatible with the purposes of San Diego NWR and the mission of the NWRS and meets the Service's priorities and mandates as outlined by the NWRSA (16 U.S.C. 668dd(a)(4)). The Proposed Action is consistent with and supports the Refuge's CCP (USFWS 2017).

Alternative B – No Action Alternative

As described above, under this alternative, the Service would not open San Diego NWR to upland game, small game, and big game hunting opportunities under the No Action Alternative. In addition, no changes would be expected regarding access to this parcel for wildlife-dependent recreation given that it is already closed to all user access. This alternative does not meet the purpose and needs of the Service as described above.

List of Sources, Agencies and Persons Consulted

As part of the anticipated opening of the San Diego NWR to hunting, the Service reviewed the regulations for CDFW hunting to find consistency where possible to provide hunting access and ensure coordinated law enforcement.

List of Preparers

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State Coordination

Service staff has informally discussed Refuge hunting season dates and access boundary signage placements with neighboring CDFW and BLM staff.

Tribal Consultation

The Service has been in contact with Tribes since initial development of the CCP in 2006. Most recently, notification was made of publication of the final CCP in August 2021; the CCP describes development of the Hunt Plan.

Public Outreach

The draft Environmental Assessment was available to the public and interested agencies for a public review consistent with the publication of the draft 2022-2023 Refuge Specific Regulations for Hunting and Fishing on the [Regulations.gov website](#).

References

- Aldrich, J.W. 1993. Classification and distribution. Pages 47–54 in T.S. Baskett, M.W. Sayre, R.E. Tomlinson, and R.E. Mirarchi, Editors. Ecology and management of the mourning dove. Stackpole Books, Harrisburg, PA.
- Brown, J. 1982. A new species of *Mitoura* Scudder from Southern California (Lepidoptera: Lycaenidae). *Journal of Research on the Lepidoptera* 21(4): 245-254.
- California Department of Fish and Wildlife. 2018. Statewide reported and estimated deer harvest and hunter success by hunt. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=171092&inline>.
- California Department of Fish and Wildlife. 2019a. 2019 California Deer Harvest Statistics. Unpubl. Report, California Department of Fish and Wildlife, Sacramento, California.
- California Department of Fish and Wildlife. 2019b. Resident upland game bird and small game mammal harvest survey, 2018-2019. Unpubl. Report, California Department of Fish and Wildlife, Sacramento, California.
- California Department of Fish and Wildlife. 2021. Mammal Species of Special Concern. Retrieved from California Department of Fish and Wildlife: <https://wildlife.ca.gov/Conservation/SSC/Mammals>.
- City of San Diego. Multiple Species Conservation Program. <https://www.sandiego.gov/planning/programs/mscp>
- Droege, S., and J.R. Sauer. 1990. North American Breeding Bird Survey annual summary 1989. U.S. Fish and Wildlife Service Biological Rep. 90 (8): 16.
- Marschalek, D. A., and M. W. Klein, Sr. 2010. Distribution, ecology, and conservation of Hermes copper (Lycaenidae: *Lycaena* [*Hermelycaena*] *hermes*). *Journal of Insect Conservation* 14: 721-730.
- Penrod, K., C. Cabañero, P. Beier, C. Luke, W. Spencer, and E. Rubin. 2006. South Coast Missing Linkages Project: A Linkage Design for the Peninsular-Borrogo Connection. Produced by South Coast Wildlands, Idyllwild, CA. www.scwildlands.org, in cooperation with California State Parks.
- U.S. Fish and Wildlife Service and U.S. Bureau of the Census (USFWS and U.S. Bureau of the Census). 1993. 1991 National survey of fishing, hunting, and wildlife-associated recreation. U.S. Government Printing Office, Washington, DC. 124 pp.
- U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants; determination of threatened status for the coastal California gnatcatcher. March 30, 1993. Final rule. *Federal Register* 58: 16742–16757.

- U.S. Fish and Wildlife Service. 1997. Endangered and threatened wildlife and plants: Determination of endangered status for the Laguna Mountains skipper and Quino checkerspot butterfly. Federal Register 62:2313-2322. January 6, 1997.
- U.S. Fish and Wildlife Service. 1998. Endangered and threatened wildlife and plants: Endangered or Threatened Status for Three Plants from the Chaparral and Scrub of Southwestern California. Federal Register 63:54956-54971. October 13, 1998.
- Unitt, P. 2004. San Diego County Bird Atlas. San Diego Natural History Museum. 766 pp.
- US Fish and Wildlife Service. 2017. Final Comprehensive Conservation Plan, Environmental Assessment, and Finding of No Significant Impact for San Diego National Wildlife Refuge. <https://ecos.fws.gov/ServCat/Reference/Profile/133810>.
- U.S. Fish and Wildlife Service. 2021. Endangered and threatened wildlife and plants: threatened species status with 4(d) rule for the Hermes copper butterfly. Federal Register 85(5):1018-1050.
- U.S. Fish and Wildlife Service. 2022a. Draft Hunt Plan for the San Diego National Wildlife Refuge. Jamul, CA.
- U.S. Fish and Wildlife Service. 2022b. Draft Biological Evaluation for Hunting on San Diego National Wildlife Refuge. Jamul, CA.