

## **Preliminary Management Alternatives for the San Diego NWR Comprehensive Conservation Plan**

As part of the Comprehensive Conservation Plan (CCP) process, the planning team has been tasked with developing a range of alternatives for how the Refuge should be managed. Once developed, the alternatives are then analyzed in the draft CCP and accompanying environmental assessment (EA) to help determine which alternative would best achieve the Refuge purposes and goals. The process of developing alternatives involves analyzing current conditions, identifying various measures that if implemented would help achieve Refuge goals, and incorporating as appropriate input provided during the public scoping process and other information gathered during subsequent meetings and workshops and from various interested individuals, agencies, and organizations.

The management alternatives proposed for inclusion the San Diego NWR CCP are presented below. The various alternatives differ in the extent and focus of wildlife and habitat management to be implemented on the Refuge, as well as in the types and levels of public use opportunities to be provided.

We encourage you to provide us with your comments on this proposed range of management alternatives. Is there an issue or management proposal that is not included within the current range of alternatives that you feel should be addressed? If so, let us know. To have your comments considered in time for incorporation in the draft CCP, please provide any comments to the Refuge Planner (Victoria\_Touchstone@fws.gov) by April 28, 2008.

After considering any additional input, these alternatives will be refined and then fully described in the draft CCP. The potential environmental consequences of implementing the various alternatives will be analyzed in the accompanying EA. The draft CCP/EA should be available in summer 2008, at which time we will again be soliciting your comments.

### **Draft Management Alternatives:**

We propose to analyze four alternatives for managing the Refuge over the next fifteen years, including a no action alternative and three action alternatives. Under Alternative A (No Action), management of the Refuge would continue as it is occurring today. Alternative B proposes to expand current management and formalize the existing wildlife dependent recreational uses and certain trail uses. Alternative C (the preferred alternative) would optimize wildlife and habitat management and expand public use to include hunting. Alternative D would maximize wildlife and habitat management and expand public use beyond that proposed in Alternative C. The details of each alternative are provided below.

## **ALTERNATIVE A – NO ACTION**

### **Wildlife and Habitat Management**

#### **Habitat Protection:**

Continue to protect Refuge lands through the installation and maintenance of fencing and other barriers, enforcement of illegal off-road activity, control of invasive nonnative plants, and cooperative efforts with adjacent property owners to minimize illegal access onto Refuge lands from adjacent ownerships.

Continue to conserve the existing extent, quality, and endemic species diversity of gabbro soil chaparral and clay soil grassland habitats.

#### Fire Management:

Continue to implement full fire suppression as the Refuge's primary strategy for fire management.

#### Surveying and Monitoring:

Continue to implement current Multiple Species Conservation Program (MSCP) protocol surveys for native habitat and species per the approved management plan.

Continue current MSCP protocol surveys for the listed coastal California gnatcatcher, least Bell's vireo, San Diego ambrosia, arroyo toad, and southwestern willow flycatcher.

Continue the current level of Quino checkerspot butterfly monitoring, which is limited and targeted primarily at historic occurrences and sites with appropriate habitat.

Continue to monitor known occurrences of San Diego thornmint on McGinty Mountain, as well as opportunistic inspections of the Jamacha and Trimark parcels and Mother Miguel grassland to determine species presence/absence.

Continue periodic inspection of the vernal pool parcels on Del Mar Mesa.

Continue to support the San Diego Natural History Museum's plant atlas surveys on the Refuge.

Continue to conduct opportunistic surveys for Hermes copper butterfly.

#### Habitat Enhancement, Restoration, and Rehabilitation:

Continue to rehabilitate areas burned by the Millar and Harris Fires in conformance with the recommendations of the Burned Area Emergency Response (BAER) team.

Continue to implement weed control actions in dethatched (e.g., Trimark, Shinohara) and burned areas of the Refuge to reduce the potential for invasion by nonnative grasses and other weeds.

Complete the ongoing Otay tarplant enhancement project on the Trimark parcels, which includes site-wide restoration of native vegetation.

Complete the current Shinohara vernal pool restoration effort (restoring about 30 pools within a 30-acre area) and restoring associated upland habitat, including the establishment of a San Diego thornmint population at the site.

Complete the project to establish of populations of Mexican flannelbush on moderately steep-sided north-to-northwest-facing canyons on San Miguel Mountain and McGinty Mountain.

Complete current proposals to establish San Diego ambrosia adjacent to the riparian vegetation flanking the Sweetwater River and south of the old steel bridge near State Route 94.

#### Protection and Maintenance of Species:

Maintain the burrowing owl boxes installed at the Shinohara site in September 2007.

Continue to maintain snags (dead trees) for cavity-nesting birds.

Continue to conduct qualitative assessments of the status and known threats to San Diego ambrosia; minimize the potential for trampling by fencing and/or providing interpretive signage, and control exotic weeds in the vicinity of known populations.

Continue to cooperate with the Center for Natural Lands Management, which is researching the efficacy of physical weed control techniques in areas supporting San Diego ambrosia.

Continue to maintain the current oak plantings on the Rancho San Diego portion of the Refuge.

## **Public Use**

### **Hunting and Fishing:**

The Refuge would remain closed to hunting and fishing.

### **Wildlife Observation, Photography, Environmental Education, and Interpretation:**

Continue to maintain the Refuge's existing interpretive signs and kiosks.

### **Trails:**

Continue unregulated non-motorized trail use throughout the Refuge.

Continue to maintain a trail staging area on Refuge property north of Jamul Drive.

Complete the trail bridge across the Sweetwater River to support the County's Sweetwater Loop Trail.

## **Refuge Operations**

Continue the current level of law enforcement presence on the Refuge (1.5 law enforcement officers) to minimize the incidence of trespass by off-road vehicles, homeless encampments, dumping, drug activity, and other illegal actions.

Continue to acquire lands within the approved acquisition boundary from willing sellers per available funding.

Continue to implement the approved Fire Management Plan for the San Diego NWR Complex.

Continue to maintain roads needed for refuge operations and fire management (e.g., Millar Ranch Road and access to Mother Miguel grassland).

Continue to maintain gates, fences, and existing road barriers to protect Refuge resources.

Repair the existing erosion at the spillway of the Mother Miguel dam per the BAER plan.

Continue to implement cultural resource management practices consistent with the requirements of the National Historic Preservation Act and other applicable laws and regulations.

Complete the current efforts to stabilize the historic Barn at the Oaks.

## **Alternative B – Expand Current Wildlife and Habitat Management; Actively Manage Current Public Uses**

### **Wildlife and Habitat Management**

This alternative includes the habitat and species management actions presented in Alternative A, as well as the additional actions described below.

### Habitat Protection:

Take actions to minimize human disturbance to MSCP covered habitats and species, as well as other sensitive species on the Refuge.

Expand current management of the vernal pool parcels on Del Mar Mesa through partnerships with other land managers in the area including the City of San Diego and the State of California.

Install fencing and signs where appropriate within the Refuge to protect intact areas of cryptobiotic crust.

### Fire Management:

Implement a fire management plan that mimics prehistoric fire frequency.

### Surveying and Monitoring:

Support the creation of two MAPS (Monitoring Avian Productivity and Survivorship) stations on the Refuge, one within chaparral or coastal sage scrub habitat and one within riparian habitat.

Monitor the oak trees on the Refuge for evidence of Sudden Oak Death.

Increase current monitoring efforts for Quino checkerspot butterfly to determine its status and distribution within the Refuge.

Conduct a comprehensive Refuge-wide survey to identify and assess existing populations of sensitive plant species.

Conduct annual surveys for San Diego thornmint on the Jamacha, Trimark, and Shinohara parcels, Mother Miguel grassland, and other areas of the Refuge that appear to support suitable habitat for this species.

Identify the vernal pool species present on the Refuge.

### Habitat Enhancement, Restoration, and Rehabilitation:

Expand invasive nonnative plant control to include mechanical or chemical removal of invasive plants in burned areas, as well as in unburned areas along habitat edges, trails, and roads to avoid further invasion into native habitat areas.

Improve habitat quality in unburned areas mapped as coastal sage scrub by controlling exotic grasses through an appropriate combination of mechanical dethatching and the application of herbicides with a goal of reducing nonnative cover in treated areas to below 5%.

Control invasive weeds in riparian areas (e.g., Arundo, palms, tree of heaven, tree tobacco, castor bean, cape ivy, periwinkle, tamarisk).

Enhance the existing native habitat around Mother Miguel Pond.

Design and implement a proposal to enhance cactus wren habitat on the Refuge.

Once a designated system of trails has been approved, develop and implement plans to close and revegetate all trails and old dirt roads not needed to support Refuge management or approved public uses.

### Protection and Maintenance of Species:

Develop a strategy for addressing productivity and survivorship for populations of listed, MSCP-covered, and other sensitive species determined to be declining on the Refuge.

If monitoring results indicate that the local least Bell's vireo population is declining, investigate potential causes, including the frequency of West Nile Virus, and/or implement and monitor the effects of cowbird control on the local least Bell's vireo population.

Coordinate with the California Native Plant Society (CNPS) regarding their investigation of appropriate chemical weed control products, such as Fusilade, to control non-native grasses in areas that currently support or could support sensitive species such as San Diego ambrosia.

If CNPS identifies Fusilade as an appropriate control for non-native grasses in areas that support or could support San Diego ambrosia, initiate a phased enhancement project on the Par 4 parcel to control nonnative grasses in San Diego ambrosia habitat.

## **Public Use**

### **Hunting and Fishing:**

The Refuge would remain closed to hunting and fishing.

### **Wildlife Observation, Photography, Environmental Education, and Interpretation:**

Develop with partners, environmental education programs relevant to the resources on the Refuge such as school programs that focus on the protection and recovery of the Quino checkerspot butterfly and/or the enhancement of vernal pool habitat on Del Mar Mesa.

Establish a one to two mile interpretative trail in the vicinity of the old steel bridge, south of State Route 94.

Design and implement an interpretive program for the historic Barn at the Oaks.

### **Kiosks:**

Identify appropriate locations for informational and interpretive kiosks to support Refuge public uses. Include maps of the designated trail system at these kiosks.

### **Trails:**

Establish a two-tier system of non-motorized trails, consisting of multiple use trails (i.e., walking, jogging, bicycling, and horseback riding) and pedestrian only trails. The multiple use trails would include those existing trail alignments that implement the County's regional trail system and several existing trails that would connect a portion of the regional trail system back to a specific trailhead (i.e., a limited loop trail system). **[For a more detailed discussion of the proposed trail system for each of the action alternatives (Alternatives B – D), see page 13.]**

Close and revegetate all trails, old roadways, and paths that are not needed to accommodate the designated trail system, Refuge operations, or utility maintenance.

Where necessary to address ongoing erosion problems or to eliminate impacts to sensitive species and/or important cultural resources, reroute existing trails to eliminate these adverse effects, and recontour and revegetate those segments of the trail system that are no longer needed as a result of a reroute.

Sign and where appropriate provide fencing along designated trails. Develop a trail map that clearly distinguishes the pedestrian only trails from the multiple use trails. Sign as closed and otherwise discourage use of trails and pathways that are not part of the designated trail system.

Narrow the existing trail that originates on Par 4 Drive, designate the trail as a multiple use trail, install fencing and signs along the edge of the trail to protect adjacent habitat and sensitive species, and provide signs and waste bags at the trailhead to encourage owners to clean up after their dogs.

Work in partnership with Bright Valley Farms and other equestrian groups, as well as with local mountain biking groups, to form a volunteer trail maintenance group and a volunteer trail patrol to assist the Refuge in maintaining multiple use trails, monitoring trail users, and updating the Refuge Manager on various trail issues, including potential hazards, damaged fencing, and inappropriate off-trail activity.

Assess existing trail tread throughout the designated trail system including width, cross slope, grade, soil type, and overall condition; implement repairs as necessary.

#### Dogs:

Prohibit unleashed dogs on the Refuge and restrict leashed dogs to the multiple use trail system; prohibiting any off-trail dog activity, as well as prohibiting dogs on trails designated for hiking only.

Provide appropriate materials at multiple use trail heads to encourage clean up of dog waste.

### **Refuge Operations**

This alternative also includes the refuge operation proposals described in Alt. A.

Identify new partners and new funding sources to continue the acquisition of properties from willing sellers within the approved acquisition boundary with a focus on linking existing Refuge lands and preserving wildlife corridors.

Prepare and implement a comprehensive integrated pest management plan that addresses the removal of exotic invasive plants and animals (e.g., fish, frogs, crayfish, red-eared sliders) throughout the Refuge, as well as control Argentine ants.

Post all boundaries of the Refuge.

Expand measures to protect cultural resources on the Refuge by rerouting trails away from sensitive cultural resources.

Assess the existing road system on the Refuge and develop and implement a road plan to maintain those roads needed for Refuge operations, fire management, law enforcement, Homeland Security, and/or utility companies and to identify, close, and revegetate all unnecessary roads.

Assess and implement other improvements needed to accommodate fire management and law enforcement on the Refuge.

Amend the Fire Management Plan to permit prescribed burns where necessary to improve habitat quality.

## **Alternative C – Optimize the Extent and Quality of Wildlife and Habitat; Expand Wildlife-Dependent Recreational Uses (Preferred Alternative)**

### **Wildlife and Habitat Management**

This alternative includes the habitat and species management actions presented in Alternatives A and B, as well as the additional actions described below.

### Habitat Protection:

Establish a program to rapidly address the removal of new invasive plants, particularly species that can quickly get out of hand such as perennial pepperweed (*Lepidium latifolium*) and Ward's weed (*Carrichtera annua*).

Assist in the implementation of the Del Mar Mesa Preserve Management Plan by coordinating with the preserves various land managers in monitoring, exotic vegetation control, the control of illegal access, and the overall protection of sensitive habitat.

Reestablish native grassland, including a suite of appropriate annual and perennial forbs, on the Jamacha and Trimark parcels and the Mother Miguel grassland.

Obtain funding to expand the activities on the current 30-acre Shinohara vernal pool restoration project for: 1) additional contouring and creation of potential pools; 2) expanded weed control including hand weeding in the pools; 3) native seed collection for vegetating pools and revegetating adjacent upland areas; 4) native plant propagation and planting; and 5) long-term care, maintenance, and monitoring.

Design and implement riparian restoration plans in suitable locations throughout the Refuge including an area to the south of the Singing Hills golf course and a one-acre disturbed area near the old steel bridge, south of State Route 94.

Research, design and implement a program to restore cryptobiotic crust in appropriate areas on the Refuge.

### Fire Management:

Same as Alternative B.

### Surveying and Monitoring:

Conduct multiple year spring surveys of the Del Mar Mesa parcels to identify and assess existing populations of sensitive plant species.

Map the soil types throughout the Refuge that are known to support endemic plant species and evaluate these areas for the establishment of appropriate sensitive plant species.

Conduct a Refuge-wide invertebrate species survey.

Conduct annual burrowing owl breeding surveys in appropriate locations throughout the Refuge to determine where and how many are present during the breeding season.

Conduct periodic deer and other upland game surveys on the Refuge.

### Habitat Enhancement, Restoration, and Rehabilitation:

Based on an assessment of current habitat conditions and historical data on species presence in the area, reintroduce appropriate listed vernal pool species to the Shinohara pools.

Expand the current program to plant native trees (i.e., oak, sycamore, California walnut) in appropriate areas on the Refuge.

Expand habitat that may support the Quino checkerspot butterfly through specific restoration and enhancement efforts to improve connectivity within and between species occurrences.

Develop/implement a restoration plan for old roads and other disturbed sites on Del Mar Mesa parcels.

Restore the flat areas of *Baccharis*-dominated vegetation on the Par 4 parcel to *Artemisia*-dominated sage scrub to benefit wildlife, including coastal California gnatcatcher.

Revegetate degraded coastal sage scrub areas with appropriate native plants in association with ongoing weed management actions.

Consider the incorporation of sensitive native geophyte and forb understory species when evaluating opportunities for restoration/enhancement of coastal sage scrub on the Refuge.

### Protection and Maintenance of Species:

Install appropriate nest boxes to improve nesting conditions for screech owls, kestrels, and western bluebirds.

Reintroduce San Diego thornmint as part of restoration projects on the Jamacha, Trimark, and Shinohara parcels and Mother Miguel grassland area.

To improve habitat for Quino checkerspot butterfly within the Refuge, implement a focused effort to control nonnative invasive weeds on potential hilltop Quino habitat.

Identify and assess potential reintroduction sites on the Refuge for captive bred Quino checkerspot butterflies.

Install bat boxes on the Refuge in appropriate locations.

Investigate the potential for reintroduction of willow monardella in appropriate habitat areas, such as Little Cedar Canyon, on the Village 15 parcel.

In coordination with USGS, investigate the potential for southwestern pond turtle reintroduction in appropriate locations within the Sweetwater River floodway, such as the deep rock ponds in the narrow portion of the river.

Coordinate with adjacent property owners to enhance habitat and remove barriers in areas that link existing arroyo toad habitat to potentially suitable habitat within the Refuge in an effort to facilitate the natural recolonization of the Refuge by the toad. (*This effort would be conducted in association with the implementation of an Integrated Pest Management Plan as described under Refuge Operations.*)

### Public Use

#### Hunting:

Open approximately 560 acres of the Refuge located on portions of the Las Montañas area to seasonal upland game and deer hunting following the completion of a step-down hunting plan that incorporates the following proposals:

- Provide hunting opportunities for rabbit, quail, and mourning dove;
- Prohibit the use of lead shot;
- Provide opportunities for archery hunting of deer in designated areas;
- Prohibit falconry;
- Manage the number of hunters per day using a lottery and permit system;
- Clearly post areas open to hunting; and
- Permit the use of hunting dogs in hunting areas during appropriate hunting seasons and only when accompanied by a licensed hunter with a current permit to hunt on the Refuge. (Outside the designated hunt area, dogs must remain on a leash at all times.)

### Fishing:

The Refuge would remain closed to fishing (No native game fish are present on the Refuge and the Refuge's existing, limited exotic fish population would be eradicated under the proposed Integrated Pest Management Plan in an effort to support the recolonization of portions of the Sweetwater River by southwestern pond turtle and arroyo toad.)

### Wildlife Observation, Photography, Environmental Education, and Interpretation:

Implement the uses proposed under Alternatives A and B.

Develop/implement in partnership with surrounding school districts an outdoor classroom program on the Refuge (e.g., Habitat Heroes).

Create a children's discovery area near the old steel bridge south of State Route 94.

Develop partnerships to assist in implementing an interpretive geocaching program as a component of the Refuge's interpretive program. Prohibit actual "caching" on the Refuge.

### Kiosks/Visitor Station:

Establish trailheads with informational/interpretive kiosks at major entry points; provide one or more visitor stations, as appropriate. Provide Refuge trail maps at all kiosks.

### Trails:

Establish a two-tier system of non-motorized trails, consisting of multiple use trails (i.e., walking, jogging, bicycling, and horseback riding) and pedestrian only trails. The multiple use trails would be limited to those existing trail alignments that implement the County's regional trail system, as well as the Sweetwater River Loop Trail. **[For a more detailed discussion of the proposed trail system for each of the action alternatives (Alternatives B – D), see page 13.]**

Close and revegetate all trails, old roadways, and paths that are not needed to accommodate the designated trail system, Refuge operations, or utility maintenance.

Where necessary to address ongoing erosion problems or to eliminate impacts to sensitive species and/or important cultural resources, reroute existing trails to eliminate these adverse affects, and recontour and revegetate those segments of the trail system that are no longer needed as a result of a reroute.

Sign and where appropriate provide fencing along designated trails. Develop a trail map that clearly distinguishes the pedestrian only trails from the multiple use trails. Sign as closed and otherwise discourage use of trails and pathways that are not part of the designated trail system.

Narrow the existing trail that originates on Par 4 Drive, designate the trail as a multiple use trail, install fencing and signs along the edge of the trail to protect adjacent habitat and sensitive species, and provide signs and waste bags at the trailhead to encourage owners to clean up after their dogs.

Work in partnership with Bright Valley Farms and other equestrian groups, as well as with local mountain biking groups, to form a volunteer trail maintenance group and a volunteer trail patrol to assist the Refuge in maintaining multiple use trails, monitoring trail users, and updating the Refuge Manager on various trail issues, including potential hazards, damaged fencing, and inappropriate off-trail activity.

Assess existing trail tread throughout the designated trail system including width, cross slope, grade, soil type, and overall condition; implement repairs as necessary.

Work with the County of San Diego and Caltrans to design and construct a trail staging area to the south of State Route 94 near Millar Ranch Road.

Working with adjacent landowners, Caltrans, and the County of San Diego as appropriate, establish trailheads at major entry points onto the Refuge to provide information regarding the trail route and Refuge specific rules and regulations.

Dogs:

Prohibit all dog activity on the Refuge except in designated hunting areas during appropriate hunting seasons when accompanied by a licensed hunter with a current permit to hunt on the Refuge.

Research:

Develop research partnerships with academic institutions to benefit the Refuge. Research could include but is not limited to: studying the mechanisms of type conversion of coastal sage scrub; developing appropriate methods for the successful reversal of type conversion; conducting studies related to the life history of the Quino checkerspot butterfly; identifying the factors that may be contributing to Quino population declines; conducting genetic microsatellite research to determine how closely related one population of coastal California gnatcatchers are to other core area populations; designing and implementing studies and modeling necessary to determine with more accuracy gnatcatcher density per coastal sage scrub acre on the Refuge; investigating the hypothesis that forbs and other annuals rather than native grasslands historically occurred on the clay soils located on the Refuge; expanding current research to identify pollinators of sensitive plant species such as San Diego thornmint; developing a strategy to address productivity and survivorship for species populations determined to be declining; and developing a Hermes copper habitat model.

**Refuge Operations**

This alternative includes the refuge operation proposals described in Alt. A and B, as well as the activities described below.

Post the Refuge boundary and either fence the boundary or cooperate with adjacent landowners to strategically fence preserved lands either along the Refuge boundary or other adjacent parcels.

Obtain funds to construct and operate a complex shop at Rancho Jamul and add a shop manager to the complex staff.

Add both a Refuge Operations Specialist and Habitat Restoration Specialist position to assist in Refuge management.

Add a Biological Technician position to assist in habitat and species management.

Add an Outdoor Recreation Planner to the complex staff to assist in the implementation of public use proposals.

Add a Partners for Fish and Wildlife position to the Refuge Staff to coordinate projects with nearby landowners.

Expand enforcement of illegal encampments, off-roading and other trespassing issues, inappropriate trail and other public use activities by dedicating 2.5 law enforcement officers to this Refuge.

Obtain funding to monitor surface and groundwater quality and groundwater levels within riparian and woodland areas.

Identify funding through various sources for land acquisition intended to implement regional watershed management plans and/or to protect downstream water quality.

## **Alternative D – Maximize the Extent and Quality of Wildlife and Habitat; Maximize Public Uses**

### **Wildlife and Habitat Management**

This alternative includes the habitat and species management actions presented in Alternatives A, B, and C, as well as the additional actions described below.

#### **Habitat Enhancement, Restoration, and Rehabilitation:**

Restore coastal sage scrub where conditions indicate that it likely occurred there in the past but is not currently present (consider the appropriate soil type/slope/etc.).

Evaluate the potential for and, if appropriate, implement restoration of additional vernal pool habitat to the northeast of the Shinohara vernal pool restoration area.

Manage the riparian habitat along the Sweetwater River in a manner that would mimic the natural disturbance regime. This would involve controlling vegetation height, density, extent of coverage, species composition in certain places throughout the Sweetwater River to create a mosaic of seral stages.

#### **Protection and Maintenance of Species:**

Evaluate the suitability of the deep pond habitat along a portion of the Sweetwater River south of the old steel bridge near State Route 94 for the reintroduction of the red-legged frog.

Mimic the natural disturbance regime within the Sweetwater River riparian zone and create pools in suitable habitat within this area to facilitate the reintroduction of the arroyo toad, while also coordinating with adjacent property owners to enhance habitat and remove barriers in areas that link existing arroyo toad habitat to created habitat areas within the Refuge.

Based on an assessment of current habitat conditions and historical data on species presence in the area, reintroduce a suite of listed and non-listed vernal pool species (e.g., *Downingia*, western spadefoot toad, *Psilocarphus*) to the Shinohara pools.

### **Public Use**

#### **Hunting:**

Open approximately 965 acres of the Refuge located on portions of the Las Montañas and McGinty Mountain areas to seasonal upland game and deer hunting following the completion of a step-down hunting plan that incorporates the following proposals:

- Provide hunting opportunities for rabbit, quail, and mourning dove;
- Prohibit the use of lead shot;
- Provide opportunities for archery hunting of deer in designated areas;
- Permit falconry involving the take of rabbit, quail, and mourning dove in designated hunting areas;
- Manage the number of hunters per day using a lottery and permit system;
- Clearly post areas open to hunting; and
- Permit the use of hunting dogs in hunting areas during appropriate hunting seasons and only when accompanied by a licensed hunter with a current permit to hunt on the Refuge. (Outside the designated hunt area, dogs must remain on a leash at all times.)

Fishing:

Same as Alternative C.

Wildlife Observation, Photography, Environmental Education, and Interpretation:

Implement all proposals in this category as described under Alternatives A, B and C, as well as design and install an interpretive trail along the edge of the Shinohara vernal pool restoration project.

Kiosks/Visitor Center:

Identify appropriate locations for informational/interpretive kiosks and construct a visitor center near a key entry point into the Refuge.

Trails:

Establish a two-tier system of non-motorized trails, consisting of multiple use trails (i.e., walking, jogging, bicycling, and horseback riding) and pedestrian only trails. Multiple use trails would include those existing trail alignments that implement the County's regional trail system, the Sweetwater River Loop Trail, major dirt roads and certain utility easements that provide access to adjacent open space areas or community trail systems; and other loop trails, where compatible.

**[For a more detailed discussion of the proposed trail system for each of the action alternatives (Alternatives B – D), see page 13.]**

Close and revegetate all trails, old roadways, and paths that are not needed to accommodate the designated trail system, Refuge operations, or utility maintenance.

Where necessary to address ongoing erosion problems or to eliminate impacts to sensitive species and/or important cultural resources, reroute existing trails to eliminate these adverse affects, and recontour and revegetate those segments of the trail system that are no longer needed as a result of a reroute.

Sign and where appropriate provide fencing along designated trails. Develop a trail map that clearly distinguishes the pedestrian only trails from the multiple use trails. Sign as closed and otherwise discourage use of trails and pathways that are not part of the designated trail system.

Narrow the existing trail that originates on Par 4 Drive, designate the trail as a multiple use trail, install fencing and signs along the edge of the trail to protect adjacent habitat and sensitive species, and provide signs and waste bags at the trailhead to encourage owners to clean up after their dogs.

Work in partnership with Bright Valley Farms and other equestrian groups, as well as with local mountain biking groups, to form a volunteer trail maintenance group and a volunteer trail patrol to assist the Refuge in maintaining multiple use trails, monitoring trail users, and updating the Refuge Manager on various trail issues, including potential hazards, damaged fencing, and inappropriate off-trail activity.

Assess existing trail tread throughout the designated trail system including width, cross slope, grade, soil type, and overall condition; implement repairs as necessary.

Work with the County of San Diego and Caltrans to design and construct a trail staging area to the south of State Route 94 near Millar Ranch Road.

Working with adjacent landowners, Caltrans, and the County of San Diego as appropriate, establish trailheads at major entry points onto the Refuge to provide information regarding the trail route and Refuge specific rules and regulations.

Dogs:

Leashed dogs permitted on the designated trail system within the Refuge.

Research:

Same as Alternative C.

**Refuge Operations**

This alternative includes the refuge operation proposals described in Alternative A, B, and C.

**Alternative Trail System Proposals for the San Diego NWR**

**Why develop a designated trail system for the Refuge?**

In 2006, more than 43 miles of unofficial trails, pathways, and dirt roads were recorded within the San Diego National Wildlife Refuge. Many of these trails were created as a result of repeated off-trail activity. The result is a crisscrossed pattern of trails that cut through the Refuge with little regard for topography, soil type, vegetation, or wildlife. Many of the existing trails are highly susceptible to erosion, directly impact sensitive plants species, damage sensitive habitats, and/or result in disturbance to nesting species such as the coastal California gnatcatcher and least Bell's vireo. As a result of the fire, areas that were not previously accessible are now being cut with new trails, adversely affecting the recovery of the native vegetation. To address the continued proliferation of trails, the CCP planning team proposes to establish a designated trail system through the Refuge; posting those trails that are open for use as the official trails of the Refuge and closing and revegetating, as funding permits, all other trails, pathways, and unnecessary roadbeds.

**What factors were considered in developing the various trail system proposals for the San Diego NWR?**

In developing our range of management alternatives to be evaluated in the draft Comprehensive Conservation Plan and environmental assessment, we consider a number of factors when determining where and to what extent trails should be accommodated on the Refuge. Those factors are outlined below.

- a) Proximity of the trail alignment to sensitive species and habitats (e.g., listed species, habitat for listed species, MSCP-covered species, MSCP-covered habitat type, wetlands)
- b) Potential to provide access to places on the Refuge that protect sensitive biological or cultural resources (e.g., does the trail lead people to an area that could be adversely affected by off-trail activities)
- c) Recognition that trails and trail use will impact to some degree all species and habitats within the Refuge
- d) Connectivity to the County's regional trail system
- e) Connectivity with other trails open and accessible to the general public
- f) Status of existing easements (e.g., general public use or Service only use)
- g) Compatibility with adjacent uses - what is the status of the land the trail would cross after it leaves the Refuge (e.g., private property, public land, preserved land)

- h) Potential for off-trail activities due to current trail conditions or alignment (e.g., switchbacks or improper trail design that causes users to veer off the trail and create new trails)
- i) Existing soil type and/or trail surface conditions
- j) Duplication of trails (e.g., multiple trails in an area, where one trail would be adequate)
- k) Needs for utility or fire management purposes
- l) Role of the trail in implementing wildlife-dependent recreational uses
- m) Suitability of the existing trail alignment and trail conditions for specific uses

**What specific factors were considered in evaluating potential trail alignments in each of the five major areas of the refuge?**

Click here  for a map of the five major areas of the refuge, which include McGinty Mountain, Las Montañas, Sweetwater River, San Miguel Mountain, and Otay Lakes.

**McGinty Mountain Area**

Some existing trails and other proposed community trails are not included in the designated trail system because:

- Two or more trails are located in proximity to one another and connect to the same trail system; only one trail was retained in order to reduce habitat fragmentation
- Some trails would extend into privately owned lands
- Some trails proposed by the County as community trails do not follow the existing topography; implementation would result in the loss of sensitive habitat and contribute to habitat fragmentation

**Las Montañas Area**

Multiple use trails are not proposed here because:

- No regional trails connect to this area
- Access issues from Highway 94 including blind curves make ingress and egress onto Refuge property difficult, which would impact our ability to create a staging area

No trails are proposed to connect to adjacent properties because:

- Lands adjacent to the Refuge are privately owned; we cannot direct trail users onto private property

**Sweetwater River Area**

Some existing trails and other proposed community trails are not included in the designated trail system because:

- Existing trails and some proposed trail alignments encroach into sensitive habitat, including habitat that supports coastal California gnatcatcher and least Bell’s vireo

- Two or more trails are located in proximity to one another and connect to the same trail system; only one trail was retained in order to reduce habitat fragmentation
- Trails traversing areas supporting federally listed plant species increase the potential for damage or loss of these plants due to off-trail activity (particularly now that the area has been burned) and less sensitive alternative routes are available to accommodate needed trail connections

In addition to safety issues related to mixing trail use with motorized vehicle use, Millar Ranch Road is not shown as a trail because it directs trail users to private property.

### **San Miguel Mountain Area**

Some existing trails and other proposed community trails are not included in the designated trail system because:

- Trails aligned on the fall line rather than along the existing contours are eroding and trail widths are getting wider as users avoid the eroded areas; increases in use will only exacerbate existing problems
- Trails traversing areas supporting sensitive plant species increase the potential for damage or loss of these plants due to off-trail activity (particularly now that the area has been burned) and less sensitive alternative routes are available to accommodate needed trail connections
- Trails expose some particularly sensitive species to disturbance
- The steep grade of one existing pathway combined with excessive amounts of loose gravel does not provide appropriate trail conditions and a more appropriate route is available in the same general area
- Two or more trails are located in proximity to one another and connect to the same trail system; only one trail was retained in order to reduce habitat fragmentation
- Some trails would extend into privately owned lands

### **Otay Lakes Area**

No trails are shown in this area because:

- No connections to a regional trail system are necessary
- The parcels are generally surrounded by private property
- Where parcels do abut public land, existing trails and roads extend through areas that support listed species, including the Quino checkerspot butterfly

## **Maps Illustrating the Alternative Designated Trail System Proposals for Action Alternatives B – D**

Maps illustrating the designated trail system proposals for each of the three action alternatives (Alternatives B – D) are provided at <http://www.fws.gov/sandiegorefuges/trails.htm>.