8.1.9.p *J 14*

Site Description and Existing Conditions

The J 14 site is located between Caliente and Heritage Roads in the currently undeveloped area south of Otay Mesa Road. The vernal pools occur on five privately-owned, un-conserved parcels that are partially within the MHPA. J 14 is zoned for commercial use, open space, and freeways; surrounding land uses include transportation development, undeveloped lands and abandoned structures with residential developments being proposed for several surrounding parcels.

Fifty-eight vernal pools (2,430 m^2 combined basin area [0.600 acres]) were mapped in 2003. The basins occur in the Stockpen gravelly clay loam and Olivenhain cobbly loam soil series.

Upland vegetation is primarily non-native grasslands on the mesa with coastal sage scrub in canyons. Several sensitive species are present: *M. minimus*, *N. fossalis* and *P. nudiuscula* occur in a single J 14 basin. The occurrences of these species in natural basins in San Diego City is extremely rare: J 14 constitutes one of six natural sites in San Diego with *M. minimus*, one of six natural vernal pools in San Diego with *N. fossalis*, and one of two natural vernal pools in San Diego with *P. nudiuscula*. *B. sandiegonensis* and *S. woottoni* were also observed in 2003.

Historically, the site was subject to pressure from grazing and land squatters, while current impacts are generally related to off-road vehicles, Border Patrol and immigrant traffic.

Threats

Development

J 14 is privately-owned and not conserved. The site is partially within the MHPA, with 22 basins outside the boundary. While the MHPA designation will protect a portion of the vernal pools on-site, other basins may be impacted directly by development and/or indirectly through isolation from adjacent vernal pools and open space areas.

Invasive Species

Invasive species occur in the upland areas and the vernal pools basins.

Edge Effects

Development of southern Otay Mesa may isolate the J 14 vernal pools from surrounding open space and nearby vernal pool complexes.

Trespass

Impacts occur from recreational off-road vehicles, immigrant traffic and Border Patrol vehicles.

Litter

The site may be impacted by wind-blown debris, dumping, litter and itinerant encampments. In addition, existing vacant structures remain on portions of the site.

Fire and Fire Suppression

The J 14 vernal pools are located in an undeveloped area. The site may serve as a staging area in the event of a fire if defensible structures are developed in the vicinity.

Current Management Activities

No management activities are planned or on-going.

Management Recommendations

The portion of this site containing vernal pools and within the MHPA is recommended for conservation through public acquisition or private mitigation. In particular, all basins with sensitive plant and animal species should be protected and enhanced, as necessary. Mitigation and preserve design for proposed development on the remaining portions of the site should consider vernal pools on adjacent parcels to minimize impacts from isolation.

All preserved basins should be enhanced or restored as deemed appropriate by a qualified biologist. In particular, populations of *M. minimus, N. fossalis* and *P. nudiuscula* should be expanded using seed collected on-site.

This site was identified as necessary to stabilize the populations of *E. aristulatum, P. nudiuscula, O. californica, N. fossalis, B. sandiegonensis,* and *S. woottoni,* by the adopted *Recovery Plan for Vernal Pools of Southern California* (USFWS, 1998). All future management activities should promote the stabilization and recovery of these species.

The following conditions shall be met in if the site is used for mitigation or acquired for conservation. Debris shall be removed from vernal pool basins. Debris removal shall occur by hand or with equipment that is staged and positioned outside of vernal pool basins; qualified biologists shall monitor all removal activities to ensure that no impacts to the basins occur. In addition, abandoned structures shall be removed and the immediate area restored from any areas proposed for inclusion into preserve and/or mitigation sites.

Fencing shall be installed to preclude access while maintaining corridors between adjacent open space areas. Appropriate bilingual signage shall be developed with both educational and no-trespassing elements.

A qualified biologist shall assess the site for non-native, invasive species, and shall recommend and implement a removal and re-vegetation plan. Restoration of native grasslands at this site is encouraged to limit the invasion of vernal pool basins by invasive, exotic species. Weeding within and immediately adjacent to vernal pools should be done by hand, and herbicides should not be used.

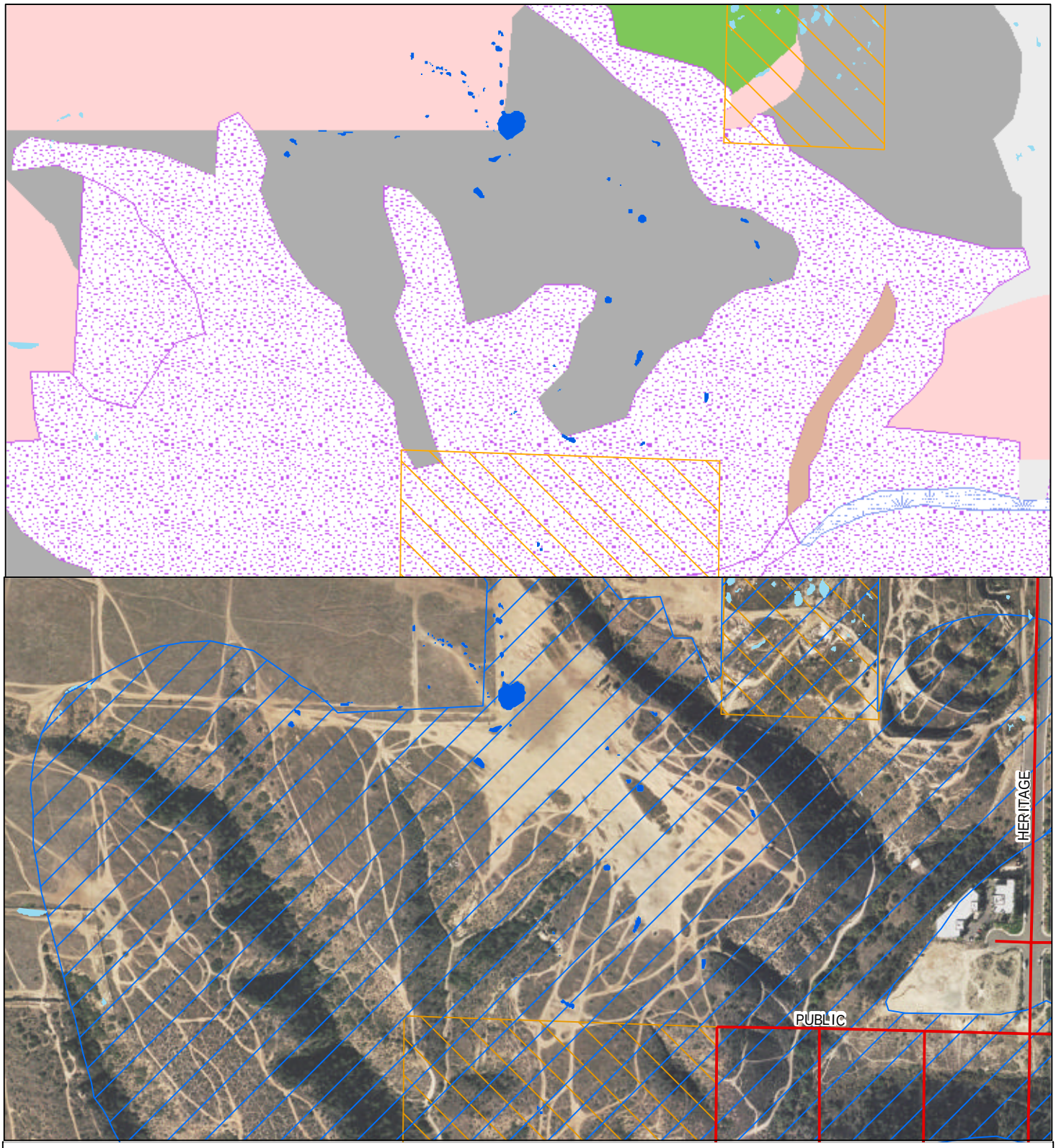
An endowment should be provided to fund required annual maintenance, including biological monitoring, repair of fencing, trash removal and contingency measures.

If the site is used for mitigation, a fire management plan shall be prepared and included in the adopted Habitat Management Plan.

It is recommended that educational programs be provided through local schools, Home-Owner's Associations (HOAs), community groups, etc. Topics may include the local ecosystem, including vernal pools, habitat preservation (i.e. MSCP), and should incorporate hands-on learning via neighborhood hikes, etc. Programs should strive to

present information in a manner that will increase interest in the natural world and cultivate local stewardship of open space, with the overall goal of developing positive neighborhood awareness of the preserve.

Figure 58



J 14

0.1
Miles
Kilometers
0.2

- Roads
- MHPA
- Conserved Lands
- Vernal Pools at Site
- Adjacent Vernal Pools
- Coastal Sage Scrub
- Grassland
- Freshwater Marsh
- Riparian Scrub
- Disturbed Land
- Agriculture
- Urban/Developed

Note: MHPA and Roads not shown in top map; vegetation mapping per Ogden 1997.

8.1.9.q *Arnie's Point (J 15)*

Site Description and Existing Conditions

Arnie's Point (J 15) is a 25-acre site located along the U.S./Mexico border in Otay Mesa at the western end of Calle de Linea. The site is owned by the U.S. government; preservation was required per two U.S. Fish and Wildlife Service Biological Opinions (1-6-01-F1089.12 and 1-6-03-F-1089.17) issued for the U.S./Mexico border fence project, and includes vernal pool restoration and upland restoration components.[*] The area is zoned Open Space and Light Industrial and is within the MHPA; the site is adjacent to open space, an industrial site, and the international border fence.

Fifty-seven vernal pools occur at Arnie's Point—including 54 restored basins, two natural basins, and one road rut—and cover a total of 11,557 m^2 (2.856 acres). The site is characterized by Stockpen gravelly clay loam on 0 to 2 percent slopes, and upland areas have been re-vegetated with native grasslands. Sensitive species on-site include *E. aristulatum*, *N. fossalis*, *O. californica*, *P. nudiuscula*, *B. sandiegonensis*, and *S. woottoni*.

Prior to restoration, impacts by recreational off-road vehicles and illegal immigrant and Border Patrol traffic contributed to invasion by exotic species.

Threats

Development

Arnie's Point has been conserved and will not be directly impacted by development.

Restoration Success

The *Vernal Pool Restoration and Enhancement Plan for Arnie's Point Basins as Mitigation for Elimination of Fairy Shrimp Habitat Pools along the Otay Mesa Border Security Zone* (Black, 2003) and the *Final Vernal Pool Restoration Plan for the Arnie's Point Linear Vernal Pool at Otay Mesa, San Diego, California* (RECON, 2002) specify success criteria for the restored vernal pools, including species richness, vegetative cover, target species, and hydrologic regime. Remedial measures will be required if restoration success criteria are not met within the specified time period.

Invasive Species

Prior to restoration, non-native invasive species were introduced through disturbance associated with off-road vehicle use, etc. Both uplands and vernal pools are being re-vegetated in accordance with accepted mitigation plans, which recognize that weeds are a typical problem with habitat restoration and specify monitoring schedules as well as thresholds for tolerance of non-native species (relative total cover) and mechanisms for removal, as necessary.

[*] Approved mitigation plans for the site include: 1) *Vernal Pool Restoration and Enhancement Plan for Arnie's Point Basins as Mitigation for Elimination of Fairy Shrimp Habitat Pools along the Otay Mesa Border Security Zone* (Black, 2003), and 2) *Final Vernal Pool Restoration Plan for the Arnie's Point Linear Vernal Pool at Otay Mesa, San Diego, California* (RECON, 2002).

Edge Effects
The restoration site is adjacent to the U.S./Mexico border fence and an industrial park/warehouse complex. Litter and non-native species from the developed area may impact the preserve. However, the site is also connected to a large open space/MHPA area, including additional vernal pool sites, which minimizes impacts from isolation.

Trespass
Trespass has been significantly lowered through the installation of fencing and signage, presence of restoration crews and Border Patrol, and the construction of the border fence to limit foot traffic by illegal immigrants; however, limited impacts are expected to continue.

Required Management Activities

Pursuant to Biological Opinions 1-6-01-F-1089.12 and 1-6-03-F-1089.17, issued through a U.S. Fish and Wildlife Service consultation for the federal U.S./Mexico border fence project, the following mitigation and management activities have been required as conditions of incidental take of San Diego button celery (*Eryngium aristulatum*), San Diego fairy shrimp (*Branchinecta sandiegonensis*) and spreading navarretia (*Navarretia fossalis*).

The *Vernal Pool Restoration and Enhancement Plan for Arnie's Point Basins as Mitigation for Elimination of Fairy Shrimp Habitat Pools along the Otay Mesa Border Security Zone* (Black, 2003) and the *Final Vernal Pool Restoration Plan for the Arnie's Point Linear Vernal Pool at Otay Mesa, San Diego, California* (RECON, 2002) were accepted by the permitting agencies as mitigation for vernal pool impacts. The plans require preservation, restoration of 11,557 m^2 (2.86 acres) of vernal pool basins, including at least 7200 m^2 (0.72 ha) of habitat for San Diego and Riverside fairy shrimp and 3300 m^2 (0.33 ha) of habitat for San Diego fairy shrimp.

Implementation of the *Plans* include a 5-year mitigation and monitoring program, including trash removal, weed control, hydrological/topographical modification, and any necessary remedial measures, under the supervision of a re-vegetation specialist. Success criteria for the restoration are detailed in the *Plans* and final completion of the project shall be subject to review by the Army Corps of Engineers.

As part of the project, the site has been fenced with permanent chain link and appropriate signage has been posted.

Management Recommendations

Active habitat restoration shall continue, as necessary, until the success criteria are met. These criteria, detailed in the approved mitigation plans (see Black, 2003, and RECON, 2002) shall be used by the restoration specialist and permitting agencies to determine the completeness of mitigation. Only upon written notice from the permitting agencies shall the restoration be deemed complete.

This site was identified as necessary to stabilize the populations of *E. aristulatum, P. nudiuscula, O. californica, N. fossalis, B. sandiegonensis,* and *S. woottoni,* by the adopted *Recovery Plan for Vernal Pools of Southern California* (USFWS, 1998). All future management activities should promote the recovery and success of these species.

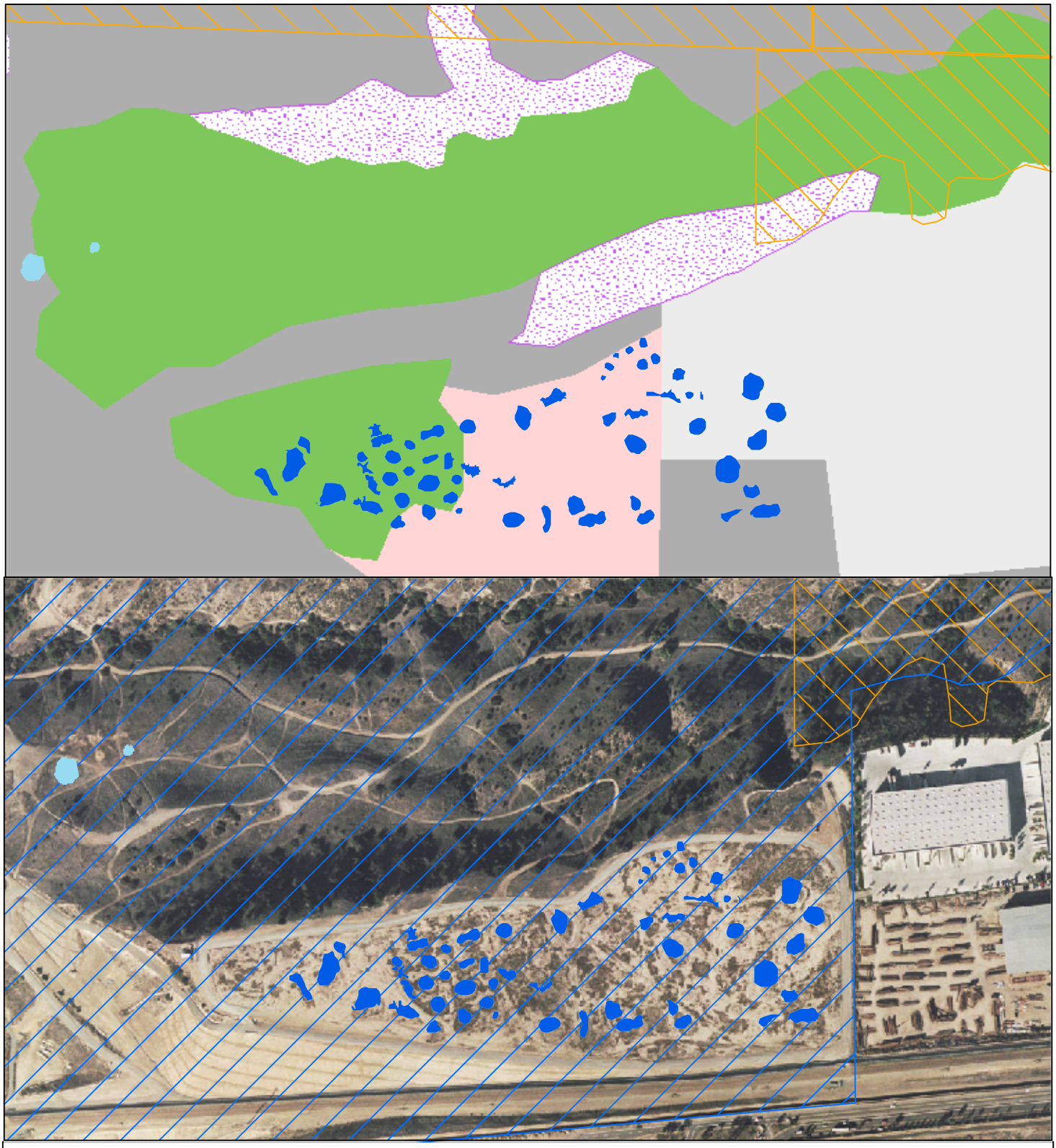
Fence repair will be required as necessary in perpetuity. Semi-annual maintenance patrols should occur to determine the need for fence repair and/or signage replacement, as well as litter and invasive species assessment.

If weed control is deemed necessary, weeding within and immediately adjacent to vernal pools should be done by hand. In upland areas, mechanical removal may be necessary, however, herbicides should not be used in or adjacent to vernal pools. Targeted species for removal include, but are not limited to, Italian ryegrass (*Lolium multiflorum)*, rabbitfoot grass (*Polypogon monspeliensis*), yard knotweed (*Polygonum arenastrum*), fennel (*Foeninculum vulgare*) and curly dock (*Rumex crispus*).

If the maintenance patrols determine that active management is necessary after completion of the mitigation period, all work should take into consideration the sensitivity of on-site habitats, including adequate training of crews and supervision by a qualified biologist.

Land managers should encourage research opportunities, especially relating to the long-term success of restored vernal pools and upland vegetation.

Figure 59



Arnie's Point (J 15)

0.05
Miles
Kilometers
0.1

Roads
MHPA
Conserved Lands
Vernal Pools at Site
Adjacent Vernal Pools
Coastal Sage Scrub
Grassland
Disturbed Land
Agriculture
Urban/Developed

Note: MHPA and Roads not shown in top map; vegetation mapping per Ogden 1997.

8.1.9.r *J 16-18*

Site Description and Existing Conditions

J 16-18 is a conserved site on three City-owned parcels (totaling 99 acres) in the Spring Canyon area of Otay Mesa along the U.S./Mexico border. The site is within the MHPA and is designated open space; surrounding land uses include open space, undeveloped land and the international border. Residential developments have been proposed for several nearby parcels.

Thirteen vernal pools (1,621 m^2 combined basin area [0.400 acres]) were mapped in 2003. The basins occur in the Stockpen gravelly clay loam and upland vegetation is primarily non-native grasslands on the mesa with coastal sage scrub in finger canyons. *E. aristulatum* was observed in 2003.

Historically, the site was subject to pressure from grazing and land squatters, while current impacts are generally related to off-road vehicles, Border Patrol and immigrant traffic.

The J 16-18 vernal pools were identified by the adopted Recovery Plan for Vernal Pools of Southern California (USFWS, 1998) as a necessary to stabilize populations of the following endangered and threatened species: *E. aristulatum, P. nudiuscula, N. fossalis, O. californica, B. sandiegonensis* and *S. woottoni.*

Threats

Development

J 16-18 is conserved, City-owned open space and may not be developed.

Invasive Species

Invasive species occur in the upland areas and the vernal pool basins.

Edge Effects

Development of southern Otay Mesa may isolate J 16-18 from surrounding open space and nearby vernal pool complexes.

Trespass

Major impacts have occurred from recreational off-road vehicles, immigrant traffic and Border Patrol vehicles.

Litter

The site may be impacted by wind-blown debris, dumping, litter and itinerant encampments. In addition, existing vacant structures remain on portions of the site.

Fire and Fire Suppression

The J 16-18 vernal pools are located in a currently undeveloped area. The site may serve as a staging area in the event of a fire if defensible structures are developed in the vicinity.

Current Management Activities

This site is managed by the City of San Diego Park and Recreation Open Space Division.

Management Recommendations

Minimization of impacts from off-road vehicles, including Border Patrol, is the primary management objective. The management agency should seek funding for fencing to preclude access while leaving the site open to adjacent open space areas with lower risk of trespass. Appropriate bilingual signage should be developed with both educational and no-trespassing elements. In addition, enforcement personnel should be dedicated to this area as additional management funding becomes available.

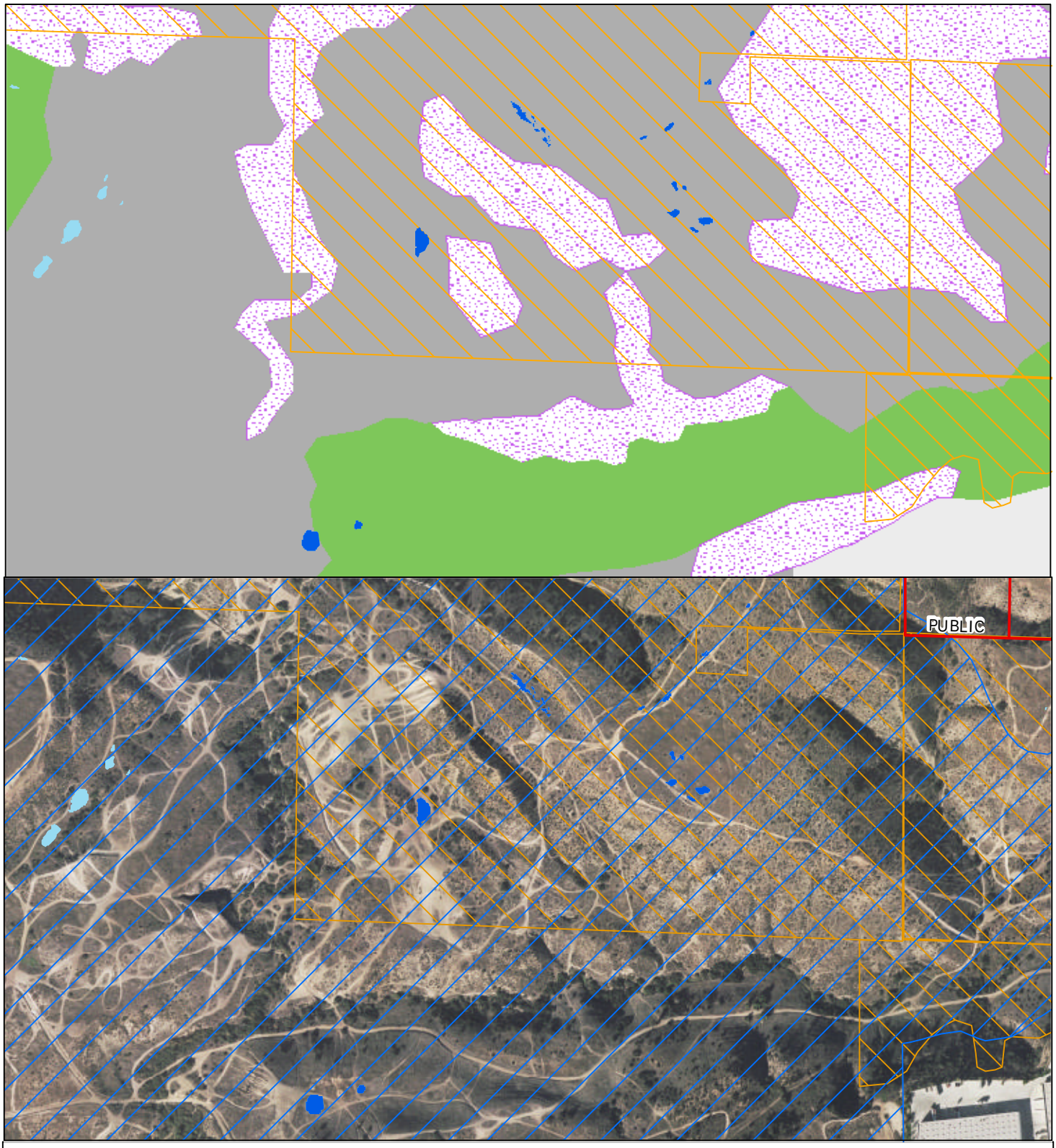
Seek grant funding for restoration and/or enhancement of the vernal pools. Restoration and/or enhancement is appropriate given the high species diversity recorded historically at nearby vernal pool sites. Restoration and/or enhancement actions should be focused on creating stable populations of *E. aristulatum, P. nuduiscula, N. fossalis, O. californica, B. sandiegonensis* and *S. woottoni,* in accordance with the U.S. Fish and Wildlife Service Recovery Plan. All reintroductions shall utilize seeds from within the smallest possible geographic range, in the following order, as necessary: complex, series, geographic region (i.e. Otay Mesa).

Weeding within and immediately adjacent to vernal pools should be done by hand. In upland areas, mechanical removal may be necessary, however, herbicides should not be used in or adjacent to vernal pools. Targeted species for removal include, but are not limited to Italian ryegrass (*Lolium multiflorum*), rabbitfoot grass (*Polypogon monspeliensis*), yard knotweed (*Polygonum arenastrum*), fennel (*Foeninculum vulgare*) and curly dock (*Rumex crispus*).

Adaptive management shall include management of the site to improve habitat conditions for native, solitary bees known as obligate pollinators for vernal pool species.

At the discretion of the land manager, educational programs may be provided to nearby schools, Home-Owner's Associations (HOAs), community groups, etc. Topics may include the local ecosystem, including vernal pools, habitat preservation (i.e. MSCP), and should incorporate hands-on learning via neighborhood hikes, etc. Programs should strive to present information in a manner that will increase interest in the natural world and cultivate local stewardship of open space, with the overall goal of developing positive neighborhood awareness of the preserve.

Figure 60



J 16-18

0.1
Miles
Kilometers
0.25

- Roads
- MHPA
- Conserved Lands
- Vernal Pools at Site
- Adjacent Vernal Pools
- Coastal Sage Scrub
- Grassland
- Disturbed Land
- Urban/Developed

Note: *MHPA and Roads not shown in top map; vegetation mapping per Ogden 1997.

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