



Otay Lakes  
Vernal pool 71 looking south

(Photo by Scott McMillan, 2001)



Otay Lakes  
Vernal pool 12 looking north

(Photo by Scott McMillan, 2001)

### 3.2.9 Otay Mesa

Along the Mexican border, Otay Mesa is the southernmost extent of vernal pools under U. S. jurisdiction. Within the City of San Diego, 979 basins are distributed from Otay Ranch to Mexico, Chula Vista to Otay Mountain. These vernal pools have been divided into 29 sites in the “J” complex, series 2, 4, 5, 11, 12, 13, 14, 15, 16, 17,

18, 21, 27, 28, 29, 30, 31, 32, 33, 34 and 35. This area has been heavily impacted by off-road vehicles: ORV activity is known to occur historically or in the present at all sites discussed below. Sites have been grouped for discussion purposes when deemed appropriate.

**3.2.9.a** Robinhood Ridge (J 4-5) is accessible from Avenida de las Vistas north of Otay Mesa Road. Historic activities at Robinhood Ridge include off-road vehicle impacts and subsequent creation of vernal pools. This conserved site is privately owned, covers 16 acres and contains 83 vernal pools. These basins cover 24,362 square feet and provide habitat for *B. sandiegonensis*, identified in 41 basins, and *S. woottonii*, identified in six basins. *H. regilla* were observed in 14 vernal pools, *S. hammondii* were observed in three vernal pools, and unidentified tadpoles were observed in 18 vernal pools. *E. aristulatum* covered a total of 5,225 square feet in 46 basins. *M. minimus* was observed in 18 basins, and covered approximately 75 square feet. Four basins supported *N. fossalis*, which covered 13 square feet. *P. nudiscula* covered a total of 182 square feet in 19 basins. *E. aristulatum*, *M. minimus*, and *N. fossalis* were noted by Bauder (1986) at J 5. Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 35. For a map of this site, refer to 146-1761 in Appendix C.

<b>Table 35</b>		
<b>Robinhood Ridge</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	• <i>Myosurus minimus</i>	•
<i>Crassula aquatica</i>	• <i>Navarretia fossalis</i>	•
<i>Deschampsia danthoniodes</i>	• <i>Orcuttia californica</i>	
<i>Downingia cuspidata</i>	<i>Phalaris lemmonii</i>	
<i>Elatine californica</i>	• <i>Phalaris</i> spp.	
<i>Epilobium pygmaeum</i>	• <i>Pilularia americana</i>	•
<i>Eryngium aristulatum</i>	• <i>Pilularia</i> spp.	•
<i>Isoetes howellii</i>	<i>Plagiobothrys acanthocarpus</i>	
<i>Isoetes orcuttii</i>	<i>Plantago elongata</i>	•
<i>Isoetes</i> spp.	<i>Plantago</i> spp.	
<i>Lilaea scilloides</i>	• <i>Pogogyne abramsii</i>	
<i>Marsilea vestita</i>	<i>Pogogyne nudiuscula</i>	•
<i>Malvella leprosa</i>	<i>Psilocarphus brevissimus</i>	•
<i>Branchinecta</i> spp.	• <i>Branchinecta sandiegonensis</i>	•
<i>Branchinecta lindahli</i>	<i>Streptocephalus woottoni</i>	•





Robinhood Ridge  
Vernal pool 59 looking south



Robinhood Ridge  
Vernal pool 62 looking north

**3.2.9.b J 4** is located on a privately owned, 15-acre parcel adjacent to Robinhood Ridge. Of the 11 basins (4,075 total area) mapped on-site, *Branchinecta* spp. were noted in five. No rare, threatened or endangered plant species were observed; vernal pool indicator species and fairy shrimp noted at this site are listed in Table 36. This site

occurs completely outside of the original Bauder classification polygons (1986). This site was not surveyed for amphibians. For a map of this site, refer to 146-1761 in Appendix C.

<b>Table 36</b> <b>J 4</b> <b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



J 4  
Vernal pool 1 looking southwest





J 4

Vernal pool 4 looking east

**3.2.9.c** Forty-two vernal pools, totalling 5,753 square feet in basin area, were mapped on two parcels at the Hidden Trails (J 2 W, J 31) site. The vernal pools are located at the southern end of a privately owned, 76-acre site north of Otay Mesa Road and adjacent to Hidden Trails Road, which is not conserved at this time. No sensitive plant species were observed; vernal pool indicators noted at the site are listed in Table 37. This site occurs completely outside the original Bauder classification polygons (1986). Fairy shrimp (*Branchinecta* spp.) were observed in seven basins, and amphibians were not noted on-site. For a map of this site, refer to 146-1761 in Appendix C.

<b>Table 37</b>		
<b>Hidden Trails</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
		•
		•

<b>Table 37, con't</b>		
<b>Hidden Trails</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>

**3.2.9.d J 2 W** is located northwest of the intersection of Otay Mesa Road and Ocean View Hills Parkway. Two parcels covering approximately 40 acres contain 59 vernal pools, with a total of 29,632 square feet in basin area. The site is privately owned and is not conserved at this time. *E. aristulatum* was noted at a single basin with an estimated cover of 16 square feet. *E. aristulatum* and *N. fossalis* were observed by Bauder (1986). Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 38. Fairy shrimp were noted in a total of seven basins: *Branchinecta* spp. were present in 13 basins while *B. sandiegonensis* were identified in three basins, and *S. woottoni* in three basins. *H. regilla* were observed in three vernal pools; *S. hammondii* were present in two vernal pool basins. For a map of this site, refer to 146-1761 in Appendix C.

<b>Table 38</b>		
<b>J 2 W</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i> •
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i> •
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b> •
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b> •



J 2 W  
Vernal pool 14 looking north



J 2 W  
Vernal pool 20 looking north

**3.2.9.e** Five vernal pools were mapped at the J 3 site, located at the convergence of Otay Mesa Road and Highway 905. These basins cover 3,811 square feet on two parcels totalling approximately 42 acres. The area is privately owned and is not conserved at this time. No rare, threatened, or endangered plant species were noted on-

site; Table 39 lists vernal pool indicator species and fairy shrimp observed. Bauder (1986) noted *N. fossalis* on-site. San Diego fairy shrimp (*B. sandiegonensis*) were observed in two basins and *S. woottonii* were observed in a single basin. *H. regilla* and *S. hammondii* were also noted in one basin on-site. For a map of this site, refer to 146-1761 in Appendix C.

<b>Table 39</b>		
<b>J 3</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b> •
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b> •





J 3  
Vernal pool 4 looking south



J 3  
Vernal pool 5 looking north

**3.2.9.f** The Sweetwater High School site (J 33) is a 50-acre parcel located south of the intersection of Otay Mesa Road and Airway Road. Eight created vernal pools, covering 2,844 square feet, are under the jurisdiction of the Sweetwater Union High School District and are conserved. *E. aristulatum* covered approximately 15 square feet in two

basins; *M. minimus* was observed in five basins and covered 11 square feet; three basins support *N. fossalis*, with a total cover of seven square feet; and five basins provide habitat for *P. nudiuscula*, which covers an estimated nine square feet. Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 40. *B. sandiegonensis* were present in every basin and *S. woottonii* were observed in three basins. Amphibians were noted in six vernal pools: *S. hammondii* in three basins and unidentified tadpoles in three basins. For a map of this site, refer to 138-1761 in Appendix C.

<b>Table 40</b>		
<b>Sweetwater High School</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i> •
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i> •
<i>Deschampsia danthoniodes</i>	•	<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i> •
<i>Elatine californica</i>	•	<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i> •
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i> •
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b> •
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b> •
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b> •





Sweetwater High School  
Vernal pool 5 looking east



Sweetwater High School  
Vernal pool 7 looking north

**3.2.9.g** West Otay A + B (J 32) covers 44 vernal pools that include unnatural ruts from historic grading, recently created basins, and a few natural depressions. These basins are found on three conserved parcels owned by the Environmental Trust and a private entity, and extend across approximately nine acres of the total 177 acres. The vernal



pools are located near the San Diego Gas and Electric substation south of Otay Mesa Road. Four sensitive plant species were present on-site: *E. aristulatum* was observed in four basins with an estimated cover of 48 square feet, *M. minimus* was observed in 21 basins with an estimated cover of 63 square feet, *N. fossalis* was observed in three basins with an estimated cover of 18 square feet, and *P. nudiscula* was observed in eight basins with an estimated cover of 22 square feet. *Branchinecta* spp. were noted in one vernal pool, *B. sandiegonensis* were noted in eight vernal pools, and *S. woottoni* were noted in one vernal pool. This site was not included in the 1986 Bauder report. Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 41. *H. regilla* were noted in a single basin, *S. hammondii* were noted in two basins, and unidentified juveniles were noted in two additional basins. For a map of this site, refer to 138-1761 in Appendix C.

<b>Table 41</b>			
<b>West Otay A + B</b>			
<b>Presence of Vernal Pool Indicator Species</b>			
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>	•
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>	•
<i>Deschampsia danthoniodes</i>	•	<i>Orcuttia californica</i>	
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>	
<i>Elatine californica</i>	•	<i>Phalaris</i> spp.	
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>	•
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.	
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>	•
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>	•
<i>Isoetes</i> spp.		<i>Plantago</i> spp.	
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>	
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>	•
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>	•
<i>Branchinecta</i> spp.		<b><i>Branchinecta sandiegonensis</i></b>	•
<i>Branchinecta lindahli</i>	•	<b><i>Streptocephalus woottoni</i></b>	•



West Otay A + B  
Vernal pool 19 looking west



West Otay A + B  
Vernal pool 38 looking east



West Otay A + B  
Vernal pool 41 looking east

**3.2.9.h** Fourteen vernal pools were mapped at the J 34 site. The three privately owned parcels are located south of Otay Mesa Road and east of Caliente Avenue and are not conserved at this time. A total of 6,482 square feet of vernal pool basins occur on the 246-acre site. Sensitive plant and animal species were not observed; however, *S. hammondii* were present in one vernal pool and unidentified tadpoles were observed in another basin. This site was not included in Bauder (1986). Vernal pool indicator species and fairy shrimp noted on-site are listed in Table 42. For a map of this site, refer to 138-1761 in Appendix C.

<b>Table 42</b>		
<b>J 34</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>



Table 42, con't		
J 34		
Presence of Vernal Pool Indicator Species		
<i>Marsilea vestita</i>		<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.		<i>Branchinecta sandiegonensis</i>
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>



J 34

Vernal pool 1 looking southwest

**3.2.9.i** Recon South (J 14) is a 17.7 acre site adjacent to Otay Mesa Road and the southern terminus of Innovative Drive. Sixty-four vernal pools, with a total area of 61,135 square feet, were created on this mitigation site; the site is privately owned and is conserved. Prior to restoration, the site was subject to off-road vehicle activity. This site supports the following sensitive species: *E. aristulatum* was noted in 48 basins (1,760 square feet of cover), *N. fossalis* was noted in four basins (seven square feet of cover), *O. californica* was noted in five basins (>1 square foot), and *P. nudiuscula* was noted in 55 basins (1,505 square feet of cover). Fairy shrimp were observed in 34 basins: *B. sandiegonensis* in 30, *B. lindahli* in 1, and *S. woottonii* in 24. *H. regilla* were noted in two vernal pools and *S. hammondii* were noted in a single basin. Vernal pool indicator species and fairy shrimp noted at this site are listed in Table 43. For a map of this site, refer to 138-1761 in Appendix C.

Table 43 Recon South Presence of Vernal Pool Indicator Species		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>	•	<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<i>Eryngium aristulatum</i>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<i>Pogogyne abramsii</i>
<i>Marsilea vestita</i>	•	<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<i>Branchinecta sandiegonensis</i>
<i>Branchinecta lindahli</i>	•	<i>Streptocephalus woottoni</i>



Recon South  
Vernal pool 15 looking north

**3.2.9.j** The 905 basins (J 14) are located along Heritage Road near the intersection of Camino Maquiladora. Grazing occurred on-site historically. Seven basins cover a total of 2,987 square feet on the 38 acre site. Five of these vernal pools occur on two

conserved parcels, one owned by a private entity and the other by the City. No sensitive plants were observed on-site; *B. sandiegonensis* were identified in two basins. This site occurs completely outside the original Bauder classification polygons (1986). The vernal pool indicator plants present at this site are listed in Table 44. For a map of this site, refer to 138-1761 in Appendix C.

<b>Table 44</b>		
<b>905</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>





905  
Vernal pool 1 looking south



905  
Vernal pool 1 looking east

**3.2.9.k** The J 11 East and J 11 West basins are located east of San Ysidro Boulevard just north of Mexico. Seven basins are scattered across several privately owned parcels totalling approximately 40.53 acres. These sites are not conserved at this time. Vernal pool indicator species and fairy shrimp occurring at these sites are listed in Tables 45



and 46. J 11 E is comprised of two basins that cover 27,347 square feet and do not support populations of any sensitive species. A previous survey found *O. californica* at J 11 E (Bauder, 1986). For a map of J 11 E, refer to 138-1761 in Appendix C.

<b>Table 45</b> <b>J 11 E</b> <b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>	•	<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



J 11 E  
Vernal pool 1 looking north



J 11 E

Vernal pool 1 looking northwest

**3.2.9.1** The five vernal pools of J 11 W total 21,485 square feet of basin area and one basin supports *M. minimus*. This population was estimated to cover an area of approximately 45 square feet. No sensitive species were found during a 1986 survey (Bauder, 1986). *Branchinecta* spp. were noted in a single basin and *B. sandiegonensis* were also noted in a different basin. *H. regilla* were observed in one basin, and *S. hammondii* were noted in two basins. For a map of J 11 W, refer to 138-1761 in Appendix C.

<b>Table 46</b>		
<b>J 11 W</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	• <i>Myosurus minimus</i>	•
<i>Crassula aquatica</i>	• <i>Navarretia fossalis</i>	
<i>Deschampsia danthoniodes</i>	• <i>Orcuttia californica</i>	
<i>Downingia cuspidata</i>	<i>Phalaris lemmonii</i>	•
<i>Elatine californica</i>	<i>Phalaris</i> spp.	
<i>Epilobium pygmaeum</i>	<i>Pilularia americana</i>	
<b><i>Eryngium aristulatum</i></b>	<i>Pilularia</i> spp.	
<i>Isoetes howellii</i>	<i>Plagiobothrys acanthocarpus</i>	•
<i>Isoetes orcuttii</i>	<i>Plantago elongata</i>	•
<i>Isoetes</i> spp.	<i>Plantago</i> spp.	
<i>Lilaea scilloides</i>	• <i>Pogogyne abramsii</i>	



Table 46, con't		
J 11 W		
Presence of Vernal Pool Indicator Species		
<i>Marsilea vestita</i>	•	<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.	•	<i>Branchinecta sandiegonensis</i> •
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>



J 11 W  
Vernal pool 1 looking southwest

**3.2.9.m** The J 12 vernal pools are located on a privately owned, 163.56-acre parcel in Spring Canyon. Original descriptions of the site included three basins, and two additional vernal pools were mapped during the 2002 inventory. These basins cover a total of 12,018 square feet and do not appear to support populations of sensitive plant or animal species. However, historical surveys found *E. aristulatum* and *O. californica* at this site (Bauder, 1986). Vernal pool indicator species and fairy shrimp observed at these sites are listed in Table 47. For a map of J 12, refer to 138-1761 in Appendix C.

Table 47		
J 12		
Presence of Vernal Pool Indicator Species		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i> •

Table 47, con't		
J 12		
Presence of Vernal Pool Indicator Species		
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.		<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



J 12  
Vernal pool 1 facing east

**3.2.9.n** On the mesa between Dennery Canyon and Spring Canyon, 93 vernal pool basins make up J 13 East, J 13 North, and J 13 South. While the number of basins associated with these sites have greatly increased as a result of the recent survey, sensitive plant diversity and abundance have decreased since the Bauder report (1986). These three sites are located on map 138-1761 in Appendix C. The eight J 13 E vernal pools occur on the same parcel as the J 12 vernal pools. The 2,570 square feet of basin area provide habitat for *E. aristulatum* (estimated to cover 15 square feet in a single basin) and *S. hammondii* (tapoles were observed in one vernal pool). *E. aristulatum*



also occurred on-site at the time of the Bauder survey (1986). Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 48.

<b>Table 48</b>		
<b>J 13 E</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.		<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



J 13 E  
Vernal pool 1 looking south





J 13 E

Vernal pool 3 looking northeast

**3.2.9.o** J 13 N is comprised of 41 basins covering a total of 12,017 square feet. This site extends over five parcels for a total of nearly 40 acres and is not conserved at this time. *E. aristulatum* was observed in two basins and covered an estimated 53 square feet. *N. fossalis* was observed in a single basin and covered approximately 17 square feet. *O. californica* was also observed in a single basin and covered 248 square feet. These three species, as well as *M. minimus*, were noted during historical surveys (Bauder, 1986). San Diego fairy shrimp (*B. sandiegonensis*) were identified in three vernal pools. Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 49.

<b>Table 49</b>		
<b>J 13 N</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	<i>Myosurus minimus</i>	
<i>Crassula aquatica</i>	<i>Navarretia fossalis</i>	•
<i>Deschampsia danthoniodes</i>	<i>Orcuttia californica</i>	•
<i>Downingia cuspidata</i>	<i>Phalaris lemmonii</i>	•
<i>Elatine californica</i>	<i>Phalaris</i> spp.	
<i>Epilobium pygmaeum</i>	• <i>Pilularia americana</i>	
<i>Eryngium aristulatum</i>	• <i>Pilularia</i> spp.	
<i>Isoetes howellii</i>	<i>Plagiobothrys acanthocarpus</i>	•
<i>Isoetes orcuttii</i>	<i>Plantago elongata</i>	•
<i>Isoetes</i> spp.	<i>Plantago</i> spp.	

Table 49, con't		
J 13 N		
Presence of Vernal Pool Indicator Species		
<i>Lilaea scilloides</i>		<i>Pogogyne abramsii</i>
<i>Marsilea vestita</i>		<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.	•	<i>Branchinecta sandiegonensis</i> •
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>



J 13 N  
Vernal pool 2 looking northwest



J 13 N  
Vernal pool 23 looking north

**3.2.9.p** Forty-four basins are included in J 13 S: Seven of these support *E. aristulatum* which covers approximately 393 square feet and *Branchinecta* spp. were observed in three vernal pools. In addition to these sensitive species, *M. minimus*, *N. fossalis*, and *O. californica* were also noted at J 13 S in Bauder's 1986 report. J 13 S includes seven parcels for a total of 108 acres that are not conserved at this time. *H. regilla* and *S. hammondii* were observed in a single basin. Vernal pool indicator species and fairy shrimp observed at this site are listed in Tables 50.

<b>Table 50</b>		
<b>J 13 S</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>	•	<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>	•	<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>



Table 50, con't			
J 13 S			
Presence of Vernal Pool Indicator Species			
<i>Malvella leprosa</i>	•	<i>Psilocarphus brevissimus</i>	•
<i>Branchinecta</i> spp.	•	<i>Branchinecta sandiegonensis</i>	
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>	



J 13 S  
Vernal pool 5 looking south



J 13 S  
Vernal pool 11 looking south

**3.2.9.q** The J 14 vernal pools are scattered across five privately owned parcels that total over 105 acres. J 14 is not conserved at this time. The total area of the 58 basins on-site is 26,153 square feet; however, only a single basin appears to support rare, threatened, or endangered plant species. *M. minimus*, *N. fossalis*, and *P. nudiscula* each occur in this basin with approximately 52 square feet of coverage. Bauder (1986) notes only *P. nudiscula* at this site. Vernal pool indicator species and fairy shrimp observed at J 14 are listed in Table 51. *B. sandiegonensis* were identified in four basins and *S. woottonii* were identified in three basins. Unidentified tadpoles were also observed in one vernal pool. For a map of this site, refer to 138-1761 in Appendix C.

<b>Table 51</b>		
<b>J 14</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i> •
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i> •
<i>Deschampsia danthoniodes</i>	•	<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i> •
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>	•	<i>Pilularia americana</i>
<i>Eryngium aristulatum</i>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.

Table 51, con't		
J 14		
Presence of Vernal Pool Indicator Species		
<i>Lilaea scilloides</i>	•	<i>Pogogyne abramsii</i>
<i>Marsilea vestita</i>		<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<i>Branchinecta sandiegonensis</i>
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>



J 14  
Vernal pool 24 looking south

**3.2.9.r** Arnie’s Point (J 15) is located in southern Spring Canyon directly along the U. S.—Mexican border. The proximity of this area to the border contributed to impacts from off-road vehicle activity such as Border Patrol and illegal immigrant traffic; however, the site is now protected and restored as a mitigation site. This 150-acre area is owned by the federal government and the 29 vernal pools (total basin area of 28,143 square feet) are conserved. *E. aristulatum* was noted in 16 basins and covered approximately 347 square feet; this species was also observed by Bauder in 1986. No other sensitive plants and animals were observed on-site. Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 52. For a map of this site, refer to 138-1761 in Appendix C.



<p align="center"><b>Table 52</b>  <b>Arnie's Point</b>  <b>Presence of Vernal Pool Indicator Species</b></p>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.		<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



Arnie's Point  
Vernal pool 5 looking west

**3.2.9.s** J 16-18 and Wruck Canyon (J 16-18) are located in the Spring Canyon area of southern Otay Mesa. Both sites are conserved. J 16-18 and Wruck Canyon are located on map 138-1761 in Appendix C. The 13 vernal pools of J 16-18 are found on three

City-owned parcels that total 99 acres in area. The 17,449 square feet of basin area support *E. aristulatum* and *S. hammondii*: *E. aristulatum* covered approximately 206 square feet in four basins and *S. hammondii* were noted in three basins. *E. aristulatum* was observed in 1979, but this site was not visited as part of the 1986 survey (Bauder, 1986; Zedler, 1979). Vernal pool indicator species and fairy shrimp present at this site are listed in Table 53.



J 16-18  
Vernal pool 2 looking northeast

**3.2.9.t** Wruck Canyon is comprised of six vernal pools located on 9.3 acres owned and managed by the Environmental Trust. In addition of off-road vehicle activity, this site has been impacted by grazing and illegal immigrant traffic. The combined basin area of these vernal pools is 684 square feet and no sensitive species were present at the site. This area was not surveyed by Bauder (1986). Vernal pool indicator species and fairy shrimp present at this site are listed in Table 53.

<b>Table 53</b>		
<b>J 16-18/Wruck Canyon</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>	•	<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>	•	<i>Pilularia americana</i>
<i>Eryngium aristulatum</i>	•	<i>Pilularia</i> spp.



Table 53, con't			
J 16-18/Wruck Canyon			
Presence of Vernal Pool Indicator Species			
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>	•
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>	
<i>Isoetes</i> spp.		<i>Plantago</i> spp.	
<i>Lilaea scilloides</i>		<i>Pogogyne abramsii</i>	
<i>Marsilea vestita</i>		<i>Pogogyne nudiuscula</i>	
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>	•
<i>Branchinecta</i> spp.		<i>Branchinecta sandiegonensis</i>	
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>	



Wruck Canyon  
Vernal pool 3 looking south

**3.2.9.u** Seven vernal pools were mapped at the J 21 site. Located southwest of Siempre Viva Road and La Media Road, this 49-acre parcel is privately owned and is not conserved at this time. The total basin area for the vernal pools on-site is 9,275 square feet. No sensitive species were noted. Vernal pool indicator species and fairy shrimp are listed in Table 54. While *E. aristulatum*, *M. minimus*, and *P. nudiuscula* were observed in 1979, no vernal pool species were located at this site in 1986 and Bauder notes the existence of dense non-natives in the basins (Bauder, 1986). For a map of J 21, refer to 138-1773 in Appendix C.

Table 54 J 21 Presence of Vernal Pool Indicator Species		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<i>Eryngium aristulatum</i>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp. •
<i>Lilaea scilloides</i>		<i>Pogogyne abramsii</i>
<i>Marsilea vestita</i>		<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i> •
<i>Branchinecta</i> spp.		<i>Branchinecta sandiegonensis</i>
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>



J 21  
Vernal pool 21 looking south

3.2.9.v J 27 is a privately owned site located northwest of the intersection of La Media Road and Airway Road. Ten vernal pools, covering a total of 10,174 square feet, were mapped on this 6.4-acre parcel that is not currently conserved. Nine basins support *E.*



*aristulatum*, which was estimated to cover an area of 564 square feet. No other rare, threatened, or endangered plant or animal species were observed on-site; Table 55 lists the presence of vernal pool indicator species and fairy shrimp. *E. aristulatum* was also noted in 1986, and *N. fossalis* and *P. nudiscula* were located on-site in 1979 (Bauder, 1986; Zedler, 1979). This site was not surveyed for amphibians. For a map of this site, refer to 138-1773 in Appendix C.

<b>Table 55</b>		
<b>J 27</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>	•	<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.		<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



J 27

Vernal pool 2 looking west

**3.2.9.w** Five vernal pools covering 6,959 square feet make up the 20-acre J 28 E site. The two privately owned parcels are located near the intersection of La Media Road and Avenida de la Fuente. Neither parcel is conserved at this time. No sensitive species were observed on-site; occurrence of vernal pool indicator species and fairy shrimp is listed in Table 56. Bauder (1986) noted a single individual of *E. aristulatum*; Zedler's group (1979) located *N. fossalis*, *O. californica*, and *P. nudiuscula*. For a map of this site, refer to 138-1773 in Appendix C.

<b>Table 56</b>		
<b>J 28 E</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	<i>Myosurus minimus</i>	
<i>Crassula aquatica</i>	<i>Navarretia fossalis</i>	
<i>Deschampsia danthoniodes</i>	<i>Orcuttia californica</i>	
<i>Downingia cuspidata</i>	<i>Phalaris lemmonii</i>	
<i>Elatine californica</i>	<i>Phalaris</i> spp.	
<i>Epilobium pygmaeum</i>	<i>Pilularia americana</i>	
<b><i>Eryngium aristulatum</i></b>	<i>Pilularia</i> spp.	
<i>Isoetes howellii</i>	<i>Plagiobothrys acanthocarpus</i>	
<i>Isoetes orcuttii</i>	<i>Plantago elongata</i>	
<i>Isoetes</i> spp.	<i>Plantago</i> spp.	•
<i>Lilaea scilloides</i>	<b><i>Pogogyne abramsii</i></b>	
<i>Marsilea vestita</i>	<b><i>Pogogyne nudiuscula</i></b>	



Table 56, con't		
J 28 E		
Presence of Vernal Pool Indicator Species		
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.		<i>Branchinecta sandiegonensis</i>
<i>Branchinecta lindahli</i>		<i>Streptocephalus woottoni</i>



J 28 E  
Vernal pool 2 looking north

**3.2.9.x** A total of 76 vernal pools were mapped at J 29-30. This site is located north of the intersection of Lonestar Road and La Media Road on five privately owned parcels. These 664 acres are not currently conserved and have been impacted by off-road vehicles and grazing. The basin area of these vernal pools totalled 42,053 square feet, and 42 basins (56%) supported *E. aristulatum*. The total coverage for this species was estimated to be 1,155 square feet. *P. nudiscula* covered two square feet of a single basin on-site. These species were also located in historical surveys (i.e., Bauder, 1986). Vernal pool indicator species and fairy shrimp observed at these sites are listed in Table 57. *Branchinecta* spp. were observed in a single basin, and amphibians were not noted at this site. For a map of this site, refer to 146-1773 in Appendix C.

Table 57		
J 29-30		
Presence of Vernal Pool Indicator Species		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>

Table 57, con't J 29-30 Presence of Vernal Pool Indicator Species		
<i>Deschampsia danthoniodes</i>		<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>



J 29-30

Vernal pool 32 looking south

**3.2.9.y** Two road ruts are located at the Brown Field site (J 35) north of Brown Field in Otay Mesa. The 74-acre site is owned by the City of San Diego and is not conserved at this time. The road ruts total 454 square feet in basin area and do not support rare, threatened, or endangered species. This area was not included in historic surveys. Vernal pool indicator species and fairy shrimp present at this site are listed in Table 58. For a map of this site, refer to 146-1773 in Appendix C.



Table 58 Brown Field Presence of Vernal Pool Indicator Species		
<i>Callitriche marginata</i>		<i>Myosurus minimus</i>
<i>Crassula aquatica</i>		<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>		<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.		<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>

**3.2.9.z** Otay Mesa Road Helix (J 2 S) is a one-acre mitigation site owned by the City of San Diego. The 13 vernal pools on this conserved site were created in 1998 and total 9,077 square feet in basin area. Prior to restoration, off-road vehicle activity occurred on-site. This site is located along Otay Mesa Road near the intersection of Corporate Center Drive. Each basin supported *E. aristulatum*, covering a total of 3,058 square feet, and *P. nudiuscula*, with a total coverage of 151 square feet. *M. minimus* was observed in five basins, covering approximately 16 square feet, while *N. fossalis* and *O. californica* covered three and five square feet in a single basin, respectively. Prior to restoration, *E. aristulatum* and *N. fossalis* were found at this site (Bauder, 1986). Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 59. *B. sandiegonensis* and *S. woottonii* were noted in eight vernal pools, *H. regilla* were noted in ten vernal pools, *S. hammondii* were noted in four vernal pools, and unidentified tadpoles were noted in one vernal pool. For a map of this site, refer to 146-1761 in Appendix C.

Table 59 Otay Mesa Road Helix Presence of Vernal Pool Indicator Species		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>	•	<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>	•	<i>Phalaris</i> spp.

Table 59, con't			
Otay Mesa Road Helix			
Presence of Vernal Pool Indicator Species			
<i>Epilobium pygmaeum</i>	•	<i>Pilularia americana</i>	•
<i>Eryngium aristulatum</i>	•	<i>Pilularia</i> spp.	
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>	
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>	
<i>Isoetes</i> spp.		<i>Plantago</i> spp.	
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>	
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>	•
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>	•
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>	•
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>	•



Otay Mesa Road Helix  
Vernal pool 8 looking south



Otay Mesa Road Helix  
Vernal pools 10 and 6 looking north

**3.2.9.aa** Twenty vernal pools were created at the Otay Mesa Road Recon (J 2 W) site in 1999. Located immediately adjacent to Otay Mesa Road Helix, this conserved parcel is a City-owned site restored with grant funding from the State of California. Prior to restoration, this area was the site of off-road vehicle activity. The 2.5-acre area supports populations of four sensitive plant species in a total basin area of 19,794 square feet: *E. aristulatum* covered approximately 2,152 square feet in 20 basins (100%); *P. nudiscula* covered 1,938 square feet in 20 basins (100%); *N. fossalis* covered 41 square feet in nine basins (45%); and *O. californica* covered 74 square feet in nine basins (45%). Historically, basins in this area supported *E. aristulatum* and *N. fossalis* (Bauder, 1986). Vernal pool indicator species and fairy shrimp observed at this site are listed in Table 60. San Diego fairy shrimp (*B. sandiegonensis*) were identified in 15 vernal pools, while *S. woottonii* were identified in seven. No amphibians were noted on this site. For a map of this site, refer to 146-1761 in Appendix C.

<b>Table 60</b>		
<b>Otay Mesa Road Recon</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>	•	<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>	•	<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>	•	<i>Pilularia americana</i>
<i>Eryngium aristulatum</i>	•	<i>Pilularia</i> spp.



Table 60, con't			
Otay Mesa Road Recon			
Presence of Vernal Pool Indicator Species			
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>	
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>	
<i>Isoetes</i> spp.		<i>Plantago</i> spp.	
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>	
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>	•
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>	•
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>	•
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>	•



Otay Mesa Road Recon  
Vernal pool 2 looking west



Otay Mesa Road Recon  
Vernal pool 18 looking west



Otay Mesa Road Recon  
Vernal pool 8 looking north

**3.2.9.bb** Otay Mesa Road Pardee and Recon Cal Terraces are located along Otay Mesa Road off of Ocean View Hills Parkway. For a map of these sites, refer to 146-1761 in Appendix C. Otay Mesa Road Pardee (J 2 S, J 2 W) is an unconserved, 38-acre parcel immediately west of Recon Cal Terraces. As with other sites in this area, off-road

vehicle impacts have been observed. The 31 vernal pools on-site total 13,564 square feet, and support *Branchinecta* spp. in four basins, *B. sandiegonensis* in one basin, and *S. hammondii* in one basin. No sensitive plants were noted on-site; vernal pool indicator species and fairy shrimp observed at this site are listed in Table 61. Historically, *E. aristulatum* and *N. fossalis* were found on-site (Bauder, 1986).

<b>Table 61</b>		
<b>Otay Mesa Road Pardee</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<b><i>Navarretia fossalis</i></b>
<i>Deschampsia danthoniodes</i>		<b><i>Orcuttia californica</i></b>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>		<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<b><i>Pogogyne abramsii</i></b>
<i>Marsilea vestita</i>		<b><i>Pogogyne nudiuscula</i></b>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<b><i>Branchinecta sandiegonensis</i></b>
<i>Branchinecta lindahli</i>		<b><i>Streptocephalus woottoni</i></b>





Otay Mesa Road Pardee  
Vernal pool 7 looking south



Otay Mesa Road Pardee  
Vernal pool 11 looking south

**3.2.9.cc** Recon Cal Terraces (J 2 N, S, W) is a 155-acre site located on three privately owned parcels. Two hundred seventy-one created basins cover 126,096 square feet (2.9 acres); the entire site is conserved. Prior to restoration and fencing, this site was impacted by off-road vehicle activity. *E. aristulatum* was observed in 243 basins and

covered approximately 58,341 square feet, *N. fossalis* was observed in 69 basins and covered 1,314 square feet, *O. californica* was observed in 42 basins and covered 2,350 square feet, and *P. nudiscula* was observed in 254 basins and covered 27,972 square feet. *Branchinecta* spp. were noted in 188 vernal pools, *B. sandiegonensis* were noted in 186 vernal pools, *B. lindahli* were noted in 19 vernal pools, and *S. woottoni* were noted in 78 vernal pools. These basins were created after previous vernal pool surveys so no historic data is available for this site. The sensitive plant species observed on-site are listed in Table 62. For a map of Recon Cal Terraces, refer to 146-1761 in Appendix C.

<b>Table 62</b>		
<b>Recon Cal Terraces</b>		
<b>Presence of Vernal Pool Indicator Species</b>		
<i>Callitriche marginata</i>	•	<i>Myosurus minimus</i>
<i>Crassula aquatica</i>	•	<i>Navarretia fossalis</i>
<i>Deschampsia danthoniodes</i>	•	<i>Orcuttia californica</i>
<i>Downingia cuspidata</i>		<i>Phalaris lemmonii</i>
<i>Elatine californica</i>		<i>Phalaris</i> spp.
<i>Epilobium pygmaeum</i>		<i>Pilularia americana</i>
<b><i>Eryngium aristulatum</i></b>	•	<i>Pilularia</i> spp.
<i>Isoetes howellii</i>		<i>Plagiobothrys acanthocarpus</i>
<i>Isoetes orcuttii</i>		<i>Plantago elongata</i>
<i>Isoetes</i> spp.		<i>Plantago</i> spp.
<i>Lilaea scilloides</i>	•	<i>Pogogyne abramsii</i>
<i>Marsilea vestita</i>	•	<i>Pogogyne nudiuscula</i>
<i>Malvella leprosa</i>		<i>Psilocarphus brevissimus</i>
<i>Branchinecta</i> spp.	•	<i>Branchinecta sandiegonensis</i>
<i>Branchinecta lindahli</i>	•	<i>Streptocephalus woottoni</i>