



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.

Table 35		
Robinhood Ridge		
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>	•



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.

Table 36		
J 4		
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 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.

Table 37		
Hidden Trails		
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>

Table 37, con't		
Hidden Trails		
Presence of Vernal Pool Indicator Species		
<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>

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.

Table 38		
J 2 W		
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 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.

Table 39		
J 3		
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 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.

Table 40		
Sweetwater High School		
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> •



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.

Table 41			
West Otay A + B			
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>	•



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.

Table 42		
J 34		
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>

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.

Table 44		
905		
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>



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.

Table 45 J 11 E 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 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.

Table 46		
J 11 W		
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>	

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>
<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 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*