Letter No. 12

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Technical Review of Biological Impacts Analysis in Recirculated Revised Draft Environmental Impact Report for West Coyote Hills Specific Plan and Robert E. Ward Nature Preserve

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1. Introduction

The West Coyote Hills in Fullerton, California contain some of the last open spaces in the developed coastal plain of northern Orange and southern Los Angeles counties. These hills have been used for oil production since the early 1900s, with the extraction of subsurface oil protecting them from residential development until recently.[1] The largest property not currently developed is a 510-acre area owned by Pacific Coast Homes. The property owner now proposes a large residential, commercial, and mixed use development. The City of Fullerton has recirculated several chapters of the Revised Draft Environmental Impact Report[2] ("RDEIR") for the Specific Plan amendment that facilitates the proposed development. The Specific Plan area includes the Pacific Coast Homes property and the 72-acre Robert E. Ward Nature Preserve.

Land Protection Partners has been retained by attorneys Shute, Mihaly and Weinberger LLP on behalf of Save Coyote Hills to provide a technical review of the analysis of biological impacts in the recirculated chapters of the RDEIR. This review was prepared by Travis Longcore, Ph.D., and Catherine Rich, J.D., M.A., who are experienced in evaluating environmental review documents prepared in compliance with the California Environmental Quality Act ("CEQA") and other environmental laws. They have experience in the ecology and natural history of the natural communities of southern California and prepared this report with the intention of meeting the description of "substantial evidence" under CEQA:

> Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly inaccurate or erroneous, or evidence of social or economic impacts which do not contribute to or are not caused by, physical impacts on the environment, is not substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts.[3]

This review is based on facts, assumptions based on those facts, and expert opinion supported by those facts. Facts were found in the Recirculated RDEIR ("RRDEIR"), the 2006 RDEIR, a site visit on February 25, 2008, and in peer-reviewed scientific articles that are cited herein.

This report repeats many of our comments made on the 2006 RDEIR that have not been addressed in the chapters recirculated in 2008. Much of the text in the recirculated chapters is identical to the RDEIR, even where we identified factual errors in our previous comments. Indeed,

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1. For a description of a similar situation see Byrne, J., M. Kendrick, and D. Sroaf. The park made of oil: towards a historical political ecology of the Kenneth Hahn State Recreation Area. *Local Environment* 12:153–181.
2. Keeton Kreitzer Consulting. 2006. Revised Draft Environmental Impact Report, SCH No. 1997051056: West Coyote Hills Specific Plan and Robert E. Ward Nature Preserve, Amendment No. 8 to Coyote Hills West Master Specific Plan 2-A. City of Fullerton Development Services Department, Fullerton, California.
3. California Public Resources Code § 21080, subd. (c).

even basic typographical errors remain uncorrected in the RRDEIR.[4] The RRDEIR also introduces new citations within the recirculated chapters but does not update the literature cited.

We begin this review with a discussion of the project description, noting that the description is contradictory and inadequate to assess the full impacts of the project on biological resources. Next, we consider the adequacy of the biological surveys. We then evaluate the logical basis for impact analysis and mitigation and show that it is severely deficient in many ways.

2. Project Description Is Inadequate and Contradictory

1 It is impossible to fully describe and assess the impacts to biological resources from the proposed project because the combination of the RRDEIR and the RDEIR does not provide a consistent or complete description of the project throughout the document. These inconsistencies confuse any understanding of the actual intentions of the project designers. A few examples follow.

2.1. Cut and Fill Is Not Accurately Mapped

2 The proposed cut and fill plan (Exhibit No. 4.5-4) shows cut and fill in locations within the proposed preserve areas that are mapped as "existing undisturbed vegetation" on the "revegetation potential map" (Exhibit No. 4.12-9). The revegetation potential map therefore could not have been based on the cut and fill map that was presented in the RDEIR. This raises many questions. Which map shows the extent of cut and fill? If Exhibit 4.5-4 is correct, then the calculations of impacts to biological communities are incorrect. How does the inconsistency between the two maps affect the acreages of habitats impacted by the project? The RRDEIR asserts that all habitat impacts were tracked in a database after being calculated using the preliminary grading plan (p. 4.12-45). The accuracy of these calculations is drawn into question by the inconsistencies in the various exhibits.

3 The map of cut and fill is inconsistent with the map of project-related habitat impacts (Exhibit 4.12-5). Grading is clearly shown in areas mapped as outside of the project footprint. Exhibit 4.12-5 must be updated to show the full extent of grading.

2.2. Detention Basins Are Not Consistently Described or Mapped

4 The detention basins described in Exhibit 4.10-2 are not depicted in the map of project-related habitat impacts (Exhibit 4.12-5). Furthermore, the "extended detention basins" are not shown in the appropriate visual simulations (e.g., Exhibit 4.11-9 is missing a detention basin). The construction of stormwater facilities in habitat areas should be mapped as an impact to habitat. As discussed in depth below, the biological impacts of the proposed stormwater infrastructure have not been acknowledged, discussed, or analyzed.

4. For example, *Buteo lineatus* is still misspelled in Table 4.12-3.

2.3. Visual Simulations Are Inconsistent With Biological Analysis

The visual simulations show plantings of exotic species in areas that are mapped as "revegetation enhanced" or "revegetation & interim disturbed" in Exhibit 4.12-9. These areas cannot be considered as habitat for the mitigation of impacts to biological resources if they are planted with exotic species. For example, Exhibit 4.11-11 shows exotic trees planted in an area that is supposed to be restored and Exhibit 4.11-12 shows exotic pine trees in coastal sage scrub habitat. Exhibit 4.11-13 shows large trees planted in an area that is to be restored and is naturally arid scrub. These represent fundamental inconsistencies in the project description. Areas are either to be restored or they are to be landscaped with exotic species, but they cannot be both. If the visualizations are accurate, then the acreage of land that will be landscaped adjacent to roads should be removed from the total of preserved habitat lands and the biological impacts of the adjacent landscaping (e.g., irrigation) should be evaluated.

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2.4. Fuel Modification Zone Has Conflicting Mandates

The required fuel modification zone around development is not depicted in the appropriate visualizations (e.g., Exhibit 4.11-12). The fire safety section of the RDEIR describes mitigation such that fuel modification zones around residences would be kept clear of dry brush and irrigated to keep foliage in a moist state according to the standards of the Fullerton Fire Department (MM 4.8.4-2). However, the Biological Resources section of the RRDEIR states that fuel modification zones will be maintained as native coastal sage scrub and cactus scrub species (MM 4.12-1b). The irrigation required by MM 4.8.4-2 is inconsistent with MM 4.12-1b. Furthermore, the irrigation will cause significant adverse impacts to biological resources as discussed below, but it is not described or discussed in the Biological Resources section.

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Proper impact analysis cannot be completed unless the project description is complete and consistent. The many inconsistencies between different sections of the RRDEIR and RDEIR should be corrected and the mutually inconsistent claims should be removed.

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3. Surveys

We next discuss the framework for vegetation community mapping, then evaluate the adequacy of surveys for individual floral and faunal species.

3.1. Vegetation Community Mapping

The RRDEIR underestimates the acreage of rare natural communities because it fails to rely on the appropriate mapping methodology. The California Department of Fish and Game ("CDFG") has specific recommendations for the methods of vegetation mapping for impact analysis under CEQA.[5] An attachment to these guidelines identifies the sensitivity of "top priority rare natural communities" in southern California. Even though there is a newer classification system that

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5. California Department of Fish and Game. 2000. Guidelines for assessing the effects of proposed projects on rare, threatened, and endangered plants and natural communities. State of California, The Resources Agency.

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divides vegetation into finer categories,[6] CDFG still uses the Holland classification to describe sensitive vegetation communities. The RRDEIR, however, does not follow the Holland classification, but rather uses a combination of different categories, some of which are recognized classifications and others of which are not. While it is acceptable to map using finer classifications (e.g., coyote bush scrub or poison oak scrub, which are subassociations of the Holland category Venturan Coastal Sage Scrub), for purposes of assessing significant impacts to rare natural communities, these mapping units must be assigned to the classification scheme used by CDFG.

9

We reclassified the vegetation units used in the RRDEIR to their most appropriate Holland classifications. We assumed that the toyon–sambucus chaparral described in the RRDEIR is actually toyon–sumac chaparral because it is described as such in the biological report prepared by Dudek & Associates in 2003[7] and is referred to as "toyon–sumac chaparral" elsewhere in the document (p. 4.12-15).

Table 1. Correspondence of RRDEIR vegetation classification to Holland vegetation classification.

RRDEIR Habitat	Acres	Holland	Acres	Total Impacts	Permanent Impacts
Coastal sage scrub	183.1				
Disturbed coastal sage scrub	42.6				
Southern cactus scrub	88.1				
Disturbed southern cactus scrub	0.9	Venturan			
Coyote bush scrub	16.4	Coastal	348.1	159.4	113.0
Disturbed coyote bush scrub	1.2	Sage Scrub			
Toyon–sumac chaparral	13.8				
Disturbed toyon–sumac chaparral	0.1				
Poison-oak scrub	1.9				
Mule fat scrub	14.8	Mule Fat	19.0	14.9	12.9
Disturbed mule fat scrub	4.2	Scrub			
Southern willow scrub	0.8	Southern			
Disturbed southern willow scrub	0.3	Willow Scrub	1.1	0.8	0.7
Non-native grassland	0.7	Non-native Grassland	0.7	0.4	0.4
Disturbed habitat	108.9		108.9	84.0	63.5
Ornamental plantings	3.6		3.6	1.0	0.7
Developed	99.9		99.9	74.2	55.3

6. Sawyer, J.O., and T. Keeler-Wolf. 1995. *Manual of California Vegetation*. California Native Plant Society, Sacramento, California.
7. Dudek & Associates. 2003. Biological resources report and impact assessment for Pacific Coast Homes West Coyote Hills project, City of Fullerton, California. Dudek & Associates, Encinitas, California, p. 54 (hereinafter "Dudek Report 2003").

For purposes of impact assessment, most of the vegetation types should be considered Venturan Coastal Sage Scrub.[8] The reasoning for this conclusion is as follows:

1. No rational basis is provided for the separation of the "disturbed" categories except that they have more widely spaced plants.[9] The "disturbed" variants of the vegetation categories should be dropped for the purpose of impact assessment (e.g., "disturbed southern willow scrub" should be considered "southern willow scrub").

2. Coastal sage scrub should be classified as Venturan Coastal Sage Scrub, based on the species composition and geographic location.[10]

3. Southern cactus scrub is a subassociation of Venturan Coastal Sage Scrub and therefore should be considered Venturan Coastal Sage Scrub for purposes of impact analysis. While it is important to identify the extent of cactus scrub because of its importance to sensitive species such as coastal cactus wren, it is still considered Venturan Coastal Sage Scrub for determining impacts to sensitive natural communities under CEQA.

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4. Coyote bush scrub is a subassociation of Venturan Coastal Sage Scrub and therefore should be considered Venturan Coastal Sage Scrub for purposes of impact analysis. Impacts to it are considered significant.[11]

5. Toyon–sumac chaparral does not seem to be an appropriate designation. Although these species are sclerophyllous (having hard leaves, which is characteristic of chaparral), they are often found as part of the Venturan Coastal Sage Scrub community. It is common to have larger shrub species, even sclerophyllous shrubs, within a matrix of coastal sage scrub. Toyon, lemonadeberry, and elderberry are common in patches of coastal sage scrub depending on soils, slope, and aspect.[12] Because sensitive birds of coastal sage scrub use toyon, sumac, and elderberry heavily,[13] and because all of these plant species are a regular component of Venturan Coastal Sage Scrub, the "toyon–sumac chaparral" is better classified as part of Venturan Coastal Sage Scrub for purposes of impact analysis.

6. Poison oak scrub is described as being found as thickets outside of riparian areas.[14] In this instance, poison oak is another subassociation of Venturan Coastal Sage Scrub.

8. Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency, Nongame Heritage Program, Department of Fish and Game, Sacramento, California.
9. Dudek Report 2003, p. 33.
10. Kirkpatrick, J.B., and C.F. Hutchinson. 1977. The community composition of California coastal sage scrub. *Vegetatio* 35:21–33.
11. California Department of Fish and Game. 2006. Mitigated Negative Declaration ND-03-01, State Clearinghouse Number 2003071069 (Letter to City of Laguna Niguel Public Works from Bradley Henderson, April 26, 2006).
12. Kirkpatrick, J.B., and C.F. Hutchinson. 1980. The environmental relationships of California coastal sage scrub and some of its component communities and species. *Journal of Biogeography* 7(1):23–38.
13. Campbell, K.F., R.A. Erickson, W.E. Haas, and M.A. Patten. 1998. California gnatcatcher use of habitats other than coastal sage scrub: conservation and management implications. *Western Birds* 29:421–433.
14. Dudek Report 2003, p. 34.

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Again, it is appropriate to map the presence of the species as a distinct subassociation for purposes of characterizing the vegetation for restoration purposes, but for purposes of impact analysis it must be considered part of the sensitive Venturan Coastal Sage Scrub community.

Once reclassified to the appropriate categories for impact analysis, the vegetation on the site is easily understood as a mix of Venturan Coastal Sage Scrub, Mule Fat Scrub, Southern Willow Scrub, and Non-native Grassland as recognized in the Holland classification system.

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The "disturbed habitat" category is especially problematic because it does not distinguish vegetated from unvegetated areas or represent the character of the vegetation community. The 2003 Dudek report describes these areas as weedy or bare ground, mostly fennel and black mustard. This classification is misleading for several reasons. First, these exotic plants can and do serve as nesting or foraging habitat for sensitive bird species and provide habitat for prey of sensitive bird species. Second, although fennel may be dominant in a site, the understory can support native plant species.[15] Third, native mammals and amphibians can be found in fennel and mustard areas. These vegetation types should be mapped separately from bare ground and investigated to see if they are monocultures of weeds or whether a remnant scrub community is found in the understory, as often occurs with fennel.

The habitat maps provided in the RRDEIR inexplicably fail to distinguish all of the habitat types. Rather, a series of vegetation types is lumped together so that it is impossible to tell where they occur on the map (Exhibit 4-12.2). The technical appendix does not provide a map with unique colors for each vegetation type, and the "pocket map" described in the technical appendix is not found in the printed RDEIR or online. A map showing the location of Mule Fat Scrub, Southern Willow Scrub, and other land use categories (e.g., "developed") must be provided to allow complete analysis of biological impacts.

3.2. Species Surveys

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The surveys for both plant and animal species are deficient and the assumptions based on those surveys should be reconsidered in the impact assessment process.

3.2.1. Plant Surveys

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One of the changes that distinguished the 2006 RDEIR from the original 2003 DEIR was the completion of a spring survey for plants, which was completed by BonTerra in 2004.[16] The 2004 spring survey calls into question the conclusions and assertions of the prior 2003 Dudek report, yet the 2003 Dudek report remains the source of the analysis in the 2006 RDEIR. The 2008 RRDEIR maintains that floral diversity is low (p. 4.12-9), citing Dudek's 2003 analysis claiming that only 55 native vascular plant species are found on the site. However, the total number of

15. Longcore, T.R. 1999. Terrestrial arthropods as indicators of restoration success in coastal sage scrub. Ph.D. dissertation, Department of Geography, University of California, Los Angeles.
16. BonTerra Consulting. 2004. Spring botanical survey for the West Coyote Hills project site, Orange County, California. BonTerra Consulting, Costa Mesa, California.

native vascular plant species located by Dudek in 2003 and BonTerra in 2004 is actually 80 (see Table 2), which is 45% more than identified in the 2006 RDEIR text. Local botanists have furthermore identified three more species from the site, which bring the total number of native plant species to 83.

Table 2. Vascular plant species from West Coyote Hills reported by project consultants. Species not recorded by Dudek in 2003 marked "D"; species not recorded by BonTerra in 2006 marked "B". Additional species recorded by Constance Spenger. Scientific nomenclature follows *The Jepson Manual.*[17]

Species (by Family)	Common Name	Not Found By
DICOTS		
Pteridaceae		
1. *Pellaea andromedifolia*	coffee fern	D
2. *Pentagramma triangularis* var. *viscosa*	silverback fern	
Anacardiaceae		
3. *Malosma laurina*	laurel sumac	B
4. *Rhus integrifolia*	lemonadeberry	
5. *Rhus trilobata*	skunkbrush	B
6. *Toxicodendron diversilobum*	poison oak	
Asclepiadaceae		
7. *Sarcostemma cynanchoides* ssp. *hartwegii*	climbing milkweed	
Asteraceae		
8. *Acourtia microcephala*	sacapellote	D
9. *Ambrosia confertiflora*	ragweed	
10. *Ambrosia psilostachya*	western ragweed	D
11. *Artemisia californica*	California sagebrush	
12. *Baccharis pilularis*	coyote bush	
13. *Baccharis salicifolia*	mule fat	
14. *Baccharis sarothroides*	broom baccharis	D
15. *Brickellia californica*	California brickellbush	D
16. *Cirsium occidentale* var. *californicum*	California thistle	
17. *Conyza canadensis*	horseweed	
18. *Encelia californica*	California encelia	
19. *Encelia farinosa*	brittlebush	
20. *Ericameria palmeri* var. *pachylepis*	goldenbush	B
21. *Eriophyllum confertiflorum*	golden-yarrow	B
22. *Gnaphalium bicolor*	bicolor cudweed	
23. *Gnaphalium californicum*	California everlasting	D
24. *Gnaphalium canescens*	everlasting	
25. *Gutierrezia sarothrae*	matchweed	
26. *Helianthus gracilentus*	slender sunflower	D
27. *Heterotheca grandiflora*	telegraph weed	
28. *Isocoma menziesii*	coastal goldenbush	

17. Hickman, J.C. (ed.). 1993. *The Jepson manual: higher plants of California.* University of California Press, Berkeley.

29. *Lessingia filaginifolia*	California-aster	
30. *Osmadenia tenella*	osmadenia	D
31. *Senecio flaccidus* var. *douglasii*	Douglas' groundsel	
32. *Stephanomeria* sp.	wreathplant	D
33. *Xanthium strumarium*	cocklebur	
Boraginaceae		
34. *Amsinckia menziesii*	rancher's fiddleneck	
35. *Cryptantha* sp.	cryptantha	D
36. *Pectocarya* sp.	pectocarya	D
37. *Plagiobothrys* sp.	popcornflower	B
Cactaceae		
38. *Opuntia littoralis*	prickly-pear	
39. *Opuntia prolifera*	cholla	
Caprifoliaceae		
40. *Sambucus mexicana*	Mexican elderberry	
Chenopodiaceae		
41. *Atriplex lentiformis*	big saltbush	D
Convolvulaceae		
42. *Calystegia macrostegia*	morning-glory	D
Crassulaceae		
43. *Crassula connata*	pygmy-weed	
44. *Dudleya lanceolata*	lance-leaved dudleya	B
Cucurbitaceae		
45. *Cucurbita foetidissima*	stinking gourd	
46. *Marah macrocarpus*	wild cucumber	
Cuscutaceae		
47. *Cuscuta californica*	dodder	
Euphorbiaceae		
48. *Croton californicus*	California croton	
Fabaceae		
49. *Lotus scoparius*	deerweed	
50. *Lupinus bicolor*	miniature lupine	D
Fagaceae		
51. *Quercus berberidifolia*	interior scrub oak	
Hydrophyllaceae		
52. *Eucrypta chrysanthemifolia*	common eucrypta	
53. *Phacelia ramosissima*	branching phacelia	D
54. *Phacelia distans*	common phacelia	D, B
Lamiaceae		
55. *Salvia apiana*	white sage	
56. *Salvia mellifera*	black sage	D
Malvaceae		
57. *Malocothamnus fasciculatus*	chaparral mallow	B
Nyctaginaceae		
58. *Mirabilis californica*	wishbone bush	
Onagraceae		
59. *Camissonia bistorta*	California sun cup	
60. *Camissonia micrantha*	miniature sun cup	D, B
61. *Epilobium canum*	California fuschia	

Polygonaceae		
62. *Chorizanthe staticoides*	Turkish rugging	D
63. *Eriogonum elongatum* var. *elongatum*	wand buckwheat	D
64. *Eriogonum fasciculatum*	California buckwheat	
Rosaceae		
65. *Heteromeles arbutifolia*	toyon	
Rubiaceae		
66. *Galium angustifolium*	narrow-leaved bedstraw	
Salicaceae		
67. *Salix gooddingii*	Goodding's black willow	
68. *Salix lasiolepis*	arroyo willow	B
Scrophulariaceae		
69. *Keckiella cordifolia*	heartleaf penstemon	B
70. *Mimulus aurantiacus*	redbush monkeyflower	
Solanaceae		
71. *Datura wrightii*	Jimson weed	D
72. *Nicotiana clevelandii*	Cleveland's tobacco	D
Urticaceae		
73. *Urtica dioica* ssp. *holosericea*	hoary nettle	D
Verbenaceae		
74. *Verbena lasiostachys* var. *lasiostachys*	western verbena	D
Violaceae		
75. *Viola pedunculata*	California violet	D, B
MONOCOTS		
Liliaceae		
76. *Calochortus splendens*	splendid mariposa lily	D
77. *Calochortus weedii* var. *intermedius*	intermediate mariposa lily	D
78. *Chlorogalum pomeridianum*	amole	B
79. *Dichelostemma capitatum*	blue dicks	D
Poaceae		
80. *Leymus condensatus*	giant wild rye	
81. *Melica imperfecta*	coast range melic	
82. *Nassella lepida*	small-flowered needlegrass	
83. *Nassella pulchra*	purple needlegrass	

The number of plant species missed by Dudek in the 2003 report is of great concern. First, it shows that the text of the RRDEIR contains factual errors and bases conclusions (e.g., low floristic diversity) on those errors.[18] Second, it shows that Dudek's surveys were not sufficient, notwithstanding their claims of adequacy: "[G]iven the many visits to the site (69 focused visits and over 221 mitigation monitoring visits) between 1994 and 2003, Dudek believes that the data present within this report is representative of the flora and fauna on site."[19] Dudek further claimed that, "plant surveys during the survey were considered a comprehensive listing of what would be

18. Other errors abound in the report. The most glaring is a claim that "[W]inter lows range from the mid-20s to mid-40s. There are generally 220 to 300 frost-free days per year" (RDEIR Appendix 14.12-1, p. 26). It would probably come as a great surprise to the residents of Fullerton to learn that they experience more than 65 freezing days per year.
19. Dudek Report 2003. p. 26

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present at the site."[20] If Dudek missed more than three of every ten native plant species (25 of 83) on their extensive visits between 1994 and 2003, they very likely missed other significant elements of the natural community, particularly cryptic wildlife species. This illustrates that incidental observations during visits for other reasons are not adequate to locate sensitive species or to describe the floral (or faunal) resources on a site.

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The greater number of native plant species also undercuts the spurious argument set forth by Dudek in the technical appendix that the flora is depauperate compared with other locations outside of northern Orange County. These comparison locations are in San Diego County, which is inappropriate because San Diego County is richer floristically than northern Orange County. Comparison sites also differ from the subject site in topography and habitat diversity, further undercutting Dudek's argument. Dudek's statements about the site being floristically poor were made based on an assumption that fewer than 50 native plants were found on site.[21] The RRDEIR compares the site to two other Orange County sites, neither of which are valid comparisons to West Coyote Hills (p. 4.12-7). West Coyote Hills is a significant example of coastal sage scrub and cactus scrub habitat with excellent examples of ephemeral riparian features. It should not be compared to sites that have a different mix of vegetation types.

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Comparison of the species located by Dudek and BonTerra also reveal potential misidentifications. In the family Boraginaceae, Dudek claimed to have located *Plagiobothrys* without identifying the species, while BonTerra did not find *Plagiobothrys* but reported *Cryptantha* and *Pectocarya*, again without identifying species. It is possible that all three of these genera are present; the likely species are *Cryptantha intermedia*, *Pectocarya linearis*, and *Plagiobothrys canescens*.[22] These plants should have been determined to species, because the genus *Plagiobothrys* contains a species (*P. trachycarpus*) that could be present and that can indicate vernal pools, which are sensitive resources and which can in turn be habitat for listed species.[23]

17

It is also noteworthy that the 2003 Dudek report did not list lemonadeberry in its compendium of vascular plants, even though the text of the Dudek report asserts that lemonadeberry dominates one of the vegetation types.[24]

18

When survey effort is inadequate, additional surveys locate additional species.[25] In the most extreme example, if an observer visits a site once, he or she is highly likely to observe additional species on a subsequent visit. This is also true if all initial visits are during one season and then additional surveys are conducted during a different season. In scientific studies, the increasing

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20. Dudek Report 2003, p. 22
21. Dudek Report 2003, p. 32.
22. Schneider Ljubenkov, J.A., and T.S. Ross. 2001. An annotated checklist of the vascular plants of the Whittier Hills, Los Angeles, County, California. *Crossosoma* 27:1–23.
23. Hickman, J.C. (ed.). 1993. *The Jepson manual: higher plants of California.* University of California Press, Berkeley; Mattoni, R.H.T., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 23(2):71–102.
24. Dudek Report 2003, p. 33.
25. Magurran, A.E. 1988. *Ecological diversity and its measurement.* Princeton University Press, Princeton, New Jersey.