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

March 3, 2008

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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.

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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]

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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]

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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.

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number of species with survey effort is plotted and called a "species accumulation curve."[26] Survey effort is considered to be adequate when this curve levels off and very few new species are located on additional visits. The large increase in additional species found during the Bon-Terra survey suggests with certainty that additional plant species will be found on site with more survey effort. For example, the faunal surveys recorded the presence of a fritillary butterfly identified as *Spyeria* sp.[27] Larvae of all species of this butterfly genus feed on plants in the genus *Viola* (violets).[28] No *Viola* species, however, was recorded either by Dudek or BonTerra. It is therefore likely that subsequent surveys would locate violets, and indeed local naturalists have identified *Viola pedunculata* on site. Conclusions about the floristic diversity of the site are consequently premature because survey effort has obviously not been adequate because the species accumulation curve has not leveled off. The location of additional plant species by BonTerra indicates that additional surveys at different times during the year are necessary. The "69 focused visits" and "221 mitigation monitoring visits" were inadequate because they were either improperly timed or did not involve thorough surveys of the project site.

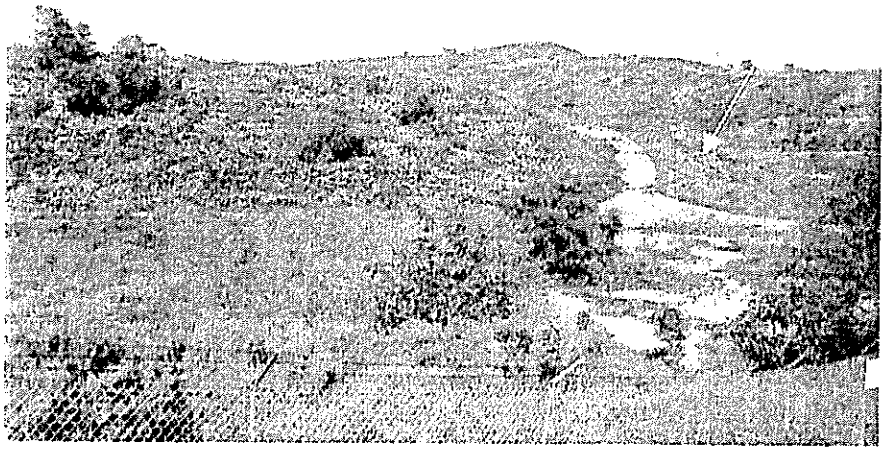

Figure 1. The area indicated by the arrow to the right of the dirt road leading up the hill is dominated by *Opuntia* but is not mapped as cactus scrub in the RRDEIR, showing that the vegetation map in the RRDEIR does not reflect existing site conditions.

The vegetation mapping is now out of date and must be updated to interpret the current distribution of sensitive animal species and evaluate project impacts. Based on current aerial photo-

26. *Ibid.*
27. Dudek Report 2003, p. B-10.
28. Emmel, T.C., and J.F. Emmel. 1973. The butterflies of southern California. *Natural History Museum of Los Angeles County Science Series* 26:1–148.

graphs and a site visit to the perimeter of the property on February 25, 2008, it is obvious that areas not mapped as coastal sage scrub or cactus scrub in the 1998 vegetation map now supported these habitats. For example, the terraced zone on the west side of Gilbert Avenue now supports a preponderance of coastal sage scrub species. Another site, at the southern extent of Gilbert Avenue, is clearly cactus scrub (Figure 1) but it is mapped in white, designating non-scrub habitat in the RRDEIR (Exhibit 4.12-5).

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3.2.2. Wildlife Surveys

As with Dudek's flawed and out of date attempt to accurately account for the site's floral species, the RRDEIR's faunal surveys are equally deficient. The surveys for wildlife were insufficient to draw conclusions about the diversity of species on site. As acknowledged in the 2003 Dudek report, no focused trapping was conducted for mammals or reptiles,[29] and no methodology for locating amphibians was discussed. As shown above for plants, even though Dudek biologists visited the site many times, they did not detect a large proportion of the plant species. It is similarly unlikely that they detected all species of reptiles and mammals, especially because most of these species are nocturnal or cryptic. The surveys for reptiles were inadequate because they did not include pitfall trapping, which is the best technique to discover presence of cryptic or rare species.[30] Pitfall trapping samples over a wider temporal window (all day, for days) and is less reliant on observer abilities. The pitfall method is limited by the "catchability" of species, and so can be supplemented by other methods. It is likely that the RRDEIR does not record all sensitive mammal, reptile, and amphibian species on site because of the failure to use a scientifically designed monitoring protocol to detect those sensitive species that might be present. For example, there is a credible record of coast horned lizard (*Phrynosoma blainvillii*) on site (C. Spenger, personal communication), yet the RRDEIR provides no explanation why a rigorous survey for this species was not completed. Coast horned lizard is a California Species of Special Concern with appropriate habitat and food sources (native harvester ants) present on site. The RRDEIR relies on Dudek's assertion that their biologists would have noticed the species on their many visits to the site for other purposes. This is not, however, a scientifically defensible conclusion; incidental observations are inadequate to describe the reptile fauna of any site.

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The studies for the RRDEIR should have included surveys for sensitive vernal pool species. By reporting the absence of spadefoot toads (*Spea hammondii*) from the "pools onsite" in the RDEIR (p. 4.12-19), Dudek acknowledged that vernal pools existed, and indeed pools are not difficult to find (Figure 2). If pools suitable for spadefoot toad were present on site it is possible that these pools supported populations of sensitive fairy shrimp species.

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The RRDEIR argues that vernal pools are not present on the project site (p. 4.12-35). This assertion is based on an assumption that "vernal pool" refers to a vegetation type only. The term "vernal pool," however, may be used to refer to pools with standing water during the winter and spring, regardless of the presence of certain plant species. As defined by the U.S. Fish and Wild-

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29. Dudek Report 2003, p. 26.
30. Hirsch, R., S. Hathaway, and R.N. Fisher. 2002. Herpetofauna and small mammal surveys on the Marine Corps Air Ground Combat Center, Twentynine Palms, CA. March 1999–October 2001. USGS Western Ecological Research Center, Sacramento, California. 21 pp.

life Service ("USFWS"), "a vernal pool is a natural habitat of the Mediterranean climate region of the Pacific coast covered by shallow water for extended periods during the cool season but completely dry for most of the warm season drought."[31] The definition of the term is hydrological, not botanical. The RRDEIR should therefore explicitly disclose that the statement "no vernal pools" refers to a botanical definition. Given the near complete destruction of vernal pools in the Los Angeles basin,[32] even loss of sites with vernal pool hydrology and any remnant species (plant or invertebrate) represents a significant impact. It is possible that the pools that do form on compacted soils on site support populations of sensitive or listed species such as Riverside fairy shrimp or spadefoot toad. These species do not depend on the presence of specific plant species or soil conditions, only the presence of the pools.

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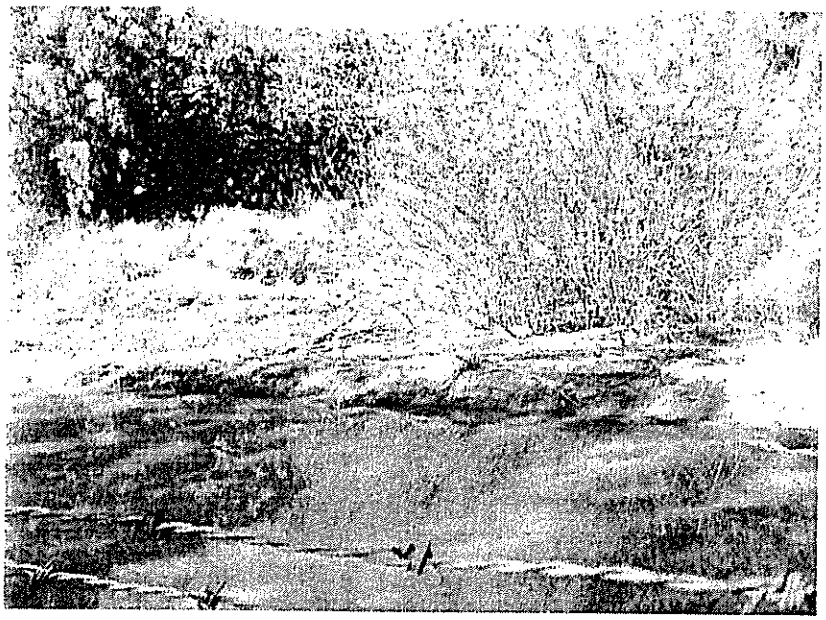

Figure 2. This pool formed in a dirt road along the southern project site boundary. Pools of this type can support wildlife species that depend on ephemeral aquatic habitats, such as fairy shrimp and spadefoot toad. That the pool formed on a dirt road is irrelevant to its habitat value to sensitive species. Photograph taken February 25, 2008.

Surveys for burrowing owl were insufficient to detect use of the site as wintering or breeding habitat. The focused surveys reported in the RRDEIR amounted to two days in March during only one year.[33] CDFG survey guidelines for burrowing owl require visits during the wintering

31. Zedler, P.H. 1987. *The ecology of southern California vernal pools: a community profile.* U.S. Fish and Wildlife Service Biological Report 85(7.11), p 1.
32. Mattoni, R., and T.R. Longcore. 1997. The Los Angeles Coastal Prairie, a vanished community. *Crossosoma* 26(2):71–102.
33. BonTerra Consulting. 2005. Results of focused presence/absence surveys for the burrowing owl, West Coyote Hills community project, City of Fullerton, Orange County. BonTerra Consulting, Costa Mesa, California.

season and breeding season.[34] Winter surveys should be conducted between December 1 and January 31 (not March) and nesting surveys between April 15 and July 15. The surveys should include a map of habitat elements, which is missing from the RRDEIR. Furthermore, the guidelines state that sites should be considered occupied for three years after owls were most recently observed. Burrowing owls were observed in West Coyote Hills in 2002 so the site was used by the species upon initiation of the CEQA analysis.[35] The presence of burrowing owls on the site is of great importance to determining significance of impacts, because this species has declined precipitously in cismontane southern California, particularly in Orange County.[36]

The RRDEIR does not report results of any surveys for bats, even though the 2003 Dudek report acknowledges that, "It is likely that other rodent and bat species also reside onsite."[37] Commercial technology is readily available to survey for bats by listening for their echolocation calls. Mist-netting is also an effective method to survey for bats. Recent (2005–2006) surveys in nearby Puente Hills[38] recorded the following nine species of bat, including two California Species of Special Concern (in bold):

Lasiurus blossevillii
Tadarida brasiliensis
Eptesicus fuscus
Pipistrellus hesperus
Myotis yumanensis
Nyctinomops femorosaccus
Eumops perotis
Lasiurus cinereus
Lasiurus xanthinus

Surveys using either equipment to detect echolocation or mist nets must be completed to determine the project's impact on sensitive bat species.

As demonstrated above, the RRDEIR fails to accurately survey for wildlife on the project site. Without comprehensive surveys using appropriate guidelines, it is impossible to determine whether the RRDEIR accurately depicts the value of the site for wildlife. As a result, and as discussed more fully below, the document cannot evaluate the project's impacts on wildlife.

The RRDEIR also fails to provide adequate information about the location of sensitive species on site. The map for sensitive species (Exhibit 4.12-2) shows locations only for California gnatcatchers. It is, however, relevant and important to impact analysis to know the location of other sensitive species as well. For example, rufous-crowned sparrows were observed and are proba-

34. California Department of Fish and Game. 1995. Staff report on burrowing owl mitigation. California Department of Fish and Game, Sacramento; *see also* California Burrowing Owl Consortium. 1993. *Burrowing owl survey protocol and mitigation guidelines.*
35. BonTerra Consulting. 2005. Results of focused presence/absence surveys for the burrowing owl, West Coyote Hills community project, City of Fullerton, Orange County. BonTerra Consulting, Costa Mesa, California.
36. *Ibid.*
37. Dudek Report 2003, p. 38.
38. A. Henderson, Puente Hills Native Habitat Authority, personal communication.

bly breeding "in center of site" (p. 4.12-18). With the existing level of detail it is impossible to know if this area will be impacted by development or not. 22

4. Impact Analysis and Mitigation

The RRDEIR does not substantively improve the impact analysis from the RDEIR. The RRDEIR introduces a section called "Analytical Methods" (p. 4.12-3), which provides little additional guidance on how significance determinations were made. The relevant text reads, "Determine potential impacts and assign level of significance" (p. 4.12-4), which is not particularly informative. 23

The impact and mitigation analysis is plagued by a reliance on mitigation measures that have not yet been formulated. Failure to provide the details of proposed mitigation deprives the public of the opportunity to assess whether those measures will be effective in offsetting the project's significant impacts. For example, Mitigation Measure 4.12-2 states that impacts to wetlands will be offset by implementing mitigation measures that will be formulated in conjunction with the California Department of Fish and Game and the U.S. Army Corps of Engineers. While permits must be obtained from these entities independently (under Section 1600 of the California Fish and Game Code and under the federal Clean Water Act), these future permits cannot substitute for the formulation and full description of mitigation measures that address the impacts under CEQA. 24

The mitigation analysis seems to take credit for lands set aside for mitigation on other projects as mitigation for the current project. The RRDEIR states that 64.4 acres of habitat on site have already been set aside as mitigation under prior permits issued by the U.S. Fish and Wildlife Service (p. 4.12-49). Such mitigation areas cannot be used as mitigation for the current project. It is therefore inappropriate for the mitigation analysis in the RRDEIR to refer to only 36.7 acres of previously protected areas (Table 4.12-11). By this description it certainly appears that the RRDEIR is attempting to reuse 27.7 acres of mitigation land as mitigation for a second project. The only other alternative is that the description of the mitigation is so confusing that something else is going on, but as written the only rational conclusion is that the project is attempting to recycle mitigation lands. 25

4.1. Direct Impacts

The RRDEIR reaches the nonsensical conclusion that even though over half of the undeveloped land in the project area will be developed under the plan (54%; 260.6 acres of 481.3 acres) there will be no significant impacts resulting from the loss of this habitat. The Pacific Coast Homes portion of the project will actually develop closer to 64% of the undeveloped land, but the inclusion of the already protected nature preserve in the Specific Plan makes the impact a smaller proportion of the overall area, "watering down" the apparent impact of the development. The conclusion that this would not constitute a significant impact is not supported by the scientific literature. 26

It is a fundamental truth of ecology that species number increases with area. Scientists have firmly established the predictable relationship between habitat area and the number of species 27

supported by that area.[39] The relationship, referred to as the "species–area curve," is expressed by the equation $S = cA^z$ where S is number of species, A is area, and c and z are constants that vary by the ecosystem type and the geographic configuration of the area. If A decreases, then S also decreases. For mainland fragments, such as the West Coyote Hills, data have shown that when area is reduced by a factor of ten, the number of species is diminished by half. For the Pacific Coast Homes portion of the site, the destruction of roughly 60% of the wildlife habitat area will reduce the number of species supported by the site in any particular taxonomic group (e.g., birds, mammals, reptiles, amphibians) by 20%. Sensitive species are likely to be the ones that would be eliminated by the proposed development, simply through the loss of habitat area. These losses are to be predicted even if some of the vegetation to be lost is not native. Non-native vegetation and disturbed areas, as long as they are still open space, can and do support a wide array of native wildlife species.

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The mechanisms of loss of species following reductions in habitat area are many. Some losses occur because some species require a large range and the reduced habitat area following development will be too small. Some species are sensitive to edges and the proposed development would introduce extensive edge effects throughout the open space. Some species are restricted to particular physical conditions (e.g., hydrology, slope, soils, etc.) that would be lost. Some species will go extinct locally because the reduced area will be insufficient to support a viable population. Through these many mechanisms, it is a certainty that the proposed project would decrease the wildlife diversity at the site and it is nearly as certain that several of the species that would be eliminated will be species of regulatory concern.

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4.1.1. Vegetation

The RRDEIR lacks a coherent framework to assess impacts on sensitive natural communities, which are defined by dominant vegetation. The RRDEIR relies on the conclusion in the 2004 USFWS Biological Opinion that the proposed project will not jeopardize California gnatcatcher as evidence that impacts to sensitive coastal sage scrub habitats will not be significant after mitigation. This reliance is wholly inappropriate because the Biological Opinion pertains only to California gnatcatcher, not to the entire coastal sage scrub community. Not all species that use coastal sage scrub have the same habitat preferences as California gnatcatchers. Furthermore, USFWS has requested that consultation be reinitiated, meaning that the conclusions in the previous Biological Opinion do not apply to the current design of the project. The RRDEIR must analyze the significance of the loss of properly described sensitive vegetation types in a manner that considers the whole sensitive natural community and not just one target species. Only when the RRDEIR conducts this critical analysis can it then identify whether mitigation measures might be capable of eliminating or minimizing these significant impacts.

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The area and quality of coastal sage scrub habitats on site support a full range of coastal sage scrub specialist species. Birds (discussed in detail below) provide an excellent indication of the value of this sensitive vegetation. California Partners in Flight (a public/private collaborative dedicated to conservation of birds in California) has developed a series of bird conservation

39. Arrhenius, O. 1921. Species and area. *Journal of Ecology* 9(1):95–99; Preston, F.W. 1948. The commonness, and rarity, of species. *Ecology* 29(3):254–283.

plans for declining habitats. The bird conservation plan for coastal sage scrub and chaparral includes 12 target bird species that indicate the quality of the habitat.[40] For coastal sage scrub (that is, excluding higher elevation chaparral species) these are:

- Cactus wren (*Campylorhynchus brunneicapillus*)
- California gnatcatcher (*Poplioptila californica*)
- Costa's hummingbird (*Calypte costae*)
- Greater roadrunner (*Geococcyx californianus*)
- Lesser nighthawk (*Chordeiles acutipennis*)
- Nuttall's white-crowned sparrow (*Zonotrichia leucophrys nuttalli*)
- Rufous-crowned sparrow (*Aimophila ruficeps*)
- Sage sparrow (*Amphispiza belli*)
- Wrentit (*Chamaea fasciata*)

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All of these species are found in the West Coyote Hills, indicating that it represents a significant area of high-quality habitat for coastal sage scrub birds.

Any impacts to Venturan Coastal Sage Scrub are usually considered to be significant by California Department of Fish and Game because of the rarity of this habitat. We have illustrated above why the toyon–sumac chaparral should be considered to be part of Venturan Coastal Sage Scrub.[41] Consequently the project will cause short- and long-term impacts to 159.4 acres of Venturan Coastal Sage Scrub.

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The RRDEIR, through its mitigation measures, essentially asserts that restored coastal sage scrub is equal in value to natural coastal sage scrub. This assumption is not supported by the scientific literature.[42] Ecological restoration is difficult at best and many projects fail for many reasons in recreating whole communities (not just habitat for single target species).[43] Research on coastal sage scrub showed that in the case of three restoration projects, native arthropod diversity was significantly lower at restoration sites (even up to ten years old) than at comparable reference sites.[44] Another study using arthropods to evaluate restored riparian woodland in California found significantly lower numbers of predaceous and parasitic arthropods at restored sites.[45]

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40. CalPIF (California Partners in Flight). 2004. Version 2.0. The coastal scrub and chaparral bird conservation plan: a strategy for protecting and managing coastal scrub and chaparral habitats and associated birds in California (J. C. Lovio, lead author). PRBO Conservation Science, Stinson Beach, California. Online: http://www.prbo.org/calpif/plans.html.
41. 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.
42. *See* Longcore, T. 2003. Terrestrial arthropods as indicators of restoration success in coastal sage scrub (California, U.S.A.). *Restoration Ecology* 11(4):397–409.
43. Longcore, T., R. Mattoni, G. Pratt, and C. Rich. 2000. On the perils of ecological restoration: lessons from the El Segundo blue butterfly. Pp. 281–286 *in* J. Keeley, M. Baer-Keeley, and C.J. Fotheringham, eds. *2nd interface between ecology and land development in California*, U.S. Geological Survey Open-File Report 00-62, Sacramento, California.
44. Longcore, T. 2003. Terrestrial arthropods as indicators of restoration success in coastal sage scrub (California, U.S.A.). *Restoration Ecology* 11(4):397–409.
45. Williams, K.S. 1993. Use of terrestrial arthropods to evaluate restored riparian woodlands. *Restoration Ecology* 1:107–116.