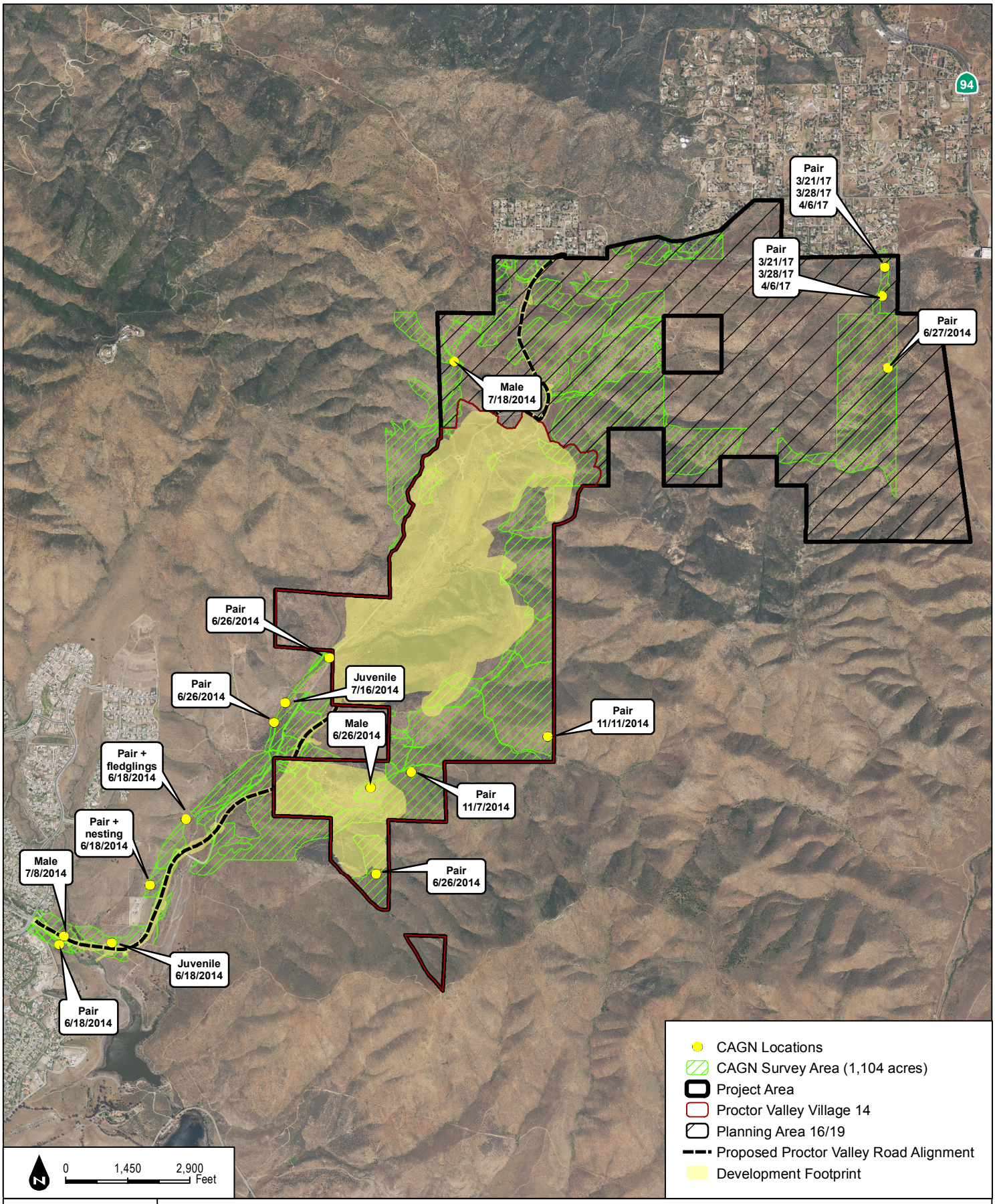

DUDEK

SOURCE: NAIP 2016; Hunsaker 2017

FIGURE 3-2

California Gnatcatcher Survey Area and Results

Otay Ranch Village 14 and Planning Areas 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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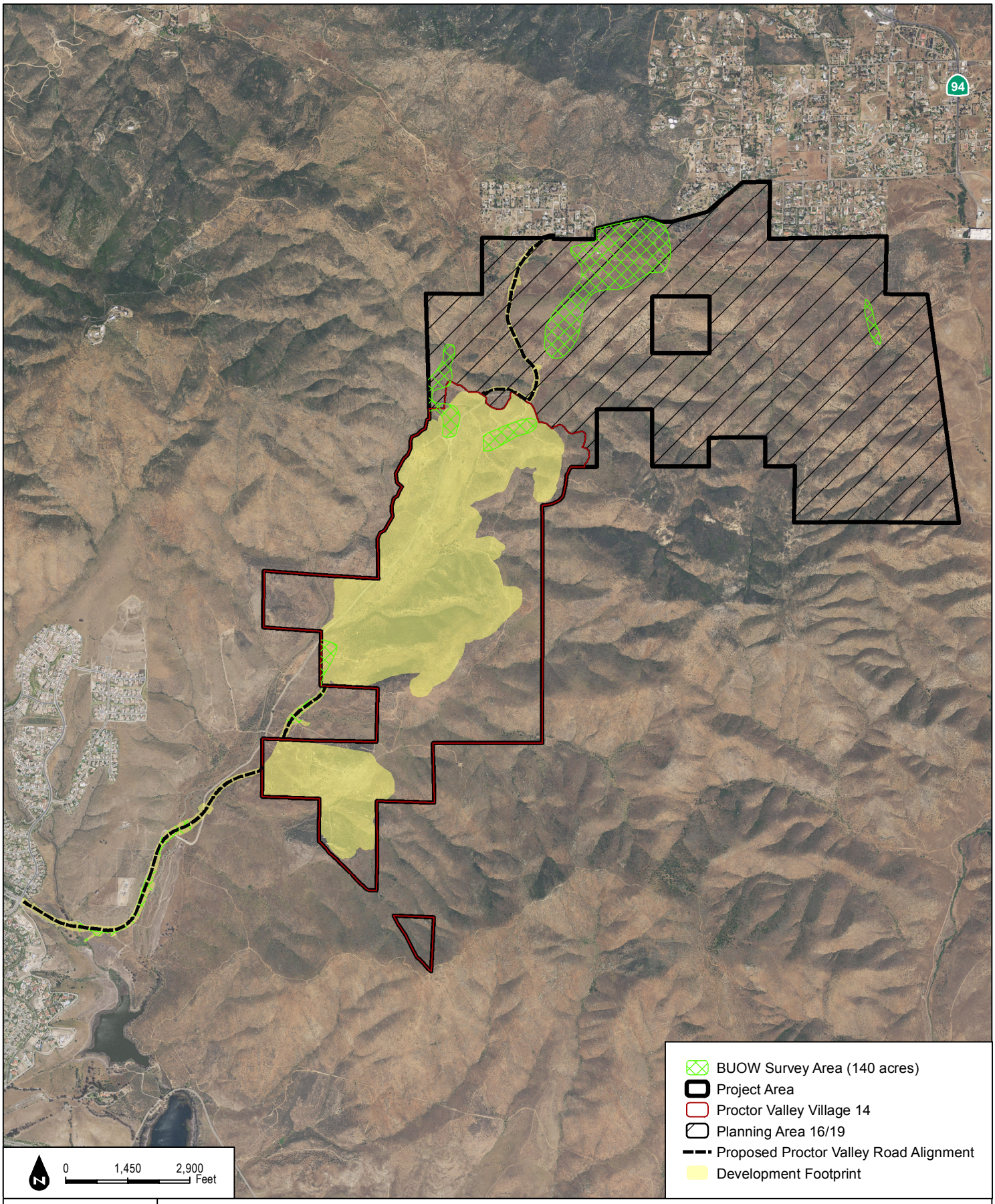

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SOURCE: NAIP 2016; Hunsaker 2017

FIGURE 3-3

Burrowing Owl Survey Area

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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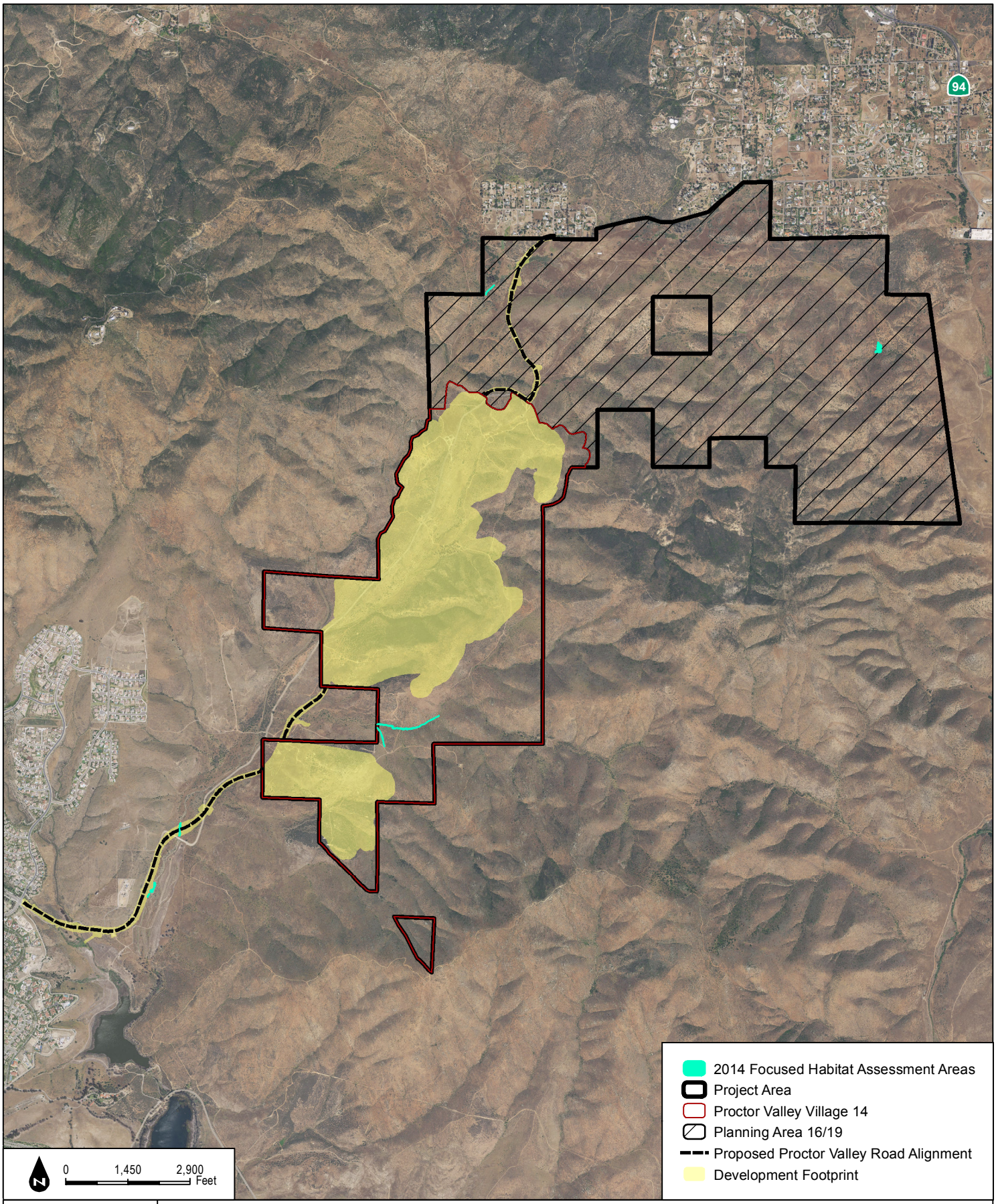

SOURCE: NAIP 2016; Hunsaker 2017

FIGURE 3-4

Arroyo Toad Habitat Assessment

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Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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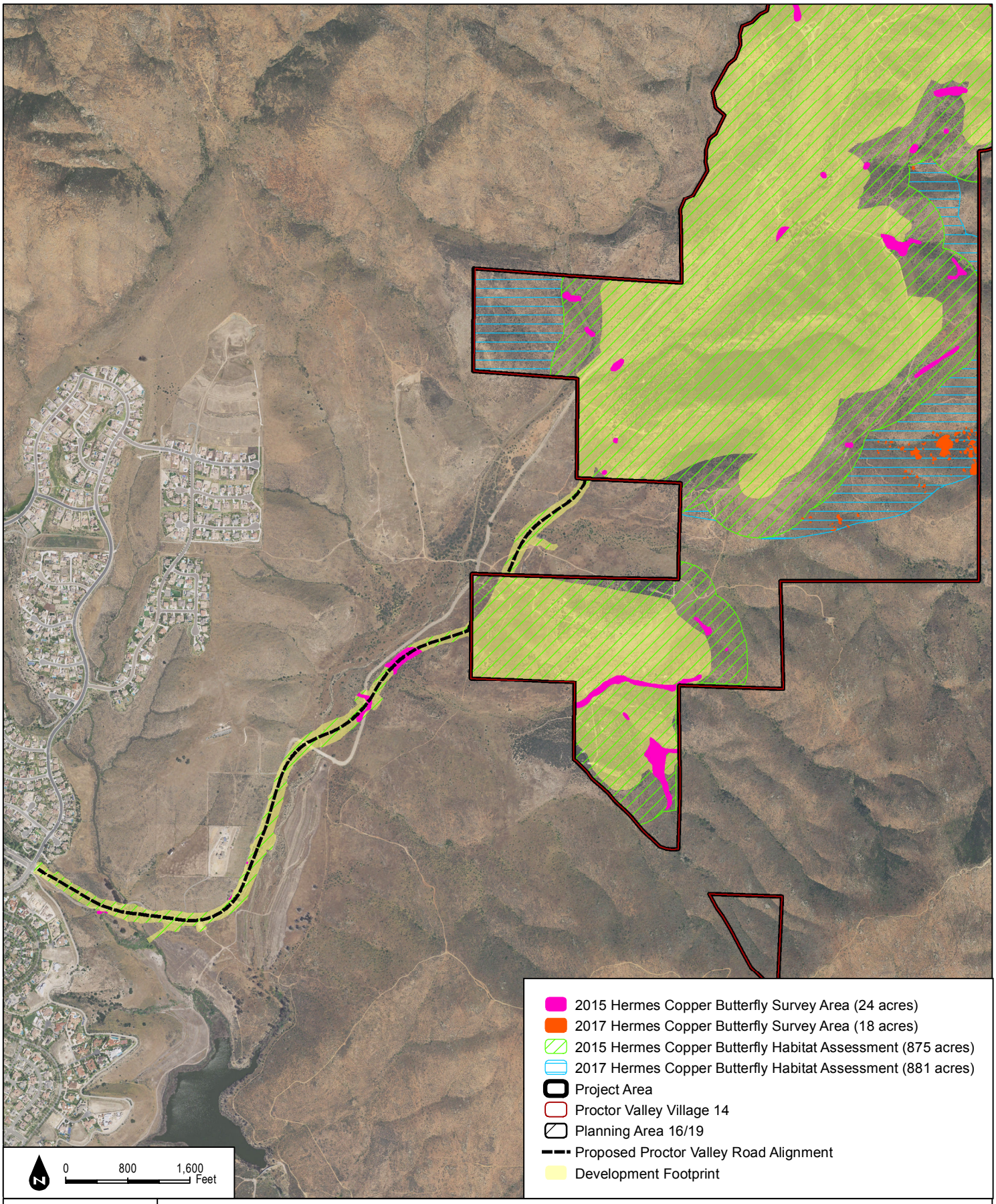

DUDEK

SOURCE: NAIP 2016; Hunsaker 2017

FIGURE 3-5a

Hermes Copper Survey Area

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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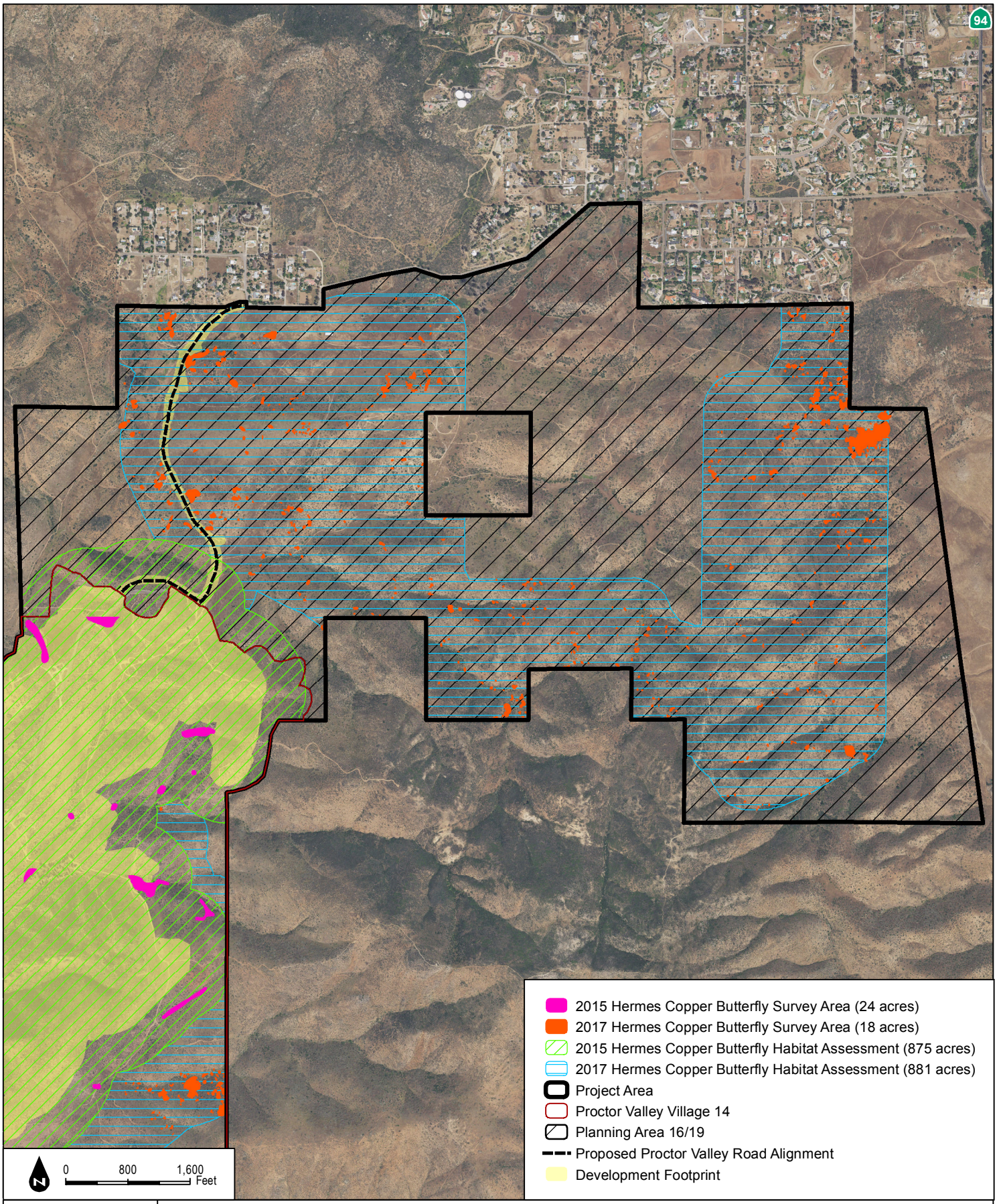

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SOURCE: NAIP 2016; Hunsaker 2017

FIGURE 3-5b

Hermes Copper Survey Area

Otay Ranch Village 14 and Planning Area 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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3.3.8 San Diego and Riverside Fairy Shrimp Surveys

San Diego and Riverside fairy shrimp are both federally listed as endangered species, and both are Covered Species under the MSCP. However, a 2006 lawsuit against the City of San Diego challenged the City of San Diego's MSCP Subarea Plan under FESA, claiming that the City of San Diego's MSCP Subarea Plan did not provide adequate protections for vernal pools or listed fairy shrimp (*Southwest Center for Biological Diversity v. Bartel*, 470 F.Supp.2d 1118, 1130-1133 (S.D. Cal. 2006)). Because the court in that case invalidated the City of San Diego's MSCP Subarea Plan coverage for fairy shrimp, and because the MSCP County Subarea Plan includes fairy shrimp coverage provisions similar to those in the City of San Diego's MSCP Subarea Plan, the County has taken the position that the MSCP County Subarea Plan does not provide FESA take coverage for San Diego or Riverside fairy shrimp. This report, however, was prepared to provide technical support for the County's CEQA analysis and does not address "take" issues per se, as those are covered under a different statute, namely the FESA.

An assessment and mapping of potential features (i.e., vernal pools, ephemeral basins, and road ruts) was conducted throughout the study area in April and June 2014. The study area used for conducting vernal pool branchiopods habitat assessment and surveys included areas outside of the Land Exchange Area that could be impacted by the Land Exchange Alternative. During these efforts, Dudek biologists reviewed the specific on-site microhabitats (e.g., flat topography, soil types, and slopes) and the potential vernal pool locations provided in the Proctor Valley Vernal Pool Restoration Plan (AECOM and Hogan 2012). Following the onset of winter rainstorms in December 2014, Dudek biologists holding federal permits (i.e., 10(a)(1)(A) Recovery Permit) for fairy shrimp implemented a protocol-level wet-season survey in accordance with the USFWS survey protocol for listed fairy shrimp species (USFWS 1996). A total of 11 survey sampling visits were completed throughout the 2014/2015 wet season, which ceased when all features were observed dry again in June 2015. A total of 81 features were identified and sampled during the 2014/2015 wet-season survey, which were mapped with a GPS unit and the presence of fairy shrimp was recorded (Figures 3-6a through 3-6i, Fairy Shrimp Survey Area and Results). Of the identified features, only one—Feature B2 (located within lands owned by CDFW and outside of the Land Exchange Area)—would be considered a vernal pool. The remaining features are categorized as road ruts or ephemeral basins. The results of these surveys are discussed in Section 4.6.1 of this report. The survey reports are provided in Appendix F, Fairy Shrimp Survey Reports.

Subsequent to the 2014/2015 wet season survey and the USFWS release of new survey guidelines for listed large branchiopods (adopted May 31, 2015), dry-season sampling was authorized by USFWS and was conducted according to the 2015 guidelines (USFWS 2015b). The soil sample collection was conducted by Dudek biologist Thomas Liddicoat (Permit No. TE139634) on October 22, 2015 (Table 3-1). Based on the feature location in the study area (i.e., in and outside of

the Land Exchange Area) and the detection of fairy shrimp during the 2014/2015 wet-season survey, dry soil samples were collected from 40 of the 81 known features (Figures 3-6a through 3-6i). Samples were taken using a 6-inch-long hand trowel to excavate sample "chunks" of substrate from the upper 3 centimeters (1.2 inches) of soil. The hand trowel was cleaned between each feature prior to collection. Samples were collected at equal distances along two perpendicular transects (lengthwise and widthwise), incorporating the deepest region(s) of the feature and thoroughly sampling the feature surface area. If neither transect passed within the deepest region of the seasonal feature, another sample was taken to specifically include it. The amount of soil collected from each feature was proportional to the size of the feature and followed the direction provided in the USFWS guidelines. Features sampled were less than 24 square meters (260 square feet); therefore, no more than 11 samples (less than 100 milliliters (3.4 ounces) each), totaling 1 liter (34 ounces) composite samples per feature, were collected.

Immediately after sample collection, the soil was carefully placed into a brown paper lunch-sized bag and labeled according to the feature name. Sample bags from each feature were then placed into another paper bag or box for organization. Samples collected from the features were submitted to Charles Black of Ecological Restoration Service on the same day of collection (October 22, 2015). Results of the surveys are discussed in Section 4.6.1.

The samples were processed per the USFWS 2015 guidelines (USFWS 2015b) by Charles Black of Ecological Restoration Service (TE-835549). The collected samples were hydrated for approximately 1–2 hours in tap water and then washed through a set of sieves. Material passing through a Number 45 (0.0139-inch) USA Standard Testing Sieve, A.S.T.M.E.-11 specification and caught on a Number 70 (0.0083-inch) sieve was rinsed into a container with approximately 50 milliliters of a saturated brine solution to float organic material, including fairy shrimp cysts. The material floating on the brine was decanted onto a paper filter on a filter funnel, and water was removed through the filter paper by vacuum suction. The material left on the paper was examined under a 6.3-570x power Olympus SZX9 Zoom Stereo Microscope. Distinctive fairy shrimp cysts, if present, were individually counted (if less than approximately 50) or estimated (for larger numbers) by examining one-quarter or one-half subsections of the filter and multiplying the subset by the appropriate factor. The presence of ostracod shells and *cladoceran ephippia* were also noted in samples. Two fairy shrimp species were observed in some of the features in the Land Exchange Area, including versatile fairy shrimp (*Branchinecta lindahli*) and the federally endangered (FE) San Diego fairy shrimp (*B. sandiegonensis*) (Figures 3-6a through 3-6i).

Due to the new USFWS survey guidelines for fairy shrimp and the predicted El Niño conditions for the 2015/2016 wet season, Dudek biologists Thomas Liddicoat and Paul Lemons conducted another wet-season survey, with focus on areas within the Development Footprint and on Feature B9, which had an undetermined fairy shrimp identification during the 2014/2015 survey. The

survey was conducted from November 2015 through May 2016 in accordance with the USFWS 2015 survey guidelines (USFWS 2015b). A total of 19 survey visits were completed (Table 3-1). All identified features were observed dry in May 2016, thus concluding the 2015/2016 wet-season survey. During the 2015/2016 wet season, all 25 features identified and sampled were mapped using a GPS unit, and the presence of fairy shrimp was recorded were applicable (Figures 3-6a through 3-6i). The results of the surveys are discussed in Section 4.6.1 of this report. The survey report itself is provided in Appendix F.

Thomas Liddicoat conducted additional dry-season surveys on November 18, 2016. Dry soil samples were collected using the same techniques as the 2015 dry survey described above, and samples were taken from within 17 known features. The dry-season survey resulted in the detection of San Diego fairy shrimp in features in D4 and D9.

The Land Exchange Alternative has been designed to avoid all nine features supporting San Diego fairy shrimp (A12, A22, A23, A27, B2, C14, C21, D4, and D9).

3.3.9 Western Spadefoot

Generally, surveys to detect western spadefoot should begin early in the rainy season after adequate rainfall to identify areas of suitable habitat (i.e., ephemeral pooling or ponding) on site. The toad species is unique in that it spends the majority of the year underground in a state of torpor (i.e., dormancy). Western spadefoot digs a long and narrow tunnel and encapsulates itself several feet belowground. After substantial winter rainfall results in areas of pooling or ponding, toads emerge at night to forage and mate at vernal pools, pond edges, and along slow-moving stream courses.

To provide a better understanding of the distribution of western spadefoot within and adjacent to the Land Exchange Area focused surveys were conducted during the 2016/17 winter rain season. Spadefoot egg masses, tadpoles, and metamorphs were observed in a few areas adjacent to Proctor Valley Road and outside of the Land Exchange Area, by Dudek while conducting focused surveys for vernal pool fairy shrimp over the past 2 years. These recorded features include B2 (categorized as a vernal pool), and C1, C2, D1, D2, and D3 (all categorized as road ruts). The presence of the species adjacent to the Land Exchange Area prompted the need for focused surveys within the Land Exchange Area. Based on the past surveys conducted and Dudek's familiarity of the Land Exchange Area, 78 potential suitable habitat areas (i.e., pools/ponds) are located within the Land Exchange Area (Figure 3-7, Western Spadefoot Survey Areas). Known pooling areas were investigated for evidence of spadefoot. At each pool feature, a visual inspection was conducted to detect egg masses, tadpoles, metamorphs, and burrows. If the visual inspection did not result in the detection of the species, then immediate subsequent

dip-netting was performed to sample areas within the pooled area. If a pool was substantially turbid (i.e., not clear water), dip netting was performed. Data collected for each specific pool area that was found to support spadefoot included pool size, water depth, pool condition, water temperature, vegetation, and other species present. Once a pool was identified as supporting spadefoot, that pool was not resurveyed during subsequent field efforts. Results of the surveys are discussed in Section 4.6.1 of this report.

3.4 Survey Limitations

Direct observations of special-status plants and wildlife species were recorded during vegetation mapping, jurisdictional delineations, rare plant surveys, focused wildlife surveys, and habitat assessments. In addition to direct observations of wildlife species, signs such as tracks and scat were also recorded. Special-status species observed during these surveys were recorded and/or mapped. San Diego County experienced drought conditions over the last 5 years that affected plant growth. However, more recent years, particularly 2017, have seen an increase in rainfall. Fluctuations in annual plant populations and effect rates of germination are associated with variations in rainfall and other climatic conditions. Therefore, in addition to years of focused surveys, an emphasis was placed on conducting habitat assessments for special-status plant species (Appendix G, List of Plant Species Observed). In addition, reference checks were conducted for populations of rare plants within the Land Exchange Area vicinity to determine appropriate survey timing.

Focused wildlife surveys were conducted per the appropriate protocols, where required, which resulted in wildlife surveys being conducted during the day. Birds represent the largest component of the vertebrate fauna. Since birds are active in the day, diurnal surveys maximized the number of observations of this portion of the fauna. Daytime surveys, however, may result in fewer observations of animals that are more active at night, such as mammals, including bats. Similarly, many species of reptiles and amphibians are nocturnal or cryptic in their habits and may be difficult to observe using standard meandering transects.

To account for survey limitations, special-status wildlife species that could occur, based on pertinent distribution and habitat preference literature and recorded off-site observations, were analyzed based on their potential to occur, and adequate measures to avoid and minimize impacts to these species are provided in this report.

With specific regard to the lack of small mammal trapping, there is no indication that such an effort is necessary given that the only listed mammal species that occurs within the region and for which suitable habitat occurs within the Land Exchange Area is the federally listed endangered Pacific pocket mouse (*Perognathus longimembris pacificus*). This species is

restricted to the coast; therefore, the Land Exchange Area is outside the known range of the Pacific pocket mouse and the species is not expected to occur in the Land Exchange Area. Focused surveys for bats were not conducted. Small patches of potential tree roosting habitat for bat species are located within the Otay Ranch RMP Preserve (eucalyptus trees and small rock outcrops in Planning Area 16 and oak riparian forest in Village 14) and also within the Village 14 Development Footprint (eucalyptus trees). Large boulders, caves, or cliffs were not observed within the Village 14 Development Footprint. These features may occur outside of the Land Exchange Area within the adjacent mountains. There is foraging habitat located within the Land Exchange Area, including the Village 14 Development Footprint. Impacts to bats are based upon a habitat assessment of both foraging and potential roosting habitat. Direct avoidance of any bats will be prevented through preconstruction surveys and avoidance measures.

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SOURCE: NAIP 2016; Hunsaker 2017

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Figure 3-6a

Fairy Shrimp Survey Area and Results

Otay Ranch Village 14 and Planning Areas 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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SOURCE: NAIP 2016; Hunsaker 2017

Figure 3-6b

Fairy Shrimp Survey Area and Results

Otay Ranch Village 14 and Planning Areas 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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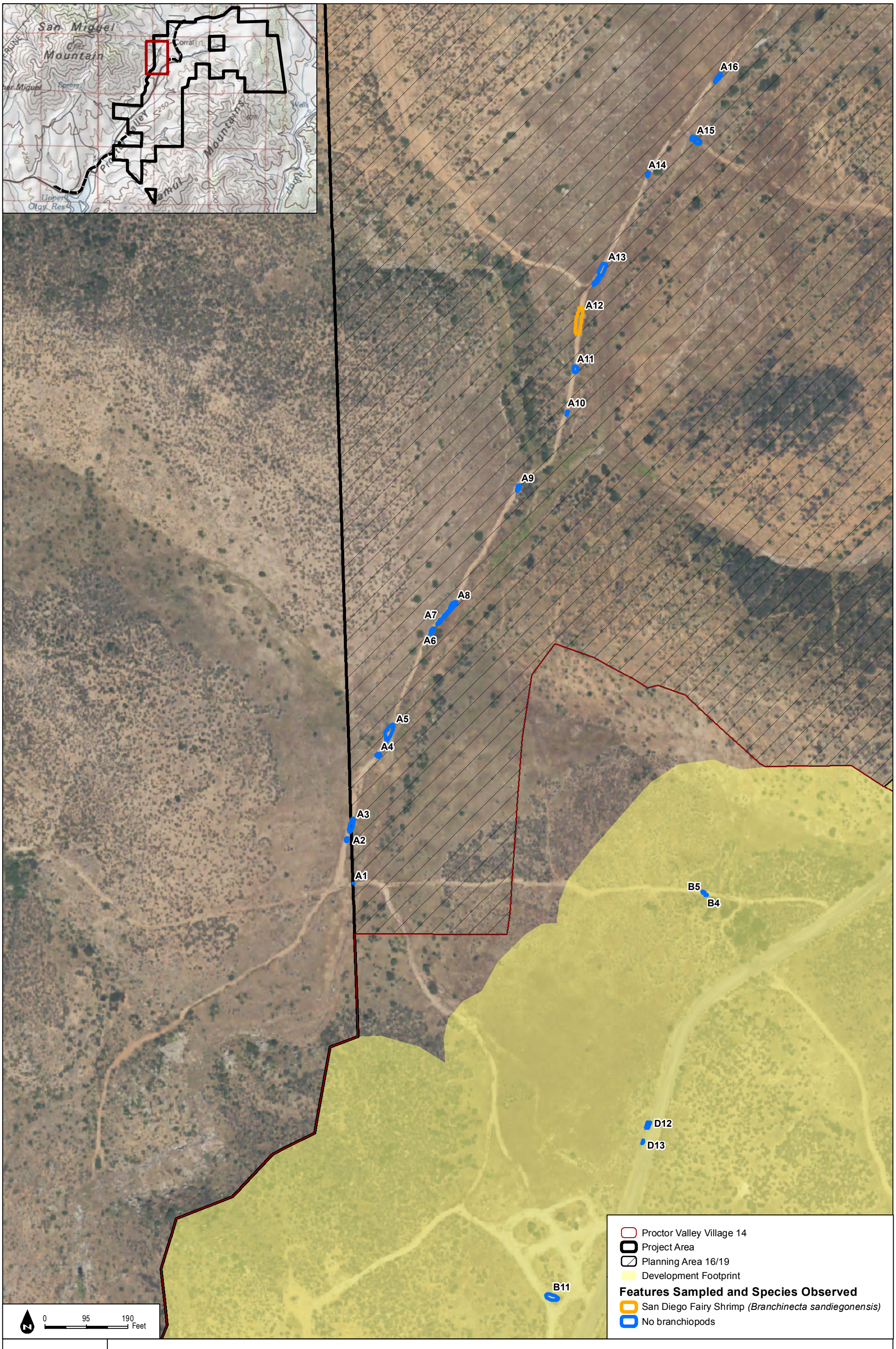

SOURCE: NAIP 2016; Hunsaker 2017

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Figure 3-6c

Fairy Shrimp Survey Area and Results

Otay Ranch Village 14 and Planning Areas 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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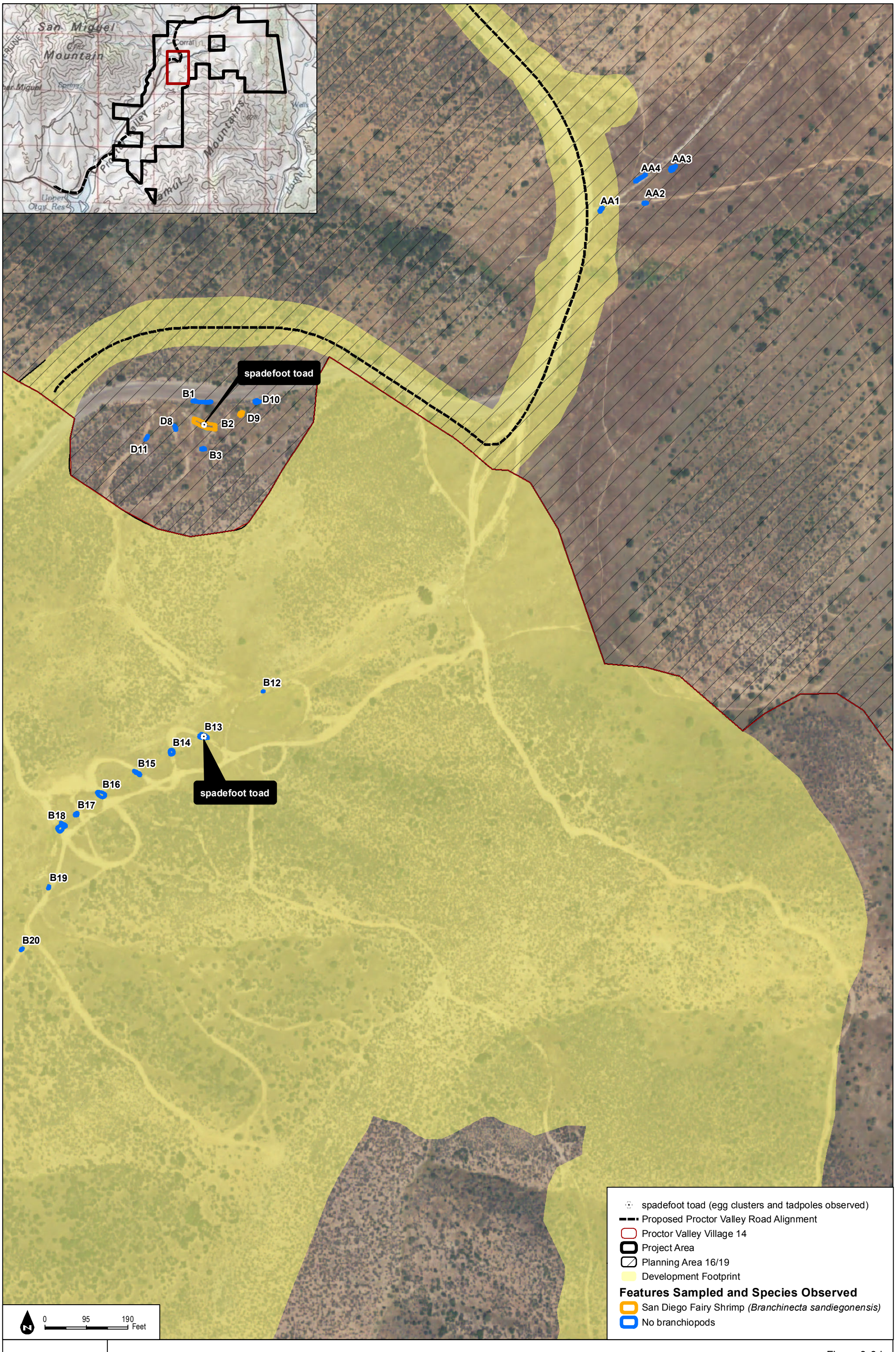

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SOURCE: NAIP 2016; Hunsaker 2017

Figure 3-6d

Fairy Shrimp Survey Area and Results

Otay Ranch Village 14 and Planning Areas 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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DUDEK

SOURCE: NAIP 2016; Hunsaker 2017

Figure 3-6e

Fairy Shrimp Survey Area and Results

Otay Ranch Village 14 and Planning Areas 16/19 - Land Exchange Alternative

NOTE: Survey areas may include additional acreage outside of the Project Area

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