

N:\Projects\3800\3802-01\Reports\Foraging Area Analysis\Revised analysis\Fig 1 Proposed Layout of Proctor Valley Village 14 Platform Overlap.mxd swatt

Figure 1. Proposed Layout of Otay Ranch Village 14 and Planning Areas 16/19 Project Showing Development Overlap Zone Within 4,000 Feet of Artificial Nest Platform and Historic Eagle Nests on San Miguel Mountain



abandoned the territory after the fall 2007 fire. No former nests still exist and no new eagle nests have been built in this former nesting area, including on the artificial nest platform the USFWS installed in the area.

8. Confirm that the San Miguel Mountain breeding territory meets the criteria of an “abandoned” or “inactive” territory.

There is no formal definition for what constitutes an “abandoned/inactive” golden eagle breeding territory (which may include several alternative nests—the historic case over the years in the San Miguel Mountain territory), but confirmation that no breeding-age pair of eagles has occupied a former breeding territory for 4 years or more is generally a strong indicator that the territory has been abandoned. The evidence at hand suggests that the former San Miguel breeding territory has not been occupied by a breeding pair of eagles since 2007. No known breeding attempt (meaning eggs were laid) has occurred on San Miguel Mountain since 2004 and all former nests no longer exist; therefore, the need to distinguish between active/used (contains eggs or young) and inactive/unused (not used during the current breeding season) nests is moot.

9. Confirm the distance between the USFWS artificial nesting platform on San Miguel Mountain and the nearest Project development boundary.

~3,666 feet. Figure 2 illustrates the zone of overlap where development impacts would occur within 4,000 feet of the artificial nest platform on San Miguel Mountain. The area of overlap encompasses approximately 4 acres constituting portions of two 4–5-acre residential lots where no grading or other physical development disturbance will occur.

10. Confirm the distance between the USFWS artificial nesting platform on San Miguel Mountain and the nearest proposed “human disturbance” as shown in the Project site plan.

As framed, the answer to this question is the same as for Question 9, in that we equate “project development boundary” with “nearest proposed human disturbance.”

11. Confirm that no golden eagles have established a nest at the USFWS artificial platform on San Miguel Mountain.

No golden eagle nest has been constructed on the San Miguel artificial nest platform. This has been confirmed both by H.T. Harvey & Associates visual observations during the 2016 and 2017 breeding seasons, as well as by an absence of eagle activity documented by the USFWS trail camera that is focused on the platform (J. Martin personal communication, March 2017).

12. Confirm the distance between the USFWS/BLM artificial nesting platform in the Jamul Mountains and the nearest Project Development boundary.

~3,916 feet to the nearest permanent or temporary impact boundary; 3,666 feet to the nearest “limited development area” (LDA) boundary. Figure 2 illustrates the zone of overlap where development impacts would occur within 4,000 feet of the artificial nest platform in the Jamul Mountains. The area of overlap comprises 0.3 acres of one residential-lot backyard, where no grading or physical development disturbance will occur, plus 5.2 acres designated as LDA that will remain as undisturbed open space.

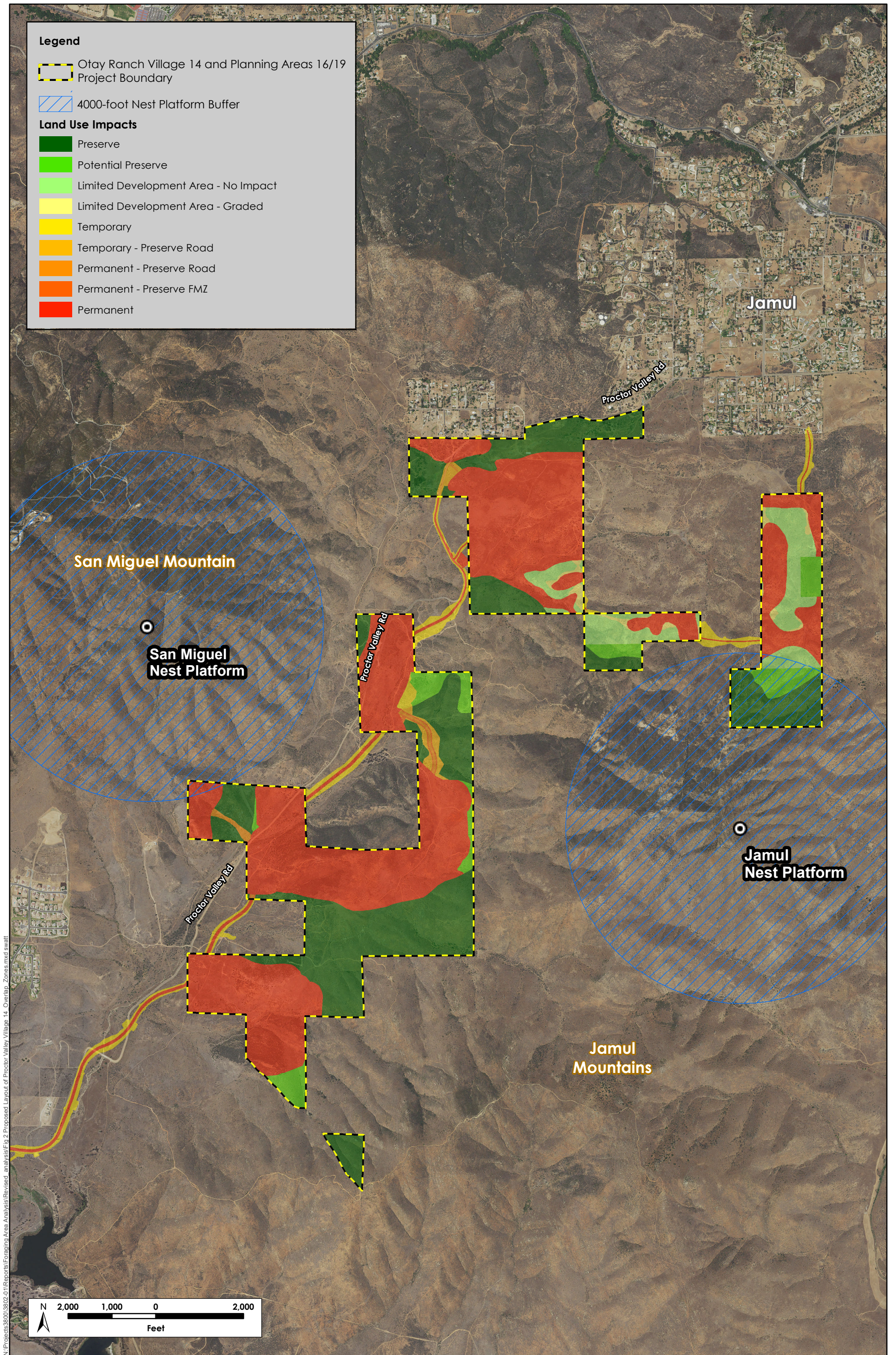


Figure 2: Proposed Layout of Otay Ranch Village 14 and Planning Areas 16/19 Project Showing Development Overlap Zones Within 4,000 Feet of Two Artificial Nesting Platforms Installed in 2013
Otay Ranch Village 14 Revised Golden Eagle Foraging Area Analysis (3802-01)
March 2017



13. Confirm that no golden eagles have established a nest at the USFWS/BLM artificial platform in the Jamul Mountains.

No golden eagle nest has been constructed on the Jamul Mountains platform. This has been confirmed both by H.T. Harvey & Associates visual observations during the 2016 and 2017 breeding seasons, as well as by an absence of eagle activity documented by the USFWS trail camera that is focused on the platform (J. Martin personal communication, March 2017).

14. Provide an opinion as to whether the golden eagles observed foraging on the Project site are defending a breeding territory or merely foraging within their home range.

Based on the periodic 2-day surveys we conducted during the 2016 and 2017 breeding seasons, we have recorded no evidence of definitive territorial activity in the San Miguel Mountain, Jamul Mountains, or Proctor Valley areas. The few eagles that we have observed in the area, as well as the USGS tracking data, confirm that transient subadult and adult eagles occur in the area at least seasonally and periodically. In addition, the initial USGS data suggested that the overall foraging home ranges of eagles nesting in Cedar Canyon at least temporarily encompassed the Jamul Mountains and Proctor Valley areas. Further, our two recent sightings of an adult eagle in the Jamul Mountains, with the March occurrence definitely involving a non-telemetered eagle, suggest the possibility that a floater adult may have taken up residence in the Jamul Mountains in 2017. Again, however, we have witnessed no signs of territorial displays, other overt territorial behavior, or any eagle nesting activity in the area during the past two breeding seasons.

15. Provide an opinion as to whether the proposed Project would result in lethal take of any golden eagle.

The Project would not disturb any eagle breeding activity and the resulting loss of peripheral foraging habitat would be insubstantial for the currently known and established breeders in the MSCP planning area. Therefore, the potential for breeding disturbance and habitat loss to result in lethal take within the area breeding population is essentially nonexistent. Similarly, the potential for the loss of 810 acres of foraging habitat to result in lethal take of any local floater (nonbreeding adults), transient, or seasonally resident eagles that forage in the Project area also is vanishingly small, because such birds would still have broad access to other areas of high quality foraging habitat within the Preserve.

16. Provide an opinion as to whether the MSCP preserve, as augmented by the acreage conveyed by the proposed Project, provides adequate forage to sustain the golden eagles that currently include the Project site within their home range.

Based on the available and accessible evidence, it is not clear that any individual eagles currently rely on the Project area as foraging habitat consistently or perennially. Although the initial USGS tracking data suggested that the overall home range of the former Cedar Canyon breeding pair included Proctor Valley and the Jamul Mountains, that female died and our recent observations revealed a non-telemetered adult in the area. Access to more recent USGS tracking data may help clarify the current situation; however, those data are not publically available. Regardless, given that Proctor Valley does not currently overlap any pair's core breeding territory and the closest known recently active nests are more than 5 miles away, if a pair nesting in the San

Ysidro Mountains routinely forages in Proctor Valley, the loss of even a few thousand acres of foraging habitat (the Project development footprint is approximately 810 acres and, by the MSCP definition, 97% of this area constitutes golden eagle foraging habitat) in a peripheral portion of that pair's overall home range would not exceed the 20% threshold of foraging area loss identified as significant in the MSCP. Moreover, such a pair would continue to have ready access to large acreages of suitable foraging habitat within the MSCP Preserve in the Jamul Mountains, the foothills of Proctor Valley, possibly around San Miguel Mountain, and in the large expanse of Preserve habitat located between the Jamul Mountains and San Ysidro Mountains. Therefore, developing the Project would not significantly compromise the ability of any current breeding pairs to sustain themselves.

17. Confirm your earlier opinion that the USGS data, while interesting for purposes of studying golden eagle behavior over the long-term, is incomplete and includes no analytical component, making it of marginal use in a project-specific impact assessment.

A robust assessment of eagle usage patterns and the importance of the Project site to tagged eagles would require a much more detailed evaluation of the gathered data than is possible based solely on the coarse-scale summary maps—with no interpretation—presented in the initial 2016 USGS report. Most importantly, discerning whether usage of the Project area by tagged adults that appear to be year-round residents is consistent throughout the year or seasonally variable, and using available analytical techniques to effectively portray the relative density of usage in different areas, are critical missing ingredients that would be required to use the data for assessing the relative importance of the Project area to resident breeders.

18. Confirm your earlier opinion that the project site's golden eagle habitat is sub-optimal due to density of chaparral and loamy/cobbly soils.

This statement applies ONLY to the Otay Ranch Village 14 portion of the proposed Project development area in the central portion of Proctor Valley. Planning Areas 16 and 19 contain greater proportions and extents of high-quality coastal sage scrub and annual grassland habitat. There is definitely foraging habitat for golden eagles in the Village 14 area of central Proctor Valley, which in some areas is relatively high quality. However, a substantial portion of the habitat in the vicinity of the Village 14 development area is not golden eagle foraging habitat because the chaparral is too dense. In addition, because of the soil characteristics, most of the bottomland portions of central Proctor Valley where much of the development will occur is not well suited to ground squirrels compared to other neighboring foothill areas (as well as the grazed grassland and coastal scrub habitats located primarily in Planning Area 16). This does not mean that there are no foraging opportunities for eagles in these areas, but it limits the potential diversity of prey compared to other foothill areas that will be preserved.

APPENDIX D

*2015 and 2016 Quino Checkerspot Butterfly
Survey Reports (HELIX)*

February 5, 2018

JPD-08

Mr. James Jackson
Jackson Pendo Development Company
2245 San Diego Avenue, Suite 223
San Diego, CA 92110

Subject: Quino Checkerspot Butterfly Status on Otay Ranch Village 14
Land Exchange Alternative

Dear Mr. Jackson:

This letter summarizes the results of habitat assessments and protocol surveys for the Quino checkerspot butterfly (*Euphydryas editha quino*; QCB) that HELIX Environmental Planning, Inc. (HELIX) conducted on the Otay Ranch Village 14 Land Exchange Alternative ("Land Exchange Alternative"). It also provides HELIX's evaluation of the status of the species on site. As explained below, no QCB individuals have been observed on site since 2001; however, the proposed Land Exchange Alternative will disturb approximately 6.1 acres of QCB host plant locations scattered throughout the approximately 658-acre Village 14 Development (defined below). For purposes specific to this letter, the following definitions apply:

Village 14 Development: The development footprint in Village 14 and associated water tank (approximately 601.7 acres), plus related off-site improvements associated with Proctor Valley Road (approximately 56.6 acres), for a total of 658.2 acres. Note that the proposed land exchange acreage, or Take, *from* the State is included in this definition (approximately 278 acres).

Preserve: Includes proposed Village 14 preserve plus the proposed Planning Area 16/19 Preserve (approximately 514.4 acres).

Land Exchange: The proposed exchange lands approved for development in the Otay Ranch General Development Plan/Sub-regional Plan (GDP/SRP) as follows: Take *from* the State of 278 acres of land approved in Village 14 (currently owned by the State) and Give *to* the State in exchange of 278 acres of Planning Area 16/19 (currently owned by the applicant).

Land Exchange Give: The portion of Planning Area 16/19 proposed to be given to the State in the proposed land exchange (approximately 278 acres).

QCB Host Plants: Several species of host plants were mapped on site, including dwarf plantain (*Plantago erecta*), desert plantain (*Plantago patagonica*), owl's clover (*Castilleja exserta* and *C. densiflora*), Chinese houses (*Collinsia* spp.), and Coulter's snapdragon (*Antirrhinum coulterianum*) (Figure 1). The analysis in this letter relies on the size and locations of dwarf plantain as this is the overwhelmingly dominant host plant species. The other species are minor components and will not be discussed further in this analysis.

The location of each of these classifications is provided in Exhibits 1 and 2.

Field assessments and surveys have been conducted to determine overall QCB habitat values for the Land Exchange Alternative because QCB is not a covered species in the San Diego Multiple Species Conservation Program. This letter is presented in the following outline:

- I. Executive Summary
- II. Habitat Assessments/Surveys
- III. Species Status
- IV. Species Resources Discussion
- V. Conclusion

I. EXECUTIVE SUMMARY

Between 2014 and 2016, Dudek and HELIX conducted three QCB habitat assessments in the Village 14 Development, Preserve, and land exchange areas (Dudek in 2014 and HELIX in 2015 and 2016). HELIX conducted protocol surveys for QCB adults following the U.S. Fish and Wildlife Service (USFWS) survey guidelines on the Village 14 Development in 2015¹ and on the Village 14 Development and Preserve in 2016.² Results are summarized as follows and are provided in Table 1:

- a. No adult QCB or larvae were observed during any field work or protocol surveys in 2014, 2015, or 2016.
- b. Thus, neither the Village 14 Development nor the Preserve or the Land Exchange areas are currently not occupied by QCB.
- c. There were multiple documented QCB sightings less than one mile from the Land Exchange Alternative's survey area in 2016. This indicates that conditions in 2016 were suitable for QCB presence and activity; however, no QCB were observed at the Land Exchange Alternative site.

¹ HELIX Environmental Planning, Inc. (HELIX). 2015. Otay Ranch Proctor Valley Village and Preserve Quino Checkerspot Butterfly Survey Report. June 3.

² HELIX. 2016. Otay Ranch Proctor Valley Village and Preserve Quino Checkerspot Butterfly Survey Report. May 13.

- d. There were multiple documented QCB sightings by USFWS immediately adjacent to the Land Exchange Alternative's survey area in 2017, including the area immediately west of Proctor Valley Road where QCB were observed in 2006 through 2008. This indicates that QCB are still present in at least low numbers in the vicinity; these sightings do not change the overall conclusions reached from the intensive 2015 and 2016 survey efforts on the site.
- e. Based on the 2016 HELIX QCB resource mapping, the Land Exchange Alternative's impacts to QCB host plant areas total 6.11 acres scattered across the 658-acre development footprint.
- f. The host plants on site are very patchy in distribution within a matrix of chaparral and sage scrub communities. Given the scattered QCB resources across the Village 14 Development in an exceptional year for QCB host plants (2015) and in an above-average year for QCB host plants (2016), neither the Village 14 nor the Preserve is expected to support a core population of QCB.
- g. Most of the areas with higher densities of host plants occurred: (a) within small openings (often disturbed areas) of larger tracts of chaparral, (b) within sage scrub and non-native grassland areas, or (c) at locations adjacent to areas excluded from surveys because they were considered too dense to support QCB.
- h. Although the extent of QCB habitat is not limited to the host plant patches, the patchy distribution of the plants, coupled with the significant amount of chaparral on the site, suggests that QCB use of the site, if any, is expected to be limited.
- i. There is substantial habitat within the Preserve that could support QCB in the future. This habitat is of value to the species because it is potentially suitable for future QCB use and is connected to other areas of suitable habitat that are preserved. The habitat within the Preserve, when combined with the additional conservation land that the applicant must convey to the County under the Otay Ranch Resource Management Plan (RMP), provides adequate conservation of QCB resources and thus sufficiently mitigates the habitat lost through implementation of the Land Exchange Alternative. This is because the Preserve, along with the RMP-required conveyance, will preserve large blocks of habitat capable of supporting QCB (predominantly coastal sage scrub containing hilltops and QCB resources that are contiguous with other open space).
- j. The Land Exchange Alternative will not preclude QCB conservation in the region because (1) there are limited historic QCB locations on site, (2) the Land Exchange Alternative is not considered a core area by the USFWS, and (3) on-site conservation, in addition to the RMP conveyance obligations, will contribute to larger scale conservation of the QCB within the south San Diego County region through maintenance of connectivity between areas of known QCB populations.

- k. From a quantitative and qualitative perspective, the combined land exchange and boundary adjustment result in enhanced preserve design for the QCB (see Attachment A).

Table 1 RECAP OF QUINO CHECKERSPOT BUTTERFLY ASSESSMENT/SURVEYS		
Description	Village 14 Development	Village 14 and Planning Area 16/19 Preserve
Total Acres (All Habitat Types)		
Village 14	601.7	403.9
Planning Area 16/19	0.0	113.5
Off-sites	<u>56.6</u>	<u>0.0</u>
Total	658.2	517.4
Predominant Habitat		
Chaparral	431.6 66%	147.3 28%
Diegan Coastal Sage Scrub	142.7 22%	334.1 65%
Non-native Grassland	51.8 8%	23.2 4%
Eucalyptus Woodland	3.0 <1%	2.1 <1%
Other	<u>29.0 4%</u>	<u>10.7 2%</u>
Total ^a	658.2	517.4
Acres excluded from QCB Surveys		
HELIX 2016	47.4 7%	7.3 1%
HELIX 2015	214.0 33%	91.6 18%
Acreage of Potential QCB Habitat ^b		
HELIX 2016	610.8 93%	510.1 99%
HELIX 2015	444.2 67%	425.8 82%
Mapped Host Plant Acres (Cumulative Acres Based on HELIX 2016)	6.11 scattered & patchy	2.12 scattered & patchy
Current Sightings (2014-2017) ^c	No sightings documented between 2014-2016. In 2017, the USFWS incidentally sighted one location immediately west of Proctor Valley Road (4 QCB), one location east of Proctor Valley Road, and one location west of Village 14 (2 QCB).	No sightings documented between 2014-2016. The locations incidentally sighted in 2017 by USFWS were also in the vicinity of Preserve.

Table 1 (cont.) RECAP OF QUINO CHECKERSPOT BUTTERFLY ASSESSMENT/SURVEYS		
Description	Village 14 Development	Village 14 and Planning Area 16/19 Preserve
Historical Sightings	Two locations (2001 and 2006) within the Village 14 footprint and two nearby locations, both along Proctor Valley Road in 1990. Exhibit 1 provides the locations of the historic QCB sightings	Several locations near the southern portion of the Preserve (2000, 2009, 2011); 1 location east of the central portion of the development footprint (2001); and 1 nearby location in adjacent Planning Area 16, State ownership (2001). Exhibit 1 provides the locations of the historic QCB sightings.

a. Totals may be off due to rounding.

b. Potential habitat is defined as the Total Acres minus the Areas excluded from QCB Surveys. Potential Habitat is the acreage that was surveyed for QCB.

c. Protocol surveys were conducted in 2015 and 2016 and no QCB were documented; observations from 2017 are from incidental sightings by USFWS, as reported in the USFWS GIS database.

II. DESCRIPTION OF QUINO CHECKERSPOT BUTTERFLY HABITAT ASSESSMENTS/SURVEYS (2014-2016)

HELIX 2016 Field Reconnaissance

- a. February 2016 QCB Habitat Assessment: HELIX completed a site habitat assessment in accordance with the 2016 Quino Checkerspot Butterfly Survey Protocol that was developed in coordination with the USFWS, County of San Diego, and the Building Industry Association (hereafter referred to as the “2016 USFWS Survey Protocol³”). The study area comprised the proposed development footprint (including limits of brush management), open space areas, and potential Proctor Valley Road realignment areas (Exhibit 1). The purpose of the site assessment was to determine how much of the Land Exchange Alternative study area contained habitat that could support QCB and thus should be surveyed. Habitat that was not likely to support QCB was excluded. Habitat within the study area was evaluated on foot. Areas were excluded based on, and in accordance with, guidance provided in the 2016 USFWS Survey Protocol, and then mapped on an aerial photograph as required by the protocol. Several different aerial photographs, including Google Earth and Bing Maps, were used to aid in assessing canopy cover and habitat density, as well as to locate suitable openings in habitat. Based on this habitat assessment and consultation with USFWS, approximately 47.4 acres of the 658.2-acre Village 14 Development were considered excluded areas and removed from further consideration in QCB surveys, leaving a total of 610.8 acres to be surveyed for

³ USFWS. 2016. Proposed 2016 Quino Checkerspot Butterfly Survey Protocol. February.

QCB in the Village 14 Development. This same evaluation process indicated that 7.3 acres of the 517.4-acre Preserve should also be excluded, leaving a total of 510.1 acres within the Preserve to be surveyed for QCB. A survey buffer was added and the proposed land exchange give areas were also surveyed in 2016 for a total survey area of 1,600 acres. The excluded areas represent dense patches of chamise chaparral or southern mixed chaparral, developed areas, and eucalyptus woodland. Dense patches of excluded chaparral represented closed-canopy vegetation where the branches from shrubs overlapped, leaving no open space areas and preventing physical access to the area. Areas where there were suitable openings in the vegetation at least within 100 meters of each other were included in the survey area. The 1,600-acre QCB survey area was divided into smaller areas and distributed amongst the surveyors.

- b. February 2016 Host Plant Mapping: Using a Global Positioning System (GPS) HELIX mapped the locations and approximate number of individuals of QCB host plants within the survey area (i.e., within the Village 14 Development footprint and Preserve) in February 2016, prior to the start of the 2016 flight season. Host plant mapping was updated during the 2016 protocol surveys as changes in field conditions were noted. If host plants occurred in areas *smaller* than 250 square feet, they were mapped as “points”.⁴ If the host plants occurred in areas *greater* than 250 square feet, they were mapped as “patches”. For both points and patches, the following density categories were used: *Low* (1-100 plants); *Medium* (100-1,000 plants); and *High* (1,000-10,000 plants). Nearly all of the areas mapped as Low or Medium consisted of points (i.e., in locations less than 250 square feet in size). Areas mapped as High also tended to consist of points, but there were some patches as well, ranging from 250 square feet (0.006 acre) to 1.47 acres in size. Nearly all of the owl’s clover (*Castilleja* spp.) were mapped as points, with one patch mapped that was larger than 250 square feet; the owl’s clover generally consisted of patches containing less than 10 individuals. Because of the limited amount of owl’s clover across the site, only dwarf plantain will be discussed in the remainder of the letter.

Permitted QCB biologists considered the host plants that emerged in 2016 to be in good condition throughout San Diego County; it should be noted that host plant conditions in 2015 were considered to be representative of an exceptional year (see HELIX 2015 Field Reconnaissance, below).

- c. 2016 Protocol Surveys for QCB Individuals: HELIX and a team of permitted subconsultants conducted protocol surveys for QCB individuals within the Village 14 Development footprint, including potential Proctor Valley Road realignment areas, and the Preserve. Surveys began on February 24, 2016 and continued through March 31, 2016. Surveys began following the first observation of adult QCB in San Diego County (reported by Korey Klutz [Klutz Biological Consulting] on February 22 at east

⁴ For the purposes of incorporating the acreage of point locations into the Mapped Host Plant Acres listed in Table 1, HELIX used the midpoint of the range (i.e., 125 square feet) as the average host plant size for each mapped point, for both the Village 14 Development and Preserve.

Otay Mesa [Quino Biologists United 2016]). Separate analyses of QCB resources on the land exchange and boundary adjustment are included in Attachment A. Surveys were discontinued after the fifth survey week, in coordination with USFWS personnel (email from Eric Porter to Rob Cameron dated April 4, 2016), based on the lack of recent QCB sightings, which indicated that the flight season along the coastal regions was completed. The last, fresh QCB sighting in the County was reported on March 17, two weeks prior to the last survey, when a QCB was observed at San Vicente Reservoir. The last reported QCB sighting of a single worn individual occurred on March 25 in Marron Valley. The surveys conducted on the Land Exchange Alternative site were negative for both QCB adults and larvae (i.e., no QCB adults or larvae were observed)².

HELIX 2015 Field Reconnaissance

- a. February 2015 QCB Habitat Assessment: HELIX's 2015 habitat assessment was conducted in February, prior to the start of the flight season, and included the entire Village 14 Development footprint and an appropriate buffer. The buffer was determined in coordination with the project's design engineer based on the potential for design changes related to the Village 14 footprint at that time (generally about a 100-foot buffer from the potential Village 14 footprint at that time). The purpose of the habitat assessment was to exclude portions of the Land Exchange Alternative that do not support QCB suitable habitat based on USFWS survey protocol⁵, as shown in Figure 1 and detailed in the 2015 QCB survey report.¹ Note that more acres were evaluated than in the Village 14 Development. Of the 778 total acres evaluated, 658.2 were in the Village 14 Development footprint and 214 acres within the footprint were excluded. Therefore, the 562 acres that were part of the protocol surveys included 444 acres within the Village 14 Development footprint.
- b. February-April 2015 Protocol Surveys within Village 14 Development: HELIX and a team of permitted subconsultants conducted protocol surveys for the Village 14 Development footprint, including potential Proctor Valley Road realignment areas and the appropriate buffer described in the February 2015 QCB Habitat Assessment section above, over a seven-week period between February 17 and April 2, 2015. Protocol surveys were not conducted in the proposed Preserve areas or lands to be given to the State (Land Exchange Give) due to the high costs to complete these surveys pursuant to the 2014 survey protocol. Separate analyses of QCB resources on the land exchange and boundary adjustment are included in Attachment A. After consultation with the USFWS, surveys were stopped the first week of April due to deteriorating host plant conditions and because of small number of QCB sightings in San Diego County, including areas known to support the species. No QCB adults or larvae were documented on the Land Exchange Alternative site during the 2015 surveys¹.
- c. February-April 2015 Host Plant Mapping within Village 14 Development: As part of the weekly protocol QCB surveys¹, HELIX mapped the locations and approximate number of

⁵ USFWS. 2014. Quino Checkerspot Butterfly (*Euphydryas editha quino*) Survey Protocol. December.

individuals of QCB host plants within the survey area (i.e., within the Village 14 Development footprint) using a GPS. If host plants occurred in areas *smaller* than 250 square feet, they were mapped as “points”. If the host plants occurred in areas *greater* than 250 square feet, they were mapped as “patches”. For both points and patches, the following density categories were used: *Low* (1-100 plants), *Medium* (100 to 1,000 plants), and *High* (1,000-10,000 plants). Nearly all of the areas mapped as Low or Medium consisted of points (i.e., in locations less than 250 square feet in size). Owl’s clover was mapped as points and generally consisted of patches containing less than 10 individuals. Permitted QCB biologists and the USFWS considered the host plants that emerged in 2015 to be in exceptional condition throughout San Diego County and are considered to be representative of an exceptional year for QCB host plants.

- d. April 2015 Host Plant Mapping within highest potential areas in Preserve and Land Exchange Give: Following the completion of the QCB protocol surveys in April 2015, HELIX completed host plant mapping within approximately 50-60 percent of the proposed Preserve and the area proposed to be given to the State, focusing on the areas of highest potential for host plants. The April 2015 Preserve host plant mapping was conducted in the areas closest to the Village 14 Development footprint and did not include the disjunct preserve parcel to the south of the footprint or the disjunct parcel to the east of the footprint. Mapping of host plants followed the same parameters used for the Village 14 Development, but were completed late in the season when QCB host plant resources had largely disappeared as observed during the focused surveys. Therefore, these locations and populations are not considered representative of the exceptional conditions earlier in the flight season.

Dudek and Associates (Dudek) Field Reconnaissance

- a. February 2014 Habitat Assessment: Dudek conducted a preliminary assessment and QCB host plant mapping. The February host plant mapping focused on the larger vicinity of Village 14 and Preserve (Exhibit 2).
- b. March 2014 Focused Host Plant Assessment: At the request of the USFWS, Dudek conducted a more focused QCB host plant assessment for the portions of the site that had the highest probability for supporting host plants. Four QCB host plant patches were mapped in 2014 and are provided on Exhibit 2 and labeled as “Quino Host Plant (Dudek)”. It should be noted that due to the lack of 2014 QCB flight season, protocol level adult QCB surveys were not conducted. No QCB or larvae were observed by Dudek in 2014.

III. SPECIES STATUS

HELIX evaluated the status of the QCB based on current and historic observations, host plant distribution in Village 14 Development, and potential host plant distribution in the Preserve. See Attachment A for specific evaluation as related to the land exchange and boundary adjustment.

Current and Historic QCB Observations

- a. Current Observations: No QCB adults or larvae were observed by Dudek in 2014 or by HELIX in 2015 or 2016. Incidental sightings⁶ by USFWS in 2017 included 2 individuals west of the central portion of Village 14 Preserve, 4 individuals immediately offsite west of Proctor Valley Road, 1 individual immediately east of Proctor Valley Road near the Land Exchange property, and 1 individual adjacent to the northeastern portion of the Land Exchange property.
- b. Historic QCB Observations: HELIX reviewed the California Natural Diversity Database and USFWS databases for documented QCB locations within and adjacent to the Land Exchange Alternative. The databases contain scattered QCB locations throughout the broader Proctor Valley Region with the date of the documented sightings ranging from 1990 to 2007. As previously noted during discussions with the resource agencies regarding the proposed land exchange, only two locations have been documented on Village 14 Development as described below:

Historical Sighting Location 1: In 2001, David Faulkner (San Diego Natural History Museum) and Jim Rocks (URS) documented 12 QCB butterflies along a ridgeline on the eastern portion of the central Village 14 Development footprint, as part of a survey for an adjacent property (J. Rocks, personal communication, September 15, 2015). This area contains an old road and appears to be an area previously cleared of vegetation, possibly as part of historical firebreaks, past firefighting activities, or some other physical disturbance. The 2016 host plant mapping by HELIX identified two patches of QCB host plants in the area (0.12 acre and 0.25 acre) with High densities, along with two High, three Medium, and several Low density point locations of host plants. The 2015 host plant mapping by HELIX identified a 0.24-acre patch of QCB host plants along the old disturbed roadway. There was also a smaller patch of host plants and six isolated host plant points in the vicinity. The area generally supports chaparral except for the disturbed areas noted above (Exhibit 2).

Historical Sighting Location 2: The second location is on the west-central portion of the Village 14 Development footprint and was documented by Mooney Jones and Stokes as part of a USFWS-funded post-fire study associated with the 2003 Old Fire. One QCB was observed in 2005 along a ridge top west of Proctor Valley Road consisting of burned coastal sage scrub/chamise chaparral; two QCB were observed in the same location in 2006; and one QCB was observed in the same location in 2007 (Andrew Borchert, personal communication, September 15, 2015). The 2016 host plant mapping identified one High (1.48 acre), nine Medium (totaling 0.30 acre), and one Low density owl's clover patch (<0.01 acre), and several Low density point locations of host plants. This area supported scattered host plant patches in 2015.

⁶ We describe the sightings as "incidental" because they were made during a general reconnaissance of the area and not pursuant to a focused or protocol survey for the species.

Host Plant Distribution within Village 14 Development

- a. 2016 Host Plant Mapping: The 2016 host plant distribution shown on Exhibit 1 reflects an above-average year for host plant expression based on the feedback from the biologists who completed the surveys in 2016 and the County of San Diego biologist. Host plants that were mapped in 2016 generally occurred in the same areas as in 2015, but occurred in lower densities as compared to 2015. Results are noted below:
 - i. 70 percent of the host plant locations (220 points/patches of the 312 total host plant locations) were mapped as Low density (1-100 individuals).
 - ii. 23 percent of the host plant locations (71 points/patches of the 312 total host plant locations) were mapped as Medium density (100-1,000 individuals).
 - iii. 7 percent of the host plant locations (21 points/patches of the 312 total host plant locations) were mapped as High density (1,000-10,000 individuals), as shown in Exhibit 1.
 - iv. A majority of the areas with High densities of host plants within the development footprint in 2016 occurred within small openings of larger tracts of chaparral, with the other higher density patches occurring in sage scrub and non-native grassland areas.
 - v. One of the High density areas in the eastern portion of the central Village 14 development footprint actually appears to be an area that was previously cleared of vegetation, possibly as part of historical firebreaks, past firefighting activities, or some other physical disturbance (i.e., approximately 300 feet southeast of Historical Sighting 1; Exhibit 1).
 - vi. To summarize the 2016 survey data, the majority of the host plant locations within the Village 14 Development footprint (258 of the 312 mapped locations; 83 percent) were small patches ranging from a few square feet to 250 square feet in size. Furthermore, of the 258 locations, the overwhelming majority of these (252 of the 258 locations; 98 percent) were Low density (1-100 plants) or Medium density (100-1,000 plants), and most occurred within a matrix of chaparral and coastal sage scrub habitats.
- b. 2015 Host Plant Mapping: The 2015 host plant distribution shown on Exhibit 2 reflects a more substantial host plant expression within the Village 14 Development footprint because 2015 was an excellent year for host plants. Focused 2015 host plant mapping and QCB surveys were conducted only for the Village 14 Development. For this reason, 2015 host plant mapping provided in Exhibit 2 does not represent a comprehensive assessment of the Preserve. Nevertheless, the mapping data is discussed in this letter to provide context for the general expression of resources in 2015. Results are noted below:

- i. The majority of the host plant locations (both points and patches) were mapped as Low density (73 locations with 1-100 plants representing 51 percent of points/patches) or Medium density (48 locations with 100-1,000 plants, representing 34 percent of points/patches).
 - ii. There were 17 locations within the Village 14 Development footprint that were mapped as High density – i.e., contained between 1,000 and 10,000 individuals (12 percent of points/patches), as shown in Exhibit 1. There were also five locations within the Village 14 Development Footprint that were mapped as Very High density – i.e., contained more than 10,000 individuals (three percent of points/patches). As was the case in 2016, the 2015 surveys indicated that the majority of the High density host plant areas within the Development footprint occurred within small openings of chaparral or were adjacent to areas excluded from surveys in 2015 because they were considered too dense to support QCB.
 - iii. 85 percent of the host plant locations (including both points and patches) were mapped as Low density (1-100 plants) or Medium density (100-1,000 plants) within a matrix of chaparral.
- c. Dudek 2014 Host Plant Mapping: As noted above, the 2014 focused host plant mapping yielded only four host plant patches. The most significant host plant locations in 2014 occurred in the area proposed for preservation in the Land Exchange Give in Planning Area 16.

Host Plant Distribution within Preserve (2016 mapping)

HELIX completed host plant mapping within the Preserve in 2016. Results are noted below:

- i. 55 percent of the host plant locations within the Preserve (78 points/patches) were mapped as Low density (1-100 plants).
- ii. 31 percent of the host plant locations within the Preserve (44 points/patches) were mapped as Medium density (100-1,000 plants).
- iii. 14 percent of the host plant locations within the Preserve (19 points/patches) were mapped as High density (1,000 and 10,000 plants), as shown in Exhibit 1.
- iv. The High density host plant locations (1,000-10,000 individuals) within the Preserve occurred within openings of Diegan coastal sage scrub and chaparral.
- v. As with the Development footprint in 2016, the majority of the host plant locations in the Preserve (127 of the 141 mapped locations; 90 percent) were small patches ranging from a few square feet to 250 square feet in size. Furthermore, of the 127 locations, the overwhelming majority of these (118 of the 127 locations; 93 percent) were Low density

(1 to 100 plants) or Medium density (100 to 1,000 plants), and most occurred within a matrix of chaparral and sage scrub communities.

IV. QUINO CHECKERSPOT BUTTERFLY HABITAT RESOURCES

Village 14 Development Footprint and Land Exchange Alternative Design

The Village 14 Development Footprint and Land Exchange Alternative have been extensively designed as a result of the proposed land exchange with the State to focus the development footprint within the chaparral portions of the site thus minimizing the impacts to sensitive species. This is why 33 percent of the Village 14 development footprint (approximately 214 acres of the 658.2-acre footprint⁷) was deemed unsuitable for QCB and excluded from the 2015 QCB survey consistent with USFWS survey protocol.¹ Based on a more conservative approach to mapping excluded habitat in 2016, HELIX excluded approximately 47 acres of the 658.2-acre footprint. The 47 acres that were excluded consists of dense chaparral, but also includes eucalyptus woodland and riparian areas. An additional 387 acres of chaparral (66 percent of the development footprint) occurs on the Village 14 Development Footprint but was still surveyed for QCB because the chaparral was not dense enough to be excluded (i.e., surveyors could still walk through the areas). It is important to note that the majority of these additional 387 acres of chaparral contain between 40-80 percent cover and were excluded from the protocol surveys conducted in 2015 (Exhibit 3).

With respect to the lands exchanged *from* the State (Take), HELIX's 2016 habitat assessment excluded as unsuitable for QCB approximately 34 acres of the 278 acres (12 percent) because these areas contained dense chaparral. Furthermore, 225 of 278 acres (81 percent) of the land exchange Take supports some type of chaparral and, therefore, has a reduced likelihood of supporting QCB.

Additionally, the proposed land exchange would protect in perpetuity large expanses of coastal sage habitat in Planning Area 16/19 to the north and east of Village 14 Development. It also would expand an east-west wildlife corridor between the Jamul Mountains to the east and the San Diego National Wildlife Refuge to the west. By eliminating approved GDP/SRP development in Planning Area 16/19, the proposed Land Exchange Alternative will effectively replace the corridor between Planning Area 14/16 with what will be an expanded and contiguous block of core habitat that extends from the Jamul Mountains to conserved lands on San Miguel Mountain. The proposed land exchange will result in conservation of an additional 268.3 acres of open space and a net increase of 382.4 acres of Diegan coastal sage scrub conservation. While it is not feasible to design the entire Land Exchange Alternative within chaparral, the project team, in coordination with the resource agencies, designed the Land Exchange Alternative to focus the proposed development in these areas and avoid sage scrub habitats. The original approved GDP/SRP design of the project would not have replaced the corridor between Planning Areas 14/16 with what is now core area, would have resulted in far more edge effects adjacent to conserved lands, would not have focused as much of the development in chaparral, and would

⁷ Includes Village 14 development footprint and off-site impacts.

have still resulted in impacts to the two QCB historical locations being impacted by the proposed Land Exchange Alternative.

Quino Checkerspot Butterfly Critical Habitat

The majority of the Village 14 and Preserve is USFWS Designated Critical Habitat for the QCB. Impacts to Designated Critical Habitat total 642.7 acres. However, approximately 210.6 of these acres are in dense chaparral and for that reason are excluded as unusable for QCB. Therefore, Village 14 supports 432.1 acres of potential QCB habitat within critical habitat.

By contrast, approximately 404.2 acres of potential habitat would be preserved, including 403.9 acres within the Village 14 preserve and 0.3 acre within the Planning Area 16/19 preserve. This does not include an additional 350.1 acres off site acreages to be conveyed to the County pursuant to the RMP, some of which may also occur within critical habitat.

It should also be noted that the USFWS Recovery Plan for QCB does not consider the Project, or the Proctor Valley Region generally, as supporting a core population of QCB.⁸

Regional Context and Connectivity

The applicant has worked closely with the state and federal wildlife agencies to design the Land Exchange Alternative so that it provides substantially greater regional biological and ecological benefits when compared to the original approved GDP/SRP design (pre-land exchange). These additional benefits are due to (1) the preservation of larger blocks of contiguous habitat; (2) preservation and expansion of a wildlife movement corridor through the northern portion of the site; (3) elimination of approximately 13 miles of “edge effects”; and (4) a greater focus on development in chaparral portions of the site.

The Proctor Valley region is not considered a core area for QCB; however, the region does contain documented current and historical sightings and the region is included in the metapopulation structure for the species. Although limited to scattered patches throughout the valley, potential habitat for the species is present, including within the Village 14 Development footprint and the Land Exchange Alternative’s Preserve. From a metapopulation context, the Proctor Valley region provides habitat for the species to expand into in very good reproductive and flight years. The 517.4 acres of Preserve included in the design of the Land Exchange Alternative allow for contiguity of potential habitat and QCB resource areas with adjacent, preserved lands (Exhibit 4). The majority of the 517.4 acres of preserve is open coastal sage scrub that is also contiguous with other sage scrub habitats off site. As shown in Exhibit 4, the preserved lands that occur adjacent to Village 14 include portions of the Rancho Jamul Ecological Preserve, City of San Diego MSCP Cornerstone Lands, and a parcel to the east that was acquired by the Bureau of Land Management (BLM) as conserved lands. The preserved

⁸ The QCB Recovery Plan does not consider the Proctor Valley Region a core area for QCB but does identify portions of Proctor Valley Region (including the southern portion of the project site) as containing Quino Occurrence Complexes (see Figure 9 of the Recovery Plan).

lands that occur adjacent to PA 16/19 include portions of the Rancho Jamul Ecological Reserve and San Diego National Wildlife Refuge. There have been substantial numbers of QCB documented to the south of Village 14 Development, to the north and east of Otay Reservoir and also further south within the Otay Lakes Cornerstone Lands and the Otay Mountain Ecological Reserve. The Land Exchange Alternative's preserve design would maintain contiguous habitat with these locations with areas to the north on San Miguel Mountain, and provide widespread QCB resource areas, including hilltops, nectaring resources, and host plant patches to help maintain metapopulation dynamics for the species.

As noted above, the Project is also required to convey 350.1 acres of land off site within the preserve boundary established as part of the Otay Ranch RMP. While the exact location of the conveyance isn't known at this time, it is anticipated that these lands will further contribute to regional conservation for the QCB.

V. IMPACTS ON QUINO CHECKERSPOT BUTTERFLY AND MITIGATION

Quino Checkerspot Butterfly Individuals and Occupied Habitat

No QCB adults or larvae were observed during the protocol QCB surveys conducted in 2015 and 2016, or during the other biological surveys conducted for the Land Exchange Alternative in 2014 and 2015. The 2016 survey and results are considered valid because the surveys were conducted in accordance with the 2016 USFWS Survey Protocol, QCB were documented approximately 1 mile southeast of the southernmost portion of the Village 14 Development Footprint⁹ during the same time when surveys for Village 14 were conducted, and host plant and site conditions were adequate for detecting QCB. Surveys by USFWS conducted in 2017 within the Land Exchange area and existing state and federal lands immediately offsite identified a single QCB east of Proctor Valley Road within the Land Exchange, 6 individuals immediately offsite along the west-central portion of Village 14, and a single individual adjacent to the northeastern portion of the PA 16/19 Preserve. None of these locations occur within the project footprint, although the QCB east of Proctor Valley Road occurs adjacent to habitat being impacted by the proposed roadway. These findings are consistent with the overall assessment of this report that the Proctor Valley area has potential to support QCB in low numbers as evidenced in 2017.

Based on the information gathered from the 2014, 2015, and 2016 surveys, the Land Exchange Alternative site, including the Village 14 Development, Preserve, and Land Exchange areas, did not support occupied QCB habitat. Based on 2017 incidental sightings by USFWS a single QCB was observed within the Land Exchange parcel adjacent to Proctor Valley Road. With the exception of this area east of Proctor Valley Road, absent future occupation of the site by QCB, implementation of the Land Exchange Alternative would not impact QCB individuals or occupied QCB habitat.

⁹ Dudek. 2016. 2016 Focused Quino Checkerspot Butterfly survey Report for the Proposed Otay Ranch Resort Village (Village 13) Project, County of San Diego, California. Letter report to Recovery Permit Coordinator (U.S. Fish and Wildlife Service) from Dudek. May 31.

Host Plants

Based on the 2016 host plant surveys, the Village 14 Development would disturb 6.1 acres of QCB host plants scattered across the 658-acre development footprint. Within these 6.1 acres, development would result in the following impacts to host plants:

- 211 Low density points and nine Low density patches (1-100 individuals);
- 41 Medium points and 30 Medium density patches (100-1,000 individuals);
- Six High density points and 15 High density patches (1,000-10,000 individuals).

Although the total amount of affected host plant acreage is small—6.1 acres—and is scattered patchily throughout the Village 14 Development footprint, the impact is considered significant absent mitigation.

For the Land Exchange Alternative, mitigation is provided through preservation of QCB host plant locations within the Preserve. Specifically, the 2016 host plant survey indicates the following for the Preserve:

- Mapped QCB host plant areas in the Preserve totaled 2.12 acres.
- These 2.12 acres contained 78 Low density points (1-100 individuals), 44 Medium points and patches (100-1,000 individuals), and 19 High patches (1,000-10,000 individuals).

The proposed Preserve provides habitat value for the species because it contains a mosaic of open habitat communities along with some chaparral areas, hill top areas, cryptogammic soils, and scattered host plant areas throughout the preserve. The habitat within the proposed Preserve is also connected to other larger blocks of preserved habitat, including the Rancho Jamul Ecological Preserve and City of San Diego MSCP Cornerstone Lands, that are also considered suitable for QCB. For these reasons, the proposed Preserve, coupled with the additional conservation conveyance required under the Otay Ranch RMP, would mitigate the Land Exchange Alternative's impacts on QCB host plants to a less than significant level.

Quino Checkerspot Butterfly Habitat Impacts and Mitigation

As explained above, the Village 14 Development footprint contains 610.8 acres of habitat that could potentially support QCB. Although no QCB were observed on the Land Exchange Alternative site during the surveys conducted in 2014, 2015, and 2016, and although there have been no documented occurrences of QCB at the site since 2001, there is the possibility that QCB could use or occupy the site at some time in the future as was evidenced by the USFWS' observation of a single individual within the Land Exchange east of Proctor Valley Road in 2017. For this reason, the Land Exchange Alternative's impact on 610.8 acres of habitat that could support future QCBs is considered significant absent mitigation.

In this case, the impact will be mitigated through the preservation of similar habitat within the Preserve. Specifically, the Preserve will protect in perpetuity 510.1 acres of habitat that could

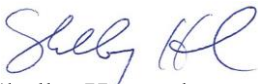
support QCB in the future. This set aside of potential QCB habitat would mitigate the proposed Land Exchange Alternative's impacts on such habitat to a less than significant level.

VI. CONCLUSION

In conclusion, no QCB were documented during 2016 focused surveys within the Village 14 Development or Preserve and those surveys were considered valid. The development footprint of the Land Exchange Alternative would impact two historic QCB sighting locations (2001 and 2006), QCB host plant locations, and habitat capable of supporting QCB in the future, including habitat adjacent to Proctor Valley Road where a QCB was incidentally sighted by USFWS in 2017. These are considered potentially significant effects absent mitigation. These effects, however, would be mitigated by preserving host plants and habitat in the Preserve and in the additional conservation land conveyed to the County under the RMP. Therefore, the Land Exchange Alternative's impacts on the QCB would be mitigated to a less than significant level.

If you have any questions, please feel free to contact either of us.

Sincerely,



Shelby Howard
Principal Biologist



Barry L. Jones
Senior Consulting Biologist

Enclosures:

- Exhibit 1 2016 Quino Host Plant Mapping and Historical Locations
- Exhibit 2 2015 Quino Host Plant Mapping, Potential Resource Areas, and Historical Locations
- Exhibit 3 Chaparral Cover and QCB Excluded Habitat
- Exhibit 4 Preservation of Documented QCB Sightings in County Subarea Plan

- Attachment A Quino Checkerspot Butterfly (QCB) Evaluation of Otay Ranch Village 14 and Planning Area 16/19 Land Exchange EIR Alternative
 - i. Table 1 State Land Exchange Portion of Land Exchange EIR Alternative
 - ii. Table 2 Boundary Line Adjustment Portion of Land Exchange EIR Alternative



2016 Quino Host Plant Mapping and Historical Locations

OTAY RANCH VILLAGE 14 AND PLANNING AREAS 16/19
LAND EXCHANGE ALTERNATIVE

Exhibit 1a

Property Boundary

Development

Otay Ranch RMP Preserve in PA 16/19

Given or Exchanged, State Owned

Given or Exchanged, Otay Owned

Quino Survey Area 2016

Excluded Areas 2016

Vegetation

CAM=Cismontane Alkali Marsh

CSS=Diegan Coastal Sage Scrub

DEV=Developed

DH=Disturbed Habitat

EUC=Eucalyptus Woodland

MFS=Mulefat Scrub

NNG=Non-Native Grassland

dCSS=disturbed Coastal Sage Scrub

Host Plants

Plantago erecta

1-99

100-999

Plantago erecta

100-999

The map displays an aerial view of the Otay Ranch Village 14 and Planning Areas 16/19. The main map area is overlaid with various colored patterns and lines representing different land uses and vegetation types. A prominent road, Echo Valley Road, runs horizontally across the upper portion of the map. The map is divided into several sections by black lines, some of which are labeled with vegetation codes: NNG (Non-Native Grassland), CSS (Diegan Coastal Sage Scrub), dCSS (disturbed Coastal Sage Scrub), DEV (Developed), DH (Disturbed Habitat), CAM (Cismontane Alkali Marsh), MFS (Mulefat Scrub), and EUC (Eucalyptus Woodland). A large area in the center-left is marked with a cross-hatch pattern, indicating 'Excluded Areas 2016'. A pink line runs diagonally across the map, likely representing a boundary or survey line. Numerous blue and green dots are scattered across the map, representing host plant locations. A legend in the top left corner defines the symbols and codes used. An inset map in the top right corner shows the location of the study area within a larger regional context, with a red box indicating the area shown in the main map.

2016 Quino Host Plant Mapping and Historical Locations

OTAY RANCH VILLAGE 14 AND PLANNING AREAS 16/19
LAND EXCHANGE ALTERNATIVE

HELIX
Environmental Planning

0 200
Feet

Exhibit 1b

Property Boundary

Otay Ranch RMP Preserve in PA 16/19

Given or Exchanged, State Owned

Given or Exchanged, Otay Owned

Quino Survey Area 2016

Vegetation

CAM=Cismontane Alkali Marsh

CSS=Diegan Coastal Sage Scrub

DEV=Developed

DH=Disturbed Habitat

EUC=Eucalyptus Woodland

NNG=Non-Native Grassland

dCSS=disturbed Coastal Sage Scrub

Host Plants

Plantago erecta

1-99

2016 Quino Host Plant Mapping and Historical Locations

OTAY RANCH VILLAGE 14 AND PLANNING AREAS 16/19
LAND EXCHANGE ALTERNATIVE

HELIX

Environmental Planning

N

0

200

Feet

Exhibit 1c