

**MORRO SHOULDERBAND SNAIL
SURVEY REPORT**

FOR

**APN 074-323-031
LOS OSOS, CALIFORNIA**



Prepared for:

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July 10, 2009

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1.0 INTRODUCTION

Quattro Biological Services (QBS) has conducted protocol surveys for the Morro shoulderband snail (*Helminthoglypta walkeriana*) on an undeveloped property (APN 074-323-031) in the community of Los Osos, California. Suitable habitat for *H. walkeriana* was identified on the property during a focused habitat assessment in November of 2008 (QBS, 2008). The likelihood for occupation by *H. walkeriana* was considered to be low at that time due to the condition of existing shrubs and the veldt grass dominance along the property boundaries. The purpose of performing field surveys was to determine the presence or absence of *H. walkeriana* within on-site habitats and to assess the potential for “take” if the property was developed. This survey report will be submitted to the United States Fish and Wildlife Service (USFWS) to satisfy protocol guidelines, recovery permit conditions, and to provide documentation for Endangered Species Act (ESA) permitting. Negative survey results (i.e., absence of *H. walkeriana* on-site) may also result in a “no take” decision by the USFWS, where no ESA permitting would be required.

H. walkeriana was listed as endangered under the ESA on December 15, 1994 as a result of habitat destruction and degradation, veldt grass invasion, structural changes in the vegetation due to plant senescence, and recreational use (e.g. off-highway vehicle activity) within the species’ limited range (USFWS, 1994 and 1998). Per the ESA, “take” of a federally listed species is not authorized without first obtaining an Incidental Take Permit (ITP) from the USFWS. Section 3(18) of the ESA defines “take” as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [with a federally listed species].” The federal ESA definition of take also includes destruction or removal of occupied habitat or habitat suitable for future occupation.

Proposed use of the property includes the development of a single family house. The planned development is consistent with the County of San Luis Obispo’s (County) zoning ordinance for the parcel. However, potential impacts to federally listed species are considered a significant impact under the California Environmental Quality Act (CEQA) and will require appropriate mitigation, if present. The County defers to the USFWS for guidance on these species. It is recommended that this report also be submitted to the County as part of the building permit application as part of the local permitting process. Prior to the issuance of the building permit, the County will also require either an ITP and Habitat Conservation Plan (HCP) or a “no take” concurrence letter from the USFWS. Required mitigation will be detailed as part of the USFWS permit or no take response.

1.1 Morro Shoulderband Snail Range and Habitat Requirements

H. walkeriana occurs in the western portion of San Luis Obispo County from Montana de Oro State Park to Morro Bay, California. USFWS defines the current known range of *H. walkeriana* as “south of Morro Bay, west of Los Osos Creek, and north of Hazard Canyon (USFWS 1994 and 2004).” Within the known range, *H. walkeriana* occupied habitat is most commonly found in coastal dune and coastal sage scrub vegetation on sandy soils. The dominant scrub commonly associated with *H. walkeriana* habitat is mock heather (*Ericameria ericoides*). Other shrubs including coastal buckwheat (*Eriogonum parvifolium*), giant eriastrum (*Eriastrum densifolium*), dune bush lupine (*Lupinus chamissonis*), dudleya (*Dudleya* spp), and in more inland locations,

California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), Morro manzanita (*Arctostaphylos morroensis*), pygmy coast live oak (*Quercus agrifolia* var. *frutescens*), and coyote brush (*Baccharis pilularis*) also provide suitable habitat for *H. walkeriana*. The optimal habitat for *H. walkeriana* is beneath the canopy of immature shrubs in the early successional stages of community development in areas away from the immediate coast (USFWS 1998). *H. walkeriana* also inhabit areas where vegetation is dense and prostrate (low-growing) or where there is an ample supply of logs or other debris that offers cover. Non-native *H. walkeriana* habitat consists of mats of invasive iceplant species (*Carpobrotus* spp), under the thatch of veldt grass (*Erharta calycina*), and on select anthropogenic-created structures and debris such as the base of fence-posts, and beneath cardboard and other litter.

1.2 Habitat Description of the Property

Maritime chaparral vegetation is located in the central to northern portion of the property and pygmy coast live oak trees are located in the northeastern corner of the property near adjoining residences. This assemblage of native shrubs and wind pruned oak trees provide the most suitable habitat on-site. The shrubs that form the maritime chaparral vegetation are open with 1.0 meter or greater spacing between individual plants, while the pygmy oak trees have a dense canopy with multiple, often closely spaced trunks. Pygmy oak trees and canopy extend off-site to the north and east and cover an area of approximately 0.10 acre. Common maritime chaparral shrubs include buck brush, mock heather, black sage, and California sage. Subshrubs include California croton (*Croton californicus*) and coast horkelia (*Horkelia cuneata* ssp. *cuneata*). One Morro manzanita (*Arctostaphylos morroensis*) was also observed on-site within maritime chaparral. Many of the shrubs have been pruned during control efforts to reduce veldt grass and fuels resulting in an open canopy with individual shrubs exhibiting a miniature tree-like form. No low hanging branches were remaining on the shrubs. Efforts to remove invasive plants and fuels may have reduced the quality of suitable snail habitat around these shrubs. The pygmy coast live oak trees and shrubs directly surrounding the trees did not receive the same treatment and, therefore, still contain low branches, leaf litter, and detritus that are favorable for *H. walkeriana* shelter and their fungal diet. Soils on-site are Baywood Fines, a common soil type in the Los Osos – Morro Bay area, which *H. walkeriana* are typically found (USDA/NRCS, 1994).

Low quality non-native habitat suitable for *H. walkeriana* also is located on the property in the ruderal vegetation (QBS, 2008). The persistence of veldt grass has greatly reduced the quality of *H. walkeriana* in areas where veldt grass dominance is evident, specifically the southern portion of the property and areas adjacent to roads. Veldt grass was identified as a major problem for recovery of this species (USFWS, 1998) and it continues to be problematic as it displaces native habitat and occupies disturbed areas throughout the snails range. The invasive Hottentot-fig (*Carpobrotus edulis*) is located along roadsides and in small areas between veldt grass patches. Pruned maritime chaparral shrubs and subshrubs are also found in very low densities throughout the non-native habitat.

1.3 Habitat Description of the Surrounding Area

Prime suitable habitat is located south of the property in an open space area across Bayview Heights Drive. The open space contains mature coast dune scrub, maritime chaparral, and pygmy coast live oak woodland habitats that are likely occupied by a healthy population of *H.*

walkeriana. The contiguous urban development to the north, west, and east support single family houses, paved roads, and a variety of landscaped ornamental vegetation. These adjoining residences are not likely to contain suitable *H. walkeriana* habitat.

2. METHODS

QBS principal ecologist John H. Davis IV conducted USFWS protocol surveys for *H. walkeriana* on the property per USFWS guidelines and permit conditions. The property is approximately 0.5 acre and is located at the corner of Bayview Heights Drive and Via Vistosa Road within the community of Los Osos, San Luis Obispo County, California (Figure 1). Bayview Heights Drive forms the southern boundary, Via Vistosa Road forms the western boundary, and developed residential lots border the property to the north and east. Open space is located directly across the street of Bayview Heights Drive and the Los Osos Oaks State Reserve and the Los Osos Creek Watershed are located further to the southeast (Figure 2). The property is located on the United States Geographic Society (USGS) 7.5 minute quadrangle map Morro Bay South, California (USGS 1998). Average elevation is 81 meter (265 feet).

Mr. Davis IV is federally authorized under USFWS permit TE 110095-0 to conduct habitat assessments, protocol surveys, and habitat restoration for *H. walkeriana* in the Los Osos and Morro Bay area. Based on the known range of *H. walkeriana*, identification of suitable habitat on the property (QBS, 2008), and conversations with USFWS biologist Julie Vanderwier, it was determined that the property has potential to support *H. walkeriana*. A letter requesting authorization to conduct protocol surveys for the property was submitted to the USFWS on November 24, 2008. On November 26, 2008, the USFWS responded with the authorization to proceed with surveys. The reference number provided by Ms. Vanderwier via email is PAS 81440-2009-B-0045.

Field surveys followed the Protocol Survey Guidelines for the Morro Shoulderband Snail (*Helminthoglypta walkeriana*) (USFWS, 2003) and direction from the USFWS Ventura Field Office. A total of five focused surveys for the *H. walkeriana* were conducted between December 15, 2008 and March 22, 2009. The surveys were conducted at least one week apart during or immediately following rain events. During the surveys, the entire property was thoroughly examined to determine whether live *H. walkeriana* or empty *H. walkeriana* shells were present. Extra focus was given to key habitat features including wood, rocks, detritus, and leaf litter accumulation under trees, shrubs, and ground cover plants. If a live snail or empty shell was found, the diameter of the shell was measured, the age class was determined, and the Universal Transversal Mercator (UTM) coordinates were recorded using a Garmin GPSmap 60CSx unit. Based on shell diameter, age classes of live snails were placed into the following categories: juvenile (0.8 cm to 1.3 cm), sub-adult (1.4 cm to 1.9 cm), and adult (>2.0 cm). Empty shells were classified according to Roth's (1985) categories for older shells. Approximate age [from time of animal death] of the empty shell was also determined from the shell's condition. Description of the categories includes:

- Category A. With periostracum intact or nearly so, shell about as in life although generally with some loss of luster and translucency. Age is approximated to be less than 1.0 year old.

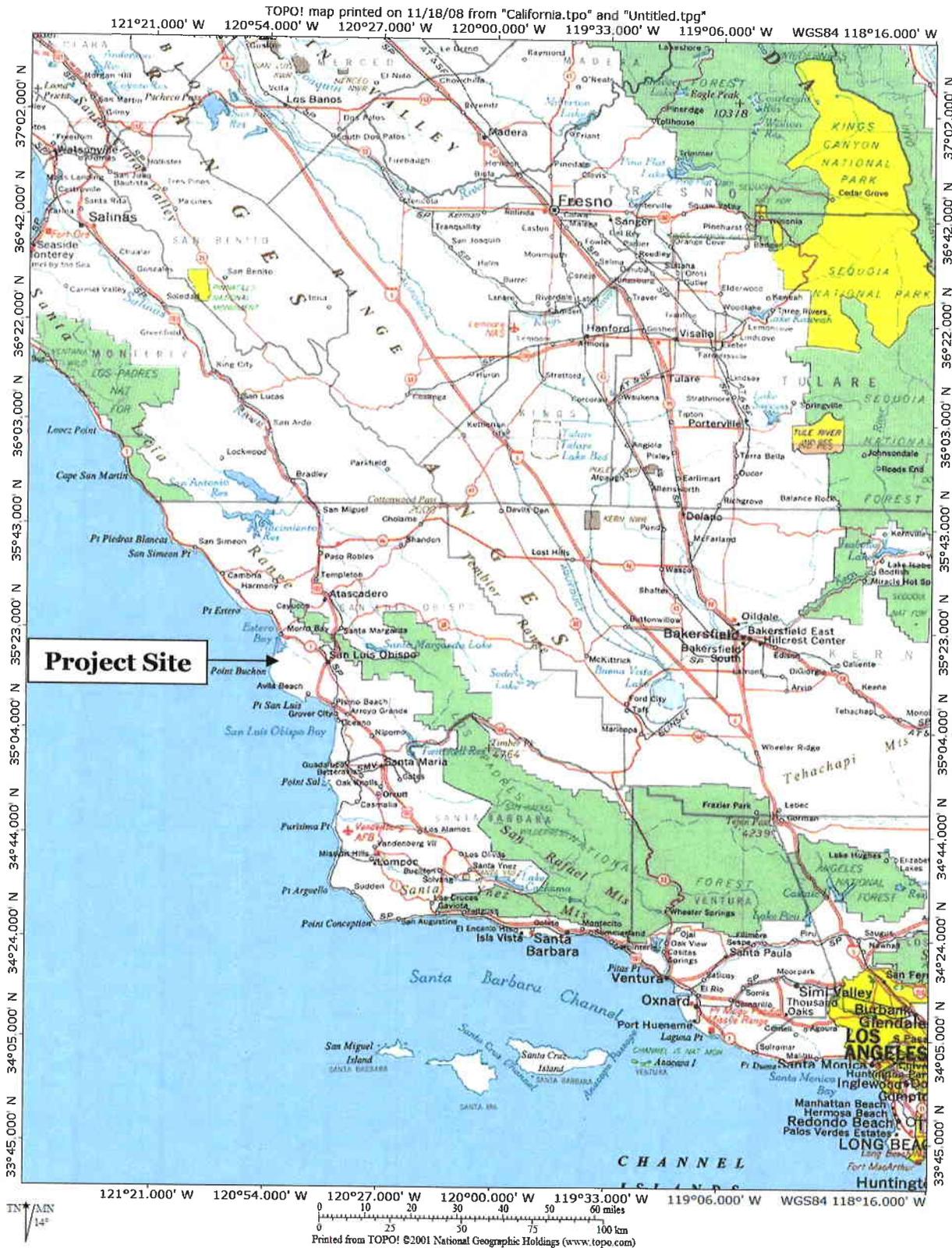


FIGURE 1
Project Vicinity

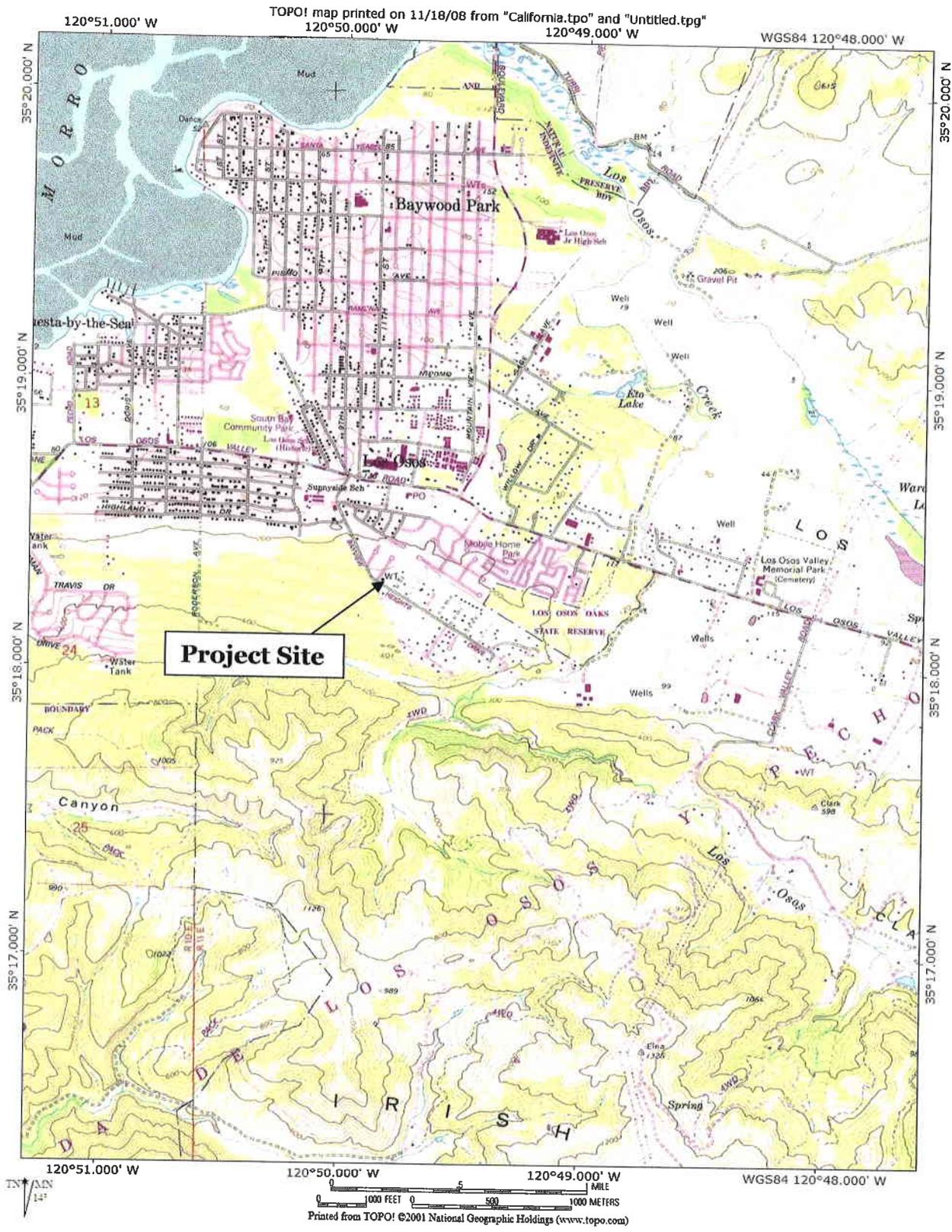


FIGURE 2
Project Site

- Category B. With periostracum mostly or entirely missing, shell retaining brown pigmentation. Age is approximated to be between 0.5 year and 2.0 years old
- Category C. With periostracum missing, shell white, all or nearly all brown pigment removed by erosion or bleaching. Age is approximated to be from 1.5 years to 10.0 years old, possibly older.

“A fresh shell shows the characteristics of a living snail’s shell: glossy interior, full color inside and out, intact periostracum, and a certain translucency of the shell substance which is soon lost from empty shells in the wild (Roth, 1985).”

3.0 RESULTS

A total of 31 empty *H. walkeriana* shells were found on the property during field surveys (Table 1, Figure 3, Photo Plate, and Appendix A). Based on Roth’s empty shell classification (1985), 8 shells exhibited category B characteristics and 23 exhibited category C characteristics. Of the category B shells, 7 represented adult sized snails and 1 represented a subadult sized snail. The category C shells observed included 12 adults, 6 subadults, and 5 juvenile sized snails. No shells were fresh or exhibited category A characteristics. The majority of empty *H. walkeriana* shells were observed at the base of mock heather, buck brush, black sage, and coast horkelia shrubs within leaf and branch detritus or low erect to decumbent leafs (coast horkelia) in the maritime chaparral and ruderal vegetation communities. A few shells were found under the thatch of veldt grass. No shells were observed under pygmy coast live oak trees or under iceplant. In addition, 32 empty brown garden snail (*Helix aspera*) shells were located during surveys. No live *H. walkeriana* or *H. aspera* were observed.

Weather conditions were met during each field survey (i.e., surveys were conducted in the rain or immediately after a rain event to maximize the potential for detecting live snails). San Luis Obispo County has experienced drought conditions for three consecutive years. This year Pacific Gas and Electric only recorded 23.04 cm (9.07 inches) of rain for the 2009 rain season (July 1, 2008 to June 30, 2009) at their Diablo Canyon Power Plant. The power plant is located approximately 6.25 miles south of the property. Average annual rainfall for this weather station is approximately 61 cm (24 inches). Although a low rainfall amount was recorded this year, the absence of live snails on the property was likely due to habitat alteration (fuel reduction), invasive plant species dominance, and urban development (i.e., surrounding neighborhood and paved roads) and less likely the result of insufficient precipitation.

4.0 CONCLUSION AND RECOMMENDATIONS

The results of the completed USFWS protocol surveys on the property determined the presence of shells belonging to the federally endangered Morro shoulderband snail. As stated in the protocol guidelines “if live Morro shoulderband snails or empty Morro shoulderband snail shells are found at any time during the five survey visits, presence has been established...” However, the absence of live *H. walkeriana* individuals indicates that the property, in its current condition, is not occupied by *H. walkeriana* (i.e., live snails utilizing habitat), nor does it supports a viable population of snails. Based on the shell categories observed, live snails were present as recent as last year (category B shells) or between 2.0 and 10.0 years plus (category C shells). These age ranges are only estimates, however, the greater amount of C shells indicates that live snails may

TABLE 1
Survey Conditions and Results

Survey No.	Surveyor(s) ¹	Date / Time	Site Conditions ²	Temperature	<i>H. walkeriana</i> observed ³	Other snails observed ⁴
1	J. Davis IV* L. Cook	Dec 15, 2008 / 6:42 – 7:50	Partly cloudy during survey and clearing. Survey immediately followed hours of rain that produced > 2.5 cm (1.00 inch) of rain locally. Moderate winds from the SW. Soil was moist and vegetation wet.	Start: 9.3°C (48.7°F) End: 8.5°C (47.3°F)	<ul style="list-style-type: none"> 0 live MSS 4 – adult shells; B=2, C=2 1 – juv. shell; C=1 	<ul style="list-style-type: none"> <i>H. aspera</i> shells (n=5)
2	J. Davis IV	Jan 23, 2009 / 9:45 – 10:55	Low clouds during survey. Survey immediately followed a light rain the night before where rain totals were 0.31 cm (0.12 inch). Winds light from the S/SW and NW. Soil was moist and vegetation wet.	Start: 12.6°C (54.7°F) End: 12.9°C (55.2°F)	<ul style="list-style-type: none"> 0 live MSS 2 – adult shells; B=1, C=1 1 – juv. shell; C=1 	<ul style="list-style-type: none"> <i>H. aspera</i> shells (n=2)
3	J. Davis IV L. Cook	Feb 7, 2009 / 11:37 – 12:48	Cloudy to partly sunny. Slight to moderate breeze from N/NE. Surveys followed a good sized storm event, approx. 1.98 cm (0.78 inch) of rain fell over a three day storm event. Soil moist to wet.	Start: 14.8°C (58.6°F) End: 12.5°C (54.5°F)	<ul style="list-style-type: none"> 0 live MSS 6 – adult shells; B=3, C=3 3 – subadults; C=3 2 – juv.; C=2 	<ul style="list-style-type: none"> <i>H. aspera</i> shells (n=8)
4	J. Davis IV	Feb 22, 2009 / 11:50 – 13:05	Surveys followed overnight rain and morning drizzle. Survey conditions had drizzle with slight to moderate breeze (2-5 mph) from the S/SE. Soil was damp to wet. Heavier sprinkler occurred toward end of survey.	Start: 16.5°C (61.5°F) End: 15.3°C (59.4°F)	<ul style="list-style-type: none"> 0 live MSS 2 – adult shells; C=2 4 – sub-adult shells; B=1, C=3 	<ul style="list-style-type: none"> <i>H. aspera</i> shells (n=9)
5	J. Davis IV L. Cook	Mar 22, 2009/ 13:15 – 14:10	Surveys followed overnight rain and morning drizzle. Thick cloud layer becoming light rain by end of survey. Winds were brisk (6 to 10 mph) with stronger gust. Soil was moist. No rain puddles present.	Start: 14.6°C (58.3°F) End: 13.5°C (56.3°F)	<ul style="list-style-type: none"> 0 live MSS 5 – adult shells; B=1, C=4 1 – juv. shell; C=1 	<ul style="list-style-type: none"> <i>H. aspera</i> shells (n=8)

¹ J. Davis IV = John H. Davis IV, L. Cook = Lacrissa Cook

² Rain was retrieved from PG&E DCP Weather Forecast and Weather Underground

³ B = Category B shell (approx. 0.5 - 2.0 years) and C= Category C shell (approx. 1.5 – 10.0+ years old)

⁴ *Helix aspera* = *H. aspera* = Common garden snail; n=number of live snails or shells, whichever is indicated

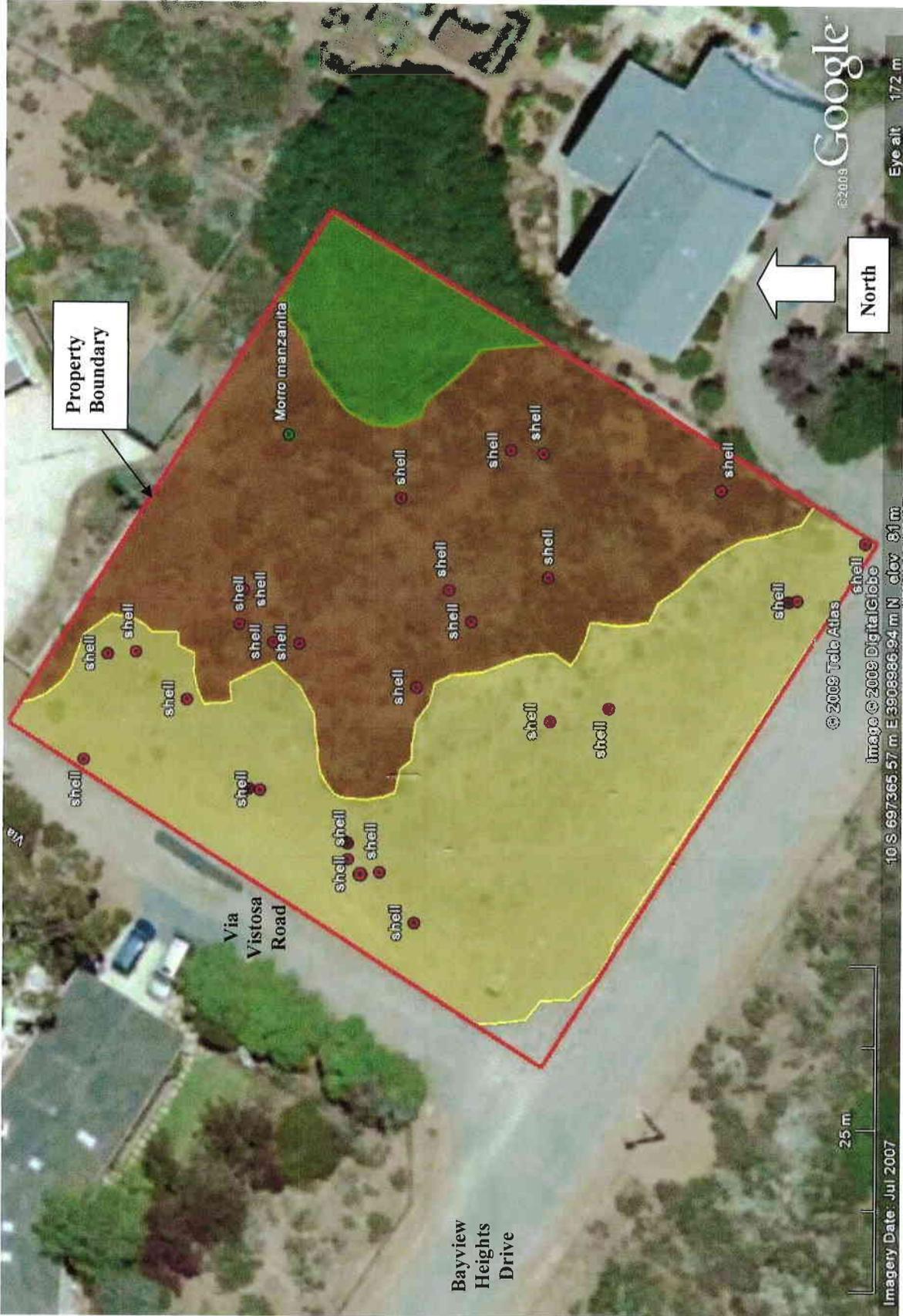


FIGURE 3
Survey Results

PHOTO PLATE



Photo 1. Overview of vegetation types as viewed from the southwestern corner of the property. Veldt grass is visible in the foreground, while open maritime chaparral and pygmy coast live trees are visible in the background. The photo was taken on December 15, 2008.



Photo 2. View of a category B shell on top of branch, twigs, and leaf litter. The photo was taken on December 15, 2008.

not have successfully utilized this parcel for years. In addition, only empty shells of the brown garden snail (*Helix aspera*) were found further indicating that this parcel is now a sink to dispersing snails.

The property is not expected to support future occupation of *H. walkeriana* in its existing condition. Maintenance, veldt grass dominance, urban encroachment, and lack of habitat connectivity together challenge survival, fecundity, and population growth and dispersal of *H. walkeriana* on the property. Regular maintenance of the property for fuel reduction (i.e., the pruning of lower shrub branches and mowing/weed wacking) has greatly reduced the quality of habitat for *H. walkeriana* (QBS, 2008). The shrubs now appear more tree-like and do not possess the lower hanging branches that create the moist microclimate that *H. walkeriana* prefers. The on-site conditions and surrounding development will continue to reduce the opportunity for the property to sustain a population of *H. walkeriana*.

Urban development and infrastructure have now restricted direct connectivity with occupied *H. walkeriana* and nearby suitable habitat. No natural habitat linkage currently exists between the property and the open space to the south. Baywood Heights Drive and Via Vistosa Road form the greatest obstacle for dispersal of *H. walkeriana* onto the property from potentially occupied habitat to the south. In addition, the surrounding single family houses with ornamental landscaping are not expected to contain occupied habitat. No *H. walkeriana* are expected to disperse onto the property from these residences. Lastly, the dense coverage of veldt grass in the south and west portions of the property are expected to limit movement of *H. walkeriana* onto the property. As previously mentioned, the property may also form a sink for snails that do cross the road during dispersal only to get caught up by veldt grass clumps and desiccate and die when a moist microclimate is not located. The thatch is also removed yearly during fuel reduction maintenance, which allows spacing between veldt grass clumps to be more open. However, this removes potential shelter.

In a recent assessment of potential take when only shells were observed (Rincon, 2006), the USFWS has concurred that “no take” of *H. walkeriana* would occur if appropriate mitigation measures were implemented during construction. The results of the survey indicate that future development on the property would have a very low potential to result in “take” of *H. walkeriana*. If the USFWS does not concur that no take of *H. walkeriana* would occur from development of the property, then an ITP per the federal ESA (USFWS, 1973) would be required prior to initial of a project. The ITP allows a landowner to legally proceed with an activity that would otherwise result in the illegal take of a listed species. The County will also require an ITP before a building permit is granted. An ITP is obtained through the preparation of a HCP and as such must accompany the application for an ITP. The HCP is designed to offset any harmful effects the proposed activity might have on the species. The HCP process can provide for development to proceed while promoting the long term conservation of the *H. walkeriana*. The HCP process is described in Section 10 of the ESA, however, a summary of the HCP/ITP may be found on the USFWS web site: http://www.fws.gov/endangered/hcp/HCP_Incidental_Take.pdf. Although a “minimal effects” HCP can be completed in two years, please allow for three to five years to complete the HCP and receive an ITP.

4.1 Recommendations

“Take” of the federally endangered *H. walkeriana* is not likely to occur from future development of a single family house on the property, if recommended measures are implemented. A formal “no take” concurrence request letter should be prepared and submitted to the USFWS prior to development of a building permit application. An approximate project footprint should be included in the letter. The USFWS may require project or footprint changes as part of their concurrence to avoid impacts to *H. walkeriana* habitat. The request for no take should include the following measures as listed below in Section 4.1.1.

4.1.1 No take of federally-listed species

- Avoid the intact maritime chaparral vegetation and pygmy coast live oak trees to the greatest extent feasible. These vegetation types are considered habitat for *H. walkeriana*. A building setback area should be designated for the single family house and may include portions of the maritime chaparral.
- Provide a 10 meter (30 foot) no-build setback from the trunk of the federally threatened Morro manzanita located in the north-central portion of the property.
- Regular maintenance activities of the property should continue prior to and during construction of the proposed project. This includes pruning shrubs and mowing veldt grass. If maintenance activities cease, additional surveys may be required.
- Construction of the single family house shall occur between the months of June 1st and September 30th when rain events are rare and *H. walkeriana* are typically inactive.
- Prior to any ground disturbance, a preconstruction survey for *H. walkeriana* shall occur in the areas to be disturbed by grading and other construction related activities and shall include the building setback area. The survey shall be conducted by a USFWS permitted biologist.
- Prior to any ground disturbance, silt fencing shall be placed along the setback limit lines of the proposed project to inhibit movement of *H. walkeriana* onto the property.
- If construction is not complete by October 31st or the end of the dry season, whichever occurs first, *H. walkeriana* monitoring shall be initiated following any rain events around the perimeter of the project site. If *H. walkeriana* are observed, a USFWS permitted biologist shall move the *H. walkeriana* to a suitable location within the building setback zone or to a location specified by the USFWS.

4.1.2 Other Recommendations

- For the pygmy coast live oak trees located in the northwest corner of the property, provide a 10 meter (30 foot) no-build setback or a setback equal to 1.5 times the radius of the canopy, whichever is greatest.

5.0 REPORT LIMITATIONS

This document as presented herein is a species-specific survey report for *H. walkeriana* and is meant to satisfy the reporting requirements described in the permit conditions and protocol. No other habitat assessments or special-status species surveys were conducted as part of this survey. If other federally listed species or sensitive species as defined by the California Department of Fish and Game or the County were observed, then they were noted and GPS coordinates captured or the locations hand mapped depending on the quantity of individuals or area of the population. The report is also meant to meet reporting requirements for the County for special-status species. Please note that the County may request additional biological assessments, special-status species surveys, and reporting beyond the scope of this *H. walkeriana* survey report for local permitting purposes.

As stated in the protocol survey guidelines (USFWS, 2003) "Because information is lacking on the ability of [*H. walkeriana*] to colonize unoccupied habitat, the [USFWS] is not establishing a time frame in which an adequate survey is considered valid. However, the [USFWS] should be contacted if more than two (2) years lapse between an accepted negative survey and an action which may affect the habitat of the Morro shoulderband snail on a give site."

6.0 RESPONSIBLE PARTY

The USFWS Ventura Field Office is responsible for the regulation of the Morro shoulderband snail. The address is: USFWS Ventura Field Office, 2493 Portola Road, Suite B, Ventura, CA 93003. The Ventura Field Office phone number is (805) 644-1766, and the fax number is (805) 644-3958. USFWS biologist Julie Vanderwier is the contact for this project. Ms. Vanderwier's phone extension is 222.

7.0 REFERENCES

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APPENDIX A
CNDDB FORMS

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811

Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 12/15/2008

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Helminthoglypta walkeriana*

Common Name: Morro shoulderband snail

Species Found? Yes No If not, why? _____
Total No. Individuals 31 Subsequent Visit? yes no
Is this an existing NDDDB occurrence? no unk.
Yes, Occ. # _____
Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: John H. Davis IV
Address: 130 W. Valerio Street, Apt. 3
Santa Barbara, California 93101
E-mail Address: jhdavis4@hotmail.com
Phone: (805) 440-0378

Plant Information

Phenology: _____% vegetative _____% flowering _____% fruiting

Animal Information

25 # adults 6 # juveniles # larvae # egg masses # unknown
 wintering breeding nesting rookery burrow site other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

The property is approximately 0.5 acre and is located at the corner of Bayview Heights Drive and Via Vistosa Road within the community of Los Osos, San Luis Obispo County, California (Figure 1 and 2).

County: San Luis Obispo Landowner / Mgr.: Catherine Francis
Quad Name: Morro Bay South Elevation: 81 meters
T _____ R 10E Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S Source of Coordinates (GPS, topo. map & type): GPS
T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S GPS Make & Model Garmin GPSmap 60CSx
DATUM: NAD27 NAD83 WGS84 Horizontal Accuracy <10 meters (30 feet) meters/feet
Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)
Coordinates: 10S 697363.50 m E / 3908989.58 N

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Maritime chaparral vegetation is located in the central to northern portion of the property and pygmy coast live oak trees are located in the northeastern corner of the property near adjoining residences. Common maritime chaparral shrubs include buck brush, mock heather, black sage, and California sage. Subshrubs include California croton and coast horkelia. One Morro manzanita was also observed on-site within maritime chaparral. Many of the shrubs have been pruned during control efforts to reduce veldt grass and fuels resulting in an open canopy with individual shrubs exhibiting a miniature tree-like form. No low hanging branches were remaining on the shrubs. Soils on-site are Baywood Fines, a common soil type in the Los Osos - Morro Bay area, which *H. walkeriana* are typically found.

Please fill out separate form for other rare taxa seen at this site. 1 Morro manzanita (Arctostaphylos morroensis)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use: Residential (North, West, East) and Open Space (South)

Visible disturbances: Lower branches of shrubs were trimmed during fire maintenance and veldt grass mowed.

Threats: Residential Development

Comments: A total of five focused surveys for the *H. walkeriana* were conducted between December 15, 2008 and March 22, 2009 by Mr. Davis IV under USFWS permit TE 110095-0. Only empty shells were observed. No live snails were seen during these protocol surveys.

Determination: (check one or more, and fill in blanks)

- Keyed (cite reference): _____
 Compared with specimen housed at: Personal shell collection
 Compared with photo / drawing in: Personal photos
 By another person (name): _____
 Other: Familiarity with species

Photographs: (check one or more) Slide Print Digital
Plant / animal
Habitat
Diagnostic feature

May we obtain duplicates at our expense? yes no

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95811

Fax: (916) 324-0475 email: CNDDDB@dfg.ca.gov

Date of Field Work (mm/dd/yyyy): 12/15/2008

For Office Use Only

Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Arctostaphylos morrensensis*

Common Name: Morro manzanita

Species Found? Yes No _____ If not, why? _____

Total No. Individuals 1 Subsequent Visit? yes no

Is this an existing NDDB occurrence? no unk.
Yes, Occ. # _____

Collection? If yes: _____
Number _____ Museum / Herbarium _____

Reporter: John H. Davis IV

Address: 130 W. Valerio Street, Apt. 3
Santa Barbara, California 93101

E-mail Address: jhdavis4@hotmail.com

Phone: (805) 440-0378

Plant Information

Phenology: 95 % 3 % 2 %
vegetative flowering fruiting

Animal Information

adults # juveniles # larvae # egg masses # unknown
 wintering breeding nesting rookery burrow site other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

The property is approximately 0.5 acre and is located at the corner of Bayview Heights Drive and Via Vistosa Road within the community of Los Osos, San Luis Obispo County, California (Figures 1 and 2).

County: San Luis Obispo Landowner / Mgr.: Catherine Francis

Quad Name: Morro Bay South Elevation: 80 meters

T _____ R ^{10E} _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S
T _____ R _____ Sec _____, _____ 1/4 of _____ 1/4, Meridian: H M S

DATUM: NAD27 NAD83 WGS84
Coordinate System: UTM Zone 10 UTM Zone 11 OR Geographic (Latitude & Longitude)
Horizontal Accuracy <10 meters (30 feet) _____ meters/feet

Coordinates: 10S 697383.64 m E / 39090000.58 N

Habitat Description (plants & animals) plant communities, dominants, associates, substrates/soils, aspects/slope:

Animal Behavior (Describe observed behavior, such as territoriality, foraging, singing, calling, copulating, perching, roosting, etc., especially for avifauna):

Maritime chaparral vegetation is located in the central to northern portion of the property and pygmy coast live oak trees are located in the northeastern corner of the property near adjoining residences. Common maritime chaparral shrubs include buck brush, mock heather, black sage, and California sage. Subshrubs include California croton (*Croton californicus*) and coast horkelia (*Horkelia cuneata* ssp. *cuneata*). One Morro manzanita (*Arctostaphylos morrensensis*) was also observed on-site within maritime chaparral. Many of the shrubs have been pruned during control efforts to reduce veldt grass and fuels resulting in an open canopy with individual shrubs exhibiting a miniature tree-like form. No low hanging branches were remaining on the shrubs.

Please fill out separate form for other rare taxa seen at this site. 31 empty shells of Morro shoulderband snail (*Helminthoglypta walkeriana*)

Site Information Overall site/occurrence quality/viability (site + population): Excellent Good Fair Poor

Immediate AND surrounding land use: Residential (North, West, East) and Open Space (South)

Visible disturbances: Lower branches were trimmed during fire maintenance.

Threats: Residential Development

Comments: The Morro manzanita will likely be protected from direct impacts.

Determination: (check one or more, and fill in blanks)

- Keyed (cite reference): Hickman, Ed. (1993) *The Jepson Manual and Hoover (1971)*
- Compared with specimen housed at: _____
- Compared with photo / drawing in: _____
- By another person (name): _____
- Other: Familiarity with species, compared with reference specimens in the field

Photographs: (check one or more) Slide Print Digital
Plant / animal
Habitat
Diagnostic feature

May we obtain duplicates at our expense? yes no

