

Final

**Low-Effect Habitat Conservation Plan for the
Mount Hermon June Beetle at the
West Residence (APN: 072-273-34)
In Ben Lomond, Santa Cruz County, California**



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Executive Summary

Executive Summary

Mr. Ed and Mrs. Lita West are seeking an incidental take permit, under Section 10(a)(1)(B) of the Federal Endangered Species Act, to cover take of the Mount Hermon June beetle (*Polyphylla barbata*) associated with their proposed room addition project at their 0.45-acre home site, which is located at 465 Larita Drive (APN: 072-273-34), in Ben Lomond, in central Santa Cruz County, central coastal California.

A 3-year permit term is requested to address incidental impacts to the federally endangered Mount Hermon June beetle associated with addition of a new master bedroom suite and porch to the existing single family home. The impacts of the project would include permanent impacts to Mount Hermon June beetles potentially living within the 649 ft² (0.0149 acre) area to be disturbed during construction activities that is not currently covered by existing impervious surfaces. Of the 649 ft² (0.0149 acre) area of potential habitat on the site that will be disturbed, 581 ft² (0.0133 acre) will be permanently removed through construction of the master bedroom suite and porch. The remaining 68 ft² (0.0016 acre) will be landscaped using elements designed to not deter use of habitat by Mount Hermon June beetle, such that the impacts on habitat will be temporary.

The Mount Hermon June beetle is a fossorial insect that lives in Zayante soils, which support unique communities known as the Zayante (or Santa Cruz) Sandhills (Sandhills). Though several other special status plants and animals are known to occur within the Sandhills, only the Mount Hermon June beetle has the potential to be impacted by this project. Due to the project's small size and occurrence within an area of high density residential development that is of marginal long term conservation value, the project is not anticipated to significantly impact the persistence of the Mount Hermon June beetle population within the Ben Lomond region, or the persistence of the species as a whole.

This plan's conservation strategy includes the following measures designed to minimize the project's impacts on the Mount Hermon June beetle:

1. Locating the project on and adjacent to the already existing impervious surfaces, where habitat does not occur or is more degraded relative to the remainder of the parcel.
2. Avoiding the flight season, if at all possible, and using erosion control fabric to prevent Mount Hermon June beetles from burrowing into exposed soil in the construction site when/if soil disturbing activities occur between May and August.

3. Having a qualified biologist translocate any larval beetles unearthed during construction activities to a portion of the project site outside of the impact area that supports intact vegetation.
4. Avoiding installation of any new outdoor night lighting, which can distract Mount Hermon June beetles from breeding
5. Minimizing hardscaping and landscaping elements that degrade habitat for Mount Hermon June beetle.

In addition, the applicants will mitigate both the temporary and permanent loss of habitat resulting from the construction project through off-site mitigation at a ratio of 1:1. To accomplish this, a total of 649 square foot conservation credits have been purchased from the Zayante Sandhills Conservation Bank—a conservation bank that conserves, manages, and monitors large, high quality Sandhills habitat preserves that have high conservation value for the Mount Hermon June beetle and other Sandhills species.

A copy of the receipts documenting the purchase of conservation credits is included in Appendix B and Appendix C. The applicant will fund all other elements of the proposed conservation strategy. Upon completion of the project, a qualified biologist will conduct compliance monitoring to evaluate success toward the biological goals and objectives, and adherence to the proposed minimization measures. Biological effects monitoring will be used to quantify the impact of the project on Mount Hermon June beetle individuals and habitat. Results of this monitoring will be provided to the U.S. Fish and Wildlife Service in a project report.

Section 1

Introduction and Background

1.1 Overview and Background

This Habitat Conservation Plan (HCP) for the proposed residential room addition project at the West Residence, a 0.45-acre home site near the town of Ben Lomond, Santa Cruz County, California, has been prepared pursuant to the requirements of Section 10(a)(1)(B) of the Federal Endangered Species Act of 1973, as amended (Act). The HCP is intended to provide the basis for issuance of a Section 10(a)(1)(B) permit to Ed and Lita West, the property owners, to authorize incidental take of the Mount Hermon June beetle (*Polyphylla barbata*), a federally-listed endangered species, that may result from addition of a new master bedroom suite and porch to their single family residence. In January 2007, a qualified biologist determined that the project site contains Zayante soils, and therefore supports potential habitat for the federally endangered insect (Appendix A).

1.2 Permit Holder/Permit Duration

Ed and Lita West request an incidental take permit to cover take of Mount Hermon June beetle for 3 years commencing on the date of permit approval. Project construction is anticipated to require less than one year. However, seasonal limitations on development may delay project inception following permit issuance. For this reason, a 3-year permit duration is requested to ensure that the covered activities will be implemented during the term of the permit.

1.3 Permit Boundary/Covered lands

A permit is requested to authorize the incidental take of Mount Hermon June beetle within the project area on the 0.45-acre West Property (APN: 072-273-34) located at 465 Larita Drive near the town of Ben Lomond in an unincorporated portion of Santa Cruz County in central coastal California (Figure 1). The project site is located within the Felton 7.5" United States Geological Survey (USGS) topographic quadrangle, in Township 10S and Range 2W of the Mount Diablo Meridian.

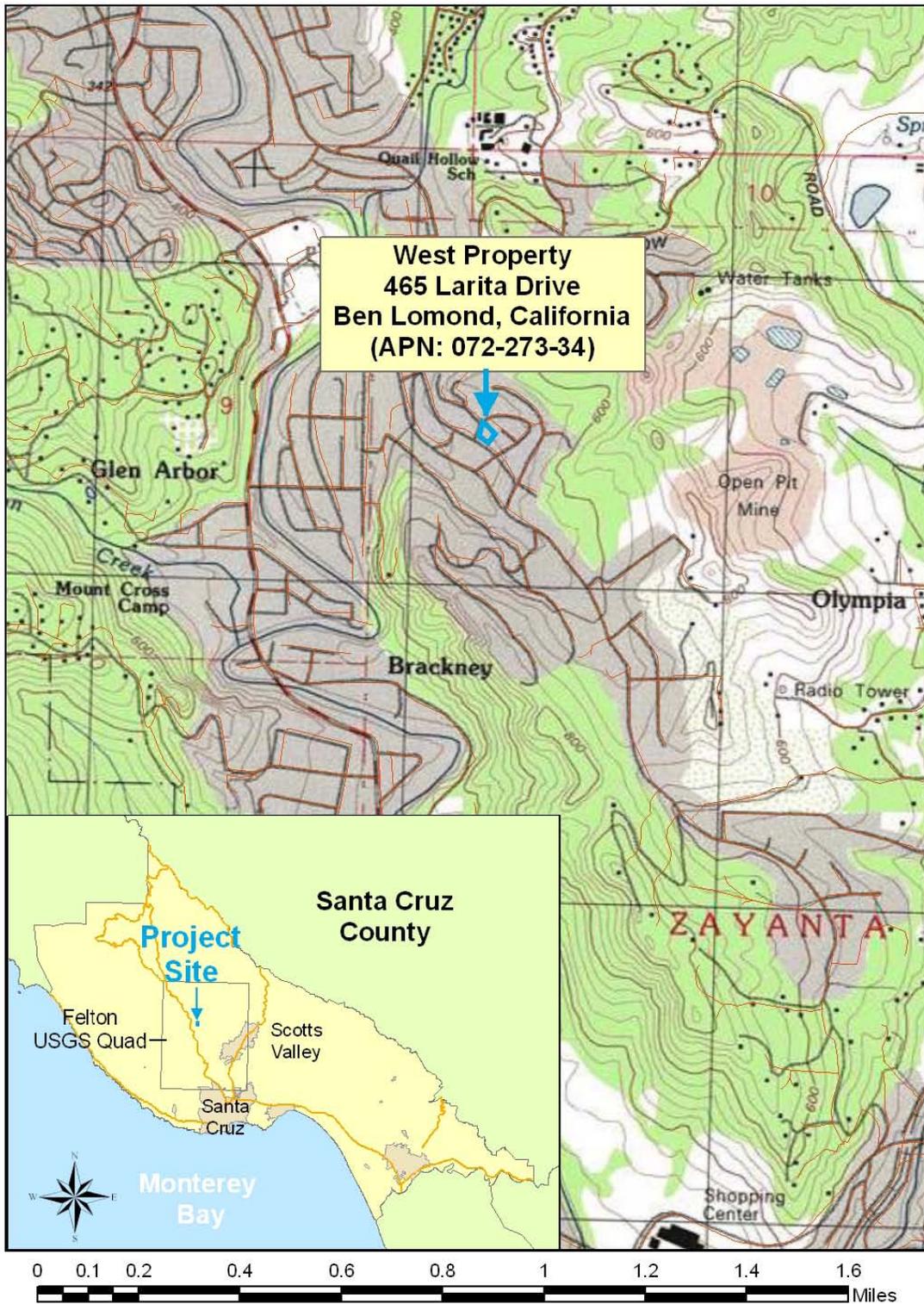


Figure 1: Location of proposed project site (West Property) within the Felton US Geological Survey Quadrangle in central Santa Cruz County, west of Scotts Valley. Map prepared by Jodi M. McGraw.

1.4 Species to be Covered by Permit

The following species is referred to as a "covered species" related to the Incidental Take Permit if it is issued.

<u>Covered Species</u>	<u>Federal Status/State Status</u>
Mount Hermon June beetle (<i>Polyphylla barbata</i>)	Federally Endangered

The following additional federally endangered species that occur with the Mount Hermon June beetle at other locations will not be addressed in this HCP or covered under the requested Incidental Take Permit as they do not occur at the project site due to a lack of suitable habitat (J. McGraw, pers. obs. 2007; Appendix A):

<u>Additional Species</u>	<u>Federal Status/State Status</u>
Zayante band-winged grasshopper (<i>Trimerotropis infantilis</i>)	Federally Endangered
Ben Lomond spineflower (<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>)	Federally Endangered
Santa Cruz (Ben Lomond) wallflower (<i>Erysimum teretifolium</i>)	Federally Endangered/ CA State Endangered

1.5 Regulatory Framework

1.5.1 Federal Endangered Species Act

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the U.S. Fish and Wildlife Service (Service) as an intentional or negligent act or omission that creates the likelihood of

injury to listed species by annoying them to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Pursuant to section 11(a) and (b) of the Act, any person who knowingly violates section 9 of the Act or any permit, certificate, or regulation related to section 9, may be subject to civil penalties of up to \$25,000 for each violation or criminal penalties up to \$50,000 and/or imprisonment of up to one year.

Individuals and State and local agencies proposing an action that is expected to result in the incidental take of federally listed species are encouraged to apply for an incidental take permit under section 10(a)(1)(B) of the Act to be in compliance with the law. Such permits are issued by the Service when take is not the intention of and is incidental to otherwise legal activities. An application for an incidental take permit must be accompanied by a HCP. The regulatory standard under section 10 of the Act is that the effects of authorized incidental take must be minimized and mitigated to the maximum extent practicable. Under Act section 10, a proposed project also must not appreciably reduce the likelihood of the survival and recovery of the species in the wild, and adequate funding for a plan to minimize and mitigate impacts must be ensured.

Section 7 of the Act requires Federal agencies to ensure that their actions, including issuing permits, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species' critical habitat. "Jeopardize the continued existence of..." pursuant to 50 CFR 402.2, means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an incidental take permit under section 10(a)(1)(B) of the Act by the Service is a Federal action subject to section 7 of the Act. As a Federal agency issuing a discretionary permit, the Service is required to consult with itself (i.e., conduct an internal consultation). Delivery of the HCP and a section 10(a)(1)(B) permit application initiates the section 7 consultation process within the Service.

The requirements of section 7 and section 10 substantially overlap. Elements unique to section 7 include analyses of impacts on designated critical habitat, analyses of impacts on listed plant species, if any, and analyses of indirect and cumulative impacts on listed species. Cumulative effects are effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area, pursuant to section 7(a)(2) of the Act. The action area is defined by the influence of direct and indirect impacts of covered activities. The action area may or may not be solely contained within the HCP boundary. These additional analyses are included in this HCP to meet the requirements of section 7 and to assist the Service with its internal consultation.

1.5.2 The Section 10(a)(1)(B) Process - Habitat Conservation Plan Requirements and Guidelines

The Section 10(a)(1)(B) process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit application processing phase; and (3) the post-issuance phase.

During the HCP development phase, the project applicant prepares a plan that integrates the proposed project or activity with the protection of listed species. An HCP submitted in support of an incidental take permit application must include the following information:

- impacts likely to result from the proposed taking of the species for which permit coverage is requested;
- measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances;
- alternative actions considered that would not result in take; and
- additional measures USFWS may require as necessary or appropriate for purposes of the plan.

The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package consists of: 1) an HCP, 2) an Implementing Agreement (IA), 3) a permit application, and 4) a \$100 fee from the applicant. An implementing agreement is not required for an HCP that qualifies as a low-effect HCP.. The Service prepares an Intra-Service Section 7 Biological Opinion; and also prepares a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application in the context of permit issuance criteria (see below). An Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement serves as the Service's record of compliance with the National Environmental Policy Act (NEPA). The Service must publish a Notice of Availability of the HCP package in the Federal Register to allow for public comment. The draft NEPA document, HCP, and IA (if applicable) are made available for public review during this 30-day to 90-day comment period. A Section 10(a)(1)(B) incidental take permit is granted upon a determination by that all requirements for permit issuance have been met. Statutory and regulatory criteria for issuance of the permit, pursuant to section 10(a)(2)(b) of the Act and 50 CFR 17.22 (b)(2) and 17.32 (b)(2) specify that:

- the taking will be incidental;
- the impacts of incidental take will be minimized and mitigated to the maximum extent practicable;
- adequate funding for the HCP and procedures to handle unforeseen circumstances will be provided;
- the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;

- the applicant will provide additional measures that the Service requires as being necessary or appropriate; and
- the Service has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the Permittee and other responsible entities implement the HCP, and USFWS monitors the Permittee's compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register.

1.5.3 National Environmental Policy Act

The purpose of the National Environmental Policy Act (NEPA) is two-fold: to ensure that Federal agencies examine environmental impacts of their actions (in this case deciding whether to issue an incidental take permit) and to utilize public participation. NEPA serves as an analytical tool on direct, indirect, and cumulative impacts of the proposed project alternatives to help the Service decide whether to issue an incidental take permit (ITP or section 10(a)(1)(B) permit). NEPA analysis must be done by the Service for each HCP as part of the incidental take permit application process.

1.5.4 National Historic Preservation Act

All Federal agencies are required to examine the cultural impacts of their actions (e.g. issuance of a permit). This may require consultation with the State Historic Preservation Office (SHPO) and appropriate American Indian tribes. All incidental take permit applicants are requested to submit a Request for Cultural Resources Compliance form to the Service. To complete compliance, the applicants may be required to contract for cultural resource surveys and possibly mitigation.

1.5.5 California Endangered Species Act (CESA)

The California Endangered Species Act (CESA) provides for the designation of native species or subspecies of fish, wildlife, and plants as endangered or threatened (CESA Section 2062-2067). The Mount Hermon June beetle is not listed under CESA. Therefore, this HCP will not further address CESA permitting requirements.

1.5.6 California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) (Pub. Res. Code §21000 seq.) requires state and local governmental agencies to complete an environmental review of discretionary projects that could impact environmental resources. CEQA differs from NEPA in that it requires that significant environmental impacts of proposed projects be reduced to a less-than significant level through adoption of feasible avoidance,

minimization, or mitigation measures unless overriding considerations are identified and documented.

1.5.7 County of Santa Cruz Sensitive Habitat Ordinance

The County oversees a Sensitive Habitat Protection Ordinance that is designed to minimize disturbance in sensitive habitats and to protect these areas for their genetic, scientific, and educational values. The County defines a “sensitive habitat” as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments” (County of Santa Cruz 1994). Sensitive habitats include, but are not limited to, areas where sensitive species live, areas necessary for the survival of sensitive species, and any location where disturbance is likely to lower population numbers. Based on the findings of a biotic review, the County may require the project proponent to avoid, minimize, and mitigate impacts to the sensitive habitat by: (1) limiting the portion of sensitive habitat to be disturbed; (2) deeding an easement to protect undisturbed portions of this habitat; (3) restoring portions of degraded sensitive habitat; and/or (4) restricting land uses.

Sites that are occupied by the Mount Hermon June beetle are protected under the Sensitive Habitat Protection Ordinance. The conservation strategy developed in this plan, which includes measures to avoid, minimize, and mitigate impacts to the Mount Hermon June beetle as required in this incidental take permit, will overlap with requirements under the Sensitive Habitat Protection Ordinance. The County has sole authority to determine whether project proponents have complied with this Ordinance. However, the conservation strategy presented here is based on the preservation and long-term management of Zayante Sandhills habitat through the acquisition of conservation credits that should therefore be sufficient to fulfill the requirements of the Sensitive Habitat Protection Ordinance.

Section 2

Project Description/Activities Covered by Permit

2.1 Project Description

This proposed project will construct a room addition and porch on a 0.45-acre home site near the town of Ben Lomond in central Santa Cruz County, California. The parcel currently supports a single family home and other improvements, including a porch and paved walkways.

Ed and Lita West are seeking to construct a 19.5 foot x 25.5 foot master bedroom suite that will include a bedroom and adjacent bathroom, and a contiguous 7.75 foot X 19.5 foot porch. The master bedroom suite and porch will be located on the west side of the residence adjacent to the existing front entrance. Currently, the project area includes an existing porch, grassy area, and a nonnative ornamental shade tree.

This proposed project will remove the existing porch, with then construct the master bedroom and porch in the location of the existing concrete pathway, covered porch, and grassy area (Table 1).

Table 1: Size of proposed residential development project components.

Project Component	Dimensions (feet)	Size	
		square feet	Acres
porch	7.75 x 19.5	151	0.0035
master bedroom suite (bedroom and bath room)	19.5 x 25.5	497	0.0114
Total		648	0.0149

2.2 Activities Covered by Permit

An incidental take permit is requested to cover impacts to the Mount Hermon June beetle that could result from the following aspects of this project:

- demolition and removal of the existing porch and paved pathway
- construction of the new master bedroom suite
- construction of a new porch.

Construction would begin by removing the existing porch and concrete pathway, which together cover 76 ft². This demolition period is expected to last two to three days, after which the concrete slab and perimeter foundation will be poured. Hand crews will conduct all digging, which is anticipated to disturb soil within one foot of the new structures, thus temporarily disturbing an additional 68 ft² of soil. Within 30 days of inception of the project, the subfloor will be constructed, thus completely covering the area of open soil that will be permanently covered as part of this project. After this period, soil within the building footprint will no longer be exposed.

Framing will take place during a 12-16 week period, after which the interior of the room addition will be constructed during an estimated 12-16 week period. As a result, the entire project is anticipated to require no more than 40 weeks; however, project delays could result in an extended period of take.

The covered activities are further described in Section 4.1, which assess their impacts on the covered species.

Section 3

Environmental Setting/Biological Resources

3.1 Environmental Setting

3.1.1 Climate

Located in central Santa Cruz County, the project area experiences a mediterranean climate, characterized by cool, wet winters and hot, dry summers. Summer temperatures range from 45°F to 95°F, with an average of 68°F. Winter temperatures range from 36°F to 65°F, with an average of 51°F.

Annual precipitation is 44 inches, with most falling as rain. The rainy season is from October to May, with the majority of the rainfall occurring between December and March.

3.1.2 Topography/Geology

The project site is located on the gentle western slope a ridge known locally as the West Ridge of Quail Hollow (Quarry). The elevation at the project site is 435 feet.

The soil in the area of the proposed project is a medium to dark gray, loose sand soil characteristic of the Zayante series, which is an excessively well drained, low nutrient soil derived from the weathering of marine sediments and sandstones of the Santa Margarita Formation (U.S. Department of Agriculture 1980).

3.1.3 Hydrology/Streams, Rivers, Drainages

The project site is located within the San Lorenzo River Watershed. The San Lorenzo River, runs through Ben Lomond, is located 0.40 mile west of the project site.

The project area is within upland habitat and not within a flood zone or alluvial fan.

3.1.4 Existing Land Use

The proposed project will occur on a 0.45-acre home site located within a high density residential development within the town of Ben Lomond. Developed beginning in the early 1960's, the 260 acre neighborhood surrounding the parcel consists of 595 parcels that average 0.34 acres in size, 530 (89%) of which are already developed with single family homes. The proposed project parcel is surrounded on all sides by developed parcels less than 0.5 acre in size, each of which features a single family home (Figure 2).

The proposed project parcel is 600 feet southwest of the West Ridge Set Aside-- undeveloped habitat within the Quail Hollow Quarry that is protected by a conservation easement (McGraw 2004b; Figure 2). This set aside is part of the approximately 100 acres of habitat surrounding the active quarry that are being protected for rare and endangered species protection. The West Property is approximately 650 feet north of the Ben Lomond Sandhills Preserve—a 23-acre Sandhills preserve that is a part of the Zayante Sandhills Conservation Bank.

3.2 Covered Species

Mount Hermon June beetle (*Polyphylla barbata*)

Status and Distribution

The Mount Hermon June beetle is a member of the family Scarabaeidae (Insecta: Coleoptera; Figure 3). The Mount Hermon June beetle was listed as federally endangered on January 24, 1997 (62 *Federal Register* 3509; Service 1997). Critical habitat has not been designated for this species.

The Mount Hermon June beetle occurs in association with Zayante sand soil in central Santa Cruz County. Outcroppings of Zayante soils support a unique ecosystem known as the Zayante (or Santa Cruz) Sandhills (Sandhills). Within the Sandhills, the Mount Hermon June beetle has been recorded from approximately 150 locations in the vicinity of Mount Hermon, Felton, Ben Lomond, Zayante, and Scotts Valley (Arnold 2004).

While the entire known range of the Mount Hermon June beetle encompasses 10,000 acres, suitable habitat for the endangered insect is only known to occur within approximately 2,800 acres (McGraw 2004b) of that area. The amount of habitat which is presently occupied by the Mount Hermon June Beetle is unknown.

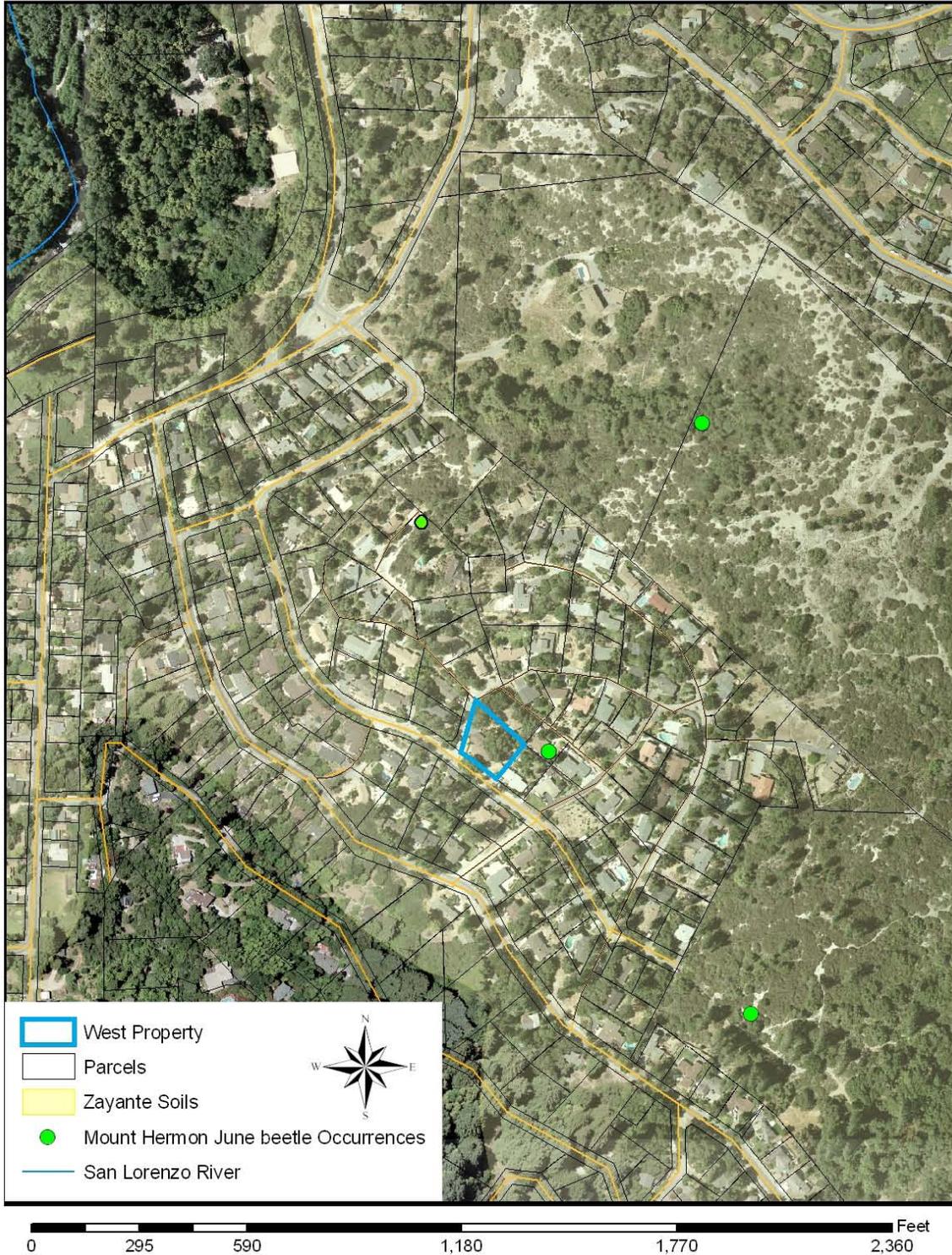


Figure 2: Location of proposed project site (West Property) in Ben Lomond, showing known occurrences of the Mount Hermon June beetle (BUGGY 2004). Map prepared by Jodi M. McGraw.

Habitat Characteristics

The Mount Hermon June beetle occurs in the various plant assemblages or communities of the Sandhills, including those that could be broadly categorized as coast range ponderosa pine forest and northern maritime chaparral. In addition, the Mount Hermon June beetle has been found in areas where native Sandhills plant species have been removed, such as recently disturbed areas, and in areas covered by ornamental or other non-native plant species, including areas that have been converted for residential use (Arnold 2004).

Occurrences within the Project Area

Presence/absence surveys have not been conducted to definitively document Mount Hermon June beetles within the project parcel. However, prior surveys have identified Mount Hermon June beetles approximately 250 feet northeast of the project parcel (BUGGY 2004). In addition, Mount Hermon June beetles occur within the intact habitat atop within the West Ridge set aside located 600 feet northeast of the project parcel, and the Ben Lomond Sandhills Preserve of the Zayante Sandhills Conservation Bank located 650 feet southeast of the project parcel (Figure 2).

Within the project parcel, habitat suitable for Mount Hermon June beetle occurs to the west of the existing development, where there is loose, sand soil conducive to burrowing. Landscaping in and around the residence where the proposed project would occur has likely degraded habitat for the Mount Hermon June beetle.

Life History

The Mount Hermon June beetle is univoltine (i.e., has only one generation per year). The majority of the life cycle of the Mount Hermon June beetle occurs beneath the soil surface. Though little research has been conducted on below-ground stages of the life cycle of the Mount Hermon June beetle (e.g., eggs, larvae, pupae, and portions of the adult stage), information can be cautiously inferred from other species of *Polyphylla* that are well-studied, including the tenlined June beetle (*Polyphylla decemlineata*).

The life cycle of the Mount Hermon June beetle is estimated to require two to three years. After mating during the summer, adult females lay eggs beneath the soil surface on, or in close proximity to, host plant roots. Eggs hatch into larvae that feed on roots of host plants. As the larvae grow, they molt from first to second, and finally third instars. Third instar larvae pupate below the soil surface, and eventually male and female adults emerge from pupae. Adult emergence and seasonal activity often begins



Figure 3: Mount Hermon June beetle adult male (left) and larva (right). Photographs by Jodi McGraw.

in May and continues through about mid-August (activity period). However, seasonal activity may vary from year to year depending on weather conditions (Arnold 2004).

During the summer, adult Mount Hermon June beetles are active between approximately 7:00 p.m. and 10:00 p.m., with peak activity usually between 8:45 p.m. and 9:30 p.m. At dusk, adult males emerge from the soil, fly up through herbs and shrubs, and then fly low to the ground in search of flightless females, which emerge from the soil but remain on the surface of the ground and can be found by males which sense their pheromones. After mating occurs on the soil surface, females burrow underground where they presumably lay eggs.

A seasonal capture-recapture study suggested that adult males live no longer than eight days and that most males have home ranges of less than a few acres (Arnold 2001). The maximum dispersal distance documented for adult male Mount Hermon June beetles is 923 feet (Arnold 2000). Similar data on lifespan and dispersal of females are lacking at this time because they are so infrequently observed.

The Mount Hermon June beetle can be distinguished from three congeners (species of the same genus) which also occur in central Santa Cruz County by the presence of relatively dense, long, erect hairs that are scattered over the elytra (leathery forewings), and short erect hairs on the pygidium (last abdominal segment) (Young 1967, 1988). Adult males are typically 20 millimeters (mm) long and 9.7 mm wide, while the slightly larger females are approximately 22 mm long and 12 mm wide (Hill 2006).

3.3 Other Sandhills Endangered Species in Region

The Sandhills communities support other special status plant and animal species (Table 2), including three other federally endangered species.

Table 2: Special status species occurring within the Santa Cruz Sandhills.

Common Name	Scientific Name	Status
Mount Hermon June beetle	<i>Polyphylla barbata</i>	Federally Endangered
Zayante band-winged grasshopper	<i>Trimerotropis infantilis</i>	Federally Endangered
Ben Lomond spineflower	<i>Chorizanthe pungens</i> var. <i>hartwegiana</i>	Federally Endangered; CNPS 1B (most rare, threatened, or endangered)
Ben Lomond wallflower	<i>Erysimum teretifolium</i>	Federally Endangered; California Endangered; CNPS 1B
silverleaf manzanita	<i>Arctostaphylos silvicola</i>	CNPS 1B
Ben Lomond buckwheat	<i>Eriogonum nudum</i> var. <i>decurrens</i>	CNPS 1B

¹ California Native Plant Society *Inventory of Rare and Endangered Plants of California* (CNPS 2003)

The project parcel does not support habitat for the Zayante band-winged grasshopper, Ben Lomond wallflower, and Ben Lomond spineflower—Sandhills endemic species that require low canopy, high light conditions (Chu 2002, McGraw 2004a). The site instead features canopy cover from a nonnative, ornamental tree. Though the Ben Lomond buckwheat and silverleaf manzanita have the potential to persist in more shaded Sandhills habitat (McGraw 2004a, b), spring surveys revealed that these species do not occur within the project site (J. McGraw, pers. obs. 2007).

Section 4

Potential Biological Impacts/Take Assessment

4.1 Direct and Indirect Impacts

Direct Impacts

The proposed project has the potential to directly negatively impact Mount Hermon June beetles by causing mortality of individuals within the remaining area of exposed soil in the project footprint, and by causing both permanent and temporary habitat loss.

Permanent Habitat Loss

Permanent habitat loss will result from the construction of the room addition and porch in areas that are not currently covered by the existing covered porch and paved walkway, which create impervious surfaces not conducive to Mount Hermon June beetle habitat use (Table 3).

Master Bedroom Suite: Construction of the new 497 ft² master bedroom suite will permanently remove 475 ft² of potential habitat for Mount Hermon June beetle. This area currently supports herbaceous plants dominated by forbs including miner's lettuce (*Claytonia* sp.) and chickweed (*Stellaria* sp.) in an area that was previously planted to create a lawn. Underneath the herbaceous layer are remnant pieces of black plastic liner (e.g. visqueen). Though these landscape features degrade habitat for Mount Hermon June beetle, the endangered insect could still potentially use this area.

The remaining 22 ft² of the future master bedroom suite footprint will be located in the footprint of the existing porch and paved walkways, which do not currently constitute habitat for the Mount Hermon June beetle.

Porch: A small (151 ft²) porch will be installed adjacent to the master bedroom suite. Of the proposed future porch footprint, 45 ft² currently consists of an existing porch and concrete walkways, which do not represent habitat for the Mount Hermon June beetle. The remaining 106 ft² to be covered by the porch currently supports herbaceous plant cover similar to that which located in the area of the proposed master bedroom suite (described above). This open soil area could provide habitat for Mount Hermon June beetle.

Table 3: Temporary and permanent impacts to Mount Hermon June beetle habitat resulting from components of the proposed project, calculated by subtracting the area of non-habitat (i.e. pre-existing porch or cement walkway) from the size of the project.

Project Component	Type of Impact	Area (Square feet)		
		Project Size	Non-Habitat	Habitat Disturbed
porch	permanent	151	45	106
master bedroom suite	permanent	497	22	475
soil disturbance caused by digging around perimeter of building footprint	temporary	68	0	68
Total		716	67	649

Temporary Habitat Loss

While hand-digging In order to install the perimeter foundation of the porch and master bedroom suite, workers might disturb soil within one foot of the 68 foot perimeter of the new building footprint. The proposed construction perimeter currently supports ruderal herbaceous plants and might support Mount Hermon June beetles that would be impacted by digging. Following construction, the perimeter of the new porch and master bedroom suite will be replanted with landscape elements that will not deter use by Mount Hermon June beetle. Thus, while the impacts to Mount Hermon June beetles within the soil at the time of the digging will be permanent, the impact of digging on Mount Hermon June beetle habitat will be temporary.

Indirect Effects

Indirect impacts are those effects caused by covered activities that may occur at a different time or in a different place than the direct impacts. The project is designed to avoid indirect effects on Mount Hermon June beetle. No new outdoor night lights, which distract adults during the breeding season, will be installed as part of this project. If any construction occurs during the flight season for adult Mount Hermon June beetles (May – August), any exposed soil that was previously covered by impervious surfaces (i.e. the building or concrete slabs) will be covered before 7 p.m. each night with erosion control fabric, which will preclude dispersing males from burrowing into soil within the project area and being impacted by ongoing construction.

4.2 Anticipated Take of Covered Species

The proposed project could cause mortality of Mount Hermon June beetles that might occur within the 649 ft² of soil that is not currently covered by impervious surfaces and that will be disturbed and/or covered by as a result of the project. The project could also negatively impact Mount Hermon June beetle by permanently covering 581 ft² of potential habitat within the 649 ft² disturbance footprint.

4.3 Effects on Critical Habitat

Critical habitat has not been designated for the Mount Hermon June beetle. In designating critical habitat for the Zayante band-winged grasshopper, the Service included 10,560 acres of land in central Santa Cruz County. This area represents the boundaries of the known distribution of the endangered insect. The primary constituent elements of critical habitat for the Zayante band-winged grasshopper are the presence of Zayante soils, the occurrence of Zayante Sandhills habitat and the associated plant species, and certain microhabitat conditions, including areas that receive large amounts of sunlight, widely scattered tree and shrub cover, bare or sparsely vegetated ground, and loose sand (Service 2001).

This proposed project occurs within the boundaries of the Zayante band-winged grasshopper critical habitat designation. However, because the project site supports dense herbaceous plants and is well-shaded by the existing building and nonnative ornamental tree, it does not contain the primary constituent elements for the Zayante band-winged grasshopper. Therefore, the proposed project activities will not impact the endangered insect's critical habitat.

4.4 Anticipated Impacts of the Taking

Neither the mortality of Mount Hermon June beetles potentially occupying the 649 ft² of intact soil proposed to be disturbed during project destruction, nor the permanent removal of 581 ft² of habitat due to the construction of this project, are anticipated to affect the persistence of the population of Mount Hermon June beetle in the Ben Lomond region or persistence of the species as a whole. The project impacts are extremely unlikely to influence successful recovery of the endangered species. This assessment is made based on several factors including:

1. The small area of habitat that will be removed
2. The degraded nature of the habitat that will be removed
3. The high density residential development surrounding the project area.

Within the residential neighborhood in which the West Property is located, the Mount Hermon June beetle population faces numerous threats from on-going activities associated with existing residential development, including but not limited to: irrigation, installation of non-native landscaping, fire suppression, night lighting, existing buildings, walls, fences and swimming pools, native plant removal, and digging by pets.

As a result of historic residential development, the Mount Hermon June beetle population within this area is likely unnaturally small and as a result, may be susceptible to extirpation from random genetic, demographic, or environmental events. The small size of the remaining portion of the project parcel, as well as small number of undeveloped parcels within the neighborhood, greatly limits opportunities for permanent conservation through acquisition or conservation easements. Given the ongoing threats and lack of conservation opportunities for Mount Hermon June beetle, remaining habitat in the project area and the neighborhood is considered degraded and suboptimal.

That said, habitat within the Ben Lomond residential neighborhood could provide some long term conservation value for Mount Hermon June Beetle. Though degraded, fragmented, and reduced in size, the habitat may support persisting populations of the endangered insect. The Mount Hermon June Beetle lives 99% of its life belowground. Therefore, it is possible that development, at least at the current level, might not cause extirpation (population extinction). Indeed, the fact that Mount Hermon June Beetles, which have a 2-3 year life cycle, still inhabits this area, which began to be developed more than 40 years ago, suggests that populations could persist here despite the current level of development.

Remaining habitat within Ben Lomond might also provide connectivity between otherwise isolated populations located in intact habitat. The residential neighborhood in which this project is proposed is near intact habitat that is being preserved and managed for long term persistence of the species: the West Ridge Set Aside of the Quail Hollow Quarry and the Ben Lomond Sandhills Preserve of the Zayante Sandhills Conservation Bank. Maintaining some habitat and populations within this neighborhood can allow migration between populations in these protected areas. Migration can help maintain genetic diversity and facilitate natural recolonization of habitat following extirpations that might result from fire, disease, or other stochastic events (McGraw 2004b).

4.5 Cumulative Impacts

In contrast with the analysis of cumulative impacts under section 7, section 10 of the Act and HCPs analyze cumulative impacts as incremental impacts of the action on the environment when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. The geographic area for analysis should be defined by the manifestation of direct or indirect impacts as a result of covered activities. Cumulative impacts under section 10 of the Act can result from individually minor but collectively significant actions taking place over a period of time.

The impacts of this project on the persistence of the endangered Mount Hermon June beetle are very low, owing not only to the small size of the project, but also it's occurrence in a already developed and therefore both degraded and fragmented habitat area. Other remodels, additions, and infill development in the Ben Lomond neighborhood will continue to reduce the amount of open sand habitat available for the species. It is possible that, over time, this development will result in the extirpation of the Mount Hermon June beetle from this developed area. Such infill development will not likely impact populations that persist at presumably higher

densities within the intact habitat to the south and east which has been protected from further development (Figure 2; McGraw 2004b). As a result, the cumulative impacts of this project on the persistence of the Mount Hermon June beetle are anticipated to be very small.

Section 5

Conservation Program/Measures to Minimize and Mitigate for Impacts

5.1 Biological Goals and Objectives

Section 10(a)(2)(A) of the Act requires that an HCP specify the measures that the permittee will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed animal species as a result of activities addressed by the plan.

As part of the “Five Point” Policy adopted by the Services in 2000, HCPs must establish biological goals and objectives (65 *Federal Register* 35242, June 1, 2000). The purpose of the biological goals is to ensure that the operating conservation program in the HCP is consistent with the conservation and recovery goals established for the species. The goals are also intended to provide to the applicant an understanding of why these actions are necessary.

These goals were developed based upon the species’ biology, threats to the species, the potential effects of the Covered Activities, and the scope of the HCP.

Goal 1: Avoid and minimize take of the Mount Hermon June beetle within the project site.

Objective 1.1: Avoid removal of native Sandhills plant species.

Objective 1.2: Avoid landscaping with turf grass, weed matting, aggregate, and mulch.

Objective 1.3: Minimize night lighting during the flight season of the Mount Hermon June beetle.

Goal 2: Protect habitat for the Mount Hermon June beetle at an off-site location of high long-term conservation value to the species.

Objective 2.1: Provide funds to protect, manage, and monitor habitat for the Mount Hermon June beetle at a conservation bank.

5.2 Avoidance, Minimization, and Mitigation Measures

Section 10 of the Act requires that all applicants submit HCPs that “minimize and mitigate” the impacts of take authorized by an incidental take permit, and that issuance of the permit will not “appreciably reduce the likelihood of the survival and recovery of the species in the wild.” In general, HCPs should include mitigation programs that are based on sound biological rationale, practicable, and commensurate with the impacts of the project on species for which take is requested. Additionally, the Service encourages applicants to develop HCPs that contribute to the recovery of a listed species. If the proposed project is expected to result in permanent habitat loss, then the mitigation strategy must include compensatory mitigation consisting of the permanent preservation of suitable habitat or similar measures.

In accordance with these guidelines and the requirements of the Endangered Species Act, the Conservation Program of this HCP is intended to achieve its biological goals and objectives and to ensure and that the impacts of Covered Activities on the Mount Hermon June beetle are minimized and mitigated to the maximum extent practicable.

5.2.1 Measures to Minimize Impacts

The following measures are designed to minimize the indirect effects of the covered activities on the Mount Hermon June beetle by reducing incidental take of individuals and the degradation of habitat adjacent to the project area and existing development.

5.2.1.1: Locate project on and adjacent to current development.

The projects will be located in an area that does not currently support native Sandhills plant species, and instead has been previously landscaped and hardscaped.

5.2.1.2: If ground disturbing activities are conducted during the flight season of the adult Mount Hermon June beetle, erosion control fabric will be placed over exposed soil in areas that were previously covered by concrete in order to avoid impacts to dispersing males.

Adult male Mount Hermon June beetles actively search for mates and breed during the evenings for approximately 12-14 weeks sometime between May 15 and August 15. During this period, males and females may burrow into duff and soils at relatively shallow depths for protection during the daytime hours. Every attempt will be made to conduct soil disturbing aspects of the project outside of the adult flight season. If construction occurs during any part of the flight season, erosion control fabric will be used to cover open soil that was previously covered by impervious surfaces each night by 7 p.m. This will prevent adult males from burrowing into the exposed area and then being impacted by subsequent soil disturbance (digging, grading, or covering).

5.2.1.3 Any potential larva or adult of the Mount Hermon June beetle (Figure 3) encountered in an area to be impacted by Covered Activities will be relocated to the intact habitat south of the impact area and re-buried at the approximate depth at which it was unearthed. If the Mount Hermon June beetle is found on the soil surface, then it will be relocated to a portion of the project site outside of the impact area and left on the soil surface in a location protected by vegetation.

During pre-construction training, construction personnel will be shown pictures of Mount Hermon June beetle larva and adults, and instructed to cease construction activities and call a biologist qualified and permitted to handle the endangered species should one be observed during the course of construction. The biologist will then translocate the individuals to relatively intact habitat located on the southern end of the project parcel, where it be released under vegetative cover. This measure will minimize take of the Mount Hermon June beetle by reducing the number of larvae, pupae, and adults that could be injured or killed as a result of project-related activities.

5.2.1.4 No new outdoor lighting will be installed as part of this project.

Adult Mount Hermon June beetles are distracted out light during the night, which can disrupt breeding activity. As part of this project, existing outdoor lights will be replaced with motion sensing lights, which will be set to come on for just a brief period (< 1 minute) if motion is detected. No new outdoor lighting will be installed.

5.2.1.5: Do not install landscaping elements that degrade Mount Hermon June beetle habitat.

Because adult Mount Hermon June beetles emerge from under the soil surface to attract and locate mates, turf grass, dense ground cover plants (e.g. ivy), weed matting, aggregate, and mulch can degrade habitat for this endangered insect, and will not be added in this project.

5.2.2 Measure to Mitigate Unavoidable Impacts

5.2.2.1 Mitigate the direct impacts to individuals and permanent and temporary impacts to habitat that will occur in a total of 649 ft² of habitat by purchasing conservation credits at the Zayante Sandhills Conservation Bank at a 1:1 ratio.

Project construction will permanently remove 581 ft² of habitat that could potentially be used by the Mount Hermon June beetle (Table 3). It will also permanently impact Mount Hermon June beetles and temporarily remove their habitat within the 68 ft² area perimeter that could be disturbed through manual digging to install the perimeter foundation. To mitigate these impacts, the applicant purchased

conservation credits at the Zayante Sandhills Conservation Bank at a 1:1 ratio, by purchasing 649 square foot credits. These ratios are appropriate, given that the habitat impacted is highly degraded due to historical residential uses, and the habitat to be protected and managed by the Zayante Sandhills Conservation Bank is of exceptionally high conservation value for the Mount Hermon June beetle.

The Zayante Sandhills Conservation Bank was established to provide mitigation for impacts to Mount Hermon June beetle and other special status Sandhills plants and animals that might result from development projects within the Felton USGS quad, such as this project. Presently, the Zayante Sandhills Conservation Bank is selling credits for the Ben Lomond Sandhills Preserve, a 23-acre Sandhills habitat preserve located in Ben Lomond, California, approximately 650 feet south of the project site (Figure 4).

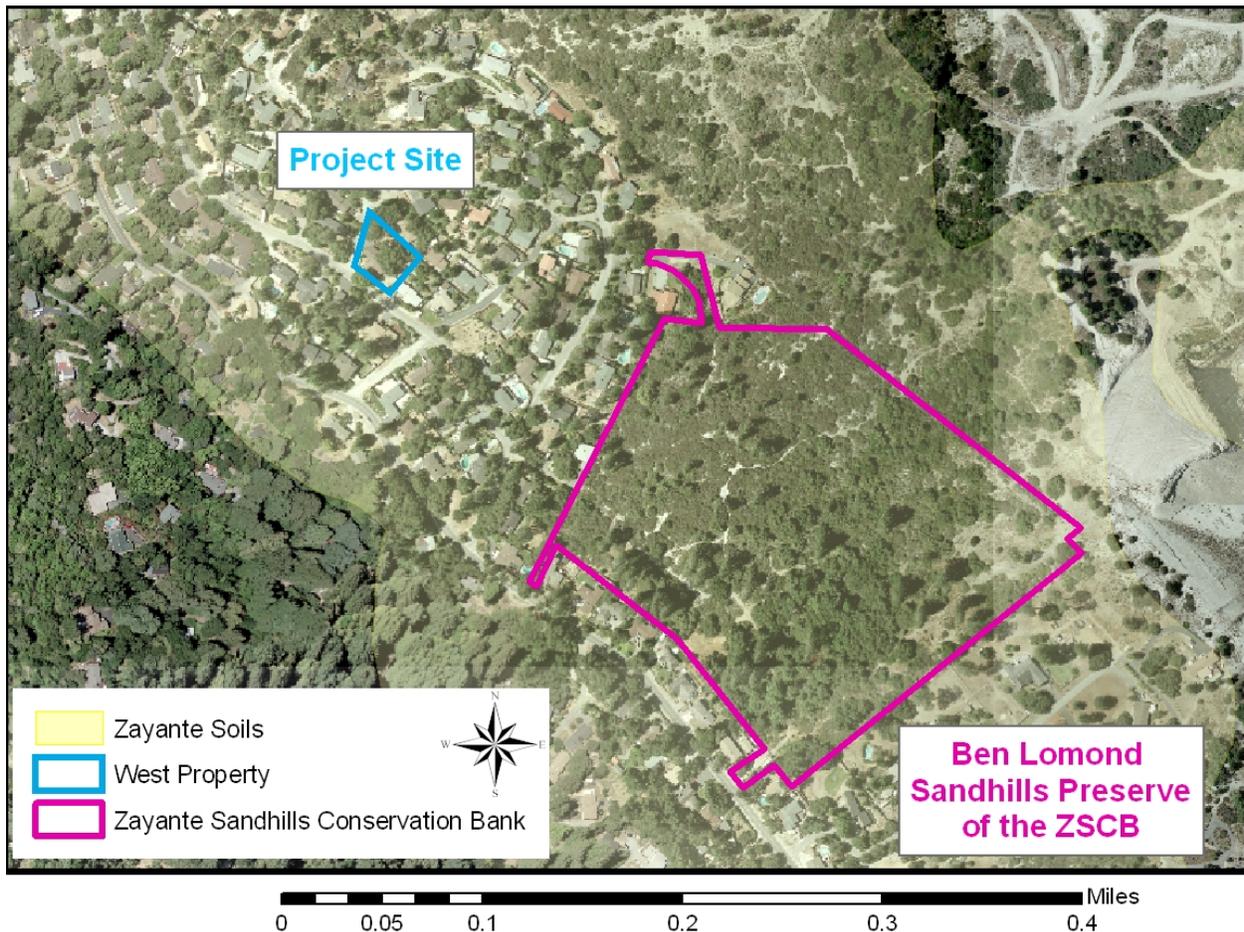


Figure 4: Location of the proposed project site (West Property) with respect to the Ben Lomond Sandhills Preserve of the Zayante Sandhills Conservation Bank, the location of the off-site mitigation proposed in this plan. Map prepared by Jodi McGraw.

5.4 MONITORING

Monitoring tracks compliance with the terms and conditions of the HCP and permit. This project will include compliance monitoring to track the permit holder's compliance with the requirements specified in the HCP and permit, as described below. All biological effectiveness monitoring will be conducted at the Zayante Sandhills Conservation Bank Preserves, where the off-site mitigation will occur. This monitoring will be the responsibility of the bank operator.

5.4.1 Construction and Compliance Monitoring

Pre-construction Orientation: Prior to construction, the biologist will conduct a construction crew training, in which individuals involved in construction will be provided a brief presentation about the biology of the Mount Hermon June beetle, and will be shown pictures of both adults and larva, to aid their identification during construction. Construction personnel will be directed to cease work and immediately conduct a biologist permitted to handle and relocate Mount Hermon June beetle individuals (larva or adults) should they observed one in the project site.

Construction Monitoring: The biologist will conduct regular inspections of the project site during demolition to salvage and relocate any larva, and to ensure that the erosion control cloth is being used nightly during the flight season to prevent Mount Hermon June beetles entering the soil that was previously covered by impervious surfaces.

5.4.2 Effects Monitoring

To quantify the incidental take at the end of the project, the biologist will calculate the area of soil disturbance and thus incidental take, and count the number of larval and adult Mount Hermon June beetles that were found and translocated by a qualified biologist during construction.

5.4.3 Access to Project Site

The permit holder shall allow representatives from the Service access to the project site to monitoring compliance with the terms and conditions of the HCP, and the effects of the project.

5.6 Reporting

By January 31 following each year of the permit, a qualified biologist will submit a report to the US Fish and Wildlife Service in order to document the status of the project. The report will include:

1. A brief summary of project activities accomplished during the reporting year (e.g. this includes development/construction activities, and other covered activities)
2. Project impacts

3. Description of take that occurred (based on disturbance footprint)
4. Observations of any Mount Hermon June beetle adults or larva
5. Brief description of conservation strategy implemented
6. Compliance monitoring results
7. Description of any changed or unforeseen circumstances that occurred and how they were dealt with
8. Funding expenditures, balance, and accrual
9. Description of any minor or major amendments.

Section 6

Plan Implementation

6.1 Plan Implementation

The project will be implemented by the applicants, Ed and Lita West, and their contractors. Precise timing of the project will depend on the timing of the incidental take permit and efforts will be made to minimize ground disturbing activities during the flight season (Section 5.2.1).

6.2 Changed Circumstances

6.2.1 Summary of Circumstances

Section 10 regulations (69 *Federal Register* 71723, December 10, 2004 as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.22(b)(2) and 17.32(b)(2)) require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the ESA that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and the Service and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such event). If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and these additional measures were already provided for in the plan's operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the

HCP), then the permittee will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan's operating conservation program, the Service will not require these additional measures absent the consent of the permittee, provided that the HCP is being "properly implement" (properly implemented means the commitments and the provisions of the HCP and the IA have been or are fully implemented).

Foreseeable changed circumstances within the project area of this HCP include:

- the new listing of a species;
- the discovery of the Zayante band-winged grasshopper, Santa Cruz wallflower, or Ben Lomond spineflower at the project site.

6.2.2 Newly listed species

If a new species that is not covered by the HCP but that may be affected by activities covered by the HCP is listed under the Federal ESA during the term of the section 10 permit, the section 10 permit will be reevaluated by the Service and the HCP covered activities may be modified, as necessary, to insure that the activities covered under the HCP are not likely to jeopardize or result in the take of the newly listed species or adverse modification of any newly designated critical habitat. Ed and Lita West, the landowners, shall implement the modifications to the HCP covered activities identified by the Service as necessary to avoid the likelihood of jeopardy to or take of the newly listed species or adverse modification of newly designated critical habitat. The property owners shall continue to implement such modifications until such time as the Permittee has applied for and the Service has approved an amendment of the Section 10(a)(1)(B) permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the Service notifies Mr. and Mrs. West in writing that the modifications to the HCP covered activities are no longer required to avoid the likelihood of jeopardy of the newly listed species or adverse modification of newly designated critical habitat.

The occurrence of a newly listed species at the project site during the course of the requested 3-year permit is highly unlikely due to the small size of the project site, the degraded nature of the habitat, which is largely developed, and the short duration of the permit.

6.2.3 Discovery of other currently listed species at the project site

In the event that one or more other already listed endangered species are found at the site, the applicant will cease project activities that would likely result in incidental take of newly-discovered listed species, and apply for a permit amendment. It is extraordinarily unlikely that other listed species will be discovered at the project site, due to the degraded

nature of the habitat, the distance to nearest other populations, and the short duration of the project permit, among other factors.

6.3 Unforeseen Circumstances

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the Service at the time of the HCP's negotiation and development and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

In case of an unforeseen event, the permittee shall immediately notify the Service staff who have functioned as the principal contacts for the proposed HCP. In determining whether such an event constitutes an unforeseen circumstance, the Service shall consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the Service determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstances where the HCP is being properly implemented, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that already set-aside in the HCP's operating conservation program. Additional conservation and mitigation measures shall involve the commitment of additional land or financial compensation or restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP only with the consent of the permittee.

6.4 Amendments

6.4.1 Minor Amendments

Minor amendments are changes that do not affect the scope of the HCP's impact and conservation strategy, change amount of take, add new species, and change significantly the boundaries of the HCP. Examples of minor amendments include correction of spelling errors or minor corrections in boundary descriptions. The minor amendment process is accomplished through an exchange of letters between the permit holder and the Service's Field Office.

6.4.2 Major Amendments

Major amendments to the HCP and permit are changes that do affect the scope of the HCP and conservation strategy, increase the amount of take, add new species, and change significantly the boundaries of the HCP. Major amendments often require amendments to the Service's decision documents, including the NEPA document, the biological opinion, and findings and recommendations document. Major amendments will often require additional public review and comment.

6.5 Suspension/Revocation

The Service may suspend or revoke their respective permits if fails to implement the HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by the Service shall be in accordance with 50 CFR 13.27-29, 17.32 (b)(8).

6.6 Permit Renewal

The applicant requests an 3-year permit, to ensure that the covered activities associated with construction of the room addition, which are estimated to require only four months, can be completed prior to permit expiration.

Upon expiration, the Section 10(a)(1)(B) permit may be renewed without the issuance of a new permit, provided that the permit is renewable, and that biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, the property owners shall submit to the Service, in writing:

- ✧ a request to renew the permit; reference to the original permit number;
- ✧ certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes;
- ✧ a description of any take that has occurred under the existing permit; and
- ✧ a description of any portions of the project still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover.

If the Service concurs with the information provided in the request, it shall renew the permit consistent with permit renewal procedures required by Federal regulation (50 CFR 13.22). If the property owners file a renewal request and the request is on file with the issuing Service office at least 30 days prior to the permits expiration, the permit shall remain valid while the renewal is being processed, provided the existing permit is renewable. However, the property

owners may not take listed species beyond the quantity authorized by the original permit. If the property owners fail to file a renewal request within 30 days prior to permit expiration, the permit shall become invalid upon expiration. The property owners and the mitigation bank operator must have complied with all annual reporting requirements to qualify for a permit renewal.

6.7 Permit Transfer

If the proposed permit holders who currently own the property, Ed and Lita West, transfer the property to another party, during the period of the permit and that party agrees to implement the project and comply with the terms of the HCP, the permit can be transferred to the new landowner.

In the event of sale or transfer of ownership of the property during the life of the permit, a new permit application, permit fee, and an Assumption Agreement will be submitted to the Service by the new owner(s). The new owner(s) will commit to all requirements regarding the take authorization and mitigation obligations of this HCP unless otherwise specified in the Assumption Agreement and agreed to in advance with the Service.

Section 7 Funding

7.1 Costs of HCP Implementation

Costs to implement the conservation strategy described in this plan are listed in Table 4.

Table 4: Estimated costs to implement the conservation strategy described in this plan.

Element	Strategy	Units		Costs (\$)	
		Type	Number	Per Unit	Total
Minimization Measure 5.2.1.2	Cover open soil in previously impervious portion(s) of project area with erosion control fabric to prevent burrowing during flight season	GeoJute: 4' x 147' roll	1	80	80
Compensation	Purchase 643 square foot conservation credits at the Zayante Sandhills Conservation Bank	conservation credits	649	6	3,894
Compliance Monitoring	Hire biologist to conduct compliance monitoring and pre-construction training	labor hours	6	95	570
Effects Monitoring	Hire biologist to conduct effects monitoring	labor hours	6	95	570
Reporting	Hire biologist to complete project report to USFWS	labor hours	8	95	760
Total					5,874

7.2 Funding Source(s)

The applicants, Ed and Lita West, will pay for all costs associated with implementing the HCP (Table 4).

7.3 Funding Mechanism and Management

The applicant will provide all funds required to implement the conservation strategy (Table 4). The applicant understands that failure to provide adequate funding and consequent failure to implement the terms of this HCP in full could result in temporary permit suspension or permit revocation.

The applicants have already purchased 653 square foot conservation credits from the Zayante Sandhills Conservation Bank. Initially, 643 credits were purchased (Appendix B). Subsequently, 10 additional credits were purchased in order to cover the balance required by the conservation strategy in this plan (Appendix C). The applicant has submitted a bank statement demonstrating the ability to cover the remaining costs (Appendix D).

Section 8

Alternatives

8.1 Summary

Section 10(a)(2)(A)(iii) of the Endangered Species Act of 1973, as amended, [and 50 CFR 17.22(b)(1)(iii) and 17.32(b)(1)(iii)] requires that alternatives to the taking of species be considered and reasons why such alternatives are not implemented be discussed.

8.2 No Action Alternative

Under the No Action Alternative, the new master bedroom suite and porch would not be constructed and an incidental take permit would not be requested or issued. The property owners would not be able to enhance enjoyment of their property by increasing its living space and functionality. The portion of the proposed project area that is not currently covered by concrete or the porch would continue to be covered by dense herbaceous plants which degrade habitat for the Mount Hermon June beetle by precluding/reducing burrowing and reducing the cover of native plant species that are more likely to serve as host plants for the endangered insect.

Under the No Action Alternative, the conservation measures proposed in this HCP would not be implemented, and the 649 square feet of conservation credits would not be purchased at the Zayante Sandhills Conservation Bank. This would reduce funds available for preservation, management, and monitoring of the high quality reserve established to protect the Mount Hermon June beetle. Because the benefits of the HCP conservation measures outweigh the impacts of the project on the Mount Hermon June beetle, the No Action alternative has been rejected.

8.3 Alternative 2: Redesign Project (Reduce Take)

Under this alternative, the room addition would be added to create a second story on the west portion of the existing residence. Having the new master bedroom suite on the second story would reduce access to the room intended for persons with reduced mobility, for whom stairs would be difficult to negotiate. Adding a second story would still result in take of Mount Hermon June beetle, as digging would be required to reinforce the foundation. However, compared to the proposed project, the area of soil disturbed would be reduced by approximately 550 square feet. Under this option, 550 square foot credits would not be purchased from the Zayante Sandhills Conservation Bank, reducing funds to preserve the high quality habitat it contains. This redesign would present a significant burden on the landowners without significantly

reducing the project impacts on the Mount Hermon June beetle. For these reasons, this redesign alternative has been rejected.

8.4 Alternative 3: Proposed Action (Permit Issuance)

Under the proposed action alternative, Mr. and Mrs. West would reconstruct their house as described in Section 2. The proposed action will require the issuance of a Section 10(a)(1)(B) permit in order that the project be implemented in compliance with the federal Endangered Species Act. The project could cause mortality to individuals potentially occurring within the 649 ft² area of impervious soil surface that will be disturbed, and could permanently remove through covering 581 ft² of degraded but potentially suitable Mount Hermon June beetle habitat.

However, the conservation measures proposed in the HCP would provide for greater conservation benefit to the Mount Hermon June beetle than that which would result from the No Action alternative. Specifically, under the Proposed Action, the applicants will secure 649 ft² conservation credits in the Zayante Sandhills Conservation Bank, thus ensuring the preservation, management, and monitoring of Mount Hermon June beetle habitat in a relatively large, contiguous, and high quality habitat preserve, in perpetuity. The Proposed Action thus provides greater conservation benefits than the No Action and Redesigned Project alternative, while best meeting the needs of the applicant. Therefore, the Proposed Action is the preferred alternative.

9.0 LITERATURE CITED

- Arnold, R. A. 1999. Monitoring report for the Mount Hermon June Beetle and Zayante Band winged grasshopper at the Quail Hollow Quarry. Entomological Consulting Services, Ltd., Pleasant Hill, CA.
- Arnold, R. A. 2000. Monitoring report on the Mount Hermon June Beetle at Quail Hollow Quarry. Entomological Consulting Services, Ltd., Pleasant Hill, CA.
- Arnold, R. A. 2001. 2001 Monitoring Report for the Mount Hermon June Beetle at Hanson Aggregates' Felton Quarry. Entomological Consulting Services, Ltd.
- Arnold, R. A. 2004. Biology of the Mount Hermon June Beetle and Biology of the Zayante Band Winged Grasshopper. In J. M. McGraw, *Sandhills Conservation and Management Plan*. June 2004.
- Arnold, R. A. 2005. 2004 Monitoring report for the Mount Hermon June Beetle and Zayante Band Winged Grasshopper at the Cellular One Antenna Site on Mount Hermon in Santa Cruz County, CA. Report prepared for Central Coast Wilds. January 2004. 4 pages.
- Arnold, R. A. 2006. The Zayante Sandhills Conservation Bank. A proposal submitted to the US Fish and Wildlife Service. December 2005.
- BUGGY. 2004. Report of Occurrences for the Mount Hermon June beetle from the BUGGY Data Base. Entomological Consulting Services, Ltd., Pleasant Hill, CA. May 2004.
- County of Santa Cruz 1994. General Plan and Local Coastal Program, including Sensitive Habitat Ordinance. Santa Cruz County Planning Department, Santa Cruz, CA.
- California Native Plant Society. 2003. Inventory of rare and endangered plants of California. Sacramento, CA.
- Chu, J. B. 2002. Diet for an endangered insect: What does the Zayante band-winged grasshopper eat? San Jose State University, San Jose, CA.
- Hill, K. 2006. Mount Hermon June Beetle host plant specificity. Master's Thesis, Department of Environmental Studies, San Jose State University.
- McGraw, J. M. 2004a. Interactive effects of disturbance and exotic species on the structure and dynamics of an endemic sandhills plant community. University of California, Berkeley, California. 309 pages
- McGraw, J. M. 2004b. Sandhills conservation and management plan: a strategy for preserving native biodiversity in the Santa Cruz sandhills. Report submitted to the Land Trust of Santa Cruz County, Santa Cruz, CA.
- U.S. Department of Agriculture. 1980. Soil Survey of Santa Cruz County. Soil Conservation Service, United States Department of Agriculture and University of California Agriculture.

- U.S. Fish and Wildlife Service. 1997. Endangered and threatened wildlife and plants; determination of endangered status for two insects from the Santa Cruz Mountains of California. Federal Register 62:3616-3628.
- U.S. Fish and Wildlife Service. 1998. Recovery plan for insect and plant taxa from the Santa Cruz Mountains in California, Portland, OR.
- U.S. Fish and Wildlife Service. 2001. Endangered and threatened wildlife and plants; final determination of critical habitat for the Zayante Band-Winged grasshopper. Federal Register 66:9219-9233.
- Young, R. M. (1967). Polyphylla Harris in America, North of Mexico. Part I: The DiffRACTA complex (Coleoptera: Scarabaeidae: Melolonthinae). Transactions of the American Entomological Society, 93, 279-318.
- Young, R. M. (1988). A Monograph of the Genus Polyphylla Harris in America North of Mexico (Coleoptera: Scarabaeidae: Melolonthinae). Bulletin of The University of Nebraska State Museum, 11(2), 1-106.

APPENDIX A: Habitat Evaluation of the West Project Site (McGraw 2007)

January 9, 2007

Mr. Edward West
2329 N Rocker Rd #46
Mesa, AZ 85215

RE: Biotic Assessment of Parcel 072-273-34, Ben Lomond, CA

Dear Mr. West:

I am writing to provide you with results of the habitat assessment that I conducted for you on January 8, 2007 on parcel 072-273-34, an approximately 0.5 acre home site located at 465 Larita Drive near the town of Ben Lomond in central Santa Cruz County, California. Based on my conversations with your architect, Mr. Peter Barnum, I understand that you are seeking to implement two projects on this parcel:

1. Build an approximately 500 square foot master bedroom onto the front (west side) of the existing residence
2. Add a single car garage onto the east side of the existing two car garage.

The purpose of my assessment was to evaluate the habitat conditions in the proposed project locations to determine whether they support Sandhills habitat or special status plants and animals within the Santa Cruz Sandhills, including: Ben Lomond spineflower (*Chorizanthe pungens* var. *pungens*), Santa Cruz wallflower (*Erysimum teretifolium*), silverleaf manzanita (*Arctostaphylos silvicola*), Ben Lomond buckwheat (*Eriogonum nudum* var. *decurrens*), Mount Hermon June Beetle (*Polyphylla barbata*) or the Zayante Band-Winged Grasshopper (*Trimerotropis infantilis*).

As mapped by the Soil Conservation Service, the project parcel contains Zayante soils, which are poorly developed, deep, coarse, sand soils derived from the weathering of uplifted marine sediments and sandstones (USDA 1980). My examination of the soils in the proposed master bedroom area revealed the occurrence of a dark grey sand soil of the Zayante series beneath a thick layer of wood chips. The dark color is likely the result of soil amendments (e.g. fertilizer) and other factors related to landscaping including irrigation and mulching associated with the site's 50 year history as a homesite. Adjacent to the project area there are patches of light grey Zayante sand soil more typically of the area. The proposed garage area consists of existing development, including cement walkways and a second floor wood deck which is subtended by additional paved walkways and a cement retaining wall. Soils adjacent to the project area are medium grey brown Zayante soils.

The proposed master bedroom area supports herbaceous vegetation dominated by ruderal forbs including miner's lettuce (*Claytonia* sp.) and what appeared to be a chickweed (*Stellaria* sp.), though identification is uncertain given that flowering specimens were not available. Areas on either side of the proposed addition that were not covered with wood chips support filaree (*Erodium botrys*) and California poppy (*Eschscholzia californica*). There is no vegetation within the area proposed for the single garage addition, which is instead paved, covered by a garden wall/retaining wall, and/or covered by a wood deck. Neither proposed project location supports individuals of the four plants endemic to the Sandhills, which are listed above.

Based on my observations, neither proposed development site contains habitat that would support the Zayante band-winged grasshopper. The proposed master bedroom area is shaded by a large tree that creates inappropriate conditions for the grasshopper, which prefers open sunlit conditions in grassy or herb-dominated areas.

The project parcel may support habitat for the Mount Hermon June beetle, which is known from a homesite located 300 feet to the east of your parcel. Though modified by historic landscaping, the soil in the proposed master bedroom area may still be suitable for burrowing by adults and larva of the species, which prefers loose soil but has been observed emerging from soils that are more compacted and covered with landscaping materials. A survey conducted during the flight season could be used to determine whether Mount Hermon June beetles are indeed using the habitat in the area of the proposed master bedroom.

Appropriate habitat conditions are present adjacent to but not within the proposed garage addition area, which is instead covered by impervious surfaces and a deck under which there is no vegetation owing to decades of greatly reduced light.

This information is provided to aid evaluation of your proposed projects. I strongly recommend that you discuss your project permitting requirements with the U.S. Fish and Wildlife Service, which administers the Endangered Species Act, and the County of Santa Cruz Planning Department, which administers the Sensitive Habitat Ordinance. The following contact information is provided to assist you.

U.S. Fish and Wildlife Service	County of Santa Cruz
Roger Root Fish and Wildlife Biologist 2493 Portola Road, Suite B Ventura CA, 93003 (805) 644-1766 roger_root@fws.gov	Paia Levine Environmental Planner 701 Ocean Street, Santa Cruz, CA 95060 (831) 454-3178 pln456@co.santa-cruz.ca.us

Please do not hesitate to contact me if you have any questions regarding the habitat assessment.

Sincerely,

Jodi M. McGraw

References

- BUGGY. 2004. Report of known occurrences for the Mount Hermon June beetle from the BUGGY Data Base. Entomological Consulting Services, Ltd., Pleasant Hill, CA.
- USDA. 1980. Soil Survey of Santa Cruz County. Soil Conservation Service, United States Department of Agriculture and University of California Agriculture.

APPENDIX B: Receipt for Initial Purchase of Conservation Credits (643 square foot credits) from the Zayante Sandhills Conservation Bank (May 30, 2007).

APPENDIX C: Receipt for Purchase of Additional Conservation Credits (10 square foot credits) from the Zayante Sandhills Conservation Bank (June 12, 2007).

APPENDIX D: Bank Statement for Mr. Ed West and Mrs. Lita West, Demonstrating Sufficient Funds to Fund the Conservation Strategy in this Plan (April 9, 2007).