TUCKER POND HABITAT CONSERVATION PLAN

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EXECUTIVE SUMMARY

This Low-Effect Habitat Conservation Plan (HCP) has been prepared to support an incidental take permit application for the property owned by the Ross Trust, dated September 17, 1998, located in south Santa Cruz County, California. The property supports a known breeding population of the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*). The primary project, which is development of a single-family residence, will be constructed in grassy and coastal scrub areas that do not provide estivation[1] habitat for the Santa Cruz long-toed salamander (SCLTS). Although not currently known to inhabit the property, the California red-legged frog (*Rana aurora draytonii*) is present in the region and its presence on the property is possible in the future since suitable habitat is present. Take avoidance and minimization measures for both species have been incorporated into this HCP. As a result, take of individual SCLTS and California red-legged frogs (CRLF) is expected to be low.

Mr. and Mrs. Ross, trustees of the Ross 1998 Trust which is the Owner and the Applicant, seek an incidental take permit for the term of 10 years. They propose to establish a 38.8-acre Conservation Easement on the property which includes a breeding pond and adjacent upland estivation habitat of the SCLTS. The Conservation Easement shall be known as the Tucker Preserve. The boundaries of the Conservation Easement area are as shown in the Site Plan included as Figure 3 of this HCP. They further propose to be financially responsible for management and monitoring activities to mitigate for expected levels of take related to construction of the Ross residence during the 10 year term of the permit. They propose to post a letter of credit in the amount of $189,204 to guarantee performance of this financial obligation. Finally, Mr. and Mrs. Ross propose to make a $125,000 payment to the Center for Natural Lands Management (CNLM) for an endowment to fund monitoring of the Easement during and after the 10 year permit period and in perpetuity. Upon expiration of the ITP in 10 years, management of the Preserve will be governed under the conditions set forth in the Conservation Easement agreement.

1.0 INTRODUCTION AND BACKGROUND

1.1 Acronyms Defined

APN -	Assessors Parcel Number
BMP -	best management practices
CDFG -	California Department of Fish and Game
CESA -	California Endangered Species Act
CEQA -	California Environmental Quality Act
CRLF -	California red-legged frog
ESA -	Endangered Species Act
HCP -	habitat conservation plan
ITP -	incidental take permit

[1] estivation habitat is defined as subterranean refuges used by terrestrial SCLTS during periods of inactivity in the non-breeding season.

NCCP -	Natural Community Conservation Planning
NEPA	National Environmental Policy Act
PG&E -	Pacific Gas and Electric
SCLTS -	Santa Cruz long-toed salamander
USFWS -	U.S. Fish and Wildlife Service

1.2 Overview/Background

The Ross 1998 Trust purchased the subject property from the Tucker and Madigan families in June, 2005 in order to construct a single-family residence as the Ross family home. Before 1976, a small seasonal pond existed on the property due to natural drainage and topography. In 1976 the Tucker family drilled a well, installed a water system, raised the outlet barrier with an earthen berm, and the small pond expanded to its current size and became perennial. The pond currently supports a breeding population of the state- and federally listed endangered SCLTS. Very few breeding locations for the Santa Cruz long-toed salamander are currently known (USFWS 1999; Biosearch 2001; Savage, pers. comm.). The pond also provides suitable habitat conditions for the federally-threatened CRLF, although the species has not been identified on the property.

1.3 Permit Duration

The Section 10(a)(1)(B) permit is requested for and, unless terminated sooner in accordance with governing law and regulations, will be in effect for ten (10) years. Permit renewal beyond the 10-year term will be governed by the laws and regulations then in effect. Ten years is appropriate for this project because within that time:

- the Ross residence will have been constructed and occupied for a several year period,
- the 7-acre parcel at the northwest side of the property, will likely have been developed, and
- there will be good documentation of the effectiveness of the management and monitoring activities that have been conducted within the Conservation Easement.

Upon termination of the 10-year permit period the Ross family can apply for a permit renewal if it appears that continued take authorization is required as a result of continuing construction on the property. The renewal application must be submitted at least 30 days prior to the termination of the current permit. As long as the renewal application is received prior to 30 days of the termination of the original permit, take authorization remains in effect during the renewal process.

1.4 Regulatory/Legal Framework for Plan

1.4.1 Endangered Species Act Prohibitions Against Take

The Endangered Species Act (ESA) and its implementing regulations prohibit take of any fish or wildlife species that is federally listed as threatened or endangered without prior approval pursuant to either Section 7 or Section 10(a)(1)(B) of the ESA (16 U.S.C. § 1538 (a)(1)). 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." Federal regulation 50 CFR 17.3 further defines the term harm in the take definition to mean any act that actually kills or injures a federally listed species, including significant habitat modification or degradation.

Section 10(a) of the ESA establishes a process for obtaining an incidental take permit, which authorizes nonfederal entities to incidentally take federally listed wildlife or fish subject to certain conditions (see 1.3.2 below).

1.4.2 Incidental Take Permitting Process

Incidental take is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." The Section 10 process for obtaining an incidental take permit has three primary phases: (1) the HCP development phase; (2) the formal permit 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.

USFWS has established a special category of HCP, called a low-effect HCP, for projects with relatively minor or negligible impacts. Based on criteria for determining whether a low-effect HCP is appropriate, as described below and in the HCP handbook, the applicant and their consultant believe this HCP qualifies as a low-effect HCP (USFWS 1996).

Low-effect HCPs are appropriate for projects that will have minor or negligible effects on federally listed, proposed, or candidate species and their habitats that are covered by the HCP and minor or negligible effects on other environmental resources. Implementation of low-effect HCPs and their associated incidental take permits, despite authorization of some small level of incidental take, individually and cumulatively have a minor or negligible effect on the species covered by the HCP. The determination of

whether an HCP qualifies for the low-effect category is based on the anticipated impacts of the project prior to implementation of the mitigation plan. The purpose of the low-effect HCP is to expedite handling of HCPs for activities with inherently low impacts; this category of HCP is not intended for project with significant potential impacts that are subsequently reduced through mitigation programs.

The HCP development phase concludes and the permit-processing phase begins when complete application package is submitted to the appropriate permit-issuing office. A complete application package for a low-effect HCP consists of an HCP and a permit application and fee from the applicant. USFWS must also publish a Notice of Receipt of a Permit Application in the Federal Register; prepare a Section 7 Biological Opinion; prepare a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application in the context of permit issuance criteria (see below); and prepare and Environmental Action Statement, a brief document that serves as USFWS's record of compliance with the National Environmental Policy Act (NEPA) for categorically excluded actions. An implementing agreement is not required for a low-effect HCP. A Section 10 incidental take permit is granted upon a determination by USFWS that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit 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 USFWS requires as being necessary or appropriate; and
- USFWS 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.

1.4.3 National Environmental Policy Act

NEPA requires that federal agencies analyze the environmental impacts of their actions (in this instance, issuance of an incidental take permit) and include public participation in the planning and implementation of their actions. NEPA compliance is obtained through one of three actions: (1) preparation of an environmental statement (EIS), generally prepared for high-effect HCPs; (2) preparation of an environmental assessment (EA), generally prepared for moderate-effect HCPs; or (3) a categorical exclusion, allowed for low-effect HCPs. The NEPA process helps federal agencies make informed decisions with respect to the environmental consequences of their actions and

ensures that measures to protect, restore, and enhance the environment are included, as necessary, as a component of their actions. Low-effect HCPs, as defined in the November 1996 HCP Handbook, are categorically excluded under NEPA, as specified by the Department of Interior Manual 516DM2, Appendix 1, and Manual 516DM6, Appendix 1.

1.4.4 County of Santa Cruz Sensitive Habitat Ordinance

The Biotic Resources Group prepared a Biotic Report in October 2001 with a focused SCLTS study conducted in the winter/spring of 2001-2002.

The HCP contains mitigation consistent with that described in the Sensitive Habitat Ordinance.

In addition to the general mitigation measures listed above, which are designed to mitigate impacts on the SCLTS in accordance with the provisions of the Sensitive Habitat Ordinance, the HCP for the Ross Trust Property will assure long-term maintenance and protection of the salamander habitat.

1.5 Plan Area

The Ross Trust Property, formerly known as the Tucker-Madigan property, is located in the Aptos/Freedom area of Santa Cruz County, California. It is located northeast of Highway 1 and south of Freedom Boulevard within the U.S.G.S. Watsonville West 7.5' Quadrangle. The site it located within Township 11 South and Range 1 East Section 15. Approximately 92 acres of the project site are included in Assessor's Parcel Number (APN) 108-011-23. Approximately 7 acres of the project site are included in Assessor's Parcel Number (APN) 108-001-15. The entire project site as referenced in this HCP consists of both these parcels, totaling approximately 99 acres. The site is bordered by other rural residential lands. An existing single-family residence is located off of the main driveway from Freedom Boulevard, but it is not included in the 99-acre project area. See Figure 1, Project Location and Figure 2, Air Photo.

1.6 Species to be Covered by Permit

The following two species will be covered by the Permit:

- Santa Cruz long-toed salamander, Federally listed endangered, State listed endangered, State fully-protected species

- California red-legged frog Federally listed threatened, State species of special concern

2.0 ENVIRONMENTAL SETTING/BIOLOGICAL RESOURCES

2.1 Environmental Setting

2.1.1 Climate

Santa Cruz County weather is characterized by a mild, Mediterranean climate. The daily high temperatures in the summer months are in the mid-70s, while the daily high temperatures in the winter months are in the mid-50s. The humidity is low for a coastal area. An average of 31 inches of rain falls annually, primarily between November and April. In south, coastal Santa Cruz County, morning fog is common especially in the summer due to changing Pacific currents.

2.1.2 Topography/Geology

The site is located in hilly terrain in the foothills of the Santa Cruz Mountains. Its topography is varied consisting of a north-south trending ridge gradually dropping down into a bowl that contains a pond. See Figure 1.

Geology of the site consists primarily of weathered Aromas Formation bedrock containing silty clay mudstone interfingered with thin sandy lenses. This formation is geologically young and the sediments are relatively unconsolidated and subject to erosion if disturbed (Rogers Johnson & Associates 2001).

The nearest known fault is the Zayante Fault, located about two miles east of the project site. The Zayante Fault is potentially active, however it has not been designated an Alquist-Priolo Earthquake Fault Zone (Rogers Johnson & Associates 2001).

2.1.3 Hydrology

The central drainage within the property drains to Larkin Valley and is the headwaters of Harkins Slough. Two watercourses drain the site including one that leaves the pond and runs south, and the other which drains the eastern side of the parcel (Figure 2).

2.1.4 Vegetation Communities

The primary source for this section is Biotic Resources Group, 2001.

2.1.4.1 Scrub Communities

The property supports two types of scrub vegetation. Evergreen shrubs dominate both of these habitat types. Previously farmed or grazed areas support coyote brush scrub; the south-facing slopes support coastal scrub. The property contains approximately 12.5 acres of scrub.

Shrubs of coyote brush *(Baccharis pilularis)*, black sage *(Salvia mellifera)*, poison oak *(Toxicodendron diversilobum)*, interspersed with California blackberry *(Rubus ursinus)*, bracken fern *(Pteridium aquilinum* var. *pubescens)*, mugwort *(Artemisia douglasiana)*, sticky monkey flower *(Mimulus aurantiacus)*, and coffeeberry *(Rhamnus californica)* characterize coastal scrub habitat. Brittle-leaved manzanita *(Arctostaphylos tomentosa crustacea)*, a burl-forming manzanita, was also observed within the scrub habitat. The manzanita occurs as scattered individuals amid other shrubs. The site supports approximately 3.5 acres of this habitat type.

The coastal brush scrub type is characterized by the dense cover of coyote brush. Associate species include California blackberry and poison oak. Where the coyote brush is invading grasslands or previously disturbed areas, herbaceous plant species are prevalent, including wild oat *(Avena* spp.), English plantain *(Plantago lanceolata)*, rattlesnake grass *(Briza maxima)*, Italian thistle *(Carduus pynocephalus)* and poison hemlock *(Conium maculafllm)*. The site supports approximately 8.9 acres of this habitat type.

2.1.4.2 Woodland and Forest Communities

The riparian woodland occurs as discontinuous patches on the property. The site supports approximately 7.4 acres of this habitat type. The woodland occurs as small patches of willow around the man-made pond and along the central drainage. Larger areas of riparian woodland (willow-dominated) also occur in three seasonal drainages in the easternmost portions of the property. All of these areas are dominated by willows *(Salix* spp.). Associate species include black cottonwood *(Populus trichocarpha)* and California blackberry. Along the central drainage, the woodland abuts wet meadow habitat; in this area, the woodland also includes patches of rush *(Juncus effiusus)*, velvet grass *(Holcus lanatus)*, pennyroyal *(Menthapulegium)*, nut sedge *(Cyperus esculentus)* and brown-headed rush *(Juncus phaeocephalus).* Non-native Monterey pine *(Pinus radiata)* trees were observed within the riparian woodland in the easternmost drainages.

Mature trees of coast live oak *(Quercus agrifolia)* dominate the coast live oak woodland. Associated tree species include hazel nut *(Corylus cornuta)* and blue elderberry *(Sambucus mexicana).* The woodland supports several large-sized oak trees. Scattered non-native occurrences of Monterey pine *(Pinus radiata)* were observed amid the woodland in the western portion of the property. Shrubs and groundcovers in the woodland include coffeeberry, California blackberry, snowberry *(Symphoricarpos alba)*, poison oak, mugwort, yerba buena (*Satureja douglasii)*, toyon *(Heteromeles arbutifolia)* and hairy honeysuckle *(Lonicera hispidula).* The property contains approximately 45 acres of oak woodland. The existing roads traverse through some coast live oak woodland.

The north facing and northwest facing slopes support mixed evergreen forest. This forest type is characterized by the presence of Douglas fir *(Pseudostuga menziesii)*, coast live oak, tan oak *(Lithocarpus densiflorus)*, madrone *(Arbutus menziesii)* and coast redwood *(Sequoia sempervirens).* The understory was observed to support California

blackberry, sword fern *(Polystichum munitum)* and hazelnut. Eucalyptus trees also occur in the forest in the southeast portion of the parcel and abut a larger eucalyptus tree grove on an adjacent parcel. The property contains approximately 9.2 acres of this habitat type.

Intermixed amid the mixed evergreen forest on the north-facing slopes are small groves of coast redwood *(Sequoia sempervirens).* These tree groves abut live oak woodland and mixed evergreen forest. A larger grove also occurs in the southeast corner of the property. The coast redwood is the dominant tree species; understory plants include sword fern and California blackberry. The property contains approximately 7.3 acres of redwood forest habitat.

2.1.4.3 Wetlands

A man-made, perennial pond occurs in the northwestern portion of the property. Although the pond was surrounded by a band of freshwater marsh vegetation during field work and site visits from 2001-03, the remainder of the pond was open water almost entirely covered by duckweed *(Lemna* spp.). Common plant species within the marsh include cattail *(Typha angustifolia),* nutgrass, pennyroyal, spikerush *(Eleocharis* spp.), curly dock *(Rumex crispus)* and sedge *(Carex* spp.). The property contains approximately 0.4 acre of open water/freshwater marsh habitat.

2.1.4.4 Grassland Communities

Four types of grasslands were observed on the property during the late spring/summer 2001 surveys.

Needlegrass grassland occurs within openings within the oak woodland property contains approximately 4.6 acres of this habitat type. The vegetation is characterized by the dominance of purple needlegrass, a native perennial bunchgrass. Non-native plant species also occur, including soft chess *(Bromus hordeaceus),* wild oat *(Avena* spp.), shamrock clover *(Trifolium dubium),* Mediterranean clover, cudweed, catchfly *(Silene gallica),* filago and English plantain. Wildflowers were also observed, including California poppy *(Eshscholzia califomica),* and blue-eyed grass. Small pockets of sandy soil were observed in the grassland. Although no individuals of spineflower *(Chorizanthe* spp.) were observed during the summer 2001 survey, these areas are potential habitat.

Three patches of remnant coastal terrace prairie were observed on the property. Totaling approximately 1.3 acres, the prairie is characterized by the dominant of California oatgrass *(Danthonia californica).* Associated species include shamrock clover, Mediterranean clover, cudweed and English plantain. The prairie abuts mixed grassland areas, which support a higher abundance of purple needlegrass and annual non-native grasses.

The area near the existing orchard in the north-central portion of the property supports non-native grassland. This area encompasses approximately 0.2 acre. The vegetation is dominated by wild oat, soft chess, English plantain and European hair grass

(Aira caryophyllea). Scattered occurrences of coyote brush *(Baccharis pilularis)* and French broom were also observed. Small patches of coastal terrace prairie occur adjacent to the non-native grassland.

Mixed grassland areas occur in the south-central and northeast portions of the property. These areas encompass approximately 6.4 acres. The vegetation is a mixture of native and non-native grasses and forbs.

2.1.4.5 Remnant Orchard and Landscape Tree Groves

The property supports approximately 14.7 acres of orchard and 0.2 acres of landscape tree groves. The orchard is located in the northern portion of the site, while the landscape trees groves have been planted along the edge of the man-made pond and intermixed with the native oak and riparian woodland. Planted trees include silver maple *(Acer* spp.) and dawn redwood.

2.1.5 Wildlife

The primary source for this section is Biotic Resources Group, 2001.

Wildlife Resources of Scrub. The shrubs of the coastal and coyote brush scrub habitat provide berries and the herbaceous understory plants provide seeds for wildlife forage. The patches of scrub adjacent to woodland habitat provide an ecotone that is important to many wildlife species. Wildlife may perch on the outer perimeter of scrub habitats to take advantage of hunting opportunities in adjacent openings, and take cover in the denser shrub patches and adjacent forests as needed. Common wildlife species found in coastal and coyote brush scrub on the central coast include western fence lizard (*Sceloporus occidentalis*), California towhee *(Pipilo crissalis),* white-crowned sparrow *(Zonotrichia leucophrys),* brush rabbit *(Sylvilagus bachmani),* and coyote *(Canis latrans).* Special status wildlife that may inhabit coastal scrub habitat near ponds in this portion of Santa Cruz County includes the SCLTS.

Wildlife Resources of Riparian Woodland. The riparian habitat is one of the highest value habitats for wildlife species diversity and abundance in California. Factors that contribute to the high wildlife value include the seasonal presence of surface water, the variety of niches provided by the high structural complexity of the habitat, and the abundance of plant growth. Riparian habitat on the property may be used by a diversity of wildlife species for food, water, escape cover, nesting, and thermal cover.

Common wildlife species that are expected to inhabit the riparian habitat include Pacific treefrog *(Hyla regilla),* western aquatic garter snake *(Thamnophis couchii),* Wilson's warbler *(Wilsonia pusilla),* Bewick's wren *(Thryomanes bewickii),* several swallows, raccoon *(Procyon lotor),* Virginia opossum *(Didelphis virginiana),* and California myotis *(Myotis californicus).* Special-status species that inhabit the riparian habitat on the Ross Trust Property include the SCLTS.

Wildlife Resources of Oak Woodland. The oak woodlands on the property provide high value habitat for wildlife. The wildlife value of oak woodland varies with the degree of canopy cover and the density and diversity of under-story plants. Acorns from oaks provide an important food resource for many wildlife species, and natural cavities in the oaks provide nesting opportunities for some birds and mammals. Snags are an important component of oak woodlands to some wildlife such as woodpeckers, which excavate nests in snags and holes for storing acorns. Downed decaying logs and limbs add to the structural complexity of the habitat, and are important cover, nesting, roosting, and foraging substrate for species such as ensatina (*Ensatina eschscholtzii*), salamanders that are attracted to the moist microclimate and invertebrate food supply. The denser oak woodlands also provide escape cover during the day for species such as deer.

Common wildlife species expected to occur in oak woodlands on the property include California slender salamander *(Batrachoseps attenuatus),* California newt *(Taricha torosa),* western fence lizard, scrub jay *(Aphelocoma coerulescens),* acorn woodpecker *(Melanerpes formicivorus),* California quail *(Callipepla californica),* red-tailed hawk *(Buteo jamaicensis),* chestnut-backed chickadee *(Poecile rufescens),* several species of bats, western gray squirrel *(Sciurus griseus),* and deer *(Odocoileus hemionus).* Special-status wildlife that may inhabit oak woodland on the property includes SCLTS, Cooper's hawk *(Accipiter cooperii),* and San Francisco dusky-footed woodrat *(Neotoma fuscipes annectens).*

Wildlife Resources of Mixed Evergreen Forest. The use of the mixed evergreen expected to be similar to that described above for oak woodland.

Wildlife Resources of Redwood Forest. The redwood forest has native understory plants with abundant fruits and seeds, such as blackberry and California hazelnut that provide forage for wildlife. The natural cavities in mature redwood trees provide opportunities for nesting by birds, cover for small mammals, and roosting by bats. The cool, damp microclimate of the redwoods attracts more amphibians than the drier mixed evergreen forest.

Common wildlife species that are expected to occur on the property include arboreal salamander *(Aneides lugubris),* Steller's jay *(Cyanocitta stelleri),* northern saw-whet owl *(Aegolius acadius),* hairy woodpecker *(Picoides villosus),* pygmy nuthatch *(Sitta pygmaea),* brown creeper *(Certhia americana),* winter wren *(Troglodytes troglodytes),* golden-crowned kinglet *(Regulus satrapa),* dark-eyed junco *(Junco hyemalis),* varied thrush *(Ixorues naevius),* shrew-mole *(Neurotrichus gibbsii),* long-eared myotis *(Myotis evotis),* western gray squirrel, raccoon and black-tailed deer. Special-status species that may occur in the redwood forest include fringed myotis *(Myotis thysanodes).*

Wildlife Resources of Open Water and Freshwater Marsh. The freshwater pond on the Ross Trust Property, which will still be called the Tucker Pond, provides a source of drinking water and food for many wildlife species. The presence of wetland plants such as cattails and willows increases the wildlife value of the pond by providing

cover, breeding sites and a food base of a diversified aquatic invertebrate fauna, which forms a link in many food webs. Common wildlife species that utilize freshwater marsh habitat on the central California coast include California newt, Pacific tree frog*),* bullfrog *(Rana catesbeiana),* western aquatic garter snake, mallard *(Anas platyrhynchos),* red-winged blackbird *(Agelaius phoeniceus),* black phoebe *(Sayornis nigricans),* cliff swallow, raccoon, and several species of bats. Special-status wildlife species that may utilize this freshwater marsh include SCLTS and CRLF.

The wet meadow south of the Tucker Pond provides many of the same values for wildlife as the pond. When surface water is present, forest species may come to the meadow to drink. The dense grow of rushes and other wetland plants provide cover for amphibians, and the seeds provide forage for several birds. Deer may browse in the wet meadow during the dry season before acorns are ripe.

Wildlife Resources of Grasslands. Grasslands provide an important foraging resource for a wide variety of wildlife species. The grasses and forbs produce an abundance of seeds and attract numerous insects, providing food for granivorous and insectivorous wildlife. Sparrows, rabbits and rodents are commonly found in this habitat. Consequently, grasslands are valuable foraging sites for raptors such as hawks and owls, and other predators including coyote, fox, skunk and snakes. Species that forage aerially over grasslands include bats and swallows.

Common wildlife species that are expected to utilize grassland habitat on the Ross Trust Property include western fence lizard *(Sceloporus occidentalis),* gopher snake *(Pituophis melanoleucus),* house finch *(Carpodacus mexicanus),* cliff swallow *(Hirundo pyrrhonota),* red-tailed hawk, California ground squirrel *(Spermophilus beecheyi),* and Botta's pocket gopher *(Thomomys bottae).*

Wildlife Resources of Remnant Orchard and Landscape Tree Groves. The old orchards may provide forage for some wildlife species. Raccoon and deer may forage on fallen fruit. Common birds that may forage in orchards include those that are more adaptable to disturbance such as scrub jay. In the more open canopy portions of the orchard with an under-story of grasses and forbs, other wildlife species that may forage or inhabit the area include California ground squirrel, American robin *(Turdus migratorius),* western fence lizard and gopher snake.

Wildlife use of the landscaping plants is expected to be low because most are non-native plants not frequented by native wildlife species, and most are only single shrubs or trees providing limited vegetative cover for wildlife. Some birds may use the landscaped areas as perches and may opportunistically forage on berries or nectar of some plants.

2.1.6 Existing Land Use

The project site is located in an area designated rural residential in the County of Santa Cruz General Plan and the site is rural in nature. It is currently undeveloped, but

there are two existing residences adjacent to the site. The development of the Ross residence would comply with the rural residential land use designation.

2.1.7 Adjacent Wildlife Habitats and Land Uses

The Tucker Pond is situated in the headwaters of a drainage that leads to Larkin Valley and then to Harkins Slough. The parcels adjoining to the south and east are largely undisturbed and support a mosaic of coast live oak woodland, mixed evergreen forest, redwood forest and coastal scrub (Figure 2). Patches of willow riparian are scattered along the watercourse downstream of the pond, as well as along a watercourse that drains the eastern side of the parcel. The adjoining parcels to the west of the Ross Trust Property exhibit evidence of previous disturbance including cleared areas. A significant amount of coastal scrub and mixed evergreen woodland remains, however, and there are few residences in the area. Although the adjoining parcels to the north of the Tucker Pond are on north-facing slopes with dense woodland habitats, roadways, businesses, homes and scattered stands of Eucalyptus have fragmented the area. Further to the north, across Freedom Boulevard, large amounts of land have been cleared of native habitats and conditions are drier on the south-facing slopes.

Six freshwater ponds are present within one mile of the Tucker Pond. A pond on land previously owned by Aptos High School is situated 0.5 miles to the west, with another nearby off Shadowmere Way that is not readily visible on aerial photographs. Two ponds are present on private land 0.6 miles to the SSE, one of which may no longer hold water. Other ponds are present 0.6 miles to SW and 0.8 miles to the SE. A pond that is shown on the Watsonville West quadrangle at an old gravel pit 0.7 miles NE no longer exists. Woodland and scrub habitats are relatively contiguous between the breeding pond onsite and the ponds to the south and southwest, while patches of grassland are interspersed with woodland and scrub in the area between the Tucker pond and the pond to the southeast.

The Millsap pond, a known breeding site for the SCLTS and CRLF, is situated 1.2 miles to the southeast. Native habitats are relatively unbroken between the two sites and no major barriers are present.

2.2 Covered Species

2.2.1 Santa Cruz Long-toed Salamander

The SCLTS was federally listed as endangered on March 11, 1967 (Federal Register 32 FR 4001). A recovery plan was approved in 1977 and revised in 1986 (USFWS), with a draft revised recovery plan circulated in 1999 that is currently being finalized (USFWS 1977, 1986, 1999). Critical habitat has not been proposed. Information obtained in this account was obtained primarily from USFWS (1999) and Allaback and Laabs (pers. observ. and unpublished data). The SCLTS is also a state listed endangered species and is a state fully-protected species.

SCLTSs are small (4-6 inches, total length), dark colored salamanders with a series of discrete, irregular dull orange or metallic yellow dorsal markings. Head markings are small, scattered dots of the same color that are often absent immediately anterior to the eyes. The ventral surface is sooty black. A fine wash of white spots or flecks is typically present on the sides. They have long, slender toes with weakly developed foot tubercles. They are thought to be long-lived creatures, possibly living for a decade or more. The SCLTS is a subspecies of the long-toed salamander that is isolated by 150 miles from the nearest other subspecies. Current research indicates that the SCLTS is genetically distinct from other subspecies and will likely be described as its own species in the future (Savage, pers. comm.).

SCLTS are known from only approximately twelve breeding locations in Santa Cruz and Monterey Counties, some of which may no longer be viable. They spend most of their lives underground in small mammal burrows and along the root systems of plants in upland chaparral and woodland areas of coast live oak (*Quercus agrifolia*) or Monterey pine (*Pinus radiata*) as well as riparian strips of arroyo willows (*Salix lasiolepis*) and other species. These areas are desirable because they are protected from the heat and drying rays of the sun. The soil is usually a sandy loam, the result of old marine terraces. Ideal breeding locations appear to be shallow, temporary, freshwater ponds that lack fishes and hold water at least through the spring months.

Breeding has been documented at Buena Vista, Calabasas, Millsap, Ellicott, Green's, Rancho Road, and Seascape Ponds, and Valencia Lagoon in Santa Cruz County and at McClusky Slough, Moro Cojo Slough, and Zmudowski State Beach in Monterey County. The species is no longer assumed to be present at Bennett Slough near McClusky due to saline conditions and upland habitat conversion. Green Pond has not been surveyed recently and its status as a breeding site is unknown. The breeding ponds at the Valencia, Seascape, Calabasas, Millsap, Buena Vista, and Rancho Road sites are man-made or human modified (USFWS 1999, Biosearch Wildlife Survey 2001). During the 2002 breeding season, the Rancho Road site was drained to maintain a culvert and its status as a consistent breeding site is unknown (Allaback, pers. observ.). The Rancho Road site did not appear contain enough standing water to provide breeding habitat in 2002-03. The extent of undisturbed upland habitat adjacent to breeding locations varies from a narrow ring of riparian and ruderal vegetation on the perimeter of the pond to oak woodland extending one mile or more away. Although no adult SCLTS have been observed to move more than about 0.6 mile (straight-line distance) from a breeding site where they were originally marked, few, if any studies have looked for them beyond that distance. The distance between known breeding and aestivation locations varies greatly from site to site and apparently depends largely upon soil type, vegetation presence (or absence), vegetation structure or composition, slope, aspect, and size of the breeding pond (Jennings 1997).

Metamorph SCLTS have also been found at a few other sites in Santa Cruz and Monterey counties. In 1996, they were found near Merk Road in south Santa Cruz County adjacent to a large perennial pond, although recent sampling efforts have failed to detect the animal (Savage, pers. comm.). In 1993 and 1998, they were found near the

entrance to the Elkhorn Slough visitor's center in Monterey County. Whether any of these observations represent undiscovered breeding populations or merely wandering individuals from marginal or currently identified breeding habitats is unknown. Additional breeding sites may be present given the amount of privately owned habitat in the region that has not been surveyed for SCLTS.

Adult SCLTS leave their upland coastal scrub, woodland, and willow summer retreats with the onset of the rainy season, typically in mid- to late-November or December, and begin their annual nocturnal migration to the breeding ponds. They often forage for invertebrates, especially isopods, on the surface in and around breeding sites during the rainy season. Adult salamanders migrate primarily on nights of rain, although some movement may occur on clear nights immediately after a rain event. They arrive at the breeding ponds from November through March, with peak activity typically from December through February because earlier rains are usually insufficient to fill the temporary ponds. Adults may skip breeding for one or more seasons if no surface water is present during drier years (Russell and Anderson 1956). After breeding, adult movements to upland areas are less episodic and less predictable, such that significant numbers may travel on nights with little rainfall.

As individuals enter the pond, they court and breed. Males generally remain in ponds twice as long (1 to 5 weeks) as females and may successfully breed with more than one female each season. Female SCLTS have specialized and selective egg-laying habits. Eggs are laid singly on submerged stalks of spike rush (*Eleocharis* spp.) or other vegetation about two to three centimeters apart. Free floating, unattached, and clustered eggs have also been observed. Each female lays about 300 (range 215 to 411) eggs per year. After courtship and egg laying, most adults leave the pond by the end of March and return to the same general areas where they spent the previous summer, often foraging for food while en route. A small percentage of adults may remain in the vicinity of the breeding site for a year or more before returning to more distant terrestrial retreats. The eggs and the subsequent larvae are left unattended by the adults.

According to Ruth (1988), eggs usually hatch 15 to 30 days into the aquatic larval stage. The exact amount of time for development depends on timing of oviposition, water temperature, hydroperiod and other environmental conditions. The larvae, which subsist largely on aquatic invertebrates, such as worms and mosquito larvae, other larval amphibians such as Pacific treefrogs (*Hyla (= Pseudacris) regilla*), and conspecifics, remain in the pond environment for 90 to 145 days until they reach a minimum size of about 32 millimeters (mm) snout to vent length. Once this general size is reached, the larvae may metamorphose in a relatively short period of time if the pond environment becomes unsuitable (i.e., dries up) for continued larval growth. However, a complex set of factors determines the timing of metamorphosis in ambystomatid salamanders.

Metamorphosis typically occurs from early May to mid-August. In closely related *A. talpoideum*, metamorphosis can be induced in the laboratory by starvation, water pollution, increased water temperatures, or drying of the aquatic habitat. If water is available for a longer period of time, remaining in the pond may be advantageous. A

larger body size at metamorphosis increases resistance to desiccation, makes the individual less vulnerable to predation, and increases the size range of food items that can be eaten. As the pond begins to dry, the post-metamorphic juveniles (metamorphs) move at night and seek underground refuge at or near the pond. During the next rainy season, the metamorphs disperse further away from the pond, not returning until they reach sexual maturity.

SCLTS are vulnerable to several predators including introduced opossums (*Didelphis viginiana*), striped skunks (*Mephitis mephitis*), and ringneck snakes (*Diadophis punctatus*) (Reed 1979). These animals as well as raccoons (*Procyon lotor*) probably prey upon adults. Large California tiger salamanders (*A. californiense*), coast garter snakes (*Thamnophis atratus*), western terrestrial garter snakes (*T. elegans*), and common garter snakes (*T. sirtalis*) have been observed to prey on larvae, metamorphs and adults when the opportunity presents itself.

Larval SCLTS are eaten by conspecifics, a number of predacious aquatic insects, and a few bird species including mallard ducks (*Anas platyrhynchos*) (Jennings 1997). Larval SCLTS are parasitized by a digenetic trematode (*Plagiochiidae*) which causes the creation of supernumerary limbs as well as other limb deformities (Sessions and Ruth 1990). Burrowing mammals, such as moles (*Scapanus* spp.) and shrew-moles (*Neurotrichus gibbsii*), apparently avoid salamanders because of toxic skin secretions.

Additional populations of the SCLTS have been identified since the time it was first listed as endangered by the USFWS in 1967. However, only three are currently managed by public agencies (Valencia, Calabasas and Ellicott), with a fourth site currently under acquisition. Furthermore, much of the upland around the Valencia and Calabasas breeding sites is outside the management zones, and Valencia is considered especially vulnerable due to the proximity of Highway 1. The Seascape breeding locations are situated on land owned by the Center for Natural Lands Management and receives protection under an approved HCP (Laabs 2002). The remaining breeding locations continue to be threatened by the direct or indirect effects of human and natural events. The principle threats include degradation of existing breeding ponds by siltation, growth of excessive aquatic vegetation, destruction of upland and breeding habitat by land use practices such as urbanization and highway construction, vehicles, saltwater intrusion, weather conditions, runoff from adjacent agricultural and urban areas, and predation by introduced and native organisms. The very restricted and disjunct distribution of SCLTS populations has made the species particularly susceptible to population declines.

2.2.1.1 Status at the Ross Trust Property

The primary source for the following section was Bland (2002) and Allaback and Laabs (unpubl. data).

Dana Bland and Associates performed a pitfall trap study by encircling the breeding pond with drift fence and monitoring traps from 15 November 2001 through 18 March 2002. The study missed most of the outward-bound dispersal of metamorphs,

since virtually all had dispersed from the Seascape Pond located 3 miles to the southwest by 13 November 2001 (Laabs and Allaback, unpubl. data). However, the study was initiated prior to the first males arriving at Seascape (Laabs and Allaback, unpubl. data), and therefore provided an accurate population estimate of the adults that bred during 2001-2002 season. In addition, a total of 10 metamorphs were captured during the study, which confirms that the pond provides a breeding location.

A total of 900 adults were captured entering the pond and 467 were recaptured leaving the site. In all, 984 individuals were marked: 543 males and 441 females. Trespass through the drift fence was documented at the overflow culvert, which helps explain the lower number of recaptures. However, a similar lower recapture rate has been observed at other locations including during 5 consecutive years of studying the Seascape Pond (Ruth 1989; Laabs and Allaback, unpubl. data). A relatively low percentage of adults may remain at or near the breeding pond over the summer at certain sites. The pond clearly supports a significant population but one year of data collection cannot be used to determine if the population is stable, increasing or declining. Given that the uplands are largely undisturbed, however, few immediate threats appear to be present. For comparative purposes, the relative abundance of adults at the Seascape Pond in 2000-2001 using the Lincoln Peterson Index was 2,310 with a 95% confidence interval of ± 310, while the estimate at the Millsap Pond in 2000-2001 was 137 adults (95% confidence interval of ± 21 using the Schumacher model) (Davis and Winstead 1980; Donnelly and Guyer 1994; Biosearch 2001; Laabs 2002).

Pitfall trap studies were not performed throughout the upland habitat onsite, so it is unknown where individuals are seeking cover or how far away from the pond they are moving into the uplands. It is also possible that SCLTS may over-summer on portions of the property, only to migrate to other ponds in the region offsite, especially to the east. The Millsap Pond, for example, is situated approximately 1 mile to the southeast near the intersection of White and Calabasas Roads. Data collected by Bland (2002) indicated that adult SCLTS arrived at the pond from all directions, with higher relative numbers recorded on the west, north and east sides of the pond. The best available data indicates that Ambystomatid salamanders travel in straight lines between upland refugia and breeding locations. It is known that terrestrial individuals require oak woodland, dense coastal scrub and/or willow habitat, which are in proximity to the pond and in more distant areas.

The best available data indicates that grasslands are not used by the animal to over-summer, although individuals clearly pass through open habitats during dispersal or migration events (Ruth 1988; Allaback and Laabs, unpublished data). Furthermore, it is likely that individuals use rodent burrows or other cover that may be present in grasslands for temporary refuge during migration or dispersal, which may take several days or weeks depending on the timing and amount of rainfall. During the winter weather year, land near the breeding pond is considered especially sensitive, since some salamanders may travel to the vicinity of the pond from distant locations and use temporary cover nearby before breeding and returning to the uplands. During the 2001-2002 at the Seascape Pond, 25-33% of the reproductive adults (over 800 individuals) moved a minimum of 1200 feet between upland habitat and the breeding pond (Laabs and Allaback, unpublished data).

Although it appears that the Tucker Pond supports a significant breeding population of SCLTS, the presence of the bullfrog is of concern. It is unknown if the bullfrog is a significant predator but the existing breeding population is assumed to reduce habitat quality primarily by competing for aquatic resources.

The presence of the California newt is of interest in that there are currently no other known breeding sites that support both species. It is unknown if the presence of California newts reduces recruitment of the SCLTS.

2.2.2 California Red-legged Frog

The CRLF is a Federally listed threatened species and a State Species of Special Concern. It is a large (85-138 mm), nocturnal ranid that historically occupied many of the pacific drainage basins in California. The species requires still or slow-moving water during the breeding season, where it deposits large egg masses, usually attached near the surface to submergent or emergent vegetation. Breeding typically occurs between December and April, depending on annual environmental conditions and locality. Eggs require 6 to 12 days to hatch and metamorphosis generally occurs within 3.5 to 7 months after hatching, although larvae have the ability to over-winter at some sites (Fellers, *et al.* 2001; Stebbins 2003). Following metamorphosis, generally between July and September, metamorphs are 25-35 mm in size and probably do not travel far from aquatic habitats if appropriate cover is present nearby. Dispersal of metamorphs generally begins with the first rains of the weather-year, although all size classes will move in response to receding water (pers. observ.). During night surveys, metamorphs have been found ¾ mile from the nearest breeding location (pers. observ.). Radio-telemetry data indicates that adults may engage in straight-line movements irrespective of riparian corridors or topography, and they may move up to two miles between non-breeding and breeding sites (Bulger 2003). Adults seem to prefer riparian vegetation, overhanging banks or plunge pools for cover, especially during the breeding season. They may take refuge in small mammal burrows, leaf litter or other moist areas during periods of inactivity or whenever it is necessary to avoid dessication (Rathbun, *et al.* 1993; Jennings and Hayes 1994; pers. observ.). CRLF emerge to forage soon after dark and often enter dry upland areas in proximity to perennial water (pers. observ.). Following summer rains, they have been radio-tracked up to 120m into surrounding uplands and in the wet months they may spend days or weeks in upland habitats (Bulger 2003). During the non-breeding season, a wider variety of aquatic habitats are used, including small pools in coastal streams, springs, water traps and other ephemeral water bodies (pers. observ.). Occurrence of this frog has shown to be negatively correlated with presence of introduced bullfrogs (Moyle 1973; Hayes & Jennings 1986, 1988), although both species are able to persist at certain locations, particularly in the Coastal Zone (pers. observ.).

The CRLF frog occurs west of the Sierra Nevada-Cascade crest and in the Coast Ranges from approximately Sonoma County south into Baja California. Much of its habitat has undergone significant alterations in recent years, leading to extirpation of many populations, especially in the Central Valley and in Southern California. Other factors contributing to its decline include its former exploitation as food, water pollution,

and predation and competition by the introduced bullfrog, green sunfish and other predatory fishes (Moyle 1973, Hayes and Jennings 1988).

2.2.2.1 Status At and Near the Ross Trust Property

No CRLF were observed during the drift fence study although focused surveys were not performed (Bland 2002). Currently, the habitat quality is reduced due to the presence of the introduced bullfrog. Locally, very few CRLF breeding ponds are known. CRLFs breed at the Millsap Pond located 1.2 miles to the southeast and inhabit portions of Harkins Slough near the Calabasas Pond in Larkin Valley (Allaback and Laabs, pers. observ.; Amelia Orton-Palmer 2001). Both these locations are within the range that this species is known to travel. It is possible that the CRLF could colonize the Tucker Pond sometime in the future, especially if the bullfrog population is reduced or eliminated. Whether or not the Tucker Pond ever becomes breeding habitat for the CRLF is unknown. The CRLF requires semi-permanent or permanent water bodies to breed, whereas the most productive SCLTS ponds appear to be seasonal ponds that dry before CRLF tadpoles could reach transformation (Allaback and Laabs, unpubl. data). Therefore, future management actions that may favor the SCLTS could conflict with the CRLF lifecycle.

2.2.3 Other Species

An assessment of wildlife habitats and the potential for presence of special-status species was conducted at the Ross Trust Property in 2001 by the Biotic Resources Group to determine the need to address species other than the SCLTS in the HCP. The study determined that other target special-status species are not likely to inhabit the study site due to the presence of marginally suitable habitat and/or the fact that breeding or nesting habitat is not available.

In particular the site was assessed by the Biotic Resources Group for the potential to support two federally listed plants: the robust spineflower (*Chorizanthe robusta* var. *robusta*) and the Monterey spineflower (*Chorazanthe pungens* var. *pungens*). Plant surveys were conducted on the project site during the bloom period of these two plants and the plants would have been recognized if they occurred on the site. None were found.

Bird species that could use the site for nesting would not be impacted during the nesting season as a result of protection laws already in effect (Migratory Bird Species Act) and are thus not covered by the HCP.

3.0 PROJECT DESCRIPTION/ACTIVITIES COVERED BY PERMIT

This section of the HCP describes the covered activities and the mitigation measures. A summary of the tasks to be performed by the Applicant and/or the Service-approved biologist is included in Appendix B.

3.1 Construction of Single Family Residence

The Ross residence would be constructed in the central portion of the parcel on a grassland/coyote brush scrub covered promontory at the northeastern section of the site. Access to the residence will be off of Redwood Heights Road. The project includes construction of an approximately 7,500 square foot house with associated landscaping, a 1,500 square foot caretaker house, a 2,000 square foot winemaking/agricultural equipment storage facility, a 2,000 square foot barn, septic systems, a swimming pool, a tennis court, a vineyard of approximately 5 acres, an orchard, and possibly a vegetable garden for family use. The main residence includes a low fuel native vegetated fire buffer. The swimming pool deck will be six-inches higher than the adjacent grade to prevent SCLTS from getting into the pool. In all, approximately 15 acres of the site would contain the area subject to intensive residential use by the Ross family (house, caretaker house, barn, winemaking/equipment storage facility, ornamental landscaping, pool, tennis court, vineyard, orchard and garden). See Figure 3.

3.1.1 Tentative Construction Schedule

The project may be constructed all at once or it may be constructed in phases. The major grading for the project includes grading for the driveway, the underground utilities, the main and caretaker houses, and the winemaking/equipment storage facility. The following table provides a tentative construction schedule as provided by Doug Ross.

Grading	June 2007 – Oct. 2007	Access road and underground utilities.
Build Main & Caretaker Houses	June 2008 – Oct. 2008 July 2008 – Dec. 2009	Grading for main and caretaker houses and winemaking/equipment storage facility. Construction of houses, winemaking/equipment storage facility, pool, and landscaping.
Outbuildings & Other Site Improvements	June 2009 – June 2011	Incl. barn, tennis court, vineyard, orchard and vegetable garden.

Note that the 7-acre parcel at the northwest of the site will also be available for construction of a single-family residence in the future. However, only 1.5 acres of the 7-acre area will be affected by surface-disturbing actions and will be permanently developed.

3.1.2 Mitigation Measures

Figure 3 shows the limit of grading for construction of the Ross residence. The grading limit line shall be marked in the field with a temporary fence and signs shall be posted on the fence every 100 feet stating the penalty for grading outside the fenced areas. No grading shall take place during the wet season (usually between October 15 and April 15) when above ground salamander activity is at its highest level.

The following are mitigation measures proposed to avoid take of SCLTS and CRLF during construction of the Ross residence:

- A Service-approved biologist will conduct a biological resources education program for construction workers prior to the beginning of construction activities and will appoint a crewmember to act as an onsite biological monitor. The education program will include a brief review of the biology of the SCLTS and CRLF, and guidelines that must be followed by all construction personnel to reduce or avoid negative effects to these species during the construction period. The crew foreman will be responsible for ensuring that crewmembers comply with the guidelines. Education programs will be conducted for new personnel before they join construction activities.

- No grading shall be performed during the rainy season (typically October 15 th to April 15th). If grading activities begin between April 15th and June 15 th, a drift fence will be constructed around the entire project area to exclude any dispersing SCLTS from entering the project area. With the exception of the construction storage and equipment area (see below), a salamander exclusion fence is not necessary if grading is performed from June 15 th to October 15 th.

- The boundaries of the construction areas will be demarcated with temporary plastic mesh-type orange construction fencing.

- Construction equipment and vehicles will be stored, staged, maintained, and fueled, and construction materials and debris will be stored in a predetermined staging area within the 15-acre portion of grassland. The staging area(s) will be surrounded by a drift-fence to exclude SCLTS. Loose straw will be spread adjacent to the outside of the fence for at least 3 feet, to provide cover for SCLTS. Construction debris will be stored in bins. A salamander-proof gate will be constructed to access the staging area.

- The Service-approved biologist will capture any SCLTS and CRLF found during vegetation and debris removal and relocate the salamanders and frogs to a safe location outside of the boundaries of the project area. Before project activities begin, the Service-approved biologist will identify appropriate areas to receive relocated SCLTS and CRLF. These areas will be in proximity to the capture site and support suitable moist vegetative cover.

- Before work activities begin each day, the onsite biological monitor will inspect construction equipment to look for SCLTS and CRLF. If a SCLTS or CRLF is found during these checks or at any time during construction, construction activities will cease until the Service-approved biologist is available to move the animal out of harm's way to the nearest appropriate habitat.

- All food-related trash will be disposed of in closed containers and removed from the project area at least once per week during the construction period.

- Project-related vehicles and construction equipment will restrict travel to the designated construction area only.

3.1.3 Landscaping

The planting of any non-native pest plant species that are contained on the list maintained by the California Invasive Plant Counsel shall be prohibited from use in interior project landscaping. The current list is provided in Appendix C.

3.1.4 Lighting

Lighting on travel ways shall consist of motion sensor lighting that light up only when needed and shall be restricted to the building envelopes and main driveway. In addition, there may be low-level lighting throughout the residential grounds for safety and security purposes.

3.1.5 Erosion Control and Drainage

The erosion control and drainage system used will be in compliance with County codes and will not conflict with management of the easement or with SCLTS movement on and through the property.

3.1.6 Valve Boxes

Any valve boxes, or similar structures, installed at grade to control irrigation, electricity, etc. will be retrofitted with permanent screens (1/8 inch mesh or less) to prevent entry by SCLTS.

3.1.7 Curbs

Rounded curbs that have the edges flush with the street gutter shall be used in any locations where curbs are installed. The edges shall also be flush with the land adjacent to the road, so that salamanders are not obstructed by the edges as they attempt to pass over the rounded curbs. The slope and height of the rounded curbs shall allow salamanders to pass over the curb and still channel water during rain events. To the extent feasible, curbs will be installed during initial construction activities and road construction.

3.1.8 Fences and Walls

Any fences constructed on the property shall maintain at least a 2-inch gap along the bottom portions of the fence, not including fencepost locations, to allow for the passage of SCLTS and CRLF beneath the fence. Also, no retaining walls, or other walls that are not part of a dwelling or outbuilding, shall be longer than 50 feet unless there are gaps under the walls or gaps between lengths of retaining wall to allow for the passage of SCLTS and CRLF.

3.2 Post-Construction Activities on Tucker Residence and within the Easement Area

3.2.1 Uses within Residential Grounds

3.2.1.1 Landscaping and Gardening

The Ross family will landscape their residential grounds using typical landscape or garden plants found in plant nurseries and could include lawns, trees, shrubs, herbaceous plants, and fruits and vegetables. An orchard and a vegetable garden, the products of which will be for family use, are contemplated. The grounds may include stepping stones, arbors, fences, or other landscape features. They will use typical landscape maintenance equipment to maintain their ground including mowers, weed-wackers, shovels, hoes, etc. Maintenance may also include the use of herbicide and insecticides to maintain the ornamental landscaping. Only products found in a local hardware store or garden center would be used in the ornamental landscaped area. The Service-approved biologist shall review and approve final landscape plans to make sure they are compatible with use of the site by the SCLTS and to ensure that invasive plants, such as iceplant (*Mesembryanthemum* spp.), or Cape ivy (*Delairea odorata*) are not utilized.

3.2.1.2 Viticulture

The Ross residence will include a vineyard of approximately 5 acres. The vineyard, the orchard, the vegetable garden, and the ornamental landscaped areas will be located well away from the pond (over 1,000 feet) and will be buffered from the pond by natural vegetation. Although the vineyard will not be a true organic vineyard, the Ross family will minimize the use of pesticides and other chemicals to only those needed to manage a particular problem and only when no other “non chemical” option has worked or is available. Disking for weed control shall not be used; rather hand removal or mechanical removal using a mower or other non-ripping equipment shall be used. Gassing or use of redenticides shall not be used as methods to control gophers or other burrowing animals because these methods could also kill SCLTS.

The vineyard will be maintained using standard best management practices (BMPs) for agricultural and horticultural uses. Such BMPs include:

- Make sure that the right varieties are being planted for the climate and the area.
- Choose pest and disease resistant varieties.
- Prepare the soil properly before planting-adding nutrients as needed.
- Use a cover crop (non-invasive, sterile) as needed to control erosion.
- Irrigate slowly to prevent runoff or remove pests before resorting to chemicals.
- Physically or mechanically prevent or remove pests before resorting to chemicals.
- Be realistic about achieving an insect and weed-free landscape. Some amount of pests may be tolerable.

- Consider the use of predators or beneficials. The most common natural enemies of various insects are spiders, ladybugs, lacewings, larvae of syrphid flys and parasitic wasps. All of these predators can occur naturally in the landscape when pesticides sprays are not used or are kept to a minimum.

Although not a covered activity under the HCP, pesticides may be used if other options are unsuccessful. If pesticides must be used, the following Best Management Practices will be implemented to assure that off-site resources are not affected by their use:

- Read the label carefully to make sure that the pesticides is the appropriate product for the job and the site.
- Select the least hazardous pesticide that will do the job.
- Use the lowest effective rate of application.
- Only apply pesticides when wind speeds are low.
- Use the lowest operating pressures and largest nozzles practical to help reduce possibility of drift.
- Consider the weather predictions for heavy rainfall and do not treat within 24 hours of rain.
- Be aware of the potential for contamination of waterways and storm drains. Leave a at least a 500-foot buffer zone between the area being treated and any sensitive sites, such as the pond.

3.2.1.3 Horse Boarding and Equestrian Uses

The Ross family plans to have horses on the property for personal recreational use only. There will be a barn and small pasture within the 15-acre residential site. The Ross family intends to follow BMPs to manage the horses and associated horse facilities, including:

- Wastewater from animal washing can contain soap, surfactants, pesticides, and other chemicals, as well as urine and organic matter. Animal wash water should not be allowed to drain directly into watercourses. If animal wash water is commingled with clean run-off water, the water should not drain directly into watercourses. The preferred method to dispose of animal wash water is to drain it into a septic system or dry well**.** The Ross Family intends to use a dry well.

- Because heavily used feeding areas lack vegetation and manure is likely to accumulate, animals shall not be fed within 50 feet of a watercourse.

- Bins and stockpiles are containers and piles used to collect animal waste. Bins may include but not be limited to a covered box, a concrete shed, and trash containers. Stockpiles include but are not limited to piles of animal waste, compost, wood shavings, sand, and soil.

- Bins and stockpiles should be located as far as possible and feasible from watercourses, but not less than 150 feet. Distances may vary site by site due to topography, vegetated buffers, physical barriers, and diversions that may exist. Bins and stockpiles should not be located in areas subject to frequent flooding regardless of distance from watercourses.

- Removal of animal waste from the property is in most cases the best disposal option. Stockpiles and bins should be removed or emptied before the containment capacity is exceeded or before offensive, obnoxious, or unsanitary conditions develop.

- Animal manure and compost can be applied within the residential use area only on pastures, reused as a crop nutrient or soil amendment, and reused as a base for trails and courses except within 50 feet of watercourses. In all cases the applied materials should not move into watercourses and water should not run off the applied areas into watercourses. Vegetated buffer strips between the applied area and the watercourse is the most reliable method to assure water quality is protected. Animal manure and compost shall not be applied within the Conservation Easement.

- If manure or compost is to be spread on crop fields it should be incorporated into the soil immediately to avoid impacts on rain and/or irrigation water that may run off the applied fields. Under no circumstances should manure or compost be spread where the area is subject to frequent flooding regardless of distance from watercourses.

3.2.1.4 Outdoor Recreation including Swimming

The Ross residence may include a swimming pool that will be inaccessible to SCLTS because the pool deck will be elevated 6” from the adjacent surrounding grade. The pool will be maintained using standard maintenance practices for residential pools including use of water filters, pumps, pool chemicals, and cleaning equipment (pool sweep). Other normal family recreational activities that may occur on the grounds of the Ross residence include playing catch, volleyball, etc.

3.2.2 Uses within Easement Area

The Ross family intends to use the area within the Conservation Easement in a similar manner to that of the Tucker and Madigan families. These uses are described below.

3.2.2.1 Horseback Riding

The Ross family plans to use the existing access road and designated trails within the easement for horseback riding. Designated trials within the Conservation Easement

are depicted in Figure 3. Off-trail and off-road horseback riding is not permitted within the Conservation Easement.

3.2.2.2 Walking and Hiking with or without Family Dog/s

The Ross family plans to use the road and trails within the Conservation Easement for walks and for running the family dogs.

3.2.2.3 Family Gatherings/Existing Picnic Area

In the spring, summer, and fall the Ross family will host gatherings, some of which may take place at the existing picnic area by the pond. These would include family gatherings (up to 15 people), perhaps a wedding of family members and an occasional party (20 to 50 people). The family gatherings and parties could happen five to six times a year, while a wedding would be an infrequent event. Activities will be concentrated in the disturbed areas of the Conservation Easement. The following measures will be carried out annually to reduce the impacts of humans spending time near the pond:

- A minimum 5-foot buffer shall be maintained around the pond at capacity to provide terrestrial cover for SCLTS entering and leaving the pond.
- Existing grassy areas shall be mowed to a height of 4-6 inches in the late spring/early summer and again as necessary to maintain a low grass height.
- The existing barbeque pit will be removed, with a Service-approved biologist present, since it encroaches the 5-foot buffer. The new barbecue area shall be sited a minimum of 65 feet from the pond.
- During gatherings, people will walk down from the house or be shuttled down to the pond from the existing access road in golf carts or other low impact vehicles such as a John Deere Gator.
- No on-ground fire pits are allowed since debris piles may attract salamanders. An enclosed fire pit and propane-powered grill is allowed. An adequate fire extinquisher(s) shall be kept on-hand while using the propane grill.
- Trash (e.g., beverage receptacles, paper products, and food waste) could attract potential predators of SCLTS such as raccoons, skunks, and feral cats. Therefore, during family gatherings (e.g., barbeques) all trash will be placed in lidded trashcans, which will be removed from the Conservation Easement immediately following the family gathering.

3.2.2.4 Traveling on Roads and Trails with Low Impact Vehicles

Travel in the Conservation Easement area will be restricted to bicycles or a low impact all-terrain vehicle (ATV) such as a John Deer Gator or golf carts and only on designated trails. No off-trail travel with bikes or ATVs will be permitted in the Conservation Easement. No new dirt roads or trails will be built for bicycles or ATVs in the Conservation Easement. Only those trails designated on the site plan will be used

within the Conservation Easement. The repair, refueling or other servicing of vehicles in the Conservation Easement is prohibited.

3.2.2.5 Maintenance Activities

Maintenance activities will likely include trimming brush that overhangs along existing roads and trails; removal of downed and dead wood on roads and trails; repair of culverts; maintenance of the access road (applying gravel), and any installation of necessary erosion control measures should erosion become a problem. Mechanical equipment, such as a small skip loader or backhoe, may be used to conduct some of the maintenance work as needed; however such maintenance equipment shall not be re-fueled, repaired, or stored within the Conservation Easement. In addition, no leaking mechanical equipment will be used in the Conservation Easement.

Aerial photographs of the site reveal a relatively fresh erosion scar and gully on the eastern slope of the spur ridge (below the 15-acre development site). A geological inspection of the site reveals that the scar appears to be dormant as it has not increased in size and there has been some re-vegetation of the scar (Rogers Johnson & Associates, 2001). In accordance with the Geologist recommendation, the project will be designed to minimize surface disturbance on or near the scar and no runoff from the development site will be directed into the scar.

3.2.2.6 Swimming and Fishing

People shall not swim in the pond and fish shall not be stocked in the pond. A sign shall be posted at the pond stating the restrictions on swimming and fish stocking.

3.3 Conservation Easement Establishment and Management

3.3.1 Conservation Easement Establishment

Prior to or upon receipt of the ITP and prior to site grading, the landowner shall establish a permanent Conservation Easement on 38.8 acres of the property (Figure 3). The Conservation Easement shall be referred to as the Tucker Preserve. The Ross Family shall deed the Conservation Easement to the Center for Natural Lands Management or other agreed upon entity that is endorsed by the regulatory agencies.

During the 10 year term of the ITP, the Ross family will finance and carry out the following activities within the Conservation Easement:

3.3.2 Management of SCLTS Breeding Pond

A Service-approved biologist shall be onsite as necessary for any pond maintenance activities. The primary management activity will be draining the pond to control bullfrogs (Section 3.3.2.2).

3.3.2.1 Install and Maintain an Interpretive Sign

The pond will be managed onsite for all native wildlife including the SCLTS and the CRLF. Information shall be posted at the pond on a sign or in a kiosk that describes the natural history of the salamander and red-legged frog and management of the pond to control bullfrogs. Other information will also be posted, including restrictions on swimming and stocking fish.

3.3.2.2 Control Bullfrogs

Bullfrogs were reported in 2001 (Bland and Associates 2002) and bullfrog breeding was confirmed based on the presence of metamorphs on 8 October 2002 and tadpoles on 10 May 2003 (Allaback, pers. observ.; Savage, pers. comm.). Efforts will be made to remove bullfrogs (see below), and the primary management action will be periodic draining of the pond to break the reproductive cycle of bullfrogs. The most productive breeding sites for the SCLTS appear to be seasonal ponds that lack aquatic predators such as fishes. Although bullfrogs have not been documented as predators of the SCLTS, it is assumed that the quality of available habitat is reduced if they are present. Bullfrogs have been documented to prey on CRLF and are also likely to compete for resources with the species. Therefore, reduction in the resident bullfrog population will increase habitat suitability of the pond for the CRLF.

Following HCP approval and prior to the first winter rains (typically September-October), the pond will be drained to remove bullfrogs under supervision of a Service-approved biologist. Management of the pond shall focus on draining in September to break the reproductive cycle of bullfrogs without affecting the SCLTS. During the pond draining efforts will be made to minimize negative effects on California newts (*Taricha torosa*), although loss of newt larvae, which often transform in the fall, is anticipated. The pond will be drained using an appropriate pump. Intakes on pumps shall be completely screened with wire-mesh not larger than 0.2 inch to prevent larvae, juvenile, and adult salamanders and frogs from entering the pump system.

During the first September following HCP approval, the pond shall be partially drawn down to expose the edge of the pond basin (if necessary), and then encircled with temporary fencing (~3-foot high, angled inward) to contain sub-adult and adult bullfrogs, before being drained completely. During the first year, efforts shall be made to remove and dispatch all remaining size classes of bullfrogs including tadpoles, metamorphs, subadults and adults. During the annual monitoring studies, efforts shall be made to remove bullfrogs as they are encountered (Appendix A).

When the pond is dry, minor modifications will be performed to simplify draining efforts in the future. An existing catwalk will be refurbished. The catwalk will be used to facilitate draining the pond. It will also be used as a tool to monitor aquatic life without trampling the sensitive near-shore environment that provides rearing habitat for larvae and tadpoles. A permanent staff gauge will be installed so that water depth can be easily

monitored over time. A pump and pipe system may be installed. The berm that forms the pond will be inspected and repaired, if necessary.

The pond shall be drained annually following the same methodology if monitoring reveals that bullfrogs are continuing to breed. After the bullfrog population has been reduced or eliminated, the pond will be drained every 3-5 years following the same methodology regardless of whether bullfrogs are observed to ensure that the pond is not colonized again. During the long-term monitoring period, if deemed appropriate by the Service-approved biologist, the methodology may be changed such that the pond drains slowly over a period of 2-4 weeks beginning in mid-September to allow native amphibians enough time to depart the pond on their own. The pond will not be enclosed with temporary fencing if it is slowly drained. Alternatively, it may be possible to remove bullfrog tadpoles with a seine when the water level is naturally low without draining the pond completely.

3.3.2.3 Mosquito Abatement

Mosquito fish (*Gambusia spp.*) are often used by mosquito abatement districts to control mosquitoes in standing water. However, mosquito fish may prey on salamander eggs and larvae. The landowner shall post signage stating the prohibition against introducing mosquito fish and other exotics into the Tucker Pond. The local Mosquito Abatement District will also be informed of the prohibition and, if mosquitoes become a problem, other methods of mosquito abatement, such as methoprene or bacterial toxins, shall be used in consultation with the USFWS and CDFG. Oils or monomolecular films shall not be used in the pond. Use of birdhouses, bat boxes, or other methods that would promote natural predators of mosquitoes is recommended.

3.3.3 Exotic Pest Plant Control

There are several species of non-native pest plants found on the site including pampas grass, broom, and eucalyptus trees. Within the 38.8-acre Conservation Easement, the exotic species shall be mapped and a priority system of eradication developed. Techniques used for exotic species control shall reflect the sensitivity of nearby habitat areas and the possible presence of SCLTS and CRLF. Implementation of the exotic pest plant management program shall be funded by the landowner. Eradication efforts shall be performed annually. Refer to Appendix A for more details.

3.3.4 Habitat Protection and Maintenance

The landowner shall provide for ongoing protection and maintenance of the Conservation Easement during the 10 year term of the ITP. There shall be continued management of invasive pest plants and animals, trash shall be removed, and unauthorized personnel shall be prohibited from use of the land. Vehicle/equestrian use within the Tucker Preserve shall be restricted to designated trails. A site map shall be prepared that identifies the key habitat features and the designated trail system. The perimeter of the Tucker Preserve shall be identified and delineated with appropriate

signage posted every ¼ mile and at all known access points. At a minimum, the signage shall identify the Tucker Preserve and restrict trespassing. A specific wildlife monitoring plan for the Conservation Easement is provided in Appendix A.

3.3.5 Species Monitoring

SCLTS and CRLF monitoring studies shall be conducted regularly to determine the status of each species at the onsite pond. Every five years, beginning the fall after the major grading for the house, the caretaker house, and the winemaking/equipment storage facility is completed, an estimate of the breeding SCLTS population will be generated following methods comparable to the baseline population estimate provided by Bland (2002). A Service-approved biologist shall conduct the study and the Applicant shall fund the installation and removal of the drift fence that is required for the five-year population study. The Applicant shall fund the third population study regardless of whether it takes place after the expiration of the ITP when the Applicant's other financial obligations in conjunction with the HCP have ceased.

The Tucker Preserve shall be visited a minimum of 4 times each year by a Service-approved biologist who will act as an independent monitor and provide annual reports to the USFWS. Monitoring to determine presence of the CRLF shall be conducted following USFWS guidelines modified to conduct surveys during the breeding season and perform aquatic sampling for tadpoles. Only individuals with appropriate state and federal permits shall perform the field studies. Refer to Appendix A for details of the species monitoring program.

3.3.6 Research Opportunities

During the monitoring period, with prior notice to Mr. Ross, biological research may be performed onsite. All researchers must have valid permits from the USFWS and CDFG. These data may be useful for the recovery plan for the SCLTS, which is currently being finalized (USFWS 1999). Additional tissue may be removed from larva or adults to conduct ongoing genetic analysis at the Shaffer Lab at U.C. Davis (Savage, pers. comm.; Bland and Associates 2002). Mr. Ross endorses biological research, including the collection of data suitable for publication. Educational tours may also be performed, but only with the approval of Mr. Ross.

3.3.7 Activities of Others

3.3.7.1 Power Line Maintenance

PG&E has an easement and maintenance responsibility for the 3-phase power that serves the well. These lines run overhead in a north to south orientation from the ridge down to the well site. Approximately every 4 years, PG&E trims any trees adjacent to these lines. PG&E periodically drives a pickup truck down the road to read the meter at the well location. A Service-approved biologist shall be consulted before any routine maintenance work is conducted to determine if on-site monitoring is necessary to avoid

take of listed species. PG&E must obtain a separate incidental take permit if any of their activities could result in take of listed species.

A non PG&E trip switch, which is part of the water system, is run overhead from the well to the water storage tank located on Jim Tucker's property on 1150 Redwood Heights Road. This switch senses when the tank is low and turns on the pump to refill the water tank. This is privately maintained and at a future date may be installed underground in the existing road configuration, or a wireless trip system may be installed. Should under-grounding be done, a Service-approved biologist shall be present during the vegetation clearing, but will designate an onsite biological monitor to inspect during the trenching and burial process. In addition, the biologist shall be consulted before any routine maintenance work is conducted to determine if onsite monitoring is necessary.

3.3.7.2 Well Management

The location of the well and related piping are shown on the site plan. The well consists of a pump, piping and valves that draw the water below grade and distribute it to holding tanks located on Jim Tucker's property on 1150 Redwood Heights Road as well as a private residence located at 5805 Freedom Blvd. The well pump requires periodic maintenance and may require complete replacement over time. Repair and/or replacement of the pump would require pickup truck access.

The pipeline system requires periodic checking of valves and occasional maintenance of the water pipe in the event a pipe breaks. The majority of the water piping is located near the existing road system or in open areas. In the event of a leak in the pipeline, valves can be progressively open and closed to determine the location of the leak. Sensitive and inaccessible areas requiring repair will be excavated by hand rather than using a backhoe. In the event that major repairs involving heavy mechanical equipment (especially trenching) are necessary to the pipeline system, a Service-approved biologist shall be consulted and be present during any repair activities that require vegetation removal.

3.3.8 Burrowing Animal Control

Burrow and tunnel systems created by small mammals (and in which SCLTS estivate) need to be occupied and maintained by these small mammals in order to remain structurally viable. Control of burrowing mammals (e.g., mice, voles, gophers, moles) within the Conservation Easement shall not be performed unless considered absolutely necessary (i.e., a human health concern) and only after concurrence with the USFWS and CDFG. Methods for burrowing mammal control shall be aimed only at target species. Physical destruction and gassing of rodent burrows cannot be used as methods to control rodents, since these methods would be lethal to salamanders. Non-lethal and lethal methods of trapping small burrowing mammals are available, as are certain poisons that are species-specific and applied by a specialist. A Service-approved biologist should approve any control activities, and in some cases, may have to be present during control activities.

3.3.9 Disposition of Dead or Injured Specimens

If dead or mortally injured SCLTS are found, they shall be photographed as is and collected according to state and federal permit guidelines by the Service-approved biologist. Specimens may be deposited at the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Department of Herpetology, California Academy of Sciences, 875 Howard Street, San Francisco, California, 94103, (415) 321-8289), or the University of California, Santa Cruz, Museum of Natural History Collections (contact: Tanya Haff, Curator, Museum of Natural History Collections, University of California, 1156 High Street, Santa Cruz, California 95064).

3.3.10 Fences and Walls

No fences or walls shall be installed within the Conservation Easement, with the exception of drift fences used for scientific research or SCLTS management activities, and a split-rail fence, which may be installed near the pond. A split-rail fence would facilitate management of the picnic area by delineating the existing grassland area, which will be maintained at a low grass height by mowing, and the buffer zone around the pond. The split rail fence would be no higher than 4 feet and it would allow free movement of all native wildlife through the area. Drift fences will be installed and removed only under the supervision of a Service-approved biologist(s). Any fences along the perimeter of the Ross Trust Property shall have at least a 2-inch gap along the bottom portions of the fences, not including post locations, to allow for the passage of salamanders beneath the fences. No walls shall be constructed along the edges of the Ross Trust Property. Existing perimeter fences around the Conservation Easement can be repaired as needed.

4.0 POTENTIAL BIOLOGICAL IMPACTS/TAKE ASSESSMENT

4.1 Direct and Indirect Impacts of the Project

4.1.1 Construction of Ross Residence

The development of the Ross residence will result in the permanent loss of approximately 15 acres of low quality estivation habitat for the SCLTS primarily grassland with some coastal scrub. The presence of CRLF is not expected during construction due to a lack of occupied habitat in the vicinity. Due to the lack of suitable aestivation habitat within the project footprint and the distance to the breeding pond, the number of SCLTS that will be directly affected by construction activities is expected to be very low. However, SCLTS are expected to pass through the areas proposed for building.

The loss of individual SCLTS within the development area will be minimized by performing all surface-disturbing activities during the dry season (generally 15 April to 15 October). But even with the project being built on marginal aestivation habitat, it is possible that some individual SCLTS may be killed during project construction. Death could occur from crushing by heavy equipment or suffocation from underground entrapment within existing burrows. Loss of vegetation cover could result in an increase

in predation on SCLTS. Even during the dry season, some dispersing metamorphs could reach the building footprint during the summer months, especially if it rains in the summer.

The Ross residence would use water from its own system on the property and sewer and electrical infrastructure from nearby residential areas. New storm drainage as needed to accommodate the project and avoid erosion will be as approved by the County. The driveway leading to the residence will not have curbs that could prevent SCLTS from crossing over the roadway. Rounded gutters that allow SCLTS to pass over shall be used on the driveway. Any valve boxes installed at grade shall be retrofitted with 1/8 inch mesh (or smaller) to prevent entry by SCLTS.

4.1.2 Construction on 7-Acre Parcel

A site plan for the 7-acre parcel of has not been developed and the timing of its development is unknown; however, for purposes of this impact analysis, it is assumed that 1.5 acres would be subject to development and future residential use on this site. Thus, another 1.5-acres of the 99-acre site would be permanently altered by development and associated landscaping for a total of 16.5 acres of development. The 1.5-acre site consists of previously disturbed land and coastal scrub habitat situated approximately 750-feet west (Figure 3) of the pond. All mitigation measures described in Sections 3.1.2 and 4.1.1 above shall apply to the construction and development of the 7-acre parcel. Minimization measures outlined in all sub-sections within Section 3.1 (i.e., mitigation measures, landscaping, lighting, erosion control, valve boxes, curbs, fences and walls) and Section 3.2.1 shall apply to the 1.5-acre development site.

4.1.3 Establishment and Management of the Conservation Easement

The project would result in the permanent protection of an important breeding pond and adjacent upland habitat under a Conservation Easement, much of which is oak woodland that is preferred by the species. Only Ellicott Pond and Seascape Uplands currently provide more protected acreage than what is proposed by this HCP.

The available upland habitat would be improved by controlling invasive exotic pest plants to promote natural succession and help maintain more suitable native vegetation for the SCLTS. Conditions at the pond will be improved by reducing or eliminating the bullfrog population.

There may be limited take associated with management and monitoring of the breeding pond and upland habitat contained in the Conservation Easement. A low number of metamorphs may be lost during activities associated with draining the pond. However, a Service-approved biologist will be present during the pond draining and areas that may be inhabited by metamorphs shall be avoided to the maximum extent practicable. Any SCLTS observed shall be moved by a Service-approved biologist to the nearest appropriate cover out-of-harm's way. Direct or indirect take may occur during

population monitoring studies, although take has been negligible over five consecutive years of population monitoring at the Seascape Uplands project site (Laabs 2002).

4.2 Cumulative Impacts

It is likely that this HCP would result in net benefits to environmental resources through the establishment of a 38.8 -acre Conservation Easement and management of the easement for the biotic resources, in particular the SCLTS and CRLF. The species will benefit by having a long-term privately funded management plan in place for the pond and surrounding upland refugia and for continued monitoring and management of the species and their habitat.

No significant cumulative effects are expected to result from the proposed project given the limited extent of vegetation that would be affected. Development would only occur on as much as 16.5 acres of the 99-acre site, which comprises grassland, orchard and coyote-bush scrub vegetation. The remaining 82.5 acres of the property consists primarily of oak woodland and coastal scrub vegetation, and supports a pond. 38.8 acres of this would be protected through a Conservation Easement in perpetuity.

Considered alone or together with other projects, this development is not expected to result in significant cumulative environmental effects. The proposed project is a single-home development project and Conservation Easement established within an area zoned for development. The surrounding area is already in existing, permitted development and development of the project site would be a minor addition to any perceivable environmental effect of the total development, and would not remove any oak woodland or affect the SCLTS breeding pond.

Historically, habitat for the SCLTS has been lost as a result of conversion of ponds and upland habitat during urbanization, in the form of road, highway, and housing development, and agriculture. Historically, the highest quality habitat for the SCLTS occurred in areas in south coastal Santa Cruz and north coastal Monterey counties with oak woodland upland and ephemeral ponds. Likewise, habitat for the CRLF has been lost due to urbanization and agriculture. Today, many of these areas of suitable breeding and upland habitat for both species are interspersed with human residential and agricultural development. At present, populations of both listed species continue to persist in and among rural residential development and agriculture.

This HCP would not cumulatively contribute negative effects to resources that may be affected by other existing HCPs. The Seascape Uplands HCP, which includes approximately 140 acres as a SCLTS preserve, is situated 3 miles to the southwest on the west side of Highway 1. The proposed Willow Canyon HCP for the SCLTS is a 70-acre property situated immediately north and adjacent to the Seascape Preserve.

4.3 Effects of the HCP on Other Environmental Values or Resources

4.3.1 Air Quality

No impacts on air quality are expected due to the nature of the project, the construction of a single-family home. The proposed project does not contain any features that would alter air movement, moisture, temperature, or cause any change in climate. No odors would be created. Any dust generated during construction of the project would be suppressed by wetting the dry soil to prevent airborne dispersal. The project will be subject to review by the County of Santa Cruz during the permit process. The project must comply with all County and State guidelines pertaining to the protection of air and other resources.

4.3.2 Geology and Soils

Impacts on geology and soils are expected to be minor as a result of the strict requirements of the County of Santa Cruz Planning and Building Department. As part of the processing of a grading permit from the County of Santa Cruz, the applicant (Doug Ross) must submit detailed grading plans and supporting reports that show that the project will:

- Comply with design standards contained in the County grading ordinance. These technical standards cover slope angles, fill placement, road standards and related issues.
- Be designed to maintain the natural contours of the site and minimize grading to the greatest degree possible.
- Be in conformance with the County Erosion Control Ordinance. This ordinance contains standards which prohibit obstruction of natural drainage courses and which generally prohibit the construction of new roads over 30 percent. This ordinance also requires erosion to be controlled at all times and requires preparation of a specific erosion control plan. Grading is not generally approved during the rainy season, October 15 to April 15.

4.3.3 Water Quality and Quantity

As mentioned above, the County of Santa Cruz has strict requirements for controlling erosion and preventing impacts to waterways during development. The County requires development projects to:

- Retain runoff onsite by filtering it back onto the soil whenever possible and always where percolation rates are 2” per hour or more. If retention is not possible the runoff should be collected using water collection devices and then released in a controlled fashion into pipes or lined ditches.
- Use energy dissipators to prevent heavy flow of runoff.
- Never pile soil where it may wash into streams or drainage ways.
- Use berms or swales to divert runoff away from sensitive areas such as unstable soils or water features (such as ponds, streams, rivers).
- Revegetate areas quickly to protect exposed soil.

The Ross residence will be subject to careful review by the County of Santa Cruz during processing of the County grading and building permits. The fact that the project is located in a County designated sensitive habitat area will heighten the review process especially as it pertains to the potential for degrading onsite and nearby waters and wetlands

The Ross residence will include a vineyard, an orchard, a vegetable garden and ornamental landscaped areas, all of which will be maintained using standard best management practices (BMPs) for agricultural and horticultural uses. Refer to Section 3.2.1.2 for a list of the BMPs.

The requirements of the County of Santa Cruz for preventing erosion and maintaining good water quality as well as the use of BMPs for maintenance of the vineyard will assure that the pond and the surrounding uplands will not be impacted by the development of the Ross residence.

4.3.4 Cultural Resources

There are no known cultural resources present on the project site, therefore, impacts to cultural resources are not anticipated to occur. If, during the course of development, any archeological, historical, or paleontological resources are uncovered, discovered, or otherwise detected or observed, construction activities in the affected area shall cease and a qualified archeologist shall be contacted to review the site and advise the applicants and the County of Santa Cruz as to significance of the site.

4.3.5 Land Use

The established land use on the project and in the project vicinity is low density residential. The Ross residence will be consistent with the zoning and general plan designation for the site and as such will have negligible effects on land uses and the socio-economic environment of the area. In order for a building permit to be approved by the County of Santa Cruz, the County must find that the project will:

- Be consistent with the Zoning Plan, General Plan, and all County ordinances.
- Will not be detrimental to the public or to property in the neighborhood.
- Will not generate too much traffic, overload utilities, or waste energy.
- Will harmonize with existing land uses and densities of the neighborhood.

5.0 CONSERVATION PROGRAM/MEASURES TO MINIMIZE AND MITIGATE IMPACTS

5.1 Approach

The Habitat Conservation Plan covers the entire 99-acre Ross Trust Property that is owned by the Ross 1998 Trust. The HCP addresses development of a single-family residence, caretaker house, barn, vineyard, winemaking/storage facility, and assorted landscaping and related features on up to 15 acres of the site, and the establishment of a 38.8 acre Conservation Easement. It also addresses the future development of a single-family residence on the 7 acre parcel at the northwest of the property which would cover 1.5 acres.

Mr. and Mrs. Ross, trustees of the Ross 1998 Trust, seek a 10-year ITP and acknowledge that irreversible loss of habitat or take must be compensated with durable mitigation and plans to mitigate take. They propose the establishment of a habitat preserve that will be managed and maintained at their expense during the 10-year permit term as specified in the HCP. Their compliance with the terms of the HCP will be monitored during the term of the ITP by a Service-approved biologist. Thereafter and in perpetuity the Center for Natural Lands Management will monitor their compliance with the terms set forth in the Conservation Easement. Mr. Ross has also included measures to avoid take to the maximum extent practicable during development of the residence. The HCP therefore focuses on the SCLTS and CRLF and the associated wetlands and upland habitats on which they depend.

5.2 HCP Biological Goals and Objectives and Success Criteria

5.2.1 Biological Goals and Objectives

The biological goals and objectives of the Tucker Pond Low-Effect Habitat Conservation Plan are:

<u>Goal 1:</u> Permanently preserve aquatic and upland habitats for SCLTS and CRLF.

<u>Objective 1</u>: Establish a Conservation Easement on 38.8 acres of the property that contains the SCLTS breeding pond and adjacent habitat. The Conservation Easement shall be called the Tucker Preserve to honor the previous landowner, Jerry Tucker. The Tucker Preserve shall be managed in perpetuity by the Center for Natural Lands Management.

<u>Goal 2</u>: Determine annual breeding effort and long-term trends (i.e., stable, increasing, decreasing) of Tucker Pond SCLTS population.

<u>Objective 2A</u>: Conduct annual larval surveys to monitor SCLTS reproductive status at the pond.

<u>Objective 2B</u>: Conduct three population studies to monitor SCLTS population trends.

Goal 3: Provide for the stewardship of the land and management of aquatic and upland habitats for the benefit of all native plants and animals.

Objective 3A: Remove bullfrogs (through pond drawdown or direct removal during fall each year (see section 3.3.2.2)) from Tucker Pond to improve habitat conditions for SCLTS and CRLF.

Objective 3B: Remove and control exotic pest plants annually within the 38.8-acre Tucker Preserve so that they do not pose a risk to SCLTS and CRLF terrestrial habitat, as specified in Appendix A, Section 2.2.

5.2.2 Success Criteria

Management of Breeding Pond to Maintain or Increase SCLTS Population. To achieve the goals of the HCP, a minimum of 616 breeding adults (as measured by the upper end of the 95% confidence interval for the population estimate) should be present during the 1st and 6th years of HCP implementation. If the upper end of the 95% confidence interval for the population estimate drops below 616 breeding adults, enhancement measures should be considered, as described in Section 5.3. For details regarding the basis for the SCLTS success criteria, please refer to Section 1.1.1.2 of Appendix A.

Management of Breeding Pond to Provide Suitable Habitat Conditions for CRLF: Since the CRLF has not been identified from the subject property and does not currently breed in the Tucker pond, establishment of success criteria based on a set number of CRLF is not currently possible. However, habitat conditions for CRLF as well as the potential for their presence in the future will increase if bullfrogs are removed from the pond. Therefore, the success criterion for CRLF is that bullfrogs are no longer a breeding species on the property.

Management of Exotic Pest Plants: The initial exotic pest plant control program should result in a success rate of at least 80% (plants removed). In the years following the initial treatment, any plants missed during the initial treatment program shall be removed as well as any seedlings found in the easement area. Treatment of priority plant shall continue as needed for the permit duration. After the first three years of program implementation, the number of high priority exotic pest plants found on the property shall not exceed more than 10% of the number of plants original identified on the site.

5.3 Adaptive Management

Adaptive Management is a process by which the conservation program for the HCP may be adjusted over time to reflect new information on the life history or ecology of Covered Species generated through continuing research, or information on the effectiveness of Incidental Take Minimization Measures and mitigation measures (in particular enhancement and management activities).

The Adaptive Management provision addresses revising the overall HCP, revising Incidental Take Minimization Measures, revising habitat management techniques and monitoring protocols, and incorporating changes from recovery plans, and emergency access.

5.3.1 Procedures for Revising the Conservation Program

Amendments undertaken pursuant to this Section include, but are not limited to:

A. Changes to monitoring methodologies and timing, including those resulting from ongoing research on the SCLTS and the CRLF.

B. Any revisions of a minor or technical nature to the Conservation Easement Management and Monitoring Plan;

C. Any other revision of a technical nature that is consistent with the overall biological intent of the HCP and does not introduce significant new biological conditions into the Plan area or the HCP's conservation program or result in significant new or different environmental impacts.

The process for adopting changes to the Adaptive Management program is the same as that established in Section 9.2 under Minor Revisions.

5.3.2 Redefining Enhancement/Management Techniques

When annual monitoring reports indicate a consistent population decline for the SCLTS and/or CRLF when compared with previous reports, then the Service-approved biologist and USFWS shall confer to determine the possible reasons for the population declines. A determination will be made as to whether or not enhancement and/or management techniques require adjustment to reverse the population declines (and if so, which enhancement and/or management techniques), or whether new management/enhancement techniques may be necessary.

Alternatively, if new techniques have become available which may improve habitat quality or SCLTS/CRLF survival on preserves even if no detectable SCLTS/CRLF population decline has been noted on annual monitoring reports, then the Service-approved biologist and the USFWS shall meet and confer to determine if implementation of such new techniques are likely to improve habitat quality or SCLTS/CRLF survival and if the application of such new techniques are feasible. If determined to be feasible, minor revisions to the HCP's enhancement or management techniques shall be forwarded by the Service-approved biologist, with the concurrence of the USFWS for consideration.

5.3.3 Redefining the Management and Monitoring Plan

It is anticipated that the Service-approved biologist may, from time to time, need to revise the methods and techniques for surveying or otherwise monitoring the SCLTS and CRLF in order to provide meaningful data for the Monitoring Plan, to respond to new scientific information, or to respond to the results and experiences of current monitoring methodologies. For example, field surveys may fail to encounter the object species or only rarely encounter remnant populations of SCLTS or CRLF such that the biological data gathered from the surveys fails to provide any reliable evidence of the success of the HCP in meeting the goals of the Management and Monitoring Plan. Descriptions of and reasons for any revisions to survey methods and techniques will be included in the annual reports.

5.4 Take Avoidance and Minimization Measures During Construction

5.4.1 Worker Education Program and Biological Monitoring

Prior to the start of construction, an oral and written worker education program will be presented at the project site by a qualified biologist. Onsite construction managers must attend and are responsible for passing on the information to all new workers and subcontractors. If a biological monitor is used, he/she must also attend. If the onsite construction manager changes during the construction project, then another seminar must be delivered. At every seminar, written material will be distributed. It will be the onsite construction manager's responsibility to ensure that all construction personnel and subcontractors receive a copy of the education program. All personnel must sign and date their program, keep a copy onsite and submit a signed form to document the training they received. The education program will include a description of the SCLTS and RLF and their habitat, the general provisions of the Endangered Species Act, the necessity of adhering to the Act to avoid penalty, measures implemented to avoid affecting species specific to the project and the work boundaries of the project. If construction personnel observe and SCLTS or RLF it shall be avoided and a qualified biologist contacted immediately to move it to the nearest appropriate habitat out of harm's way.

A Service-approved biologist will be present during the initial preparation of the work area and will make periodic inspections to insure that no habitat is unnecessarily affected (see below). Subsequent daily inspections will be performed by a designated biological monitor such that the Service-approved biologist will only be present when it is necessary to move SCLTS and/or CRLF out-of-harm's way and to make periodic site visits.

Even though surface-disturbing actions during the building process will be performed during the dry season, the County may still impose erosion control measures during the rainy season (typically October – April). If silt fencing is required, only high-quality reinforced silt fencing will be used and efforts will be made to install it in a way that does not inhibit movements of SCLTS and/or CRLF. Openings should be created approximately every 100 feet. If it is not possible to install openings due to the County's erosion control conditions, then a qualified biologist will monitor the building footprint for SCLTS/CRLF during the entire winter season. Assuming straight-line movements of

SCLTS between the breeding pond and upland, the biologist shall install paired, pitfall traps every 50 feet (on both sides of the fence) wherever silt fencing is situated between the pond and appropriate upland. Any SCLTS and/or CRLF captured shall be moved to the nearest appropriate cover in the presumed direction of travel.

5.4.2 Preparation of Work Area: Vegetation and Debris Removal

Prior to use of heavy equipment and any surface-disturbing activities within the 15-acre building footprint, the work area will be cleared under the direction of a Service-approved biologist and biological monitor. Vegetation removal will be minimized and restricted to areas needed for the construction of buildings, yard, the driveway and utilities. Vegetation other than grassland, such as old orchard trees and scattered coyote brush, will initially be removed by hand (brush-cutters and chainsaws are okay). Several large piles of mostly woody debris will be cleared by hand. Larger debris will only be moved after being inspected by the biological monitor. If SCLTS and CRLF are observed incidentally during vegetation and debris removal activities, they will be relocated to the nearest appropriate habitat by a Service-approved biologist.

5.4.3 Temporary Fencing

The entire construction site, including lay-down and storage areas, shall be enclosed with temporary fencing (high visibility orange fencing or similar material) to define the work area and reduce unnecessary disturbance to native habitat. The integrity of the fencing will be inspected periodically by the biological monitor.

5.4.4 Staging and Refueling Areas

A specific equipment staging and refueling area shall be designated within the development site. The site shall be located away from the Conservation Easement to prevent any fuel or other toxic materials from affecting sensitive habitat and shall be surrounded by a drift fence to exclude salamanders. A salamander-proof gate will be constructed to access the staging area. In addition, a site-specific toxic material spill response plan shall be prepared for the site.

5.5 Monitoring and Reporting

The Service-approved biologist will submit to the USFWS and CDFG an Annual Monitoring Report, which describes the results of management and population and/or annual monitoring activities that occurred throughout the permit area during the preceding year. The annual reports will verify that the permittee is complying with the terms of the HCP and permit, and will evaluate whether the biological goals and objectives of the HCP are being achieved.

The annual and population monitoring reports will include methods, results, and discussion of all wildlife monitoring activities at the pond, and exotic plant removal in the Conservation Easement. The report for the first year will also include numbers of SCLTS found during initial grading and construction on the 15-acre site. If the 7 acre

parcel is developed, numbers of SCLTS found during grading and construction will be presented in the report for that year.

Methods for management and monitoring activities for wildlife and exotic plants are described in greater detail in Appendix A. Results of management and monitoring activities will include but are not limited to: numbers of SCLTS trapped and released; estimates of SCLTS population; number of dead or injured SCLTS found at pond, in the Preserve uplands, or on the Ross Trust Property; SCLTS adult/immature ratios, SCLTS male/female ratios; number of CRLF found; and, number of bullfrogs found and removed from pond(s). Reports describing population monitoring (conducted in years 1, 6, and 11) will incorporate and interpret results from previous population monitoring reports generated from this HCP. To provide feedback information for adaptive management, the reports will discuss any proposed changes to the ongoing management or monitoring program. The annual report will also include: any changed or unforeseen circumstances that may have occurred and how the permit holder responded to them; cumulative account of the amount & nature by which the covered species were taken; and the costs for performing particular management and monitoring activities in the year referenced by the annual report.

The Annual Monitoring Report is due by October 31 of each calendar year, or portion of a calendar year, during which the permits will be in effect. The USFWS and CDFG will attempt to provide comments within 60 days of receipt of each annual report. If either agency cannot respond within 60 days, they will request an extension. The Service-approved biologist will incorporate, to the extent feasible, agency comments into the following year's work plan at the time they are received. The CNLM will receive the annual reports at the same time as the wildlife agencies and will also receive copies of the comments submitted by the wildlife agencies.

6.0 PLAN FUNDING

The costs included in Tables 1 below were generated using a Property Analysis Record (PAR) prepared by David Laabs of the Center for Natural Lands Management. The full PAR is contained in Appendix D.

6.1 Funding During Permit Term Years (1 to 10)

The Ross Family will pay the costs of implementing the HCP during the 10-year term of the permit (years 1 through 10). The specific tasks they will be responsible for along with the implementation schedule and associated costs are provided in Table 1. As shown in the Table, the cost to the Ross Family of implementing the program will range from $8,302 a year to $45,192 a year depending on the project schedule and the need for more intensive monitoring in the years population monitoring will take place. Table 1 shows population monitoring taking place in years 1, 5 and 10, however, this may vary since the first study will take place the fall after major grading is complete, with subsequent studies conducted at 5 year intervals thereafter. The Ross Family shall pay the costs of the third study whether it occurs during the term of the ITP or not.

Funding of the permit term management and monitoring activities will be guaranteed through the posting of a letter of credit (LOC) in favor of the USFWS. The letter of credit for the initial year after approval of the HCP and issuance of the ITP will be $189,204, the full budget estimate for management and monitoring activities to be performed by the Ross Family during the 10-year term of the ITP, including contingency and cost of living increases. Each replacement LOC will be reduced for tasks accomplished during the prior year. Thirty days prior to the anniversary date, the Ross Trust will submit to USFWS a written proposal for the amount of the replacement letter of credit including an updated budget estimate to support it. The updated budget shall include line item adjustments for changed and unforeseen circumstances as recommended and approved by the Service approved biologist; however, it is explicitly understood that the Ross Trust's entire funding obligation for the term of the ITP shall not exceed $189,204 regardless of changed or unforeseen circumstances. Line item adjustments for changed and unforeseen circumstances would likely involve costs of activities that are described and funded in the budget, but that are not expected to be necessary in each year (e.g., bullfrog removal, pond draw down, sign maintenance). These costs, totaling approximately $ 24,712, amount to approximately 13% of the total budget.

In the event that the Ross family fails to carry out any implementation obligation during the permit period, the Service shall be entitled to declare a "Default" under the LOC and shall give Ross 30 days written notice to correct it. If Ross fails to correct the default within 30 days, the Service may access the LOC for an amount sufficient to cover the default as deemed reasonable by the Service approved biologist. Similarly, in the case of a disagreement between Ross and the USFWS as to whether an implementation obligation has been met, the Service approved biologist shall adjudicate, giving Ross 30 days to comply before the LOC can be accessed. Only in the event of gross negligence would the USFWS be entitled to access and draw down the entire LOC, and in that case only with 24 hours notice and the concurrence of both the Service approved biologist and the Center for Natural Lands Management. Such gross negligence could also trigger revocation or suspension of the permits. Failure to deliver a replacement LOC and supporting revised budget 30 days prior to the renewal date would be considered a default, but failure to deliver a replacement LOC would not be considered gross negligence until three days prior to the expiration of the current LOC, in which case the USFWS would be entitled to access the full amount of the LOC.

Table 1. Estimated costs of management and monitoring, Tucker Pond HCP. Costs include 2.5% annual inflation.

			Year 1		Year 2		Year 3		Year 4		Year 5	
Task	**Frequency**	**Hrs/Count**	**Rate**	**Amount**	**Rate**	**Amount**	**Rate**	**Amount**	**Rate**	**Amount**	**Rate**	**Amount**
SITE CONSTRUCTION												
Endangered Species Education Program	1st Year	16	60	960								
Construction Monitoring	1st 2 Yrs	60	60	3600	62	3690						
BIOTIC SURVEYS												
Annual SCLTS/CRLF Monitoring	Annually	32	60	1920	62	1968	63	2017	65	2068	66	2119
5-Year SCLTS Population Monitoring	Years 1, 5, 10	240	60	14400	62		63		65		66	15895
Install/Remove Drift-Fencing	Years 1, 5, 10	60	20	1200	21		21		22		22	1325
Drift/Fence Materials	Years 1, 5, 10	1	1500	1500	1538		1576		1615		1656	1656
HABITAT RESTORATION												
Initial Bullfrog Control	1st Year	60	60	3600								
Annual Bullfrog Control	Annually	20	60		62	1230	63	1261	65	1292	66	1325
Prepare Invasive Removal Plan	1st Year	24	60	1440								
Initial Invasive Removal (Est)	1st Year	200	30	6000								
Annual Invasive Removal (Est)	Annually	50	30		31	1538	32	1576	32	1615	33	1656
Monitor Restoration Program	Annually	8	60	480	62	492	63	504	65	517	66	530
Drain Pond (if necessary)	Every 3 Yrs	40	60	2400	62		63		65	2585	66	
Monitor Pond Draining (if necessary)	Every 3 Yrs	20	60	1200	62		63		65	1292	66	
GENERAL MAINTENANCE												
Aluminum Signs	1st Year	10	25	250								
Interpretive Sign	1st Year	1	500	500								
Maintain signs	Annually	8	30	240	31	246	32	252	32	258	33	265
REPORTING									0			
HCP Compliance Monitoring	Annually	16	60	960	62	984	63	1009	65	1034	66	1060
Annual HCP Report	Annually	24	60	1440	62	1476	63	1513	65	1551	66	1589
5-Year SCLTS Monitoring Report	Years 1, 5, 10	40	60	2400	62		63		65		66	2649
FIELD EQUIPMENT												

Vehicle - Annual Monitoring	Annually	360	0.45	162	0.46	166	0.47	170	0.48	174	0.50	179	
Vehicle - 5-Year Monitoring	Years 1, 5, 10	1200	0.45	540	0.46		0.47		0.48		0.50	596	
HCP Management Costs				**$45192**		**$11790**		**$8302**		**$12386**		**$30843**	
			Year 6		**Year 7**		**Year 8**		**Year 9**		**Year 10**		
Task	**Frequency**	**Hrs/Count**	**Rate**	**Amount**	**Rate**	**Amount**	**Rate**	**Amount**	**Rate**	**Amount**	**Rate**	**Amount**	**Total**
SITE CONSTRUCTION													
Endangered Species Education Program	1st Year	16											$960
Construction Monitoring	1st 2 Yrs	60											$7,290
BIOTIC SURVEYS													
Annual SCLTS/CRLF Monitoring	Annually	32	68	2172	70	2227	71	2282	73	2339	75	2398	$21,510
5-Year SCLTS Population Monitoring	Years 1, 5, 10	240	68		70		71		73		75	17984	$48,279
Install/Remove Drift-Fencing	Years 1, 5, 10	60	23		23		24		24		25	1499	$4,023
Drift/Fence Materials	Years 1, 5, 10	1	1697		1740		1783		1828		1873	1873	$5,029
HABITAT RESTORATION													
Initial Bullfrog Control	1st Year	60											$3,600
Annual Bullfrog Control	Annually	20	68	1358	70	1392	71	1426	73	1462	75	1499	$12,244
Prepare Invasive Removal Plan	1st Year	24											$1,440
Initial Invasive Removal (Est)	1st Year	200											$6,000
Annual Invasive Removal (Est)	Annually	50	34	1697	35	1740	36	1783	37	1828	37	1873	$15,305
Monitor Restoration Program	Annually	8	68	543	70	557	71	571	73	585	75	599	$5,378
Drain Pond (if necessary)	Every 3 Yrs	40	68		70	2783	71		73		75	2997	$10,765
Monitor Pond Draining (if necessary)	Every 3 Yrs	20	68		70	1392	71		73		75	1499	$5,383
GENERAL MAINTENANCE													
Aluminum Signs	1st Year	10											$250
Interpretive Sign	1st Year	1											$500
Maintain signs	Annually	8	34	272	35	278	36	285	37	292	37	300	$2,689
REPORTING							0						
HCP Compliance Monitoring	Annually	16	68	1086	70	1113	71	1141	73	1170	75	1199	$10,755
Annual HCP Report	Annually	24	68	1629	70	1670	71	1712	73	1755	75	1798	$16,133

5-Year SCLTS Monitoring Report	Years 1, 5 10	40	68		70		71		73		75	2997	$8,046
FIELD EQUIPMENT													
Vehicle - Annual Monitoring	Annually	360	0.51	183	0.52	188	0.53	193	0.55	197	0.56	202	$1,815
Vehicle - 5-Year Monitoring	Years 1, 5, 10	1200	0.51		0.52		0.53		0.55		0.56	674	$1,810
HCP Management Costs				**$8940**		**$13339**		**$9393**		**$9628**		**$39392**	**$189,204**

6.2 Long-term Management of the Tucker Preserve

Long-term management activities within the 38.8 acre Tucker Preserve beginning in year 11 will be carried out by the Ross family. The Ross Family will continue to control exotic pest plants as specified in Appendix A, Section 2.2., and to maintain interpretive signs. However, other active management responsibilities and/or funding for same covered in Table 1 shall cease with the expiration of the ITP (with the exception of the third population study). The Ross Family will not be responsible for any additional biotic surveys, pond draining, bullfrog control, habitat restoration, or recovery measures from a catastrophic event so long as they are in compliance with the terms of the Conservation Easement. The Center for Natural Lands Management will monitor compliance with the Conservation Easement through a $125,000 endowment from the Ross family. This amount is deemed sufficient to cover the monitoring and administrative costs of the Conservation Easement in perpetuity (see attached PAR contained in Appendix D).

7.0 ALTERNATIVES

7.1 Proposed Project

The proposed project is the project that is described in Sections 3 through 6 of this HCP.

7.2 No-Action

Under the No-Action Alternative, the USFWS would not approve an Incidental Take Permit for take of the SCLTS and CRLF at the Tucker Pond. Since it is possible that take of the SCLTS could occur from the development of the Ross residence as proposed, the project could not go forward under the No-Action Alternative.

In the short-term this alternative would preserve 16.5 acres (15 at the site of the Ross Residence and 1.5 at the site of development on the 7 acre parcel) of land that is considered low-quality habitat for the SCLTS. The SCLTS would probably persist at the Tucker Pond for a time, however, although the population may be negatively affected by bullfrogs. Given that it is a perennial water body rather than a seasonal pond preferred the by SCLTS, the pond will be at risk to introductions of predatory fish that can eliminate breeding. The site would continue to be used by the Ross family as it has been in the past few years.

The No-Action Alternative would foreclose implementation of the conservation program outlined in the HCP, including the establishment of the 38.8-acre Conservation Easement that includes an important breeding pond for the SCLTS and surrounding oak woodland upland important for SCLTS estivation. The pond would not be managed for the SCLTS and there would be no guarantee that bullfrogs would be removed from the pond, or that the berm that forms the pond would be maintained to ensure that the pond holds water during the breeding season. There would be no guarantee of the management

of the spread of exotic pest plants in the upland or introduction of exotic fishes in the pond.

Abandonment of pond management activities could ultimately lead to the extirpation of the SCLTS at the Tucker Pond. Once the salamander disappears from the property, take authorization would not longer be required and a development project could be constructed on the property. Such a project would not be required to management the open space as a Conservation Easement for SCLTS.

To the uncertainties of the persistence of the SCLTS population at the Tucker Pond without active management, this alternative is rejected in favor of the proposed project.

7.3 Different House Location

The existing location of the Ross residence was determined based on the existing constraints of the site including: road access, topography, nearest connection to utilities, and proximity to habitat of endangered species. The site contains only marginal habitat for the SCLTS. The only other suitable building site, a shrubby knoll overlooking the canyon and breeding pond, which was proposed by the previous landowner, supports higher value habitat than the proposed site. As a result the proposed location of the Ross residence is preferred over any other potential building sites on the property.

8.0 PLAN IMPLEMENTATION, CHANGED AND UNFORESEEN CIRCUMSTANCES

8.1 Permittee

The Ross 1998 Trust, Doug and Jenny Ross, Trustees, will be the permit holder and will be responsible for implementing the terms and conditions of the HCP and the Section 10(a)(1)(B) permit.

8.2 Identification of Biological Monitors

8.2.1 SCLTS/CRLF

It shall the responsibility of the permittee to hire a Service-approved biologist to conduct activities associated with management of SCLTS and CRLF. The Service-approved biologist shall be approved for handling and conducting research on SCLTS and CRLF. Subject to approval by the USFWS, Doug Ross designates Mark Allaback and David Laabs of Biosearch Associates as the qualified biologists for this project. Activities conducted by Service-approved biologists include but are not limited to drift fence/pitfall trap studies, monitoring of construction, grading, and exotic plant control activities, and relocation of individual SCLTS or CRLF. The permittee shall request in

writing approval from the USFWS for biologists not previously approved to conduct necessary monitoring activities.

8.2.2 Exotic Plant Removal

The permittee shall be responsible for hiring qualified individuals, as necessary, to assist with the identification of and/or removal of exotic plants on the Conservation Easement. The "qualified individuals" could be a weed control specialists, landscape architects, the Service-approved biologist, or others with exotic pest plant expertise.

8.3 Enforcement

The provisions of the HCP are enforceable through the terms and conditions of the Section 10(a)(1)(B) permit issued by the USFWS.

8.3.1 Notice

Any notice required to with regard to the HCP or the terms and conditions of the Permit must be given to the permittee by personal delivery or be by certified mail/return receipt requested.

8.3.2 Suspension/Revocation

The USFWS or CDFG may suspend or revoke their respective permits if Doug Ross 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 USFWS shall be in accordance with 50 CFR 13.27-29, 17.22 (b)(8), and 17.32 (b)(8).

8.4 Changed and Unforeseen Circumstances

Section 10 regulations [50 CFR 17.22 (b)(2)(iii)] 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 Habitat Conservation Plan Assurances (No Surprises) [69 *Federal Register* 71723 (December 10, 2004); CFR, Sections 17.22(b)(2) and 17.32(b)(2)] defines changed and unforeseen circumstances and describes the obligations of the permittee and the Service. The purpose of No Surprises is to provide assurance to 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.

8.4.1 Changed Circumstances

Changed circumstances are defined as changes in events 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 or IA), 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 implemented" (properly implemented means the commitments and the provisions of the HCP have been or are fully implemented).

If a new species that is not covered by the HCP, but 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. The Permittee 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 Permittee 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 permit, in accordance with applicable statutory and regulatory requirements, to cover the newly listed species or until the Service notifies the Permittee 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.

8.4.1.1 Listing of New Species

If any currently unlisted species <u>not</u> addressed as Covered Species in the HCP becomes listed in the future, it will not be included in the permit and will not be so treated in the event of listing. To the extent that any such species would likely be taken during the HCP's covered activities or jeopardized or the designated critical habitat, if any, of such species, adversely modified, the permittee agrees to implement the no jeopardy/no take measures identified by USFWS until the HCP and the federal permit are amended to obtain permit coverage for these species or until the USFWS notifies the Permittee that such measures are no longer needed to avoid jeopardy to, take of, or adverse modification of the critical habitat of, the non-covered species.

8.4.1.2 HCP Implementation

Certain types of problems may develop during implementation of the HCP. These could include funding deficiencies, possible lack of effectiveness in some of the Plan's mitigation approaches and lands, and deficiencies in certain aspects of the Plan's monitoring program. These types of changed circumstances will be addressed under the

Plan's annual monitoring program report. The Applicant shall be responsible for expending funds necessary to address any problems that may effect implementation of the HCP and that have not been addressed elsewhere in the HCP during the 10 year permit period.

8.4.1.3 Invasion of Non-Native Species - Plant and Animal

It is possible that the habitat reserve may become re-infested with non-native plant and animal species which could impact the quality of the wetland and upland habitat, although the management plans developed for the habitat reserves are required to include measures to prevent such infestations and thus the establishment of a major infestation would be low. A major infestation of fast growing weed species such as pampas grass and broom can reduce habitat quality. Similarly, there may be an invasion of non-native animals species that either prey on SCLTS such as feral cats, or that can invade wetland habitat, such as bullfrogs or crayfish.

If a pest plant/animal infestation affects HCP mitigation lands or facilities in a manner that requires expenditure of funds in excess of those required for normal maintenance and management activities, or an infestation that impacts greater than 25% of all Conservation Easement lands, or an infestation of any plant that is listed in the Federal noxious weed list or California Department of Food and Agricultural noxious weed list, the Applicant, in consultation with USFWS and CDFG, shall assess the extent of the damage in the habitat reserves. The Applicant shall prepare a report within 60 days of the discovery of the infestation, which describes the extent of the problem, identifies a range of remedial actions. The report shall be submitted to USFWS and CDFG for review. The Applicant, in consultation with USFWS and CDFG shall determine, within 30 days, what measures shall be implemented to address the problem. The Applicant shall be responsible for a control program during the 10 year ITP permit period.

8.4.1.4 Fires

The project site contains highly flammable vegetation and although will be actively managed to reduce risks of catastrophic fires, there is still a possibility that a major fire consuming most of the site could break out. Such a fire is considered a changed circumstance. The Applicant, in consultation with USFWS and CDFG, shall assess the extent of the damage in the habitat reserves. The Applicant shall prepare a report within 60 days after the fire, which describes the extent of the problem and identifies a range of remedial actions. The report shall be submitted to USFWS and CDFG for review. The Applicant, in consultation with USFWS and CDFG shall determine, within 30 days what measures shall be implemented to address the problem. The Applicant shall be responsible for carrying out the remediation program.

8.4.1.5 Pond Failure

If for any reason there is a catastrophic failure of the existing breeding pond, it shall be repaired prior to the next breeding season at the landowner's expense. If it fails to act as a SCLTS breeding pond then an assessment will be made by a qualified hydrologist to determine if an appropriate location is available to create a seasonal new pond in the eastern portion of the property. If pond creation is determined to be feasible, the site will be available to address this changed circumstance. Any impacts associated with new pond construction will be covered under the existing HCP. Costs associated with pond creation will be borne by the landowner during the 10 years of the ITP permit.

8.4.1.6 Scientific Name Changes

Changed Circumstance. Research is currently underway to determine whether the SCLTS (*Ambystoma macrodactylum croceum*) is a legitimate subspecies or if it should be reclassified as its own species (Savage, pers. comm.). Similar work will likely be performed for the CRLF, since it is also currently classified as a subspecies. In the event that there is a change made to the scientific name of either the SCLTS or the CRLF, the HCP still applies to the specific taxon regardless of the name change. The HCP will apply to the new species classification.

8.4.1.7 Dramatic Change in Reproductive Success

Monitoring in the future may reveal a dramatic drop in reproductive success due to competition with other pond-breeding amphibians, predation by non-natives, infestations of parasites, disease or for other reasons. For example, the SCLTS is susceptible to infestations by a parasitic flatworm (trematode) that causes malformations, and the chytrid fungus (chytridiomycosis) has been detected at the Calabasas breeding pond (Sessions and Ruth 1990; Loredo, pers. comm.). If such a dramatic change in reproductive success occurs within the 10 years of the ITP, the Ross family will, in consultation with the USFWS and CDFG, perform management actions within the existing budget to offset the change in reproductive success. For example, the pond may be managed for a period of time as a strictly seasonal water body, by draining it in early to mid-summer, since the most productive SCLTS breeding ponds appear to be seasonal.

8.4.1.8 Dissolution of Non-profit Conservation Organization

If the entity holding the Conservation Easement is dissolved during implementation of the HCP, the landowner shall find an appropriate replacement that is agreeable to the USFWS and CDFG.

8.4.2 Unforeseen Circumstances

The policy defines unforeseen circumstances 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 plan'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 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.

In case of an unforeseen event, the permittee shall immediately notify the Service staff that has functioned as the principal contacts for the proposed action. 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.

9.0 AMENDMENTS AND MINOR MODIFICATIONS

9.1 Amendments

The landowner, the USFWS, and/or CDFG may propose amendments to the Incidental Take Permits and the HCP. The Party proposing the amendments shall provide to the other parties a written statement of the reasons for the amendments and an analysis of the effect of the amendments on the environment, Covered Species and the implementation of the HCP. The Permits may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act (NEPA), the USFWS's permit regulations, CESA and CDFG's permit regulations.

9.1.1 Amendment for Change in Ownership

This HCP assumes that the Ross family will be responsible for constructing the Ross residence and will occupy the Ross residence for the duration of the ITP permit period (10 years). The HCP also assumes that the Ross family will be responsible for granting a Conservation Easement over 38.8 acres of the project area, and will implement

the management and monitoring activities specified in the HCP during the 10 year ITP period.

Should the Ross family decide to sell the property, any new owner shall be required to get an amendment to the HCP prior to the close of escrow on the property. The HCP and ITP may be amended in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act (NEPA), the USFWS's permit regulations, CESA and CDFG's permit regulations.

9.2 Minor Modifications

The landowner, the USFWS, and/or CDFG may propose minor modifications to the HCP. The Party proposing a minor modification or amendment must provide notice to the other parties. Such notice shall include a statement of the reasons for the proposed modification and an analysis of its environmental effects, its effects on the implementation of the HCP and on Covered Species. The parties will use best efforts to respond to proposed modifications within sixty (60) days of receipt of such notice. Except as otherwise provided under the terms of the HCP, proposed modifications will become effective upon all other party's written approval or as otherwise provided under the terms of the HCP. If, for any reason, a receiving party reasonably objects to a proposed modification or amendment other than those not subject to that party's approval under the HCP, it must be processed as an amendment of the Permit. Neither the USFWS, nor CDFG will propose or approve minor modifications to the HCP if either agency determines that such modifications would: 1) result in operations under the HCP that are significantly different from those analyzed in connection with the original HCP; 2) result in adverse effects on the environment that are new or significantly different from those analyzed in connection with the original HCP, or 3) allow significant additional take not analyzed in connection with the original HCP. Minor modifications to the HCP may include, but are not limited to, the following:

(1) correction of typographic, grammatical, and similar editing errors that do not change the intended meaning;

(2) correction of any maps or exhibits to correct errors in mapping or to reflect previously approved changes in the Permits or HCP; and

(3) minor changes to survey, monitoring or reporting protocols.

9.3 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.

10.0 REPORT PREPARERS AND LITERATURE CITED

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10.2 Literature Cited

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Figure 1: Project Location

Figure 1: Site Location in Watsonville West Quadrangle

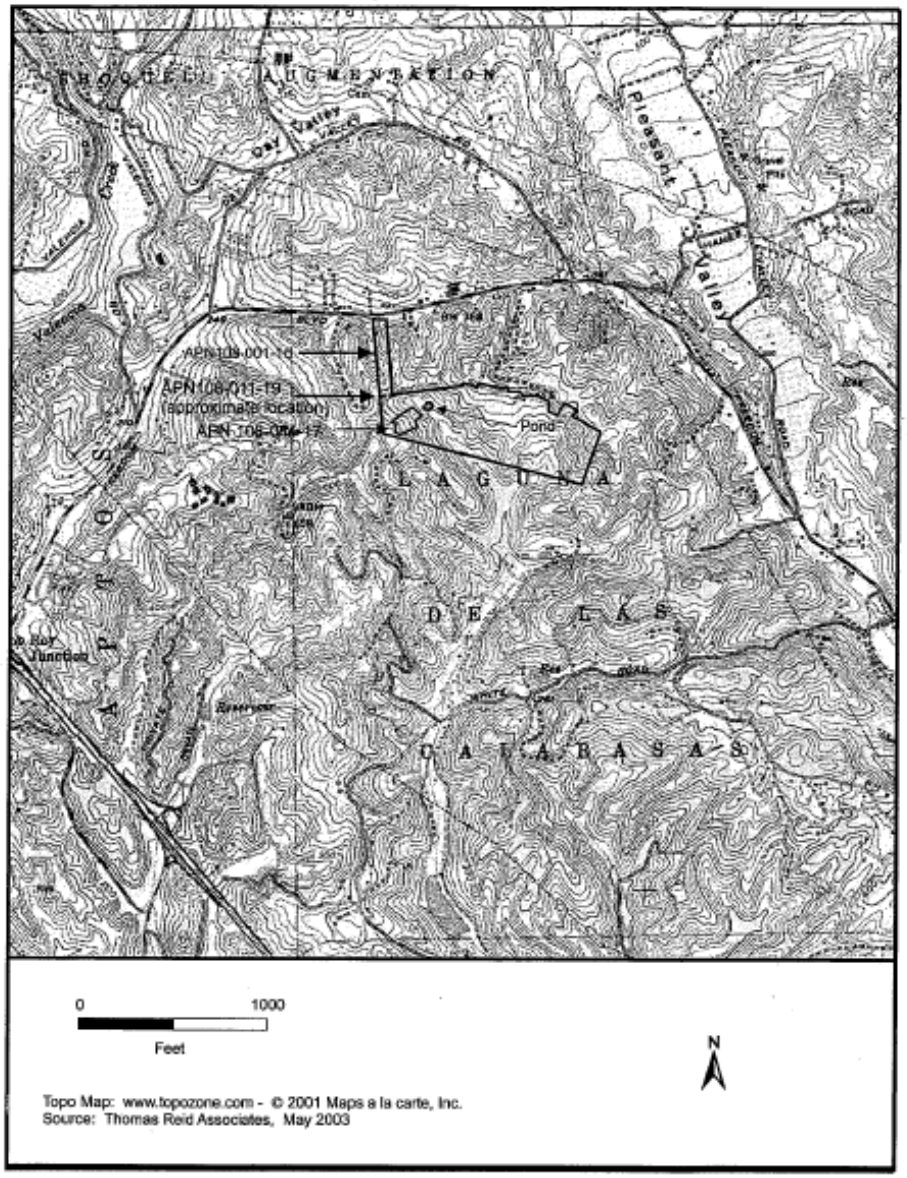


Figure 2: Air Photograph

Figure 2: Air Photo

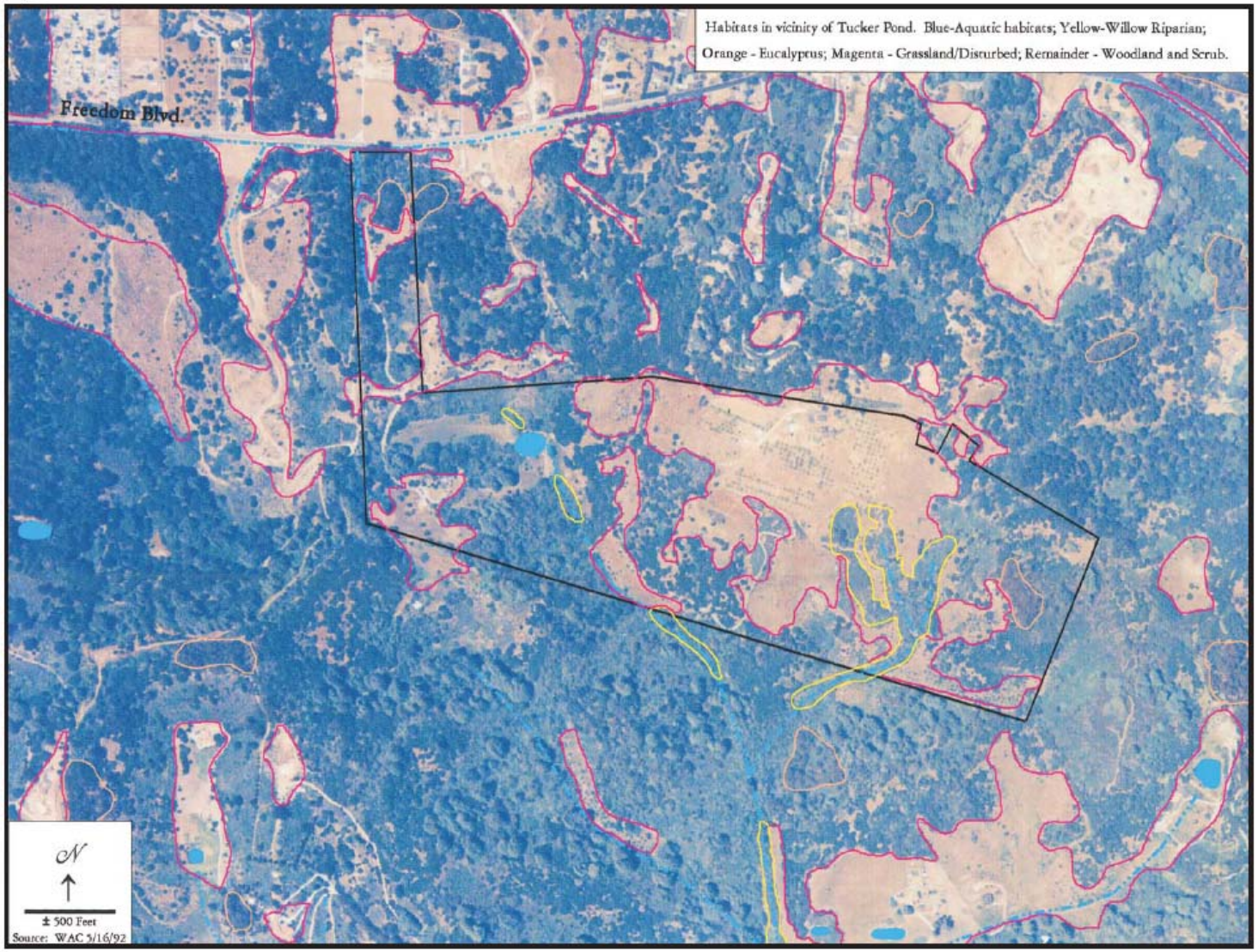
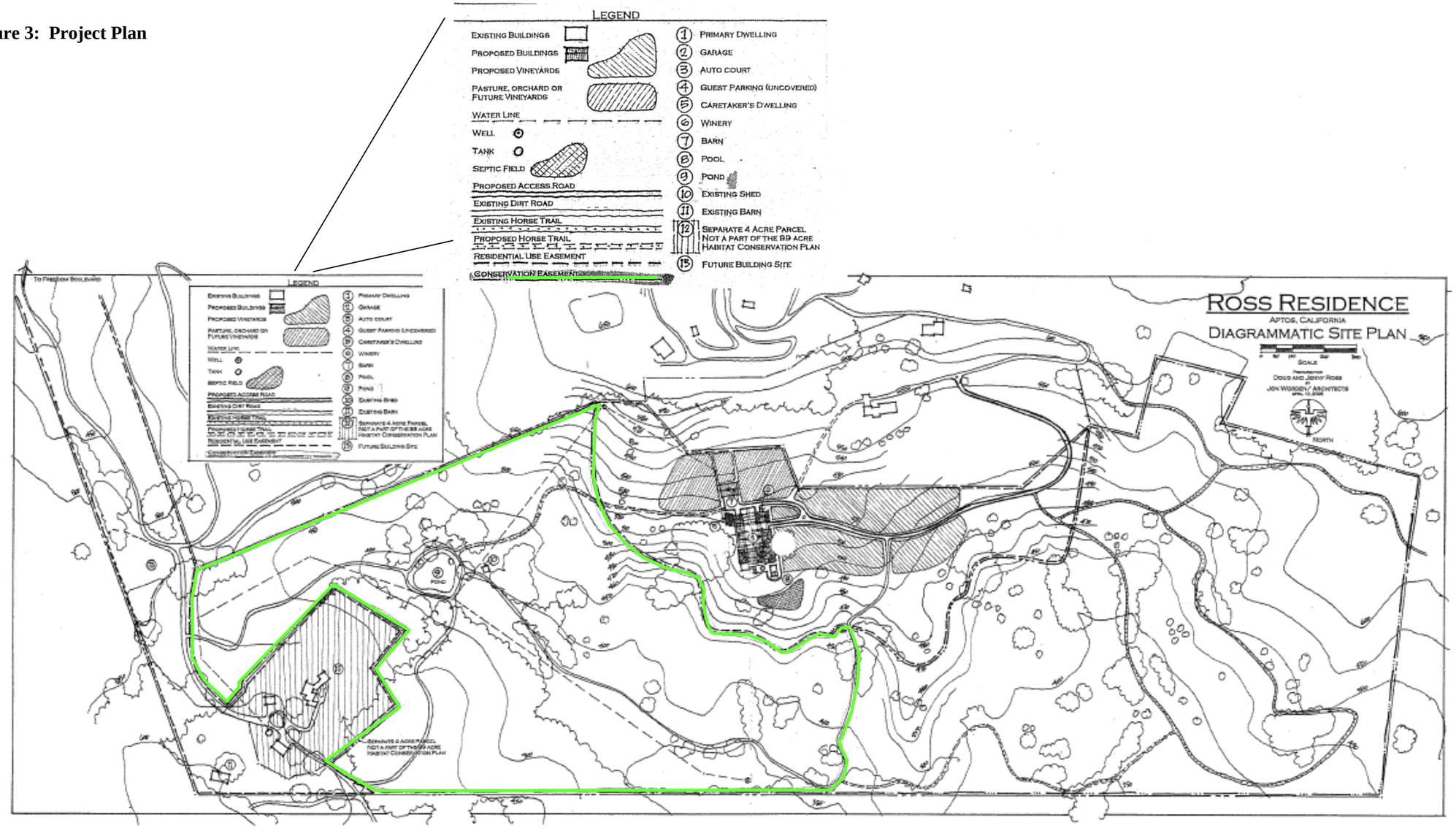


Figure 3: Project Plan



Appendix A. Tucker Preserve: Wildlife Monitoring and Exotic Pest Plant Control Plans

1.0 Wildlife Monitoring Plan

The primary management goal of the Ross Trust HCP is to protect and maintain the existing SCLTS habitat at the Tucker Preserve. The HCP is also designed to provide improved habitat conditions for the CRLF, which inhabits the region and could occur at the pond in the future. These goals will be accomplished primarily by managing the pond for native amphibians and by protecting and enhancing native upland habitats during the 10 year term of the ITP. During that time, the Tucker Preserve shall be visited four times annually by a Service-approved biologist who will act as an independent biologist and provide annual reports to the USFWS regarding compliance with the terms of the HCP. Also, three SCLTS population studies shall be performed to generate population estimates comparable to the baseline provided by Bland (2002). In addition, the site will be surveyed annually for the CRLF. The onsite pond shall be improved for native amphibians by performing management actions to reduce or eliminate bullfrog reproduction during the life of the HCP. Only individuals with appropriate state and federal permits shall perform the field studies.

1.1 SCLTS Population Monitoring

1.1.1 Field Methods

Following the field methods employed by Bland (2002) or similar methods approved by the USFWS, a population estimate of breeding adults shall be generated three times at five-year intervals during and shortly after the 10-year period of the ITP by conducting drift fence/pitfall trap studies at the breeding pond. The first drift-fence study shall commence the first winter season after the major surface-disturbing actions (grading and earth-moving for underground utilities, driveway, main house, caretaker house and winemaking/equipment storage facility) have been completed. The second study will take place 5 years later. The third and final study will take place 5 years after the second which may be after the expiration of the ITP. The pond will be surrounded with a drift fence with paired pitfall traps situated every 10 meters.

The drift fence/pitfall trap study shall begin before the first rains in the fall, generally in October, and extend until nearly all above ground salamander movement ceases, usually by the end of March. On evenings when rain is forecast, pitfall traps will be opened and checked on the following morning within an hour of sunrise. Based on the results of previous studies, it is assumed that SCLTS activity more than two days following a rain is negligible. Therefore, traps will be kept closed between rain events. Traps will be shaded with an elevated piece of plywood. Sponges will be placed inside each trap and kept moist as necessary.

All adults captured will be measured (snout-vent length and total length in mm, weight in grams), sexed, marked and inspected for evidence of parasitic flatworm, injuries and general health. If large numbers are encountered, a subset (100 individuals)

will be measured and weighed to reduce handling time. All adults captured will be marked by clipping a single toe. Toe-clipping is the most reliable and cost-effective method for marking large numbers of salamanders (Donnelly, et al. 1994). Although efforts will be made to follow the Declining Amphibian Populations Task Force Fieldwork Code of Practice (see Section 3.0 below), it will not be possible to follow all recommendations (e.g. changing gloves between handling of each individual) since the population monitoring studies will likely require handling and toe-clipping several hundred SCLTS.

The Lincoln-Peterson index will be used to estimate the number of breeding adults and the 95% confidence interval for the estimate (Donnely and Guyer 1994; Lancia, et al. 1996). Information regarding the outward-bound dispersal of metamorphs may also be gathered to assess the relative productivity of the pond. The results of each population study will be prepared as a stand-alone report and appended to the annual report (see below).

Daily weather conditions including precipitation, high, low and average temperature, and high, low and average relative humidity will be obtained from the nearest weather station maintained by the California Irrigation Information System maintained by the California Department of Water Resources or a closer station if one is available.

1.1.2 Data Analysis

The long-term SCLTS monitoring program is intended to determine whether one of the primary goals of the HCP (to maintain or increase the existing SCLTS population at the Tucker pond) has been achieved. Trend analysis using linear regression is not generally considered valid until four data points are available, which, when combined with the 2002 baseline data, is after the 10th year following the initiation of the HCP. Lacking data regarding long-term trends, the focus in the short-term will be to identify drastic changes in the population that could indicate the need for remedial management actions.

The primary challenge in detecting population change is to distinguish real trends in population size from those variations that can be expected naturally over the course of time (Gibbs 2000). Sources of background noise include both the intrinsic variability of the population and the variability in the population index being employed. Variability estimates for studies involving pond-dwelling amphibians are generally high relative to other groups of animals (Gibbs 2000). Natural variations in population size are expected for species that depend on ephemeral pond habitats that fluctuate both temporally and spatially over time. Moreover, since the monitoring methodology is based on an index of abundance rather than a complete census of the population, a certain degree of sampling variability is anticipated. For example, it is known that female ambystomids may forgo breeding migrations during years of less-than average rainfall. This means that a variable portion of the population (adult females that do not migrate to the breeding pond) is not sampled by the monitoring methods.

Following the 1st and 5th year sampling of the Tucker population, the population trend cannot be analyzed using linear regression. The results of population monitoring in these years shall be examined to determine if catastrophic changes have taken place since the previous population estimate. In order to do this, the natural variability of the population must be considered so that natural fluctuations in population size are not mistaken for a decrease in population.

Population monitoring (1986-87 and 1998-2003) of the SCLTS breeding population at Seascape Uplands provides a suitable data set to investigate the intrinsic variability of population size (as measured by a mark-recapture pitfall trapping study at the breeding pond). Population estimates at the Seascape Uplands pond have varied between 1,468 ± 60 and 2,927 ± 289. The slope of the regression line fitted to these estimates does not differ significantly from 0, indicating that the population is stable. This is expected due to the relatively short time frame of the sampling period (15 years), and suggests that this data set is appropriate for use as a measure of natural variability resulting from the species' biology and the monitoring methodology. The average of the six estimates is 2,136 adults, while the standard deviation is 450. Assuming the variance is normally distributed around the mean, 95% of all observations should fall within 2 standard deviations of the mean.

For the Seascape population, the proportion of this figure to the mean population size is 0.42. Using this same ratio, and assuming that the Tucker pond population in 2000-01 (1,062 adults) is near its mean value and possesses similar variability to the Seascape Pond, it is expected that population estimates at the Tucker pond could vary between and 616 and 1,508 breeding adults in the short-term due to variability in population size and sampling methods. Therefore, to achieve the goals of the HCP, a minimum of 616 breeding adults (as measured by the upper end of the 95% confidence interval for the population estimate) should be present during the 1st and 5th year population estimates. If the upper end of the 95% confidence interval for the population estimate drops below 616 breeding adults, enhancement measures should be considered, as described in the section regarding adaptive management (Section 5.3).

Comparisons should also be made with population estimates generated during the same seasons at Seascape Uplands or at other sites, if possible. Lower population estimates can also be the result of less precipitation totals or unusual precipitation patterns. If lower than average population estimates occur at Seascape or other populations during the same season, the source may be environmental or part of larger-scale fluctuations.

Population data gathered during the 10th year shall be analyzed using hypothesis testing to determine whether the population is changing over time. The null hypothesis in this case is that the population is stable (that the slope of the regression line fitted to the time series data is 0). The alternate hypothesis is that there is an upward or downward trend to the population size. A linear regression line should be fitted to the adult population estimates. The slope and standard deviation of the regression line should be used to calculate the test statistic, t. Standard tables of the critical values of t should be

used to determine if the null hypothesis should be rejected or not (using a critical value of 0.05). If the trend in the population is significantly downwards, enhancement measures should be considered, as described in the section regarding adaptive management. As described in Section 5.3, adjustments to field sampling and data analysis methods should be made if and when more appropriate techniques become available, or if the methods being used fail to gather suitable information.

1.2 Annual SCLTS and CRLF Monitoring

During the 10 year term of the ITP, a qualified biologist shall visit the Tucker Preserve a minimum of four times each year to inspect the site, conduct wildlife monitoring studies, perform management actions, and monitor for compliance with mitigation measures. During each visit, the trail system throughout the Tucker Preserve shall be walked to ensure that no vandalism or unauthorized use of the site has occurred. The applicant shall replace any missing signage. The applicant shall install a staff gauge and the qualified biologist shall record water depths. Photographs shall be taken from fixed locations of both the pond and upland areas for inclusion in the annual report (see below). The timing of the four annual visits will be as follows:

1) Between 15 February and 15 March, the pond will be examined during the time of year when the CRLF typically exhibits breeding behavior. The pond shall be searched during the day and again after dark using headlamps. All frogs observed they shall be recorded by species and age-class. After completing the census, efforts shall be made to remove and dispatch as many bullfrogs as possible without affecting near-shore egg laying areas used by native amphibians. The primary purpose of this visit will be to determine presence of adult RLF and to remove bullfrogs.

2) Between 15 April and 15 May, a visit will be performed to conduct aquatic sampling at the pond and to control bullfrogs prior to the bullfrog egg-laying season. Aquatic sampling for SCLTS shall be performed using nets and/or minnow traps according to current protocol and permit conditions. If CRLF are observed at the pond, minnow traps shall not be fully submerged to minimize potential mortality. The pond shall be searched after dark using headlamps and efforts will be made to capture and dispatch as many bullfrogs as possible without affecting the near-shore habitat used by larvae and tadpoles. The primary purpose of this visit will be to determine if the SCLTS is breeding and to remove bullfrogs. Due to the presence of dense aquatic vegetation in the pond, it may not be possible to consistently detect SCLTS larvae. Genetics work (i.e., tissue collection) could be conducted during this visit.

3) Between 15 May and 15 June, at least one month after the previous visit, the aquatic sampling effort will be repeated when the water level is naturally lower to target the ranid frog tadpoles when they are large enough to easily differentiate. Any red-legged frog tadpoles, SCLTS larvae and other native amphibians observed shall be counted and released. All bullfrog tadpoles observed shall be eliminated. The primary purpose of this visit will be to detect SCLTS larvae and RLF tadpoles, and to detect and remove bullfrog tadpoles and/or eggs. If bullfrog tadpoles are present, it will be

necessary to drain the pond in the fall. Genetics work (i.e., tissue collection) could be conducted during this visit.

4) The final annual visit shall coincide with the pond draining (if the pond needs to be drained), generally in September or early October (see Section 4.1.2 of the HCP). During this visit, the site shall still be examined before the first fall rains to check the water level at the pond and to inspect the surrounding uplands. Areas that were affected by exotic plant removal shall be visited and the success of the removal assessed. If it is deemed necessary, the pond will be drained under the direction of a qualified biologist as a separate task. Bullfrog eradication efforts will be performed concurrently whenever the pond is drained. The initial pond draining effort will target all bullfrog size classes, while subsequent pond draining efforts will be performed to remove bullfrog tadpoles.

5) During visits to the Tucker Preserve, the Service-approved biologist can also visit the 15-acre parcel (and 1.5-acre parcel, if developed) to inspect fences, valve boxes, curbs, and landscaping vegetation.

6) Surveys for the CRLF at the breeding pond shall be conducted according to USFWS protocol (USFWS 1997). Biologist conducting any surveys in the pond shall follow the practices outlined in the "Declining Amphibian Populations Task Force Fieldwork Code of Practice" included in Section 3 (below).

1.3 Annual Report

Reporting requirements for all the monitoring programs shall be provided in a single document. The annual report shall be prepared that summarizes the results of the wildlife monitoring, management actions, and exotic pest plant control work in separate chapters. The report will provide methods, results, and a discussion section that includes recommendations, if necessary, to improve monitoring and management within the existing budget. The report shall include a map of the Tucker Preserve and photographs of the pond and upland habitat taken from fixed locations. The report shall include the results of the exotic plant removal work. An annual report shall be submitted to the USFWS every October.

2.0 Exotic Pest Plant Control Plan

A secondary management goal of the Ross Trust HCP is to manage exotic pest plants and animals in the uplands of the Conservation Easement so that they do not pose a risk to degrade SCLTS and CRLF terrestrial habitat. This will be accomplished primarily through an initial intensive treatment program to remove high priority exotic pest plant and then through ongoing annual follow up treatments of new seedlings. All work, whether it be performed by the landowner or outside contractors, will be overseen by a USFWS approved biologist who will act as an independent monitor (or Endangered Species Management Authority) and who will search for SCLTS under any potential cover, including brush, slash, and debris. All exotic pest plant control activities

conducted onsite will be described in annual reports submitted to the USFWS (see above).

2.1 Target Species to be Removed and Removal Methods

A service approved exotic control expert shall map the high priority exotic pest plants within the Conservation Easement. The map shall identify proposed treatment areas, will be revised to show current conditions on a yearly basis, and included in the annual report prepared by the independent monitor (see below). High priority plants to be removed/controlled include: French broom, pampas grass, acacia trees, and young eucalyptus trees. For French broom, the plants shall be hand pulled in the winter months when the ground is moist. Eucalyptus and acacia trees shall be cut and the stumps treated (topical application) with an appropriate herbicide (labeled for that use). Pampas grass plants shall be dug up, resulting in the removal of the entire rootball. All removed plant materials (including flowering stalks) shall be taken off site and disposed of at the County landfill. Although not a covered activity under the HCP, herbicides may be used if other options are unsuccessful. With approval of the USFWS and CDFG, pampas grass and/or French broom may be treated with Round-Up herbicide especially in cases where hand or mechanical removal is too disruptive or infeasible. Any herbicides used shall be applied using method(s) that prevents airborne drift of the herbicides.

2.2 Implementation Schedule and Reporting

Within the first year of ITP issuance the landowner will have the exotic pest plants within the Conservation Easement mapped by a service-approved expert. The map shall be appended to the first annual report prepared by the independent monitor. The map shall identify the approximately number and/or acreage of plants to be treated and their location. The initial treatment should result in a success rate of at least 80% (plants removed). In the years following the initial treatment, any plants missed during the initial treatment program shall be removed as well as any seedlings found in the Conservation Easement area. Treatment of priority plants shall continue as needed for the permit duration. After the first three years of program implementation, the number of high priority exotic pest plants found on the property shall not exceed more than 10% of the number of plants original identified on the site.

2.3 Inspections

The independent monitor shall inspect the work after completion of the initial treatment program to confirm that the success criteria have been met. If the success criteria have not been met the independent monitor will provide a list of the follow up work needed to complete the treatment program. The site shall be inspected by the independent monitor annually after the initial treatment to assure continued control of pest plants is taking place according to the criteria mentioned above.

2.4 Annual Report

The landowner shall prepare an annual letter-report for the independent monitor by the end of August each year for inclusion in the wildlife monitoring annual report (see above). The letter report shall detail the methods used, species targeted, and include a map of the specific and/or general treatment areas.

2.5 Contingencies

In the event that new exotic pest plants invade the easement area, the landowner shall consult with the Service-approved biologist and the USFWS regarding implementation of a program to control the new infestations.

3.0 Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each work site.

2. Boots, nets, traps, and other types of equipment used in the aquatic environment should then be scrubbed with 70 percent ethanol solution and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond, wetland, or riparian area.

3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or "base camp" Elsewhere, when washing-machine facilities are available, remove nets from poles and wash in a protective mesh laundry bag with bleach on the "delicates" cycle.

4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable gloves and change them between handling each animal*. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean them as directed above and store separately at the end of each field day.

5. When amphibians are collected, ensure that animals from different sites are kept separately and take great care to avoid indirect contact (e.g., via handling, reuse of containers) between them or with other captive animals. Isolation from unsterilized plants or soils which have been taken from other sites is also essential. Always use disinfected and disposable husbandry equipment.

6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.

7. Used cleaning materials and fluids should be disposed of safely and, if necessary, taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

* Although gloves will be used during population monitoring studies involving pitfall traps at the Tucker Pond, it is not practicable to change gloves when handling each animal, since several individuals my be captured in each pitfall trap.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

For further information on this Code, or on the Declining Amphibian Populations Task Force, contact John Wilkinson, Biology Department, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK. E-mail: DAPTF@open.ac.uk Fax: +44 (0) 1908-654167

Appendix B. Summary of Tasks to be Performed by the Applicant and Service-approved Biologist

The following is a summary list of the primary tasks that shall be carried out by the project applicant and the Service-approved biologist under this HCP. This list may not be complete, therefore, the HCP itself shall be followed in the event of a discrepancy between tasks listed below and those contained in the body of the HCP.

Tasks to be Performed by the Applicant:

- No grading shall be performed during the rainy season (typically October 15 th to April 15th). If grading activities begin between April 15th and June 15 th, a drift fence will be constructed around the entire project area to exclude any dispersing SCLTS from entering the project area (Section 3.1.2). With the exception of the construction storage and equipment area (see below), a salamander exclusion fence is not necessary if grading is performed from June 15 th to October 15 th (Section 3.1.2).

- Enclose the entire work area with temporary fencing (high visibility orange fencing or similar material) to define the work area and reduce unnecessary disturbance to native habitat. Signage shall be placed every 100 feet that describes the penalty for violating native habitat. The integrity of the fencing shall be inspected daily by the onsite biological monitor and periodically by the Service-approved biologist (Section 3.1.2 and 5.4.3).

- Construction equipment and vehicles will be stored, staged, maintained, and fueled, and construction materials and debris will be stored in a predetermined staging area within the 15-acre portion of grassland. Surround the staging area(s) with a drift fence to exclude SCLTS. Spread loose straw adjacent to the outside of the fence for at least 3 feet, to provide cover for SCLTS. Construction debris will be stored in bins. A salamander-proof gate will be constructed to access the staging area (Sections 3.1.2 and 5.4.4).

- All food-related trash will be disposed of in closed containers and removed from the project area at least once per week during the construction period (Section 3.1.2).

- Retrofit any valve boxes, or similar structures, installed at grade to control irrigation, electricity, etc. with permanent screens (1/8 inch mesh or less) to prevent entry by SCLTS (Section 3.1.6).

- Install and remove the drift fence at the pond for the three SCLTS population monitoring studies. Installation and removal shall be supervised by the Service-approved biologist. The Service-approved biologist shall provide specifications for the drift fence.

- Mow existing grassy areas in proximity to the pond to a height of 4-6 inches in the late spring/early summer and again as necessary to maintain a low grass height (Section 3.2.2.3).

- Remove the existing barbecue pit near the pond, with a Service-approved biologist present, since it encroaches the 5-foot buffer. The new barbecue area shall be sited a minimum of 65 feet from the pond (Section 3.2.2.3).

- Prior to or upon receipt of the ITP and prior to site grading, finalize a permanent Conservation Easement on 38.8 acres of the property (Section 3.3.1).

- Install an interpretive sign or kiosk at the pond that describes the natural history of the salamander and red-legged frog and management of the pond to control bullfrogs (Section 3.3.2.1).

- Assist the Service-approved biologist's efforts to remove bullfrogs by draining the pond with a screened pump (Section 3.3.2.2) as needed during the 10 years of the ITP.

- During the first time the pond is drained (Year 1), minor modifications be performed to simplify draining efforts in the future. An existing catwalk be refurbished. A permanent staff gauge will be installed so that water depth can be easily monitored over time. A pump and pipe system may be installed. The berm that forms the pond will be inspected and repaired, if necessary (Section 3.3.2.2).

- Post signage stating the prohibition against introducing mosquito fish and other exotics into the Tucker Pond (this may be combined with tasks under Section 3.3.2.1). The local Mosquito Abatement District will also be informed of the prohibition and, if mosquitoes become a problem, other methods of mosquito abatement shall be used (Section 3.3.2.3).

- Retain the services of a Service-approved expert to map the location of exotic plant species and prioritize an eradication plan. Eradication efforts shall be performed annually during the 10 year ITP. (Section 3.3.3).

- Prepare a site map that identifies the key habitat features and the designated trail system suitable to distribute to agency personnel and other visitors. Install signage that identifies the Tucker Preserve every ¼ mile where accessible and at all known access points (Section 3.3.4).

- Prepare a site-specific toxic material spill response plan for the site (Section 5.4.4).

Tasks to be performed by the Service-approved Biologist:

- Prepare a written biological resources education program for construction workers prior to the beginning of construction activities and appoint a crewmember to act as an onsite biological monitor (Sections 3.1.2 and 5.4.1).

- Review and approve final landscape plans to make sure they are compatible with use of the site by the SCLTS and to ensure that exotic pest plants are not utilized (Section 3.2.1.1).

- Prepare a draft annual monitoring report each year by 31 October and submit it to the wildlife agencies (Sections 3.3.5 and 5.5).

- Conduct annual wildlife monitoring according to Appendix A (Section 3.3.5).

- Monitor vegetation and debris removal to prepare the site prior to grading. Capture any SCLTS and CRLF found during vegetation and debris removal and relocate the salamanders and frogs to a safe location outside of the boundaries of the project area. Before project activities begin, the Service-approved biologist will identify appropriate areas to receive relocated SCLTS and CRLF. These areas will be in proximity to the capture site and support suitable moist vegetative cover (Sections 3.1.2 and 5.4.2).

- Conduct the initial bullfrog removal study. Following HCP approval and prior to the first winter rains (typically September-October), the pond will be drained to remove bullfrogs (Section 3.3.2.2). Drain the pond annually following the same methodology if monitoring reveals that bullfrogs are continuing to breed (Section 3.3.2.2).

- Before work activities begin each day, the onsite biological monitor will inspect construction equipment to look for SCLTS and CRLF. If a SCLTS or CRLF is found during these checks or at any time during construction, construction activities will cease until the Service-approved biologist is available to move the animal out of harm's way to the nearest appropriate habitat (Section 3.1.2).

Appendix C: Invasive Plant List from the California Invasive Plant Counsel

The CalEPPC List:

Exotic Pest Plants of Greatest Ecological Concern in California

October, 1999

The CalEPPC list is based on information submitted by our members and by land managers, botanists and researchers throughout the state, and on published sources. The list highlights non-native plants that are serious problems **in wildlands** (natural areas that support native ecosystems, including national, state and local parks, ecological reserves, wildlife areas, national forests, BLM lands, etc.).

List categories include:

List A: Most Invasive Wildland Pest Plants; documented as aggressive invaders that displace natives and disrupt natural habitats. Includes two sub-lists; List A-1: Widespread pests that are invasive in more than 3 Jepson regions (see page 3), and List A-2: Regional pests invasive in 3 or fewer Jepson regions.

List B: Wildland Pest Plants of Lesser Invasiveness; invasive pest plants that spread less rapidly and cause a lesser degree of habitat disruption; may be widespread or regional.

Red Alert: Pest plants with potential to spread explosively; infestations currently small or localized. If found, alert CalEPPC, County Agricultural Commissioner or California Department of Food and Agriculture.

Need More Information: Plants for which current information does not adequately describe nature of threat to wildlands, distribution or invasiveness. Further information is requested from knowledgeable observers.

Annual Grasses: New in this edition; a preliminary list of annual grasses, abundant and widespread in California, that pose significant threats to wildlands. Information is requested to support further definition of this category in next List edition.

Considered But Not Listed: Plants that, after review of status, do not appear to pose a significant threat to wildlands.

Plants that fall into the following categories are not included in the List:

- Plants found mainly or solely in disturbed areas, such as roadsides and agricultural fields.
- Plants that are established only sparingly, with minimal impact on natural habitats.

1999 List Review Committee:

Dr. Lars W.J. Anderson, Research Leader
U.S. Department of Agriculture-ARS, Aquatic Weed Research Lab.

Dr. Joe DiTomaso, Extension Weed Ecologist
Weed Science Program, Department of Vegetable Crops, University of California, Davis

Dr. G. Fred Hrusa, Senior Plant Systematist
Plant Pest Diagnostics Center, California Department of Food & Agriculture

Dr. Marcel Rejmánek, Professor of Plant Ecology
Section of Evolution and Ecology, University of California, Davis

CalEPPC List Committee:

Ann Howald, Instructor
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Dr. John Randall, Invasive Weed Specialist
The Nature Conservancy

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California Native Plant Society

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The California Exotic Pest Plant Council

List A-1: Most Invasive Wildland Pest Plants; Widespread

Latin Name[1]	Common Name	Habitats of Concern and Other Comments	Distribution
Ammophila arenaria	European beach grass	Coastal dunes	SCo,CCo,NCo
Arundo donax	giant reed, arundo	Riparian areas	sSNF,CCo,SCo,SnGb,D,GV
Bromus tectorum	cheat grass, downy brome	Sagebrush, pinyon-juniper, other desert communities; increases fire frequency	GB,D
Carpobrotus edulis	iceplant, sea fig	Many coastal communities, esp. dunes	SCo,CCo,NCo,SnFrB
Centaurea solstitialis[C]	yellow starthistle	Grasslands	CA-FP (uncommon in SoCal)
Cortaderia jubata	Andean pampas grass, jubatagrass	Horticultural; many coastal habitats, esp. disturbed or exposed sites; incl. logged areas	NCo,NCoRO,SnFrB, CCo,WTR,SCo
Cortaderia selloana	pampas grass	Horticultural; coastal dunes, coastal scrub, Monterey pine forest, riparian, grasslands; wetlands in ScV; also on serpentine	SnFrB,SCo,CCo,ScV
Cynara cardunculus[Q]	artichoke thistle	Coastal grasslands	CA-FP, esp. CCo,SCo
Cytisus scoparius[C]	Scotch broom	Horticultural; coastal scrub, oak woodlands, Sierra foothills	NW,CaRF,SNF,GV, SCo,CW
Eucalyptus globulus	Tasmanian blue gum	Riparian areas, grasslands, mixed pine	NCoRO,CV,ScFB, CCo,SCoRO,SCo,nCu
Foeniculum vulgare	wild fennel	Grasslands; esp. SoCal, Channel Is.; the cultivated garden herb is not invasive	CA-FP
Genista monspessulana[C]	French broom	Horticultural; coastal scrub, oak woodlands, grasslands	NCoRO,NCoRI,SnFrB, sCCo,SCoRO,sCFI,WTR,FR
Lepidium latifolium[B]	perennial pepperweed, tall whitetop	Coastal, inland marshes, riparian areas, wetlands, grasslands; potential to invade montane wetlands	CA (except KR,D)
Myriophyllum spicatum	Eurasian watermilfoil	Horticultural; lakes, ponds, streams, aquaculture	SnFrB,SnIV,SNR(); prob. CA
Pennisetum setaceum	fountain grass	Horticultural; grasslands, dunes, desert canyons; roadsides	Deltaic GV,CCo,SCo, SnFrB
Rubus discolor	Himalayan blackberry	Riparian areas, marshes, oak woodlands	CA-FP
Senecio mikanioides (=*Delairea odorata*)	Cape ivy, German ivy	Coastal, riparian areas, also SoCal (south side San Gabriel Mtns.)	SCo,CCo,NCo,SnFrB,SW
Taeniatherum caput-medusae[Q]	medusahead	Grasslands, particularly southern, prefers fine soils	NCoR,CaR,SNF,GV,SCo
Tamarix chinensis, T. gallica, T. parviflora & T. ramosissima	tamarisk, salt cedar	Desert washes, riparian areas, seeps and springs	SCo,D,SnFrB,GV,sNCoR, sSNF,Teh,SCoRI,SNE, WTR
Ulex europaeus[B]	gorse	North central coastal scrub, grasslands	NCo,NCoRO,CaRF, nSCNF,SnFrB,CCo

[1]Noxious Weed Ratings

F: Federal Noxious Weed, as designated by the USDA; targeted for federally-funded prevention, eradication or containment efforts.

A: CA Dept. of Food & Agriculture, on "A" list of Noxious Weeds; agency policies call for eradication, containment or entry refusal.

B: CA Dept. of Food & Agriculture, on "B" list of Noxious Weeds; includes species that are more widespread, and therefore more difficult to contain; agency allows county Agricultural Commissioners to decide if local eradication or containment is warranted.

C: CA Dept. of Food & Agriculture, on "C" list of Noxious Weeds; includes weeds that are so widespread that the agency does not endorse state or county-funded eradication or containment efforts except in nurseries or seed lots.

Q: CA Dept. of Food & Agriculture's designation for temporary "A" rating pending determination of a permanent rating.

For most species nomenclature follows *The Jepson Manual: Higher Plants of California* (Hickman, J., Ed., 1993).

Exotic Pest Plants of Greatest Ecological Concern in California

List A-2: Most Invasive Wildland Pest Plants; Regional

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution[2]
Ailanthus altissima	tree of heaven	Riparian areas, grasslands, oak woodlands, esp. GV, SCo	CA-FP
Atriplex semibaccata	Australian saltbush	SoCal; coastal grasslands, scrub, "high marsh" of coastal salt marshes	CA (except CaR,eKR,eSN)
Brassica tournefortii	Moroccan or African mustard	Washes, alkaline flats, disturbed areas in Sonoran Desert	SW,D
Bromus madritensis ssp. *rubens*	red brome	Widespread; contributing to SoCal scrub, desert scrub type conversions, increases fire frequency	CA
Cardaria draba[6]	white-top, hoary cress	Riparian areas, marshes of central coast; also ag. lands, disturbed areas	Problem only in CCo
Carduus pycnocephalus	narrow-leaved carpet, roundleaf thistle	Coastal dunes, sandy soils near coast; best documented in San Luis Obispo and Santa Barbara cos	CCo
Cotoneaster pannosus, *C. lucteus*	cotoneaster	Horticultural; many coastal communities; esp. North Coast, Big Sur; related species also invasive	CCo,SnFrB,NW
Cytisus striatus	striated broom	Often confused with *C. scoparius*; coastal scrub, grassland	SnFrB,CCo,SCo,PR
Egeria densa	Brazilian waterweed	Streams, ponds, sloughs, lakes; Sacramento-San Joaquin Delta	n&aSNF,SnJV,SnFrB, SnJt,SNE
Ehrharta calycina	veldt grass	Sandy soils, esp. dunes; rapidly spreading in central coast	CCo,SCoRO,WTR
Eichhornia crassipes	water hyacinth	Horticultural; established in natural waterways, esp. troublesome in Sacramento-San Joaquin Delta	GV,SnFrB,SCo,PR
Elaeagnus angustifolia	Russian olive	Horticultural; in riparian areas	SnJV,SnFrB,SNE,DMoj
Euphorbia esula[6]	leafy spurge	Rangelands in far no. CA, also reported from Los Angeles Co.	eKR,NCo,CaR,MP,SCo
Ficus carica	edible fig	Horticultural; Central Valley, foothill, South Coast and Channel Is. riparian woodlands	nSNF,GV,SnFrB,SCo
Lupinus arboreus	bush lupine	Native to SCo, CCo; invasive only in North Coast dunes	SCo,CCo,NCo
Melilotus indicus	[illegible]	Santa Rosa Plain, Sonoma Co.; and Sacramento Valley west side; wetlands elsewhere	NW,GV,CW,SCo
Myoporum laetum	myoporum	Horticultural; coastal riparian areas in SCo	SCo,CCo
Saponaria officinalis	bouncing bet	Horticultural; roadsides, riparian habitat in SNE, esp. Mono Basin	NW,CaRH,eSNF,SnFrB, SCoRO,SCo,PR,MP,SNE, GV
Spartina alterniflora	Atlantic or smooth cordgrass	S.F. Bay salt marshes; populations in Humboldt Bay believed extirpated	CCo(shores of S.F. Bay)

[2]Distribution by geographic subdivisions per the Jepson Manual

CA=California	GV=Great Valley	ScV=Sacramento Valley
CA-FP=California Floristic Province	KR=Klamath Ranges	SnJV=San Joaquin Valley
CaR=Cascade Ranges	MP=Modoc Plateau	SN=Sierra Nevada
CaRF=Cascade Range Foothills	NCo=North Coast	SNE=East of SN
CCo=Central Coast	NCoRI=Inner NCo Ranges	SNF=SN Foothills
ChI=Channel Islands	NCoRO=Outer NCo Ranges	SNH=High SN
CW=Central Western CA	NW=Northwestern CA	SnFrB=San Francisco Bay Area
D=Deserts	PR=Peninsular Ranges	SnGb=San Gabriel Mtns
DMoj=Mojave Desert	SCo=South Coast	SW=Southwestern CA
DSon=Sonoran Desert	SCoRI=Inner SCo Ranges	Teh=Tehachapi Mtns
GB=Great Basin	SCoRO=Outer SCo Ranges	WTR=Western Transverse Ranges

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List B: Wildland Pest Plants of Lesser Invasiveness

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution
Ageratina adenophora[F]	eupatory	Horticultural; coastal canyons, coastal scrub, slopes, Marin to San Diego Co; San Gabriel Mtns.	CCo,SnFrB,SCo,SCoRO
Bassia hyssopifolia	bassia	Alkaline habitats	CA (except NW,SNH)
Bellardia trixago	bellardia	Grasslands, on serpentine, where a threat to rare natives	NCoRO,CCo,SnFrB
Brassica nigra	black mustard	Coastal communities, esp. fog-belt grasslands; disturbed areas	CA-FP
Cardaria chalepensis[B]	lens-podded white-top	Wetlands of Central Valley	CA
Carduus pycnocephalus[B]	Italian thistle	Grasslands, shrublands, oak woodlands	sNCo,NCoR,SNF,CW,SCo,SoV
Centaurea calcitrapa[B]	purple starthistle	Grasslands	NW,sCaRF,SNF,GV,CW,SW
Centaurea melitensis	tocalote, Malta starthistle	Widespread, sometimes misidentified as *C. solstitialis*; perhaps a more serious invader than currently recognized	CA-FP,D
Cirsium arvense[B]	Canada thistle	Especially troublesome in riparian areas	CA-FP
Cirsium vulgare	bull thistle	Riparian areas, marshes, meadows	CA-FP,GB
Conium maculatum	poison hemlock	Mainly disturbed areas but may invade wildlands; known to poison wildlife; early expanding stage in many areas, esp. San Diego Co. riparian, oak understory	CA-FP
Crataegus monogyna	hawthorn	Horticultural; recent invader, colonizing healthy native forest around Crystal Springs reservoir on Sn. peninsula	SnFrB,CCo,NCo,NCoR
Ehrharta erecta	veldt grass	Wetlands, moist wildlands; common in urban areas; potential to spread rapidly in coastal, riparian, grassland habitats	SnFrB,CCo,SCo
Eucalyptus globulus, *E. nitens*	Australian (blue) gum	Coastal woodlands, scrub, NW forests, dip redwoods	NCo,NCoRO,CCo,SnFrB,SCoRO
Festuca arundinacea	tall fescue	Horticultural (turf grass); coastal scrub, grasslands in NCo, CCo	CA-FP
Hedera helix	English ivy	Horticultural; invasive in coastal forests, riparian areas	CA-FP
Holcus lanatus	velvet grass	Coastal grasslands, wetlands in No. CA	CA exc. DSon
Hypericum perforatum[1]	Klamath weed, St. John's wort	Backcoast forests, meadows, woodlands, coastal prairie; at times due to Sp. p. controlling established biocontrol agents	NW,sCaRF,sNF,SN,SnFr,CW,SnFrB,SB
Ilex aquifolium	English holly	Horticultural; coastal forests, riparian areas	NCoRO,SnFrB,CCo
Iris pseudacorus	yellow water iris, yellow flag	Horticultural; coastal wetland areas, esp. San Diego, Los Angeles cos.	SnFrB,CCo,sSoLV,SCo
Leucanthemum vulgare	ox-eye daisy	Horticultural; invades grassland, coastal scrub	KR,NCoRO,n&cSNH, SnFrB,WTR,PR
Mesembryanthemum crystallinum	crystalline iceplant	Coastal bluffs, dunes, scrub, grasslands; concentrates salt in soil	NCo,CCo,SCo,Chi
Myriophyllum aquaticum	parrot's feather	Horticultural; streams, lakes, ponds	NCo,CaRF,CW,SCo
Olea europaea	olive	Horticultural and agricultural; reported as invasive in riparian habitats in Santa Barbara, San Diego	NCoR,NCoRO,CCo, SnFrB,SCoRO,SCo
Phalaris aquatica	Harding grass	Coastal sites, esp. moist soils	NW,cSNF,CCo,SCo
Potamogeton crispus	curlyleaf pondweed	Scattered distribution in ponds, lakes, streams	NCoR,GV,CCo,SnFrB, SCo,Chl,SnGb,SnBr,DMo
Ricinus communis	castor bean	SoCal coastal riparian habitats	GV,SCo,CCo
Robinia pseudoacacia	black locust	Horticultural, riparian areas, canyons; native to eastern U.S.	CA-FP,GB
Schinus molle	Peruvian pepper tree	Horticultural; invasive in riparian habitats in San Diego, Santa Cruz Is.	SNF,GV,CW,SW,Teh

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Exotic Pest Plants of Greatest Ecological Concern in California

List B: Continued

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution
Schinus terebinthifolius	Brazilian pepper	Horticultural; riparian areas	sSCo
Senecio jacobaea[E]	tansy ragwort	Grasslands; biocontrol agents established	NCo,wKR,s&wCaR, nSNF, nSCV,SW
Spartium junceum	Spanish broom	Coastal scrub, grassland, wetlands, oak woodland, NW forests, esp. redwoods; also roadcuts	NCoRO,ScV,SnFrB, SCoRO,SCo,sChl,WTR
Verbascum thapsus	woolly or common mullein	SNF meadows, sagebrush, pinyon-juniper woodlands; shores of Boggs Lake (Lake Co.)	CA
Vinca major	periwinkle	Horticultural; riparian, oak woodland, other coastal habitats	NCoRO,SnFrB, CCo, sSCoRO,SCo

Red Alert: Species with potential to spread explosively; infestations currently restricted

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution
Alhagi pseudalhagi[A]	camel thorn	Noxious weed of arid areas; most infestations in California have been eradicated	GV,sSNE,D
Arctotheca calendula	Capeweed	Seed producing times are the problem; mostlare vegetative only	NCo,SnFrB,CCo
Centaurea maculosa[A]	spotted knapweed	Riparian, grassland, wet meadows, forest habitats; contact CA Food & Ag if new occurrences found	CaR,SN,nScV,nCW,MP, nSNE,sPR,NW
Crupina vulgaris[A]	bearded creeper, common crupina	Aggressively moving into uplands, esp. grassland habitats	NCoR (Sonoma Co.),MP
Halogeton glomeratus[A]	halogeton	Noxious weed of Great Basin rangelands; report locations to CA Food & Ag; goal is exclusion from CA	GB
Helianthus petiolaris	Prairie sunflower	North-facing slopes, esp. Mt. Tamalpais, Marin Co.	Not in Jepson
Hydrilla verticillata[A]	hydrilla	Noxious water weed; report locations to CA Food & Ag; eradication program in place; found in Clear Lake (Lake Co.) in 1994	NCoRI,n&cSNF,ScV,SCo,D
Lythrum salicaria[E]	purple loosestrife	Horticultural; noxious weed of wetlands, riparian areas	sNCo,NCoRO,nSNF,ScV, SnFrB,nwMP
Ononis alopecuroides[D]	foxtail restharrow	Eradication efforts underway in San Luis Obispo Co.; to be looked for elsewhere in CA	CCo; not in Jepson
Retama monosperma	bridal broom	Fire hazard; Fallbrook Naval Weapons Station, San Diego Co.; could run other invasive habitats	San Diego Co.; not in Jepson
Salvinia molesta[E]	giant waterfern	Ponds, lakes, reservoirs, canals	Napa, Sonoma cos., lower Colorado River; not in Jepson
Sapium sebiferum	Chinese tallow tree	Horticultural; riparian, wetland habitats, open areas and understory	ScV,SnFrB; not in Jepson
Sesbania punicea	scarlet wisteria tree	Horticultural; riparian areas; American River Parkway, Sacramento Co., Suisun Marsh, San Joaquin River Parkway	ScV,SnJV; not in Jepson
Spartina anglica	cord grass	Scattered in S.F. Bay	Not in Jepson
Spartina densiflora	dense-flowered cord grass	Scattered in S.F. Bay, Humboldt Bay salt marshes	CCo,NCo
Spartina patens	salt meadow cord grass	One site in S.F. Bay; also Siuslaw Estuary, OR and Puget Sound, WA	CCo

1999 CalEPPC List p. 5

The California Exotic Pest Plant Council

Need More Information

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution
Acacia dealbata	silver wattle	Aggressive in natural areas?	SnFRB,SCoRO,SCoRI,CCo
Acacia decurrens	green wattle	Sometimes confused with *A. dealbata*; aggressive in natural areas?	Unknown
Acacia melanoxylon	blackwood acacia	Reported from S.F. Bay area, central coast, Santa Cruz Is.; spreads slowly; other areas?	SnFrB,SCoRO,SCo,CCo
Aeschynomene rudis[*]	rough joint-vetch	Princeton area, Colusa Co.; pest of rice crops; potential threat to riparian, wet and halophytic	ScV
Agrostis avenacea	Pacific bentgrass	Invading vernal pools in San Diego area; attempts at manual eradication unsuccessful so far; problem in other areas?	sNCo,sNCoR,SNF, GV,CW,nSCo
Aptenia cordifolia	red apple	Habitats where invasive?	CCo,SCo,sChl
Asphodelus fistulosus	asphodel	Common in SCo highway rights-of-way, other disturbed sites; threats to wildlands?	sSnJV,SCo
Carduus acanthoides[*]	spiny plumeless thistle	Threatens wildlands?	NCoRI,nSN,SnFrB, nSCoRO,MP
Cistus ladanifer	gum cistus	Horticultural; invades coastal sage scrub, chaparral; areas where problematic?	sCCo,SnGb
Coronilla scandens	New Zealand coronilla	Infestation at Salt Point State Park; bird-dispersed; other problem areas?	Not in Jepson
Cotoneaster spp. (exc. *C. pannosus*, *C. lacteus*)	cotoneaster	Horticultural; bird-distributed; which species are problems in wildlands?	Unknown
Cupressus macrocarpa	Monterey cypress	Native only to Monterey Peninsula; naturalized elsewhere; threat to wildlands?	CCo
Descurainia sophia	flixweed, tansy mustard	Entering Mojave wildlands through washes; threat to wildlands?	CA
Dimorphotheca sinuata	African daisy, Cape marigold	Horticultural; reported as invasive in Riverside Co., Ventura Co.; problem elsewhere?	SnJV,SCoRO,SCo,PR
Echium candicans, *E. pininana*	pride of Madeira, pride of Tenerife	Horticultural; riparian, grassland, coastal scrub communities; spreads by seed	CCo,SnFrB,SCo,sNCo
Ehrharta longiflora	veldt grass	Reported from San Diego	Not in Jepson
Erica lusitanica	heath	Threat to wildlands?	NCo (Humboldt Co.)
Euphorbia lathyris	caper spurge, gopher plant	Invades coastal scrub, marshes, dunes, Sonoma, Marin, etc.; threat to wildlands?	NCo,CCo,GV,SCo
Gazania linearis	gazania	Horticultural; invades grassland in S.F., coastal scrub?	CCo,SCo
Glyceria declinata		Although reported from Central Valley vernal pools, genetic research needed to confirm identity; plants that have been called *G. declinata* key in Jepson to native *G. occidentalis*	Uncertain; not in Jepson
Hedera canariensis	Algerian ivy	Horticultural; invasive in riparian areas in SoCal?	Not in Jepson
Hirschfeldia incana	Mediterranean or short-pod mustard	Increasing in western, southern Mojave; threat to wildlands?	NCo,SNF,GV,CW,SCo, DMoj
Hypericum canariense	Canary Island hypericum	Reported in San Diego area, coastal sage scrub, grassland; threat to wildlands?	SCo
Hypochaeris radicata	rough cat's-ear	Widespread in coastal grasslands, wetlands; threat to wildlands?	NW,CaRF,nSNF,SnV, CW,SCo
Isatis tinctoria[*]	dyers' woad	Well-known invader in Utah; threat to wildlands?	KR,CaR,nSNH,MP
Ligustrum lucidum	glossy privet	Horticultural; spreading rapidly on Mendocino coast; problem in other areas?	NCo, not in Jepson
Limonium ramosissimum ssp. *provinciale*	sea lavender	Reported spreading in Carpinteria Salt Marsh; problem in other areas?	Not in Jepson

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Exotic Pest Plants of Greatest Ecological Concern in California

Need More Information: Continued

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution
Ludwigia uruguayensis (= *L. hexapetala*)	water primrose	Invasive in aquatic habitats; non-native status questioned?	NCo,sNCoRO,CCo, SnFrB,SCo
Mesembryanthemum crystallinum	ice plant	Invades margins of wetlands, bluffs along SCo	CCo,SCo,sChl
Maytenus boaria	mayten	Horticultural; scattered in riparian forests, ScV; east SnFrB	ScV,SnFrB
Mesembryanthemum nodiflorum	slender-leaved iceplant	Abundant on Channel Islands, invades wetlands; habitats where problematic?	SnFrB,SCo,Chl
Nicotiana glauca	tree tobacco	Disturbed places; not very competitive with natives in coastal scrub, chaparral; spreading along Putah Creek (Yolo Co.); problems elsewhere?	NCoRI,c&sSNF, GV,CW,SW,D
Oxalis pes-caprae	Bermuda buttercup	Invades disturbed sites, invasive in undisturbed habitats?	NCo,NCoRO,CCo, SnFrB,SCoRO,SCo
Parentucellia viscosa		Threat to NCo (Humboldt Co.) dune swales?	NCo,NCoRO,CCo,SCo
Passiflora caerulea		Horticultural; escaped from SoCal; threat to wildlands?	SCo - not in Jepson
Pennisetum clandestinum[HC]	Kikuyu grass	Disturbed sites, roadsides; threat to wildlands?	NCo,CCo,SnFrB,SCo, Santa Cruz Is.
Plagiobothrys nothofulvus	rust popcorn flower	Most varieties in CA are native, taxonomy unclear; status of plants in vernal pools, wetlands?	NMexcepKB,NCoRH, GV,CCo,SnFrB,SCo, FR,Chl
Pinus radiata cultivars	Monterey pine	Cultivars invading native Monterey, Cambria forests, where spread of pine pitch canker is a concern	CCo
Polypogon monspeliensis	annual rabbit's foot grass	Aggressive in SoCal; creeks, drains; threats to wildlands?	NCo,GV,CW,SCo
Pistacia chinensis	Chinese pistache	Horticultural; invades riparian areas and woodlands in ScV	ScV
Prunus cerasifera	cherry plum	Oak woodland, riparian areas, esp. Marin, Sonoma cos.; bird-distributed; problem elsewhere?	SnFrB,CCo
Pyracantha angustifolia	pyracantha	Horticultural; spreads from seed in S.F. Bay area; bird-distributed; problem elsewhere?	sNCoRO,CCo,SnFrB, SCo
Salsola soda	glasswort	Threat to salt marshes?	nCCo,SnFrB
Salsola tragus[F]	Russian thistle, tumbleweed	Abundant in dry open areas in w. Mojave Desert, Great Basin; not limited to disturbed sites; threats?	CA
Salvia aethiopis[F]	Mediterranean sage	Creates monocultures in E. Oregon grasslands; threat to CA wildlands?	MP
Stipa capensis		Distribution and threats?	Not in Jepson
Tamarix gallica	athel	Spreading in Salton Sea area; threats to wildlands?	nSnJV,nSCo,D
Tanacetum vulgare	common tansy	Jepson reports as uncommon, escape from cultivation in urban areas; problem in wildlands?	NCo,NCoRO,CaRH, SCoRO
Verbena bonariensis, *V. litoralis*	tall verbena	Horticultural; invades riparian forests, wetlands, extensive along ScV riparian corridors, roadsides (Yuba Co.); elsewhere?	ScV,nSnJV,nSnFrB,CCo

The California Exotic Pest Plant Council

Annual Grasses

Latin Name	Common Name	Habitats of Concern and Other Comments	Distribution
Aegilops triuncialis[B]	barbed goatgrass	Serpentine soils, grasslands	sNCoR,CaRF, n&cSNF, ScV,nCW
Avena barbata	slender wild oat	Lower elev. in SoCal; coastal slopes, coastal sage scrub, disturbed sites	CA-FP,MP,DMoj
Avena fatua	wild oat	Lower elev. in SoCal; coastal slopes, coastal sage scrub on deeper soil, disturbed sites	CA-FP,MP,DMoj
Brachypodium distachyon	false brome	Expanding in SoCal; common in Orange Co.	sNCoR,sCaRF, SN,GV,CW,SCb,sChl
Bromus diandrus	ripgut brome	Coastal dunes, coastal sage scrub, grasslands	CA
Lolium multiflorum	Italian ryegrass	Wetland areas, esp. vernal pools in San Diego Co.; common in disturbed sites	CA-FP
Schismus arabicus	Mediterranean grass	Threat to Mojave and Colorado desert shrublands?	SnJV,CW,sChl,D
Schismus barbatus	Mediterranean grass	Threat to Mojave and Colorado desert shrublands?	SnJV,SW,D

Considered, but not listed

Latin Name	Common Name	Habitats of Concern and Other Comments
Albizia lophantha	plume acacia	Not invasive
Anthoxanthum odoratum	sweet vernal grass	Disturbed sites on coast, Marin, Sonoma, Mendocino cos.
Carpobrotus chilensis	sea fig	Native status in question; not a threat to wildlands
Centranthus ruber	red valerian	Horticultural, naturalized in Marin Co., on local rocky coastlands
Convolvulus arvensis[C]	field bindweed	Disturbed sites; ag lands
Cortaderia jubata	pampas grass	No evidence of wildland threat
Crocosmia x crocosmiiflora		Generally in disturbed coastal, urban areas, roadsides
Digitalis purpurea	foxglove	Horticultural, scattered in prairies, meadows, disturbed sites; not a major wildland threat
Dipsacus sativus, D. fullonum	wild teasel, Fuller's teasel	Roadsides, disturbed sites
Fumaria officinalis, F. parviflora	fumitory	S.F. Bay area, Monterey Bay coh marshes, sandy disturbed sites
Medicago polymorpha	California bur clover	Grasslands, moist sites; mainly restricted to disturbed sites
Melilotus officinalis	yellow sweet clover	Restricted to disturbed sites in CA
Nerium oleander	oleander	Horticultural; not invasive, although reported from riparian areas in Central Valley, San Bernardino Mtns.
Picris echioides	bristly ox-tongue	Disturbed areas
Silybum marianum	milk thistle	Disturbed areas, especially overgrazed moist pasturelands; may interfere with restoration
Xanthium spinosum	spiny cocklebur	Identified as native in The Jepson Manual (Hickman 1993) and A California Flora (Munz and Keck 1968); restricted to disturbed areas
Zantedeschia aethiopica	calla lily	Horticultural; mainly a garden escape in wet coastal areas
Zoysia cultivars	Almazo and others	Horticultural; no evidence of wildland threat

Appendix D: Property Analysis Record (PAR)

Center for Natural Lands Management
A non-profit organization for the protection and management of natural resources

425 E. Alvarado Street, Ste. H
Fallbrook, CA 92028-2960
Phone: 760.731.7790
Fax: 760.731.7791
www.cnlm.org

April 13, 2006

Ross 1998 Trust
James D. Ross and Jenny N. Ross, Trustees
c/o Douglas Ross Construction, Inc.
909 Alma Street
Palo Alto, CA 94301

Received By
APR 17 2006
Ross Construction

SUBJECT: Tucker Pond Conservation Easement, Santa Cruz County, CA Property Analysis Record(PN140)

Ladies and Gentlemen:

The Center for Natural Lands Management (Center) appreciates this opportunity to provide you with a Property Analysis Record (PAR) for easement compliance at the 38.8 acre Tucker Pond Conservation Easement (Property). Mr. David Laabs, the Center's contractor, visited the Property and reviewed the Draft Tucker Pond Habitat Conservation Plan (HCP), and has since determined the budget and endowment requirements for documenting easement compliance at the site. These costs are detailed in the PAR, which is attached to this letter.

This letter (a) identifies the documents used in performing the PAR, (b) describes the Property in general narrative terms, (c) defines the assumptions under which the PAR was prepared, and (d) summarizes the results of that PAR, including the Center's cost estimates for documenting easement compliance.

A. Documents Inventory. The Center was provided with the following documents:

- Maps of the project area (2004).
- Tucker Pond Habitat Conservation Plan (March 2006)

B. Property Description. The Property is 38.8 acres in size and is located in the unincorporated Aptos/Freedom area of Santa Cruz County, California. The Property is located northeast of Highway 1 and Freedom Boulevard within USGS Watsonville West 7.5' Quadrangle (T11S R1E Section 15; APN 108-011-23). Surrounding land use consists of rural residential.

The 10(a)(1)(B) permit to be issued at the time of final approval of the HCP will cover incidental take of the Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*) (Federally

Rise early, stay late and take care of the land.

Endangered and State Endangered) and the California red-legged frog (*Rana aurora draytonii*) (Federally Threatened).

The Property supports a mix of sage and coyote brush scrub (3.1 acres), redwood and mixed evergreen forest (8.7 acres), coast live-oak woodland (17.8 acres), needlegrass and non-native grassland (5.8 acres), and willow riparian forest (1.3 acres). A man-made pond with associated wet meadow and freshwater marsh (2.1 acres) occurs in the northwestern portion of the Property. Dominant perennial species of the scrub communities include coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*), and poison oak (*Toxicodendron diversilobum*). Riparian woodlands support black cottonwood (*Populous trichocarpha*), willows (*Salix* spp.), and coast live oak (*Quercus agrifolia*). Grasslands are dominated by purple needlegrass (*Nassella pulchra*), California oat grass (*Danthonia californica*), and soft chess (*Bromus hordeaceous*). North facing slopes support mixed evergreen forest dominated by Douglas fir (*Psudotsuga menziesii*), coast redwood (*Sequoia sempervirens*), tan oak (*Lithocarpus densiflorus*), and madrone (*Arbutus menziesii*).

C. PAR Assumptions. Assumptions used in preparing this PAR are included below.

1. Management Scenario: The Proponent will own and manage the Property in accordance with the HCP.

2. Compliance Surveys: The Center will hold a Conservation Easement over the Property and will document the Proponent's compliance with the conditions established in the Conservation Easement.

(A) Baseline Documentation: The Center will document baseline conditions on the Property at the time of recording of the Conservation Easement. At the completion of any substantial restoration on the Property, baseline conditions will need to be re-documented. Baseline documentation involves mapping existing vegetation communities, existing improvements such as roads and utilities, and photographing the site for visual representation.

(B) Compliance Monitoring: The Center will visit the Property approximately four times annually to monitor conditions on the Property. Documentation will be maintained for each site visit, including filing a report and photographing any areas that may indicate prohibited activities have occurred. Photo documentation of site conditions will be done no more frequently than once annually to maintain a time reference to use in resolving any potential interpretation of non-compliance with the easement conditions.

(C) Legal Fund: The PAR includes a line item for establishing a legal fund that the Center maintains for use in defending Conservation Easements when disputes cannot be resolved without the use of legal assistance.

(D) Administrative Overhead: The PAR includes 24% overhead costs for use in the

Center's corporate headquarters. This administrative cost does not cover expenses for local field offices of preserve management staff.

(E) Contingency: The PAR includes a 10% Contingency cost. These funds are not used except when unanticipated events require expenses beyond the estimated annual operating budget. In most years these funds are not withdrawn from the Endowment.

D. Cost Estimates: The PAR cost estimate has two components - (1) an "initial and capital" (I&C) amount to cover the first three years of easement compliance and contributions to the preserve's legal/emergency fund, and (2) an endowment amount to cover ongoing costs. The endowment must be sufficient to provide income to cover the cost of documenting easement compliance, inflation, and trust management fees in perpetuity. The I&C amount is necessary to offset any temporary downward trend in the market during the first three years following the establishment of the endowment, and allow sufficient accrual of value in the endowment account before withdrawing from the principal.

In developing the amount to be held as an endowment, the Center, in consultation with its trust managers, uses a 30-year history of changes in the consumer price index, bond returns, stock appreciation and yields (assuming a balanced portfolio) as its basis for assuming an annual return rate of 4.5% above inflation.

Using the Center's rates and assumptions, and assuming that funds are paid within six (6) months of the date of this PAR, the specific funding requirements are as follows:

Funding Requirements	
Initial & Capital Costs	$16,510
Held in trust (Endowment)	$108,422
Total Contribution	**$124,932**

Funding Breakdown	
Annual Endowment Earnings Available After Inflation for Easement Compliance (4.5% Capitalization Rate)	$4,879
Easement Compliance Costs on a Per Acre Per Year Basis	$125

The PAR presents a preliminary work plan and budget for easement compliance monitoring of the Tucker Pond Conservation Easement. The budget and work plan are intended to provide a

Ross 1998 Trust
Tucker Pond CE (PN140)
April 13, 2006
Page 4 of 4

basis for decision making and should be reviewed by the U.S. Fish and Wildlife Service for comments and suggestions.

The time lag between this cost estimate and the actual transfer of funds to the endowment account may influence the final cost for documenting easement compliance of the Tucker Pond Conservation Easement. Inflationary adjustments to the costs presented here may need to be included in the final contribution. Should Proponent and Center decide to pursue further discussions and reach agreement on the terms of a Management and Funding Agreement (MFA) within six (6) months, and assuming that there are neither material changes in property conditions nor in the information used in our analysis, Center will use this PAR cost estimate in the MFA. **The terms, conditions, and PAR values of this proposal are valid for a period of six (6) months from the date of this letter.**

Please find enclosed a duplicate copy of this last page of this "PAR letter" with an acknowledgment line. Please sign this acknowledgment and return the signed duplicate page to our office.

Please do not hesitate to contact us if you have any questions or comments regarding this analysis.

Sincerely,

Michael C. Stroud
Director of Operations

ACKNOWLEDGMENT:

James D. Ross — Date: 4-18-06

Jenny N. Ross — Date: 4/18/06

Enclosure

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PAR
Habitat Planning In Perpetuity
The Property Analysis Record

Title	Tucker Pond Conservation Easement
Dataset	CA005
ID	P140-06
Prepared by	David Laabs
Date	04/12/2006

The Center for Natural Lands Management prepared this software to assist conservation planners develop the management tasks and costs of long-term stewardship. While the sources are thought to be reliable, the Center makes no representations about the accuracy of cost estimates. The date of the cost information is 2000. The operation of the program is not guaranteed by the Center. Management requirements are determined by the user. Users should consult with their own financial advisors before relying on the results of their analysis.

Property Analysis Record Ver. 2.07.e 10/23/2003 (C) 1999 - 2003 Center for Natural Lands
425 E. Alvarado St., Suite H, Fallbrook, CA 92028-2960

Section 1 - Project Information

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

U.S.G.S.Quad 1:	Watsonville West	U.S.G.S.Quad 2:	
U.S.G.S.Quad 3:		U.S.G.S.Quad 4:	
Management type:	Easement		
Prepared by	David Laabs		
Date	04/12/2006		
Address	PO Box 1220		
City, State, Zip	Santa Cruz, CA		
Phone	95061		
Location/Jurisdiction	Aptos		
County	Santa Cruz		
Acres	39		

Project Status	Start Date	Completion	Status/Notes
Construction	04/15/2006	04/15/2008	
Restoration	04/15/2006	04/15/2016	
Stewardship	04/15/2006	/ /	

	Owner	Proponent
Name	Doug Ross	
Organization		
Address	909 Alma St	
City, State, Zip	Palo Alto, CA 94301	
Phone	650 470-4726	
Fax	650 470-4701	
E-Mail address	dougr@rossconstruction.com	

	Consultant #1	Consultant #2
Name	Victoria Harris	
Organization	Thomas Reid Associates	
Address	PO Box 880	
City, State, Zip	Palo Alto CA	
Phone	(650) 327-0429	
Fax	(650) 327-4024	
E-Mail address		
Specialty		

Property Analysis Record Ver. 2.07.e 10/23/2003 (C) 1999 - 2003 Center for Natural Lands
425 E. Alvarado St Suite H Fallbrook CA 92028-2960

Section 1 - Project Information

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Cost Year	0	
Date of site visit:	/ /	
Development Project		
Name	Single-family residence	
Acres	15	
Stage of planning	HCP submitted	
Conserved acres	39,	
Mitigation Bank		
Log	No	MBCR: 0
Credit basis		
Stage of planning		

Notes

CNLM will hold Conservation Easement over 38.8-acre portion of parcel.
CNLM will monitor for compliance with terms of Conservation Easement (costs included herein).
D. Ross will be responsible for completing terms and conditions of HCP (costs not included).

Property Analysis Record Ver. 2.07.e 10/23/2003 (C) 1999 - 2003 Center for Natural Lands

Section 2 - Contacts

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Relation	Owner	Phone	(650) 470-4726
Name	Doug Ross	Fax	(650) 470-4701
Street	909 Alma Street	E-mail	DougR@Rossconstruction.com
Organization			
City, State & Zip	Palo Alto, CA 94301		

Section 3 - Purposes for Preservation

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Purposes for Preservation	Goals and Objectives
Endangered Species	Protect and enhance Santa Cruz long-toed salamander breeding pond and upland habitat

Section 4 - Documents and References

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Document & Reference	Contact	Phone/Fax/Email	Date Rcv'd
0 Aerial Photographs	WAC		07/01/2003
0 Biotic Assessments and Maps	Dana Bland		04/01/2003
0 Mitigation and Monitoring Plan	Thomas Reid Associates	(650) 327-0429	12/15/2003
0 USFWS 7/10a/4d	Thomas Reid Associates	(650) 327-0429	02/01/2006

Section 5 - Requirements Summary

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Permits

Agency Permit	County CEQA		
Permit Purpose	Biotic Report		
Date	/ /		
Issued	No	Reporting	No
Standards	No	Restoration	No
PAR	No	Monitoring	No
When Scheduled			
Monitoring Schedule			
Standards for Success			
Comments			

Agency Permit	Grading Permit		
Permit Purpose	Santa Cruz County		
Date	/ /		
Issued	No	Reporting	No
Standards	No	Restoration	No
PAR	No	Monitoring	No
When Scheduled			
Monitoring Schedule			
Standards for Success			
Comments			

Agency Permit	HCP/NCCP Agreement		
Permit Purpose	HCP		
Date	/ /		
Issued	No	Reporting	No
Standards	No	Restoration	No
PAR	No	Monitoring	No
When Scheduled			
Monitoring Schedule			
Standards for Success			
Comments	Low-Effect HCP covers SAnta Cruz long-toed salamander adn California red-legged frog		

Agency Permit	US Fish & Wildlife Svc. 7/10a		
Permit Purpose	Incidental Take Perm		
Date	/ /		
Issued	No	Reporting	No
Standards	No	Restoration	No
PAR	No	Monitoring	No
When Scheduled			
Monitoring Schedule			
Standards for Success			
Comments	Submitted for approval Feb. 2006		

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425 E. Alvarado St., Suite H, Fallbrook, CA 92028-2960

Section 5 - Requirements Summary

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/13/2006

Contract Requirements

Item	Requirement	Requirement
Conservation Easements		Conservation Easement over 38.8 acres

Division of Responsibilities

Item	Type	Notes
Debris Removal	P	
Drainage	P	
Erosion Control	P	
Fences	P	
Fire Suppression	P	
Fire Zone/Buffer Management	P	
Monitoring, Plant	P	Owner will contract invasive species control plan for duration of permit
Monitoring, Wildlife	P	Owner will contract for annual monitoring of SCLTS & CRLF for duration of permit
Signs, Access Control	P	
Signs, Interpretive	P	
Trails, Equestrian	P	
Trash Collection, Ongoing	P	
Water Management	P	Owner will control bullfrogs if necessary for duration of permit
Other	M	Conservation Easement compliance monitoring

Physical / Legal

Item	Description	Notes
Access Points		Redwood Heights Road off of Freedom Blvd.
Easements	PG&E	Easement along power line to pump
Trails		Equestrian trails present

Section 6 - Site Conditions

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Property Uses Item	Permitted/ Legal	Problem	Notes
Equestrian	Y	Low	
Hiking Trails	Y	Low	
Passive Recreation	Y	Low	

Adjacent Land Use Item	Permitted/ Legal	Problem	Notes
Residential - Low Density	Y	Low	

Hydrological Features Item	Notes
Pond	Stock pond covers ~0.4 acres

Degraded Features Item	Notes
Fences	Fences down in areas
Trails	Equestrian trails

Invasive Exotics Item	Notes
Bullfrog	Breeding in pond
Broom, French	Scattered
Grass, Pampas	Scattered
Thistle, Bull	Scattered

Section 7 - Biological Assessment

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Natural Communities	Acres	Notes (Location condition & Rec.)
- CALIFORNIA NATURAL PLANT COM		
Forest, North Coast Conifer (Dense needle-leaved evergreen trees. Wetter areas of North Coast Range)	8.70	Redwood forest and mixed evergreen forest
Grassland, Valley and Foothill (2-3 ft introduced Mediterranean grasses and native herbs.)	5.80	Non-native grassland and needlegrass grassland
Meadows and Seeps (Dense grasses, sedges and herbs on seasonally moist soils.)	2.10	Wet meadow and freshwater marsh
Scrub, Coastal Sage (Low, dense shrubs, 0.5-2 m. with scattered grassy openings.)	3.10	Sage scrub adn coyote brush scrub
Woodland, Riparian (Broadleaved, deciduous trees,open canopy, on intermittent streams)	1.30	Willow riparian
Other Plant Communities ()	17.80	Coast Live-Oak Woodland

Section 7 - Biological Assessment

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Animal Survey Species Name	Notes (Location condition & Rec.)
- CA LISTED AMPHIBIANS	
Frog, California Red-legged (Rana aurora draytonii) Status: P State: CSC Federal: FT Global:	HCP covers species, not yet identified from pond
-FRESHWATER FISHES	
Salamander, S. Cruz Long-toed (Ambystoma macrodactylum croceum) Status: R State: SE Federal: FE Global:	Breeding pond and upland habitat. Breeding population was at least 984 adults in 2001-02.
- CA LISTED BIRDS	
Hawk, Cooper's (Accipiter cooperi (nesting)) Status: P State: CSC Federal: Global:	
Hawk, Red-shouldered (Buteo linneanus) Status: P State: CSC Federal: Global:	
Kite, Black-shouldered (Elanus caeruleus (nesting)) Status: P State: CSC Federal: Global:	
-MAMMALS	
Shrike, Loggerhead (Lanius ludovicianus) Status: P State: CSC Federal: Global:	

Animal Survey Species Name				Notes (Location condition & Rec.)
- CA LISTED MAMMALS				
Bat, Pallid (Antrozous pallidus)	Status: P	State: CSC	Federal:	Global:
Bat, Townsend's West.Big-eared (Plecotus townsendii townsendii)	Status: P	State: CSC	Federal:	Global:
-REPTILES				
Woodrat, Monterey Dusky-footed (Neotoma fuscipes luciana)	Status: R	State: CSC	Federal:	Global:

Section 8 - Initial & Capital Tasks and Costs

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Budget: PAR

list	Specificaton	Unit	Number of Units	Cost / Unit	Annual Cost	Times Years	Total Cost
PUBLIC SERVICES							
Owner Contact	Meetings	L. Hours	18.00	49.60	892.80	3.0	2,678.40
Other	CE Compliance Monitoring	L. Hours	24.00	49.60	1,190.40	3.0	3,571.20
Sub-Total							6,249.60
REPORTING							
Database Management	Data Input	L. Hours	16.00	49.60	793.60	1.0	793.60
Annual Work Plan	Plan and PAR Budget	L. Hours	4.00	49.60	198.40	3.0	595.20
Monitoring Reports	Monitoring Documentation	L. Hours	8.00	49.60	396.80	1.0	396.80
Sub-Total							1,785.60
FIELD EQUIPMENT							
Vehicle	Annual mileage	Mile	250.00	0.50	125.00	3.0	375.00
Other	Baseline Doc materials	Item	1.00	105.00	105.00	1.0	105.00
Sub-Total							480.00
OPERATIONS							
Audit	CPA Audit	Acre	38.80	0.38	14.74	3.0	44.23
[illegible]rance	General	Item	1.00	315.00	315.00	3.0	945.00
[illegible] Fund	Establish fund	Item	0.01	108,422.00	1,084.22	1.0	1,084.22
Supervisor Site Visit	Site visits	L. Hours	3.00	48.00	144.00	3.0	432.00
Other	Research/Development Fund	Item	0.01	108,422.00	1,084.22	1.0	1,084.22
Sub-Total							3,589.67
CONTINGENCY & ADMINISTRATION							
Contingency							1,210.49
Administration							3,195.69
Sub-Total							4,406.18
Total							16,511.05

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Section 9 - Ongoing Tasks and Costs

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

Budget: PAR

list	Specificaton	Unit	Number of Units	Cost / Unit	Annual Cost	Divide Years	Total Cost
PUBLIC SERVICES							
Owner Contact	Meetings	L. Hours	18.00	49.60	892.80	1	892.80
Other	CE Compliance Monitoring	L. Hours	24.00	49.60	1,190.40	1	1,190.40
Sub-Total							2,083.20
REPORTING							
Database Management	Data Input	L. Hours	16.00	49.60	793.60	3	264.53
Annual Work Plan	Plan and PAR Budget	L. Hours	4.00	49.60	198.40	1	198.40
Monitoring Reports	Monitoring Documentation	L. Hours	8.00	49.60	396.80	1	396.80
Sub-Total							859.73
FIELD EQUIPMENT							
Vehicle	Annual mileage	Mile	250.00	0.50	125.00	1	125.00
Other	Baseline Doc materials	Item	1.00	105.00	105.00	3	35.00
Sub-Total							160.00
OPERATIONS							
Audit	CPA Audit	Acre	38.80	0.38	14.74	1	14.74
rance	General	Item	1.00	315.00	315.00	1	315.00
irvisor Site Visit	Site visits	L. Hours	3.00	48.00	144.00	1	144.00
Sub-Total							473.74
CONTINGENCY & ADMINISTRATION							
Contingency							357.67
Administration							944.24
Sub-Total							1,301.91
Total							4,878.58

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Section 10 - Financial Summary

Property Title: Tucker Pond Conservation Easement Dataset: CA005 PAR ID: P140-06 04/12/2006

PAR(39 ac.)	Rate %	Total $
INITIAL FINANCIAL REQUIREMENTS		
I & C Revenue		0
I & C Management Costs		12,104
I & C Contingency Expense	10.00	1,210
Total I & C Management Costs		13,314
I & C Administrative Costs of Total I & C Management Costs	24.00	3,196
Total I & C Costs		16,510
Net I & C Management and Administrative Costs		16,510
ANNUAL ONGOING FINANCIAL REQUIREMENTS		
Ongoing Costs		3,576
Ongoing Contingency Expense	10.00	358
Total Ongoing Management Costs		3,935
Ongoing Administrative Costs of Total Ongoing Management costs	24.00	944
Total Ongoing Costs		4,879
ENDOWMENT REQUIREMENTS FOR ONGOING STEWARDSHIP		
Endowment to Provide Income of $ 4,879		108,422
Endowment per Acre is $ 2,794.		
Ongoing Management Costs Based on 4.50% of Endowment per Year.		
Ongoing Management Funding is $ 4,879 per Year Resulting in $126 per Acre per Year.		
TOTAL CONTRIBUTION		124,932

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