



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
2007-F-0087

September 15, 2008

Gary Ruggerone
Senior Environmental Planner
California Department of Transportation
50 Higuera Street
San Luis Obispo, California 93401-5415

Subject: Biological Opinion for the Broadway-Brommer Pedestrian-Bicycle Path, Santa Cruz County, California (1-8-07-F-46)

Dear Mr. Ruggerone:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the California Department of Transportation's (Caltrans) proposed funding for the construction of a pedestrian and bicycle path at the Arana Gulch open space area and its effects on the federally threatened Santa Cruz tarplant (*Holocarpha macradenia*) and its critical habitat in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U. S. C. 1531 et seq.). Your June 22, 2007, request for consultation was received on June 25, 2007.

This biological opinion was prepared using information you provided in your letter requesting initiation of formal consultation, an environmental study prepared by the City of Santa Cruz (2007), the Arana Gulch Master Plan (2006), a report on a management program for Santa Cruz tarplant (Pavlik and Espeland 2005), an environmental impact report prepared by Brady and Associates, Inc. (1999), and information in our files. A complete administrative record for this biological opinion is available at the Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

On August 26, 1999, the Federal Highway Administration (FHWA) requested formal consultation with the Service on the proposed Broadway-Brommer Bicycle-Pedestrian Path. Following discussions between Colleen Sculley, formerly of the Service's Ventura Fish and Wildlife Office, and FHWA staff, it was determined that the proposed project, with incorporated mitigation measures, was not likely to adversely affect the Federally threatened California red-legged frog (*Rana aurora draytoni*) or the Santa Cruz tarplant. On December 24, 1999, FHWA requested concurrence from the Service on their determination of not likely to adversely affect. In a letter dated February 1, 2000, the Service concurred with this determination. Subsequent to the February 1, 1999, concurrence, the Service designated critical habitat for the

Santa Cruz tarplant in October 2002, and the California red-legged frog in April 2006. The Arana Gulch area was included in the critical habitat designation for the Santa Cruz tarplant, but was outside of the critical habitat designation for the California red-legged frog.

The City of Santa Cruz (City) decided to delay the Broadway-Brommer Bicycle-Pedestrian Path until they completed a Master Plan for Arana Gulch, the City-owned open space area that will be crossed by the proposed bicycle-pedestrian path. The Arana Gulch Master Plan was approved by the City in July 2006. The plan included a proposed adaptive management program for the Santa Cruz tarplant.

As a result of the Arana Gulch Master Plan process and the critical habitat designation for the Santa Cruz tarplant, the City made changes to the proposed Broadway-Brommer Bicycle-Pedestrian Path to minimize potential impacts to the listed species and designated critical habitat. In October 2006, Caltrans re-initiated consultation with the Service, requesting informal consultation on the changes of the proposed project and their effect on the Santa Cruz tarplant and the California red-legged frog. In a letter dated March 5, 2007, the Service concurred with your determination that the project was not likely to adversely affect the California red-legged frog, but did not concur the project was not likely to adversely affect the Santa Cruz tarplant and recommended that you initiate formal consultation for the Santa Cruz tarplant and its critical habitat. In making this recommendation, we revised our original concurrence in the letter dated February 1, 2000. We revised our recommendation due to a decline in the status of the Santa Cruz tarplant throughout its range and the designation of critical habitat for the Santa Cruz tarplant since our February 2000 letter. The Santa Cruz tarplant population declined from approximately 13,000 individual plants in 1998 to approximately 350 plants in 2006.

Since the initiation of formal consultation in 1999, FHWA assigned and Caltrans assumed responsibilities for consultation and coordination with resource agencies for most projects within the State of California. The delegation of authority stipulates that correspondence regarding consultations be addressed to Caltrans, even if FHWA initiated the consultation. Although our early consultation on the project was with FHWA, the most recent request for consultation was initiated by Caltrans. Therefore, in accordance with the delegation of authority and in response to the request for consultation by Caltrans, this consultation is between the Service and Caltrans.

BIOLOGICAL OPINION

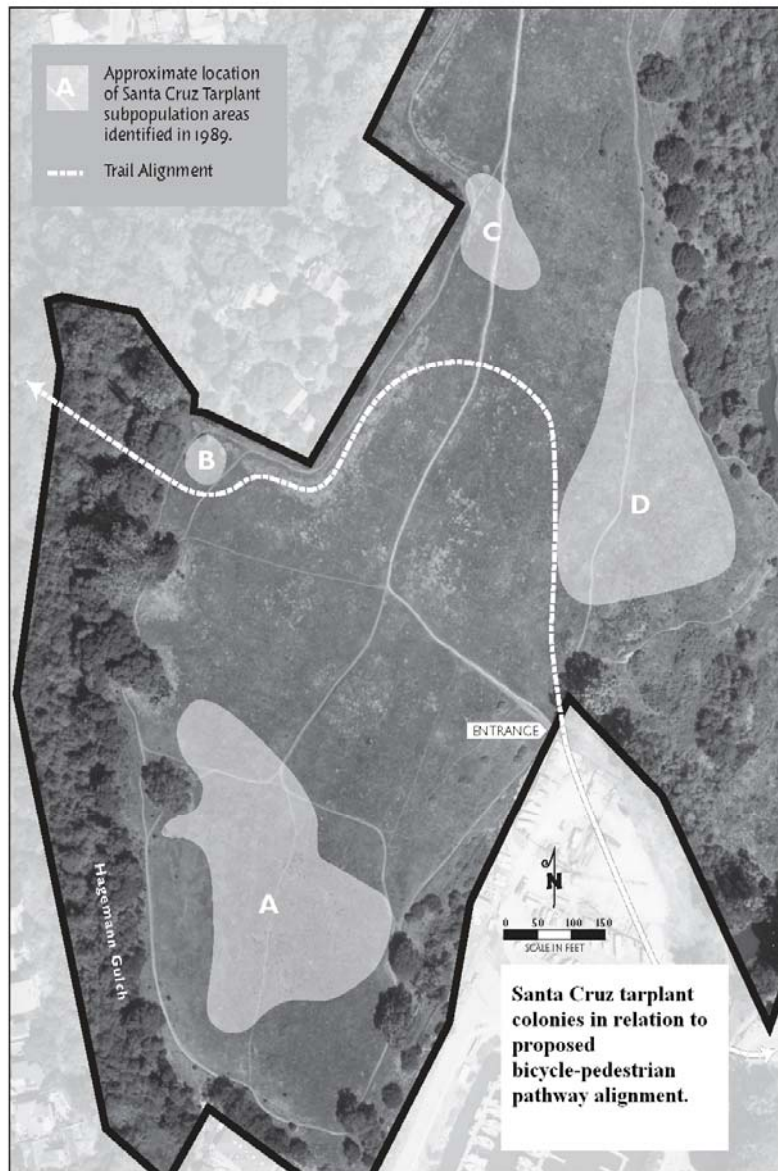
DESCRIPTION OF THE PROPOSED ACTION

The City proposes to construct a paved multi-use bicycle-pedestrian path as an east-west connector between Broadway Street and Brommer Street through the Arana Gulch open space in Santa Cruz, California. The purpose of the path is to provide bicycle commuters with an east-west connection between Broadway Street in the city of Santa Cruz and Brommer Street/7th Avenue in the county of Santa Cruz. Currently, bicycle commuters have the option of using Capitola Road and Soquel Avenue to the north of Arana Gulch, or Murray Street to the south.

Both of these routes carry high vehicle traffic volumes; many accidents have been documented along these two routes.

The proposed trail alignment is designed to avoid the four historic Santa Cruz tarplant colonies or subpopulations within the grassland habitat area of Arana Gulch (Figure 1) and minimize cut and fill along the eastern boundary of the open space, where one of the larger tarplant colonies is

Figure 1. The proposed trail alignment shown in relation to the four Santa Cruz tarplant subpopulations at Arana Gulch open space.



located. Approximately 0.25 mile of trail would be paved through the coastal terrace/grassland area of Arana Gulch. The trail would be an 8-foot wide paved path, with maximum of 2 feet of additional ground disturbance on either side of the path. The trail would be constructed to minimize any changes in hydrology, including site drainage and runoff. To maintain natural surface runoff conditions on the site, the trail design would include out-sloping of the trail to diffuse the runoff downslope and more frequent discharge points that would minimize concentrations. To maintain the natural shallow subsurface flow conditions in the coastal prairie grassland area, the sub-base of the paved trail would be a permeable material.

Current site conditions include a network of unauthorized foot and bicycle trails running throughout the Arana Gulch open space. The City proposes to close these unauthorized trails to public use. The City will implement signage, interpretive displays, and ranger enforcement to ensure visitors remain on designated trails and do not disturb the tarplant population areas. Interpretive signage will be located outside of the tarplant colonies to minimize disturbance to tarplant habitat.

At Hageman Gulch, on the west boundary of the Arana Gulch open space, a 340-foot long by 10-foot wide, single span, stress ribbon bridge would be constructed across the gulch. The stress ribbon bridge would be supported by abutments located at either side of the gulch at the edge of the riparian forest. Cable ribbons would be strung across the span and anchored to each abutment. Precast concrete deck panels would be placed on top of the cable ribbons. Following placement of the precast deck panels, a cast-in-place concrete overlay would be placed on the top and then the cable ribbons would be tensioned. No supports will be constructed within the canyon, and there will be no construction vehicle access required in the canyon.

The City will fully implement the Santa Cruz Tarplant Adaptive Management Program (Pavlik and Espeland 2005), which was part of the approved Arana Gulch Master Plan (2006), as part of their site restoration and conservation efforts for the new paved multi-use pathway. The program would require the establishment of an Adaptive Management Working Group, comprised of qualified botanists and agency representatives, to oversee management actions, surveying, and monitoring of the Santa Cruz tarplant colonies in the Arana Gulch open space. The Santa Cruz Tarplant Adaptive Management Program would incorporate the following elements: 1) active management practices and techniques, including, but not limited to mowing with removal of cut material, prescribed burning, soil disturbance, and removal of invasive non-native plant species; 2) continued experimental research directed toward refining understanding of the management regime that maximizes long-term success of the Santa Cruz tarplant; 3) ongoing monitoring on an annual basis to determine the success of management measures, to monitor the overall well-being of Santa Cruz tarplant colonies on the site, and to identify potential threats to the Santa Cruz tarplant persistence on the site; and, 4) revision of the management prescriptions and remedial actions as appropriate to enhance long-term viability of the Santa Cruz tarplant on the site. A two-tracked program for improving overall habitat quality during the first 7 years would include semi-annual mowing with phytomass removal to reduce annual grass reproduction and cover, and experimental manipulations in designated areas of the Management Area to improve existing and develop new management actions. In subsequent

years, a schedule of management actions would be implemented as directed by the Adaptive Management Working Group. All management activities conducted under the Santa Cruz Tarplant Adaptive Management Program would receive guidance from the Service through representation the Adaptive Management Working Group and would be subject to review by the Service through the standard regulatory process.

Caltrans will ensure the City implements the following measures to reduce impacts to Santa Cruz tarplants:

1. Before any ground disturbance or other project activity work begins within the Arana Gulch open space, a Service-approved biologist will provide training to all project personnel. At a minimum, the training will include a description of the Santa Cruz tarplant and its habitat, the specific measures that are being implemented to conserve the Santa Cruz tarplant, and boundaries within which the project may be accomplished. Brochures, books, and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
2. Prior to construction, temporary plastic mesh fencing will be placed along the trail alignment to prevent impacts outside of the proposed trail alignment and associated areas of disturbance. During construction, the fencing placement will be monitored by City staff or a qualified biologist.
3. No soils, materials, or construction equipment will be stored within the fenced trail corridor.
4. Construction staging and equipment storage will be within the developed area of the Upper Harbor and off-site in the vicinity of the Hageman Gulch bridge crossing. If materials for bridge construction need to be temporarily stored within Arana Gulch, the pre-existing concrete pads near the north boundary will be used. Temporary plastic mesh fencing will be placed around the staging area. Construction equipment access routes and staging areas will be submitted for Service approval prior to the start of construction.
5. Mechanized construction equipment utilized for grading and trail and bridge construction will be the minimum size necessary to complete the work.
6. Any soil that is removed near the historic Santa Cruz tarplant colonies during construction of the paved path will be mechanically scraped so that redistribution of the native soil could occur. Redistribution of the soil will occur under the guidance of a qualified botanist and will be coordinated with the Santa Cruz Tarplant Adaptive Management Program Technical Advisory Group.

STATUS OF THE SPECIES

Santa Cruz Tarplant

The Santa Cruz tarplant was federally listed as threatened on March 20, 2000 (65 FR 14898). Critical habitat for the Santa Cruz tarplant was designated on October 16, 2002 (67 FR 63968).

The Santa Cruz tarplant, an aromatic annual herb in the aster (Asteraceae) family, is one of only four species of *Holocarpha*, which are all geographically restricted to California. The genus name, derived from the Greek *holos* for whole and *karphos* for chaff, refers to the scales found among the florets on the receptacle (the structure that supports the florets in the daisy-like flower head). The plant is rigid, with lateral branches that arise to the height of the main stem, which is 4 to 20 inches tall. The lower leaves are broadly linear and up to 5 inches long. The upper leaves are smaller, with rolled back margins, and are truncated by a distinctive craterform gland. The yellow flower head is surrounded from beneath by individual bracts that have about 25 stout gland-tipped projections. The Santa Cruz tarplant is distinguished from other members of the genus by its numerous ray flowers and black anthers. However, as with all other members of the genus, Santa Cruz tarplant establishes seedbanks. Therefore, sites that support a population of this plant, particularly those that support small populations (fewer than 100 individuals), may not display individuals in any given year, but still have a viable population in other years.

Habitat for the Santa Cruz tarplant historically consisted of grasslands and prairies found on coastal terraces below 330 feet (ft) in elevation, from Monterey County, north to Marin County. In the 1800s, coastal prairies covered an estimated 865,000 acres. This coastal prairie habitat is becoming increasingly fragmented and restricted in distribution. Four major factors contributed to changes in the distribution and composition of coastal prairies: grazing; introduction of highly competitive, nonnative species; elimination of periodic fire; and cultivation. Currently, the California Department of Fish and Game's Natural Diversity Database (CNDDB 2007) lists just over 1,977 acres of high-quality coastal prairie remaining, of which less than 5 percent is Santa Cruz tarplant habitat.

The Santa Cruz tarplant populations occur on the alluvium resulting from the terrace deposits. Typically terrace soils are sandy clay soils; the clay component of these soils holds moisture longer into the growing season compared to the surrounding sandy soils. In the Santa Cruz area, Santa Cruz tarplant exists on the gently sloping terrace platforms that are separated by steep-sided "gulches," whereas in the Watsonville (Santa Cruz County) and Monterey areas, and on the east side of San Francisco Bay, the terraces are more extensively dissected.

Although the Santa Cruz tarplant is historically associated with native herbaceous species and grasses (including other tarplants (*Hemizonia* spp.), needlegrass (*Nasella* sp.) and California oatgrass (*Danthonia californica*)), nonnative grasses, such as wild oats (*Avena fatua*), Mediterranean barley (*Hordeum hystrix*), and bromes (*Bromus* spp.), have invaded its habitat. At some locations, Santa Cruz tarplant is found with other species that may be threatened or endangered, including the Ohlone tiger beetle (*Cicindela ohlone*; federally endangered), San

Francisco popcorn flower (*Plagiobothrys diffusus*; State-listed as endangered), Santa Cruz clover (*Trifolium buckwestiorum*; State-listed as a species of concern), and Gairdner's yampah (*Perideridia gairdneri*). Other locally unique plant species, such as Choris's popcorn flower (*Plagiobothrys chorisianus* var. *chorisianus*), triteleia (*Triteleia ixiodes*), coast coyote thistle (*Eryngium armatum*), and San Francisco gumplant (*Grindelia hirsutula* var. *maritima*) also occur in these areas.

Historically, the Santa Cruz tarplant was known from "low dry fields about San Francisco Bay." Around the San Francisco Bay, herbarium collections were made from Tamalpais in Marin County in 1934; near Berkeley, Oakland, and San Lorenzo in Alameda County as early as 1894; and Pinole in Contra Costa County. All of the native San Francisco Bay area populations have since been extirpated. The last remaining native population, known as the Pinole Vista population, was eliminated in 1993 by a commercial development.

In 1959, Keck noted the species in Santa Cruz County, but also added that the species could possibly be extinct. Fortunately, numerous collections were made from the Monterey Bay area in Santa Cruz County in the late 1950s and early 1960s. In 1966 and 1969, Hoover made the first collection of the species in northern Monterey County, just south of the Santa Cruz County line. Additional populations were found in Monterey County in the subsequent decades, although the lack of specific location noted on herbarium labels makes it difficult to determine exactly how many populations occurred there. According to CNDDDB, nine populations in Santa Cruz and Monterey Counties have been extirpated by development. The most recent extirpation occurred in 1993 when a population in Watsonville (Anna Street site) was destroyed during construction of office buildings and a parking lot.

The Santa Cruz tarplant is currently known from a total of 20 populations; 12 of these are remaining native populations, and 8 are a result of experimental seedings. Eleven of the native populations occur in Santa Cruz County. Six occur around the city of Santa Cruz (Graham Hill Road, Twin Lakes, Arana Gulch, O'Neill/Tan, Winkle, and Fairway), and five occur around the city of Watsonville, scattered from Watsonville Airport to Hall Road (Watsonville Airport, Harkins Slough, Apple Hill, Struve Slough, and Spring Hills Golf Course). Only one population (Porter Ranch) occurs in Monterey County, just south of the Santa Cruz County line and the city of Watsonville. As stated earlier, there are years where few or no plants are present on a site, but a viable population is still probable due to the established seedbank.

The other eight existing populations of the Santa Cruz tarplant have resulted from experimental planting of seeds in Wildcat Regional Park in the east San Francisco Bay area. The names of the eight populations are as follows: Big Belgum, Big Belgum West, Upper Belgum, Mezue, Fowler, Nimitz Way, Upper Havey, and Lower Sather.

Santa Cruz tarplant seeds germinate in the fall after the first significant rainfall. Plants form a basal rosette of leaves that bolts from April to June. Flowering occurs from June to November, with seed maturation by late fall. Dispersal has been recorded to reach up to approximately 1.5 ft from the parent plant by air, and possibly much further assisted by small rodents (Hayes 2002).

The Santa Cruz tarplant is self-incompatible and therefore dependent upon outcrossing for seed production. Pollination requires pollinator intervention. Sixteen species of insects, including native bees, wasps, and flies, have been identified as floral visitors (Hayes 2003). Typical flight distance for these species is estimated at one-third of a mile (67 FR 63968), but it is not known with certainty. As an annual, Santa Cruz tarplant is completely dependent upon reproduction and the formation of a seed bank for population viability. Seed bank longevity has been variously estimated as 5 to 15 years (CDFG 1995; Pavlik and Espeland 2005). According to one report, seeds germinated after 6 to 9 years of storage at room temperature (Morey 1995 as cited in Pavlik and Espeland 2005).

The Santa Cruz tarplant is threatened primarily by historic and recent habitat alteration and destruction caused by residential and commercial development. Future loss of habitat may also result from recreational development, airport expansion, and agriculture. Occupied habitat that has been set aside in preserves, conservation easements, and open spaces also suffers secondary impacts from casual use by residents, introduction of nonnatives (e.g., French broom (*Genista monspessulana*), eucalyptus (*Eucalyptus* spp.), acacia (*Acacia decurrens*, *A. melanoxylon*), artichoke thistle (*Cynara cardunculus*), and grass species), and changes in hydrology; problems that are all exacerbated by the lack of management plans. In addition, smaller preserve areas with Santa Cruz tarplant suffer because they are cut off from the ecosystem functions that would be present in larger, more contiguous sites. More often, these smaller areas are left as open spaces, but without the benefit of the grassland management needed to sustain them. Finally, random disturbance, including unseasonable fires or a drought event, also threatens small populations of this species. Probability of population extirpation increases as the number of individuals and the area of habitat decrease.

With many Santa Cruz tarplant populations showing declining numbers, several management practices have been explored to promote short- and long-term population growth. Disturbance of the ground surface and control of non-native annual grasses are essential to the population health of Santa Cruz tarplant (Bainbridge 2003; Hayes 2002; Pavlik and Espeland 2005). Mowing and raking, grazing, fire, and scraping have been found to be successful for stimulating Santa Cruz tarplant expression and reproduction at the Arana Gulch and Watsonville Airport populations. From 1989 to 1995, following cessation of grazing, the Santa Cruz tarplant population at Arana Gulch declined from approximately 100,000 individuals to zero (Hayes 1998). Following scraping of the surface, the population rebounded in one growing season to 7,420. In the next 2 years, with the intervention of fire, it increased to 65,000 (Pavlik and Espeland 2005). Mowing and grazing have been used to stimulate and maintain expression of Santa Cruz tarplant at Arana Gulch and Watsonville Airport (Bainbridge 2003; Kiguchi 2003). Mowing combined with raking removes clipped material and accumulated thatch, exposing more soil surface, which may increase germination rates (Holl and Hayes 2006). In their management plan for the Arana Gulch tarplant population, Pavlik and Espeland (2005) suggest that scraping and fire may be considered as catastrophic management measures due to the large impact they have on soil characteristics and recommend using these two methods only when it is suspected that the seed bank is nearing the end of its longevity. The authors consider mowing and grazing to be sustainable and appropriate methods of restoring and maintaining Santa Cruz tarplant

populations.

Critical Habitat for the Santa Cruz Tarplant

Critical habitat for the Santa Cruz tarplant was designated on October 16, 2002 (67 FR 63968). The critical habitat encompasses 2,902 acres in Contra Costa, Monterey, and Santa Cruz Counties, California.

In accordance with section 3(5)(A)(i) of the Act and regulations at 50 CFR 424.12, in determining which areas to designate as critical habitat, we consider those physical and biological features (primary constituent elements) that are essential to the conservation of the species, and within areas occupied by the species at the time of listing, that may require special management considerations and protection. These include, but are not limited to: space for individual and population growth and for normal behavior; food, water, air, light, minerals, or other nutritional or physiological requirements; cover or shelter; sites for breeding, reproduction, and rearing (or development) of offspring; and, habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

For critical habitat of the Santa Cruz tarplant, we identified the following features essential to the conservation of the species: soils associated with coastal terrace prairies, including the Watsonville, Tierra, Elkhorn, Santa Inez, and Pinto series; plant communities that support associated species, including native grasses such as needlegrass (*Nassella* sp.) and California oatgrass (*Danthonia californica*); native herbaceous species such as members of the genus *Hemizonia* (other tarplants), Gairdner's yampah, San Francisco popcorn flower, and Santa Cruz clover; and physical processes, particularly soils and hydrologic processes, that maintain the soil structure and hydrology that produce the seasonally saturated soils characteristic of Santa Cruz tarplant habitat.

The Service designated critical habitat for the Santa Cruz tarplant consists of 11 units divided into 3 major geographic areas entitled Santa Cruz-Soquel Area Unit, Watsonville Area Unit, and the East Bay Area Unit (67 FR 63968). The Santa Cruz-Soquel Area includes six critical habitat units (B through H), totaling approximately 287 acres. The project-specific critical habitat unit is described in greater detail in the Environmental Baseline section of this document.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) define the action area of a consultation as the area that may be directly or indirectly affected by the proposed action (50 Code of Federal Regulations 402.02). For the purposes of this biological opinion, we consider the action area to include all areas where people and equipment would be working or staging. Based upon the information provided to us, we identify the action area as follows: the entirety of the 67-acre Arana Gulch open space.

Santa Cruz Tarplant

The Arana Gulch open space is located within the Santa Cruz city limits. The property is bounded on the west, east, and north sides by existing development and on the south side by the Santa Cruz Harbor. Huge population fluctuations have occurred on this site, ranging from 100,000 individuals in the late 1980s when the site was being grazed by cattle, to no plants in 1995 (K. Lyons, in litt. 2001). The City entered into a Memorandum of Understanding with the CDFG in 1997 to manage the Santa Cruz tarplant, which includes utilizing a variety of management techniques to enhance the population.

From 2000 to 2006, the number of individual plants ranged between 0, in 2006, and 10,230, in 2002. The annual totals are likely influenced by rainfall and other meteorological conditions, but in general appear to be in decline following the cessation of grazing at the site. Four primary sub-populations or colonies of Santa Cruz tarplant, identified as A, B, C, and D, have been mapped within the Arana Gulch open space (Figure 1). Colony A, the southernmost of the four colonies, has historically been the largest colony, representing 98.7 percent of the individuals counted in the Arana Gulch open space since 2000. Colony D, along the eastern boundary of the open space, has historically been the second largest colony. Colony B occurs along the western boundary of the open space, near Hageman Gulch and Colony C occurs along the northeastern boundary of the open space. Colonies B and C are the smallest sub-populations, with no plants being documented on either colony since 2000 and only 5 plants in B and 20 plants in C in 1998.

Status of Critical Habitat in the Action Area

The action area for the proposed project is within designated critical habitat for the Santa Cruz tarplant (67 FR 63968), and includes the entirety of critical habitat Unit-D (Arana Gulch Unit). The Arana Gulch Unit comprises approximately 65 acres (or 2.2 percent) of the approximately 2,902 acres of total habitat designated as critical habitat for the Santa Cruz tarplant. Unit-D is mapped from occurrence records at the time of listing and subsequent to the time of listing. The entire unit is on lands owned and managed by the City of Santa Cruz. It is bounded on the west, east, and north sides by existing development and on the south side by the Santa Cruz Harbor.

The Arana Gulch Unit is essential because it currently supports a population of Santa Cruz tarplant and because it is one of only seven populations in the cluster of populations that are found on the northern end of Monterey Bay. This unit and the Twin Lakes Unit occur at the lowest elevation of the native populations in the northern Monterey Bay area (40 to 60 ft) and are consequently the closest to the influence of the coastal climate. Moreover, these two units are within one-half mile of each other and therefore could retain connectivity between them. It is also essential for the recovery of the species because current management by the City has allowed this site to support the third largest standing native population of tarplant. Therefore, it contributes significantly to the seed bank reserve for the species and is large enough to support management activities that may be necessary to maintain the population at this site.

EFFECTS OF THE ACTION

Santa Cruz Tarplant

Activities conducted within the proposed project area that could directly or indirectly adversely affect the Santa Cruz tarplant include ground clearance, cut-and-fill activities, paving, mowing, scraping, and non-native species removal. The potential effects associated with these activities include crushing, cutting, or otherwise injuring and killing of plants and/or seeds (through mechanical or foot traffic), surface disturbance and soil compaction, and erosion and/or changes in the hydrology.

Construction of the paved pathway could result in injury or death of individual Santa Cruz tarplants through mechanical or foot traffic if workers travel outside of designated work areas. These effects will be minimized by fencing off the project area using temporary fencing to avoid traffic outside of approved areas. A worker education program will be conducted prior to the start of construction to ensure that all project personnel are aware of the Santa Cruz tarplant and its sensitive habitat areas.

Construction of the paved path could alter subsurface water flow, thereby impacting hydrology at the Santa Cruz tarplant colony sites. This effect will be reduced through the use of a permeable base for the paved path, which would allow normal subsurface water flow to continue.

Construction of a paved multi-purpose path is likely to increase public activity in the area. Unauthorized off-trail access in the vicinity of the Santa Cruz tarplant colonies could result in trampling or other forms of injury to individual plants. The Arana Gulch open space is regularly used by people walking their dogs. Although dogs are required to be on leashes, the City has frequently observed dogs off leash. Off-leash dogs could damage plants or disrupt the seed bank by digging within the Santa Cruz tarplant colonies. The effects of increased public activity will be reduced through the closure of the currently existing unauthorized trails, the installation of informational placards and signs, and enforcement by rangers or other City authorities.

Adaptive management program activities conducted within the proposed project area that could directly or indirectly adversely affect the Santa Cruz tarplant include mowing, scraping, and non-native species removal. The potential effects associated with these activities include crushing, cutting, or otherwise injuring and killing of plants and/or seeds (through mechanical or foot traffic). These potential effects will be reduced or avoided by forming an Adaptive Management Working Group, which will design and implement monitoring programs to evaluate progress and adaptively direct management to maximize the benefit to the four colonies of Santa Cruz tarplant at Arana Gulch. The working group will use qualified biologists to conduct or oversee all management activities.

The anticipated beneficial effects of the Adaptive Management Program include reduction in competition from non-native species and augmentation of Santa Cruz tarplant numbers, possibly

reversing the current negative population trend. Mowing and hand-removal of non-native plants could reduce competition on the Santa Cruz tarplant. Soil scraping could replenish the seed bank and encourage new plant growth. The long-term benefits of the proposed management actions are anticipated to outweigh the potential negative effects.

In summary, we expect that the adverse effects to Santa Cruz tarplant from the proposed project activities would be minor because: 1) the proposed trail alignment avoids all known Santa Cruz tarplant colonies within the project area; 2) Caltrans and the City proposed measures to minimize the adverse effects to Santa Cruz tarplant and its critical habitat from the project activities; and, 3) implementation of the Santa Cruz Tarplant Adaptive Management Program is expected to benefit the Arana Gulch population through habitat enhancement and removal of non-native species.

Santa Cruz Tarplant Critical Habitat

Constructing the proposed bicycle-pedestrian pathway at the Arana Gulch open space would adversely affect approximately 65 acres of designated critical habitat for Santa Cruz tarplant. The project would directly affect approximately 0.4 acre of critical habitat through the construction of the paved pathway. The remainder of the 65 acres of critical habitat at Arana Gulch could be indirectly affected by project activities.

The proposed trail alignment and its associated areas of potential disturbance contain one or more of the PCEs for this species and the construction of a paved pathway could alter PCEs in the project area. Soil compaction caused by the paved pathway could alter subsurface water flow, which would adversely affect the hydrologic processes that maintain the soil structure and hydrology that produce the seasonally saturated soils characteristic of Santa Cruz tarplant habitat. This impact will be minimized by using a permeable base for the pathway, which will allow normal subsurface water flow to continue.

We anticipate that the Santa Cruz Tarplant Adaptive Management Program will benefit the PCEs for Santa Cruz tarplant critical habitat within the Arana Gulch open space. The adaptive management program incorporates removal of non-native invasive plant species. This management activity could benefit the project area's plant community that supports native species associated with the Santa Cruz tarplant.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. At this time, we are unaware of any non-federal actions that are reasonably certain to occur in the action area.

CONCLUSION

After reviewing the current status of Santa Cruz tarplant and its critical habitat, the environmental baseline for the action area, the effects of the proposed Broadway-Brommer Bicycle-Pedestrian Path project and the cumulative effects, it is our biological opinion that Caltrans' proposed funding of this activity is not likely to jeopardize the continued existence of the Santa Cruz tarplant or adversely modify its critical habitat.

We have reached these conclusions because:

1. Caltrans and the City have proposed a trail alignment that will avoid the Santa Cruz tarplant colonies within Arana Gulch;
2. The direct impacts of the project would only affect approximately 0.4 acre of the 65 acres of critical habitat at Arana Gulch;
3. Caltrans and the City have proposed measures to reduce the adverse effects of the proposed work on the Santa Cruz tarplant and its critical habitat;
4. The project may benefit the Santa Cruz tarplant and its critical habitat by improving Santa Cruz tarplant habitat quality at Arana Gulch through the implementation of the Santa Cruz Tarplant Adaptive Management Program.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act does not address the incidental take of listed plant species. Consequently, this biological opinion does not include an incidental take statement, reasonable and prudent measures, or terms and conditions for Santa Cruz tarplant. However, protection of listed plants is provided in that the Act requires a Federal permit for the removal or reduction to possession of endangered or threatened plants from Federal lands. Furthermore, it is unlawful for any person to remove, cut, dig up, or damage or destroy a listed plant species in knowing violation of any law or regulation of any state or in the course of any violation of a state criminal trespass law [section 9(a)(2)(B) of the Act].

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. To further the conservation of the Santa Cruz tarplant,

Caltrans should:

Support efforts to raise public awareness of the threat of non-native vegetation to native species and methods to manage this threat.

REINITIATION NOTICE

This concludes formal consultation on the Broadway-Brommer Pedestrian-Bicycle Path project at Arana Gulch. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (2) the agency action is subsequently modified in a manner that causes an effect to the listed species not considered in this opinion; or (3) a new species is listed or critical habitat designated that may be affected by the action.

If you have any questions, please contact Douglass Cooper of my staff at (805) 644-1766, extension 272.

Sincerely,

S:/ Jacob Martin
for
David M. Pereksta
Assistant Field Supervisor

cc:

Dominic Hoang, Federal Highways Administration
Tom Edell, California Department of Transportation
Donn Miyahara, California Department of Transportation

LITERATURE CITED

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