

resume implementation of its previously approved pretreatment program if the Approval Authority determines that the primary objectives of the Local Pilot Pretreatment Program are not being met or the "Project XL" agreement expires or is otherwise terminated.

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AF89

Endangered and Threatened Wildlife and Plants; Endangered Status for the Ohlone Tiger Beetle (*Cicindela ohlone*)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered status pursuant to the Endangered Species Act (Act) of 1973, as amended, for the Ohlone tiger beetle (*Cicindela ohlone*). This species is endemic to Santa Cruz County, California, and is threatened by habitat fragmentation and destruction due to urban development, habitat degradation from invasion of nonnative vegetation, and vulnerability to local extirpations from random natural events. This final rule extends the Federal protection and recovery provisions of the Act to this species.

DATES: This final rule is effective October 3, 2001.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service, 2493 Portola Road, Suite B, Ventura, California 93003.

FOR FURTHER INFORMATION CONTACT: Colleen Sculley, Fish and Wildlife Biologist, Ventura Fish and Wildlife Office, at the above address (telephone 805/644-1766; facsimile 805/644-3958).

SUPPLEMENTARY INFORMATION:

Background

The Ohlone tiger beetle (*Cicindela ohlone*) is a member of the Coleopteran family Cicindelidae (tiger beetles), which includes over 2,000 species worldwide and over 100 species in the United States (Pearson and Cassola 1992). Tiger beetles are day-active, predatory insects that prey on small arthropods. Because many tiger beetles

often feed on insect species that are injurious to man and crops, they are regarded as beneficial (Pearson and Cassola 1992; Nagano 1982). Adult tiger beetles are medium-sized, elongate beetles that can have a brilliant metallic green, blue, red, and yellow coloration highlighted by stripes and spots. Alternatively, they can be brown, black or dull colored (Knisley and Shultz 1997). Adults are ferocious, swift, and agile predators that seize small prey with powerful sickle-shaped jaws.

Tiger beetle larvae are also predatory. They live in small vertical or slanting burrows from which they lunge at and seize passing invertebrate prey (Essig 1926; Essig 1942; Pearson 1988). The larva grasps the prey with its strong mandibles (mouthparts) and pulls it into the burrow; once inside the burrow, the larva will feed on the captured prey (Essig 1942; Pearson 1988). Tiger beetles share similar larval body forms throughout the world (Pearson and Cassola 1992). The larvae, either white, yellowish, or dusky in coloration, are grub-like and fossorial (subterranean), with a hook-like appendage on the fifth abdominal segment that anchors the larvae inside their burrows.

Tiger beetle larvae undergo three instars (larval development stages). This period can take 1 to 4 years, but a 2-year period is the most common (Pearson 1988). After mating, the tiger beetle female excavates a hole in the soil and oviposits (lays) a single egg (Pearson 1988; Kaulbars and Freitag 1993; Grey Hayes, pers. comm. 1998). Females of many species of *Cicindela* are extremely specific in choice of soil type for oviposition (egg laying) (Pearson 1988). It is not known at this time how many eggs the Ohlone tiger beetle female lays, but other species of *Cicindela* are known to lay between 1 and 126 eggs per female (C. Barry Knisley, Randolph-Macon College, *in litt.* 2000). After the larva emerges from the egg and becomes hardened, it enlarges the chamber that contained the egg into a tunnel (Pearson 1988). Before pupation (transformation process from larva to adult), the third instar larva will plug the burrow entrance and dig a chamber. After pupation in this chamber, the adult tiger beetle will dig out of the soil and emerge. Reproduction may either begin soon after emergence or be delayed (Pearson 1988).

Tiger beetles are a well-studied taxonomic group with a large body of scientific literature; the journal *Cicindela* is devoted exclusively to tiger beetles. Scientists have studied the diversity and ecological specialization of tiger beetles, and amateur collectors have long been attracted by their bright

coloration and swift movements. Tiger beetle species occur in many different habitats, including riparian habitats, beaches, dunes, woodlands, grasslands, and other open areas (Pearson 1988; Knisley and Hill 1992). A common habitat component appears to be open sunny areas for hunting and thermoregulation (an adaptive behavior to use sunlight or shade to regulate body temperature) (Knisley *et al.* 1990; Knisley and Hill 1992). Individual species of tiger beetle are generally highly habitat-specific because of oviposition and larval sensitivity to soil moisture, composition, and temperature (Pearson 1988; Pearson and Cassola 1992; Kaulbars and Freitag 1993).

The Ohlone tiger beetle is endemic to Santa Cruz County, California, where it is known only from coastal terraces supporting remnant patches of native grassland habitat. Specimens of this species were first collected northwest of the City of Santa Cruz, California, in 1987, and were first described in 1993 (Freitag *et al.* 1993). Both male and female specimens have been collected.

The adult Ohlone tiger beetle is a relatively small beetle measuring 9.5 to 12.5 millimeters (mm) (0.37 to 0.49 inches (in)) long. The adults have large, prominent eyes and metallic green elytra (leathery forewings) with small light spots (Freitag *et al.* 1993). Their legs are long, slender, and coppery-green. Freitag *et al.* (1993) describe features that distinguish this species from closely related species of *Cicindela purpurea* and other *purpurea* group taxa.

Two principal distinguishing features of the Ohlone tiger beetle are its early seasonal adult activity period and its disjunct distribution. While other tiger beetle species, such as *Cicindela purpurea*, are active during spring, summer, or early fall (Nagano 1982; Freitag *et al.* 1993), the Ohlone tiger beetle is active from late January to early April (Freitag *et al.* 1993). The Ohlone tiger beetle is the southernmost of *purpurea* group species in the Pacific Coast region; its distribution is allopatric (geographically separated) to those of similar species (Freitag *et al.* 1993).

Ohlone tiger beetle larvae are currently undescribed. However, tiger beetle burrows, measuring 4 to 6 mm in diameter (0.16 to 0.23 in), were found in the same habitat areas where adult Ohlone tiger beetles were collected (David Kavanaugh, California Academy of Sciences, pers. comm. 1997; Vince Cheap, *in litt.* 1997). The surface openings of these burrows are circular and flat with no dirt piles or mounds surrounding the circumference (Kim

Touneh, Service, pers. obs. 1997). These burrows are similar to larval burrows belonging to other tiger beetle species. Larvae and inactive adults have been excavated from these burrows, and the inactive adults collected from these burrows were fully mature and easily identified as Ohlone tiger beetles (D. Kavanaugh, pers. comm. 1997; V. Cheap, *in litt.* 1997). Based on these collections, Kavanaugh (pers. comm. 1997) concluded that the larvae found in these burrows were Ohlone tiger beetle larvae. Further investigations of these recently collected larvae are being conducted to scientifically characterize and document the morphology of the Ohlone tiger beetle larvae (D. Kavanaugh, pers. comm. 1997).

Ohlone tiger beetles are found in association with coastal terrace prairies, which are often characterized by the presence of California oatgrass (*Danthonia californica*) and purple needlegrass (*Stipa pulchra*). The substrate is shallow, pale, poorly drained clay or sandy clay soil that bakes to a hard crust by summer, after winter and spring rains cease (Freitag *et al.* 1993). Ohlone tiger beetle habitat is associated with either Watsonville loam or Bonnydoon soil types in Santa Cruz County. Soil core analyses were conducted for three of the sites known to be occupied by the Ohlone tiger beetle; the soil types for these three sites were determined to be either Watsonville loam or Bonnydoon (Richard Casale and Ken Oster, Natural Resources Conservation Service, pers. comm. 1997).

Adult Ohlone tiger beetles are found more often on level or nearly level slopes along trails (e.g., foot paths, dirt roads, and bicycle paths) that are adjacent to or near remnant patches of native grassland on coastal terraces. Adults will also utilize barren areas among low or sparse vegetation within the grassland. Ohlone tiger beetles require these open areas for construction of larval burrows, thermoregulation, and foraging (C.B. Knisley, *in litt.* 2000; Colleen Sculley, Service, pers. obs. 2000). The density of larval burrows decreases with increasing vegetation cover (G. Hayes, *in litt.* 1997). When disturbed, adults will fly to more densely vegetated areas (Freitag *et al.* 1993; Richard Arnold, consultant, pers. comm. 1995). Oviposition by females and subsequent larval development also occur in this coastal prairie habitat (i.e., open areas among native vegetation) (D. Kavanaugh, pers. comm. 1997; V. Cheap, *in litt.* 1997).

The historic range of the Ohlone tiger beetle cannot be precisely assessed

because the species was only recently discovered, and no historic specimens or records are available. The earliest specimen recorded was collected from a site northwest of the City of Santa Cruz in 1987 (Freitag *et al.* 1993). Based on available information on topography, substrates, soils, and vegetation, it is likely that suitable habitat for the Ohlone tiger beetle was more extensive and continuous prior to the increase in urban development and agriculture. Historically, potentially suitable habitat may have extended from southwestern San Mateo County to northwestern Monterey County, California (Freitag *et al.* 1993). However, we have no evidence or data indicating that this species occurred beyond the present known occupied areas of Santa Cruz County. Currently, the extent of potentially suitable habitat for the Ohlone tiger beetle is estimated at 81 to 121 hectares (ha) (200 to 300 acres (ac)) in Santa Cruz County, California (Freitag *et al.* 1993).

The available data indicate a restricted range and limited distribution of the Ohlone tiger beetle. This finding is supported by the following considerations. First, many tiger beetle species are known to be restricted to specific habitats (Pearson 1988; Knisley and Hill 1992; Pearson and Cassola 1992), such as the open native grassland occupied by the Ohlone tiger beetle. Second, tiger beetles are widely collected and well-studied, yet no historic specimens were found in the extensive collections of the California Academy of Sciences, the University of California, Berkeley or the University of California, Davis (Freitag *et al.* 1993; D. Kavanaugh, pers. comm. 2000). The Ohlone tiger beetle's specialized habitat and restricted range may account for the absence of collection records prior to 1987. Because *Cicindela* is a very popular insect genus to collect (Chris Nagano, Service, pers. comm. 1993), and because entomologists commonly collect out of season and out of known ranges in order to find temporally and spatially outlying specimens, we expect more specimens would have been collected if the Ohlone tiger beetle were more widespread and common.

Three researchers conducted surveys that assess the current distribution and status of the Ohlone tiger beetle. Between 1990 and 1994, a researcher surveyed 14 sites with native grassland habitat from southwestern San Mateo County to southern Santa Cruz County for Ohlone tiger beetles. Six additional locations supporting nonnative grasslands, but which appeared otherwise suitable, were also surveyed. Surveys were conducted from February

to April, when Ohlone tiger beetles are active. This work documented the presence of the Ohlone tiger beetle from sites located northwest of the City of Soquel, within the City of Scotts Valley, west of the City of Santa Cruz, and northwest of the City of Santa Cruz (Randall Morgan, *in litt.* 1994).

A second researcher surveyed for populations of Ohlone tiger beetles in coastal grasslands from southern San Mateo County to northern Monterey County during the adult activity period in 1995. Researchers visited sites repeatedly through the Ohlone tiger beetle's season of activity. Results of these surveys confirmed the presence of Ohlone tiger beetles in the 4 geographic areas identified previously and identified a new site northwest of the City of Santa Cruz that was occupied by the Ohlone tiger beetle (G. Hayes, *in litt.* 1997).

A local consultant conducted additional surveys for the Ohlone tiger beetle between 1994 and 2000 in approximately 22 locations on private lands that were not surveyed during 1990 to 1995. These surveys all occurred within the County of Santa Cruz in the vicinity of the communities of Scotts Valley, Santa Cruz, Davenport, Soquel, Capitola, and Aptos (R. Arnold, pers. comm. 2000). In 2000, the surveyor found one new site occupied by adults of the Ohlone tiger beetle and a second site with potential larval burrows. Both sites are located west of the City of Santa Cruz in close proximity to other sites known to be occupied by the Ohlone tiger beetle.

In total, we are aware of 60 sites that have been surveyed for the Ohlone tiger beetle in Santa Cruz, San Mateo, and Monterey counties. Based on the results of these survey efforts and the above considerations, we conclude that the Ohlone tiger beetle is restricted to remnant patches of native grassland on coastal terraces in the mid-county portion of coastal Santa Cruz County, California.

The proposed rule described five locations inhabited by the Ohlone tiger beetle. At the time of the proposed rule, the available data indicated that Ohlone tiger beetles were isolated geographically in each of these locations, and thus they were considered distinct populations. Since the publication of the proposed rule, we have received new information about additional areas occupied by the Ohlone tiger beetle. Furthermore, we have conducted a more extensive review of potential habitat linking these populations. Based on this new information, we believe there is evidence indicating that genetic

exchange may occur between several known locations of Ohlone tiger beetles defined in the proposed rule as distinct populations. Until data on the dispersal capability and genetic relatedness among Ohlone tiger beetles from varying locations are available, we cannot conclusively delineate populations of the Ohlone tiger beetle. Therefore, we will refer to Ohlone tiger beetles from the geographic areas where they occur and not as distinct populations.

The Ohlone tiger beetle is known from 4 narrow geographic areas within the County of Santa Cruz: northwest of the City of Soquel, within the City of Scotts Valley, west of the City of Santa Cruz, and northwest of the City of Santa Cruz. The Ohlone tiger beetle is known from 11 properties within these 4 areas. The abundance of individuals in each of these areas is unknown. However, the Ohlone tiger beetle is known to occur on less than 2 ha (5 ac) of land in each of these 4 areas (G. Hayes, pers. comm. 1995; C. Sculley pers. obs. 1999, 2000). All of these known locations of the Ohlone tiger are on coastal terraces that support remnant stands of native grassland. These 4 areas are described below:

The Ohlone tiger beetle occupies one parcel of private property northwest of the City of Soquel at 60 to 90 meters (m) (200 to 295 feet (ft)) elevation.

The beetle is known from one parcel of private property within the City of Scotts Valley at 210 m (690 ft) elevation. Potential burrows of the Ohlone tiger beetle were detected on a second parcel in the City of Scotts Valley in 1997 (Biotic Resources Group 1999), but adults were not detected at this site during surveys in 2000 (Dana Bland, pers. comm. 2000). The presence of the species at this second site is uncertain.

The Ohlone tiger beetle is known from five parcels located west of the City of Santa Cruz at 110 m (360 ft) elevation. One parcel is owned by the City of Santa Cruz, and the University of California, Santa Cruz (University) owns a second parcel. The third and fourth parcels are under private ownership. Potential burrows of the Ohlone tiger beetle have been found on a fifth property that is under private ownership; surveys for adults necessary to confirm the presence of the Ohlone tiger beetle have not been conducted at this site. All five of these properties are contiguous. Potential habitat for the Ohlone tiger beetle may link some of these areas occupied currently by the Ohlone tiger beetle (C. Sculley, pers. obs. 2000). We are uncertain if there is gene flow between these different parcels.

Ohlone tiger beetles are located northwest of the City of Santa Cruz between 110 m (360 ft) and 340 m (1,115 ft) elevation on properties owned by the University, the California Department of Parks and Recreation (CDPR), and the City of Santa Cruz (Freitag *et al.* 1993; R. Morgan, *in litt.* 1994; G. Hayes, *in litt.* 1997). These properties are contiguous as well, although Ohlone tiger beetles may be isolated on each property because habitat for the beetle is not continuous between parcels. Adult Ohlone tiger beetles were detected on the parcel owned by CDPR in 1997 (G. Hayes, *in litt.* 1999); however, no adults were detected in surveys conducted in 2000 (George Gray, CDPR, pers. comm. 2000). The status of the species on this parcel is uncertain.

Previous Federal Action

On February 18, 1993, we received a petition from Randall Morgan of Soquel, California, requesting that we add the Ohlone tiger beetle to the list of threatened and endangered species pursuant to the Act. The petition contained information indicating that the Ohlone tiger beetle has a limited distribution and specialized habitat requirements and was threatened by proposed development projects and recreational activities. Our 90-day petition finding, published in the **Federal Register** on January 27, 1994 (59 FR 3330), determined that substantial information was presented in the petition indicating that listing may be warranted. Our 12-month petition finding, published on March 1, 1996, in the **Federal Register** (61 FR 8014), concluded that listing was not warranted due to the lack of life history information and survey data to conclusively determine that the beetle is restricted to the described habitat.

On April 30, 1997, we received a second petition from Grey Hayes of Santa Cruz, California, to emergency-list the Ohlone tiger beetle as an endangered species under the Act. The petition specified endangered status because of the beetle's limited distribution and threats from proposed development projects, invasion of nonnative plants, and recreational activities. Based on the information provided by the petitioner, and additional information gathered since the first petition in 1993, we determined that emergency-listing the Ohlone tiger beetle was not required but that listing of this species as endangered is warranted. Therefore, in our most recent Notice of Review, published on October 25, 1999 (64 FR 57534), we included the Ohlone tiger beetle as a candidate species. Candidate species are

those species for which listing is warranted but precluded by other pending listing actions, in accordance with section 4(b)(3)(B)(iii) of the Act. On February 11, 2000, we published a proposed rule in the **Federal Register** (65 FR 6952) to list the Ohlone tiger beetle as endangered. We have updated this final rule to reflect new information concerning changes in distribution, status, and threats since publication of the proposed rule.

Summary of Comments and Recommendations

In the February 11, 2000, proposed rule, we requested interested parties to submit factual reports or information that might contribute to the development of a final listing decision. We contacted appropriate Federal agencies, State agencies, county and city governments, scientists, and other interested parties to request information and comments. We solicited independent review of the proposed rule by three peer reviewers. We published newspaper notices in the Santa Cruz Sentinel and San Jose Mercury News on February 17, 2000, and March 4, 2000, respectively. The comment period closed on April 11, 2000. We did not receive any requests for a public hearing during the comment period.

During the comment period, we received 19 comment letters, including 3 letters from peer reviewers. Fifteen commenters supported the proposal, one provided neutral comments, and three were opposed to the proposal. Several commenters provided additional information that, with other clarifications, has been incorporated into the sections titled "Background" and "Summary of Factors" of this final rule.

Comments of a similar nature or point regarding the proposed rule have been grouped into issues and are discussed below.

Issue 1: One commenter questioned whether the Ohlone tiger beetle is actually a distinct species of tiger beetle rather than an already-identified subspecies of tiger beetle. The commenter further suggested that the authors of the scientific paper that described this species (Freitag *et al.* 1993) raised this possibility as well. Finally, the commenter expressed concern that a "taxonomic differentiation" of the Ohlone tiger beetle has not been conducted using "currently available testing methods."

Our Response: In general, we recognize taxonomic determinations that are published in peer-reviewed journals and are accepted by the

scientific community. The description of the Ohlone tiger beetle was published in the *Coleopterists' Bulletin*, a peer-reviewed scientific journal (Freitag *et al.* 1993). The authors of this publication noted that at first they thought the specimens from Santa Cruz County might have represented an unusual form of a species of tiger beetle described previously. After careful examination, the authors detected differences between the external form and structure and the genitalia of males and females of adult Ohlone tiger beetles and other closely related species of tiger beetles. They determined that these differences "were at least as great" as typically found between closely related, but distinct species. They described the species based on distinguishing morphological characteristics, geographical and habitat distribution, life history, and phylogenetic relationships. Thus, the authors determined that the Ohlone tiger beetle is a new and distinct species of tiger beetle.

None of the peer reviewers, all of whom specialize in the study of tiger beetles, questioned the validity of this finding. We received no comments from other tiger beetle experts expressing concern or uncertainty about the validity of the Ohlone tiger beetle being a distinct species.

We are uncertain what the commenter considers to be "currently available testing methods." Therefore, we cannot comment on whether these methods have been conducted. However, we have concluded that the analyses conducted by Freitag *et al.* (1993) are adequate to conclude that the Ohlone tiger beetle is a distinct species, based on comparative morphological evidence, and that this analysis has been validly published (published in a peer-reviewed scientific journal), and accepted by the scientific community.

Issue 2: Several commenters questioned the level of survey effort that was conducted to determine the range, distribution, and frequency of occurrence of the Ohlone tiger beetle. One commenter asked whether surveys have been conducted on all sites with suitable habitat and whether the surveys were conducted at the appropriate time of year. Another commenter requested that independent studies be conducted to determine if the habitat is as restricted as proclaimed.

Our Response: The final rule describes the extent of surveys that have been conducted for the Ohlone tiger beetle at the present time. All of these surveys, unless otherwise noted, were conducted by qualified field biologists during the proper time of year and time

of day (i.e., on warm, sunny days during the months of February to April) when adult Ohlone tiger beetles could reasonably be expected to be active, evident, and identifiable. Surveys were conducted using systematic field techniques and were well documented.

Survey locations included grasslands in San Mateo, Santa Cruz, and Monterey counties. At least 60 sites have been surveyed, and Ohlone tiger beetles have been found on 11 properties in 4 narrow geographic areas in Santa Cruz County. Many of the sites surveyed by Randall Morgan between 1990 and 1994, and Grey Hayes in 1995, were lands under public ownership. Most of the sites surveyed by Dr. Richard Arnold between 1994 and 2000 were under private ownership.

As a result of private landowners restricting access and volunteer surveyors having time limitations, not all sites that may provide potential habitat for the Ohlone tiger beetle have been surveyed. We acknowledge that undiscovered sites occupied by the Ohlone tiger beetle may exist, most likely on private land. We also recognize that there is a high potential that these sites are subject to the same threats that face other privately owned parcels that support the Ohlone tiger beetle. Given the extremely limited distribution of the species at the present time, discovery of several additional locations of the Ohlone tiger beetle would not likely alter the endangered status of the species overall. All of the peer reviewers acknowledged the extreme rarity of the Ohlone tiger beetle and supported listing this species as endangered.

Issue 3: One commenter questioned why the Ohlone tiger beetles found in a preserve owned and managed by the City of Santa Cruz were not found during surveys conducted between 1990 and 1994, but were located during surveys in 1995.

Our Response: We asked this question of Randall Morgan, who conducted the surveys during 1990 to 1994. Mr. Morgan re-examined his collections and determined that he did in fact collect a single Ohlone tiger beetle from the preserve in 1994. Mr. Morgan collected this Ohlone tiger beetle in the same vicinity where Ohlone tiger beetles were discovered in 1995 (R. Morgan, pers. comm. 2000).

Issue 4: One commenter questioned what additional information on the Ohlone tiger beetle we received after the publication of the 12-month finding in 1996 (61 FR 8014), in which we determined that listing of the Ohlone tiger beetle was not warranted because data were inadequate for us to

determine that the Ohlone tiger beetle was restricted to the described habitat. Specifically, the commenter noted that the proposed rule to list the species (65 FR 6952) cited only the survey work that had been conducted between 1990 and 1995, which preceded the publication of this 12-month finding.

Our Response: On January 23, 1997, we received a letter from Grey Hayes that described the results of his surveys for Ohlone tiger beetles that had been conducted in 1995. We were not aware that these surveys had been conducted until we received Mr. Hayes' letter 9 months after the publication of the 12-month finding. Mr. Hayes surveyed 21 sites that represented a variety of grassland and oak woodland habitats in Monterey, Santa Cruz, and San Mateo counties. The results of these surveys indicated that the Ohlone tiger beetle was found only in association with soil types specific to the central coast of California. Furthermore, the surveys showed that Ohlone tiger beetles are found only in or adjacent to coastal terrace prairie, a type of grassland that exists on less than 809 ha (2,000 ac).

Furthermore, we reviewed the scientific literature on tiger beetles and determined that tiger beetle species are commonly restricted to very specific habitat types (Pearson 1988; Knisley and Hill 1992; Pearson and Cassola 1992). Based on this information, we concluded that adequate information existed to determine conclusively that the Ohlone tiger beetle is restricted to a narrow habitat type within Santa Cruz County.

Issue 5: One commenter questioned whether we can logically infer from two relatively limited surveys that the Ohlone tiger beetle is "restricted to remnant patches of native grasslands on coastal terrace prairie in the mid-county portion of coastal Santa Cruz County." The commenter further stated that there was insufficient information to support the Service's conclusion that the Ohlone tiger beetle is in danger of extinction throughout a significant portion of its range.

Our Response: This final rule is based on the best available information and science and clearly describes how we determined the current range and habitat requirements of the Ohlone tiger beetle, and how we concluded that the species is in danger of extinction throughout a significant portion of its range. Please refer to the "Background" and "Summary of Factors Affecting the Species" sections.

Issue 6: One commenter questioned how many, and which, insect collections had been searched for specimens of the Ohlone tiger beetle.

The commenter noted that he or she had spoken with a tiger beetle expert in Texas who had specimens of the Ohlone tiger beetle collected from 29 years ago, and that the expert knew of additional specimens of the species collected in the early 1930s and 1940s.

Our Response: While preparing the manuscript to describe the Ohlone tiger beetle, Dr. David Kavanaugh of the California Academy of Sciences searched the entomological collections of the California Academy of Science, the University of California, Davis, and the University of California, Berkeley. These three institutions were searched because they held the largest collections of tiger beetles within the vicinity of Santa Cruz County, and were the most likely depositories of Ohlone tiger beetles collected from that area. Furthermore, the California Academy of Sciences holds the collection of Norman C. Rumpp, which includes one of the largest collections of tiger beetles in the world. Ohlone tiger beetles were not found in these collections.

As an expert on the genus *Cicindela*, Dr. Kavanaugh has reviewed collections of this genus located throughout the United States. He has never encountered the Ohlone tiger beetle (D. Kavanaugh, pers. comm. 2000). *Cicindela* is a very popular genus of insects to collect. No specimens were found in the three largest collections located in the closest proximity to Santa Cruz County, and Dr. Kavanaugh has never seen or heard of additional specimens of the Ohlone tiger beetle in other collections. Therefore, he concluded that it was unlikely that specimens would be found in additional private or public collections. We concurred with this conclusion.

We contacted Mr. William D. Sumlin, the tiger beetle specialist from Texas referred to by the commenter, and asked him about historic collections of the Ohlone tiger beetle. Mr. Sumlin stated that he had specimens of a male and female of the Ohlone tiger beetle that were collected in March 1994. This specimen was collected from a known occurrence of the Ohlone tiger beetle.

Mr. Sumlin also stated that he was not aware of any Ohlone tiger beetles collected during the 1930s and 1940s. Rather, he recalled having a conversation with another tiger beetle expert who mentioned that specimens of Ohlone tiger beetles may be located in a collection in California. The specimens were thought to be misidentified and located in a tray of specimens of another species of tiger beetle. Unfortunately, Mr. Sumlin did not recall the identity of the person who had told him this information, whose

collection the specimens were in, or where the collection was located (W.D. Sumlin, *in litt.* 2000).

With so little information, we cannot verify the existence of the specimens in question. We acknowledge that other collectors may have specimens of the Ohlone tiger beetle; however, we assume that most of these collections were made after the species was described in 1993 and are from sites known to be occupied by the beetle.

Issue 7: One commenter questioned whether the absence of Ohlone tiger beetles from collections could be explained by reasons other than the species is extremely rare.

Our Response: We cannot offer any alternative hypotheses as to why the species is absent from collections. Because *Cicindela* is a very popular genus of insects to collect, and because entomologists commonly collect out of season and out of known ranges in order to find temporally and spatially outlying specimens, we would expect more specimens to have been collected if the Ohlone tiger beetle were more abundant and distributed more widely.

Issue 8: One commenter states that "the Service seems to suggest that additional field surveys are not warranted because the Ohlone tiger beetle has not been found in any of the collections of local hobbyists, and that it was only first sited in 1997." The commenter noted that the Act allows the Service 1 year from the date on which a proposed rule is noticed before a decision to list or not list is made, with the option to extend this period for up to 6 months for purposes of soliciting additional data. The commenter suggested that we should use the full 18 months to conduct additional surveys for the Ohlone tiger beetle throughout all potential habitat.

Our Response: Ohlone tiger beetles were first collected in 1987, not 1997, as stated by the commenter. The proposed rule did not state that additional field surveys for the Ohlone tiger beetle are not warranted. We advocate conducting more surveys to expand our knowledge of the range, distribution, life history, and habitat requirements of the Ohlone tiger beetle. However, we have carefully assessed the best scientific and commercial information available regarding such knowledge and the past, present, and future threats faced by the Ohlone tiger beetle. Based on this information, we conclude that the Ohlone tiger beetle is in danger of extinction throughout all or a significant portion of its range (section 3(6) of the Act) and, therefore, meets the Act's definition of endangered.

Issue 9: One commenter questioned why we have chosen to list the Ohlone tiger beetle, when there are 2,000 different subspecies of tiger beetles, many with restricted populations, that we have "rightfully shown no inclination to list."

Our Response: The determination to list a species as federally endangered or threatened is based upon the evaluation of current and future threats to the species from the five factors listed in section 4(a) of the Act. Based on our analyses of threats facing the Ohlone tiger beetle, we believe that the Ohlone tiger beetle is in danger of extinction throughout all or a significant portion of its range (section 3(6) of the Act) and, therefore, meets the Act's definition of endangered. We have listed other species of tiger beetles in the past, and we will continue to list species that meet the criteria for threatened or endangered as defined in the Act.

Issue 10: Several commenters suggested that the listing of the Ohlone tiger beetle was occurring in order to restrict the use of private property, and questioned why the Ohlone tiger beetle has only been located in sites that are "politically sensitive."

Our Response: The Act requires us to base our listing decisions on the best scientific and commercial information available, without regard to the effects, including political or economic, of listing. Surveys for the Ohlone tiger beetle have occurred at sites that were nearly equally divided between private and public ownership throughout Monterey, Santa Cruz and San Mateo counties. Locations of surveys conducted by Morgan and Hayes between 1990 and 1995 were reportedly chosen based on the habitat characteristics present at each site; no emphasis was known to be given to sites that were considered "politically sensitive" to the community. Arnold's surveys between 1994 and 2000 were conducted largely on private lands at the request of the landowners.

Issue 11: One commenter expressed concern about the effects of road construction on habitat for the Ohlone tiger beetle. The commenter provided numerous citations for scientific papers that document and quantify the effects of roads on environmentally sensitive areas.

Our Response: We appreciate the information provided by the commenter. We consider construction of roads to be an aspect of urban development that can fragment and degrade habitat for the Ohlone tiger beetle.

Issue 12: One commenter questioned why the proposed rule does not mention

population size based on counts of adults or larval burrows of the Ohlone tiger beetle.

Our Response: At the present time, surveys to estimate sizes of populations of the Ohlone tiger beetle have not been conducted. We recognize that population estimates may provide insight into the status of the species. However, abundance of insect species can fluctuate substantially from year to year. Furthermore, some insect species may be abundant in localized populations yet susceptible to extirpation by a single event. For these reasons, estimates of abundance are not adequate in determining whether a species is endangered or threatened. Rather, we based our determination to list the Ohlone tiger beetle as federally endangered upon the evaluation of the current and future threats to the species from the five factors listed in section 4(a) of the Act.

Peer Review

In accordance with our policy published on July 1, 1994 (59 FR 34270), we solicited the expert opinions of three independent specialists regarding the biological and ecological information about the Ohlone tiger beetle contained in the proposed rule. The purpose of such review is to ensure that listing decisions are based on scientifically sound data, assumptions, and analysis, including input from appropriate experts and specialists. Two of the reviewers supported the listing of the species, but provided no substantive comments that require addressing. The third reviewer both supported the listing of the species and provided technical corrections on material contained in the sections titled "Background" and "Summary of Factors Affecting the Species."

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, we determine that the Ohlone tiger beetle should be classified as an endangered species. We followed procedures found at section 4(a)(1) of the Act and regulations (50 CFR part 424) implementing the listing provisions of the Act. A species may be determined to be endangered or threatened due to one or more of the five factors described in section 4(a)(1). These factors, and their application to the Ohlone tiger beetle, are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* Loss of habitat is the principal threat to insect species worldwide because of

their close associations with, and dependence on, specific habitats (Pyle *et al.* 1981). The effects of habitat destruction and modification on tiger beetle species have been documented by Knisley and Hill (1992) and Nagano (1982). The Ohlone tiger beetle is restricted to remnant patches of native grassland on coastal terraces where low and sparse vegetation provide space for foraging, reproduction, and thermoregulation, and support a prey base of other invertebrate species. The poorly drained clay or sandy clay substrate of the coastal terraces provides the soil moisture, composition, and temperature conditions necessary for oviposition and larval development (Pearson 1988; Kaulbars and Freitag 1993).

The habitat of the Ohlone tiger beetle is threatened with destruction resulting from urban development or with modification by invasive nonnative vegetation on all of the sites on which it occurs. Disturbance of the substrate, and removal or elimination of vegetation by urban development, kills or injures individuals and precludes others from feeding, sheltering, or reproducing. Historically, potentially suitable habitat is believed to have extended from southwestern San Mateo County to northwestern Monterey County, California (Freitag *et al.* 1993). Most of this habitat has been modified or destroyed by human actions such as urbanization and agriculture (Freitag *et al.* 1993).

About 6,060 to 8,080 ha (15,000 to 20,000 ac) of native grassland remain in Santa Cruz County, but not more than 81 to 121 ha (200 to 300 ac) contain the proper combination of substrate, slope, and exposure (bare areas between patches of grasses) to be considered suitable habitat for the Ohlone tiger beetle (Freitag *et al.* 1993). Nearly all of this suitable habitat is located within or adjacent to urbanized areas in the coastal mid-county area of Santa Cruz. Much of the City of Santa Cruz and its adjacent towns were built on these marine terrace grassland habitats (Freitag *et al.* 1993). Within suitable habitat, the beetle occupies only sparsely vegetated areas and bare areas, which are artifacts of trails, grazing, or other disturbance activities.

The property occupied by the Ohlone tiger beetle located northwest of the City of Soquel is threatened by a proposed 21-lot residential development. The preferred alternative of the proposed project would completely extirpate the Ohlone tiger beetle population by eliminating all of the known occupied habitat and most of the extant grassland habitat found on this site. One

alternative in the final environmental impact report for the project proposes that the majority of suitable habitat for the Ohlone tiger beetle be set-aside and managed to reduce nonnative vegetation and enhance habitat quality. Since the publication of the proposed rule, the owner of this parcel has submitted design changes to the County of Santa Cruz. We are not certain how these design changes will impact the habitat for the Ohlone tiger beetle on the site. The County is currently preparing an expanded initial study to incorporate these changes. Once completed, the initial study will be available to the public for review and comment (Kim Tschantz, County of Santa Cruz, pers. comm. 1999, 2000).

The site occupied by the Ohlone tiger beetle located in the City of Scotts Valley was proposed for development of 233 residential homes and an open park containing two ballfields (Impact Sciences 1998). This proposed development was voted down in a public referendum in 1999, halting the development of this property for the present time. The landowner is now considering alternative development plans. The most recent proposal by the developer includes donating the area inhabited by the Ohlone tiger beetle to the City of Scotts Valley for use as a park. The City has expressed interest in developing this area into baseball fields (Laura Kuhn, City of Scotts Valley, pers. comm. 2000). The future of this site is undetermined at this time.

Even if the occupied habitat for the Ohlone tiger beetle was avoided in the development of houses and ballfields, activities occurring on adjacent lands could lead to potential disturbance, such as pesticide drift, soil erosion, and vegetation alteration. In addition, the increased isolation would make the population more vulnerable to random extinction (see Factor E of this section).

Adult Ohlone tiger beetles have been observed on 4 properties, and potential burrows have been observed on a fifth property, west of the City of Santa Cruz (C. Sculley, pers. obs. 2000; R. Arnold, pers. comm. 2000). All of the properties are contiguous. The potential for destruction threatens the habitat of the Ohlone tiger beetle on 4 of these properties.

The current landowners of one of these 4 parcels plan to build a single-family dwelling on the site. Although building plans are still being developed, the driveway will most likely be sited in, or directly adjacent to, occupied habitat for the Ohlone tiger beetle (C. Sculley, pers. obs. 2000).

In September 1998, property owners of a second parcel west of the City of

Santa Cruz tilled up a large percentage of an area occupied by the Ohlone tiger beetle in preparation for converting use of the land from livestock grazing to a vineyard (G. Hayes, pers. comm. 1998). The effects of this action on the Ohlone tiger beetle are not known, although potential burrows of the Ohlone tiger beetle were detected on the property in July 2000 (C. Sculley, pers. obs. 2000).

Potential burrows of the Ohlone tiger beetle were found in the spring of 2000 on a third parcel west of the City of Santa Cruz (R. Arnold, pers. comm. 2000). The owner of this parcel plans to build a single-family home on the site. The County of Santa Cruz has not yet reviewed the potential effects of the project on the Ohlone tiger beetle (Paia Levine, County of Santa Cruz, pers. comm. 2000).

The fourth parcel is owned by the University and is presently undeveloped, and no development is currently planned for the parcel. However, portions of the parcel, including areas occupied by the Ohlone tiger beetle, could be developed in the future as the University expands its existing campus (University of California 1992).

The fifth parcel is protected from urban development. In the spring of 1999, the City of Santa Cruz purchased this property, and it will be managed as open space by the City. The State of California will hold a conservation easement on the land. A management plan will be developed by the City of Santa Cruz, and the Ohlone tiger beetle will be considered in the plan. At the present time, the site is closed to public use except for officially escorted hikes (Susan Harris, City of Santa Cruz, pers. comm. 1999).

The habitat occupied by the Ohlone tiger beetle northwest of the City of Santa Cruz occurs on three parcels under ownership of CDP, the University, and the City of Santa Cruz. The CDP wants to construct an entrance road and parking area for vehicles and open existing trails to recreationists. The entrance road would be developed over a portion of habitat that was occupied by Ohlone tiger beetles in 1995 (G. Hayes, *in litt.* 1999). The vehicle parking area would be constructed adjacent to this habitat. In the public works plan for this site, CDP established a policy that road maintenance or other activities will be scheduled to minimize impacts on burrows, larval habitat, foraging activities, or other aspects of the population (CDP 1997). CDP conducted additional surveys in 2000 to determine the current distribution of the Ohlone tiger beetle on the parcel that it

owns. No adult Ohlone tiger beetles or larval burrows were detected during these surveys (G. Gray, CDP pers. comm. 2000). Additional surveys need to be conducted to determine if Ohlone tiger beetles have been extirpated from this site.

Property adjacent to the CDP land is managed by the University. A two-lane road bisects the lands that are owned by CDP and the University that are occupied by the Ohlone tiger beetle. Although some development is possible within the University lands, no development projects are anticipated at this time (Graham Bice, University of California, pers. comm. 1995; G. Hayes, pers. comm. 1997). The Ohlone tiger beetle also is found in a preserve owned and managed by the City of Santa Cruz. At this time, no plans are in place that would destroy or alter the Ohlone tiger beetle habitat within this preserve (S. Harris, pers. comm. 1999).

Areas that may once have been suitable for Ohlone tiger beetles have been converted to nonnative grasslands, or have been developed because the firm, level substrate of the coastal terraces afforded good building sites with scenic views of the Pacific Ocean. For the same reasons that other terraces have already been developed, remaining areas of suitable habitat are under high development pressure.

In addition to the development threats to the Ohlone tiger beetle, the invasion of nonnative vegetation threatens the already reduced extent of suitable habitat for this species. The Ohlone tiger beetle is threatened by habitat degradation due to the invasion of nonnative plant species into the coastal prairie in every location where it occurs, including areas that are protected from development. Nonnative vegetation (e.g., French broom (*Cytisus monspessulanus*), velvet grass (*Holcus* spp.), filaree (*Erodium* spp.), and *Eucalyptus* spp.) and forest vegetation are encroaching into grassland habitats and out-competing native grassland vegetation (R. Morgan, *in litt.* 1992; G. Hayes, *in litt.* 1997; C. Sculley, pers. obs. 1999, 2000). These nonnative plants are aggressive invaders that convert sunny grasslands required by Ohlone tiger beetles to habitat dominated by a shady overstory. Without these sunny areas, the Ohlone tiger beetle cannot forage, and oviposit. In addition to shading these areas used by the beetle, the nonnative vegetation fills in the open spaces among the low or sparse vegetation creating an unsuitable densely vegetated habitat.

Nonnative vegetation may also affect the numbers and diversity of the beetle's prey, predators, and parasites (see

Factor C of this section). Increased vegetation encroachment is the primary factor attributed to the extirpation of several populations of other *Cicindela* species (e.g., *C. abdominalis* and *C. debilis*) (Knisley and Hill 1992). Without management efforts to reduce and control vegetation encroachment by nonnative species, the Ohlone tiger beetle will likely decline and may become extirpated in all of the locations where the species is known presently.

Several agencies are attempting to slow the rate of vegetation encroachment into habitat for the Ohlone tiger beetle. At one location northwest of the City of Santa Cruz, the City is attempting to maintain the species' habitat by mowing parts of it to provide bare ground, and closing trails occupied by the Ohlone tiger beetle to bicycles (S. Harris, pers. comm. 1999).

The University conducts controlled burns in habitat for the Ohlone tiger beetle on its property northwest of the City of Santa Cruz. These burns are conducted for fire-training exercises and to restore native vegetation to this grassland (California Department of Forestry and Fire Protection, *in litt.* 2000). Grazing occurs on several parcels of land located west of the City of Santa Cruz which are occupied by the Ohlone tiger beetle. Grazing regimes, when conducted with the appropriate timing, frequency, and intensity, can effectively maintain native species of grasses and herbs in grasslands (G. Hayes, pers. comm. 2000). Monitoring to determine the effects of these actions on the Ohlone tiger beetle has not occurred. Therefore, we are unable to determine if the Ohlone tiger beetle has benefited from these actions.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Unrestricted collecting is considered a threat to the species. Tiger beetle specimens are highly sought by amateur collectors (C. Nagano, pers. comm. 1993), and members of the genus *Cicindela* may be the subject of more intense collecting and study than any other single insect genus. In light of the recent discovery of the Ohlone tiger beetle, and concerns regarding its continued existence, the desirability of this species to private collectors may increase, leading to increased collection of specimens. The original petitioner for the Ohlone tiger beetle has been contacted by several people from such places as France, Wisconsin, and California, looking for Ohlone tiger beetle specimens they can add to their private collections, as well as those asking where the colonies are located and indicating they want to collect the species at those locations (R. Morgan,

pers. comm. 1998). We are aware of at least one individual who collected specimens of the Ohlone tiger beetle from the type locality after the species was described in a scientific journal (W.D. Sumlin, *in litt.* 2000). Listing this species as endangered will likely increase its attractiveness to private collectors. Removal of even a few females from a small population could reduce the persistence of the population over time (C. Knisley, *in litt.* 2000).

The Ohlone tiger beetle is not likely to be used as a model organism for general research projects because it is a rare and limited species. It may be the subject of studies intended to improve understanding of the species' ecology and to improve management strategies for its conservation. Although such studies would directly benefit the recovery of the Ohlone tiger beetle, they may contribute cumulatively to other threats to the species.

C. Disease or Predation. No diseases are known to threaten the Ohlone tiger beetle. However, the Ohlone tiger beetle may be affected by any of several predators and parasites known to prey upon, and afflict, other tiger beetle species. In general, parasites are considered to be more detrimental than predators to populations of tiger beetles (Nagano 1982; Pearson 1988). Known tiger beetle parasites include ant-like wasps of the family Typhiidae, especially the genera *Mathocia*, *Karlissa*, and *Pterombrus*, and the Bombyliid flies of the genus *Anthrax* (Nagano 1982; Pearson 1988). These insect parasites are distributed worldwide and specialize on tiger beetle larvae. Some species of tiger beetles from Arizona sustain larval parasitism rates of 20 to 60 percent (C. Knisley *in litt.* 2000).

Known tiger beetle predators include birds, shrews (Soricidae), raccoons (*Procyon lotor*), lizards (Lacertilia), toads (Bufonidae), ants (Formicidae), robber flies (Asilidae), and dragonflies (Anisoptera) (Lavigne 1972; Nagano 1982; Pearson 1988).

Predators and parasites play important roles in the natural dynamics of populations and ecosystems. The effects of predation and parasitism may pose substantial threats to Ohlone tiger beetle populations already affected by other factors, especially limited distribution and small, isolated populations. At this time, the magnitude of predation and parasitism on the Ohlone tiger beetle is not known.

D. The inadequacy of existing regulatory mechanisms. Regulatory mechanisms currently in effect do not provide adequate protection for the Ohlone tiger beetle and its habitat. Federal agencies are not legally required

to consider and manage for species of concern.

At the State and local levels, regulatory mechanisms are also inadequate. The California Endangered Species Act does not allow for the listing of invertebrate species. State and local agencies may consider the Ohlone tiger beetle when evaluating certain activities for compliance with the California Environmental Quality Act (CEQA) and local zoning regulations. If an activity is identified as having a significant impact on this species, mitigation measures may be required by State and local regulatory agencies to offset these impacts. However, CEQA and local regulations do not provide specific protection measures to ensure the continued existence of the Ohlone tiger beetle. In addition, CEQA provisions for "Statements of Overriding Considerations" can allow projects to proceed despite unmitigated adverse impacts.

Ohlone tiger beetle habitat occurs on properties owned by the University, the CDP, and the City of Santa Cruz. The University does not have a management plan that specifically protects the Ohlone tiger beetle or its habitat (G. Hayes, pers. comm. 1997). The CDP has an existing Public Works Plan that calls for surveys to verify the occupied habitat boundary of the Ohlone tiger beetle and proposes to minimize the impacts of disturbance to the Ohlone tiger beetle during road maintenance and other scheduled activities in the plan (G. Gray, CDP, pers. comm. 1997). However, a local citizen has expressed concern that surveys and minimization measures are not being adequately carried out (G. Hayes, *in litt.* 1999). For the site northwest of Santa Cruz, the City of Santa Cruz Parks and Recreation Department's Proposed Master Plan for the preserve proposes increased usage of existing trails, but identifies the Ohlone tiger beetle and its habitat as sensitive resources. The proposed master plan includes a management program for Ohlone tiger beetle habitat; however, implementation of any management actions will depend on future funding (S. Harris, pers. comm. 1999). For the site west of the City of Santa Cruz and owned by the City, a management plan will be developed since this property has been purchased as open space. The property is officially closed to public use except for officially escorted hikes. However, this area is not regularly patrolled, and enforcement may not be adequate to protect the species.

Because the Ohlone tiger beetle is not listed at the State or Federal levels, no regulations or regulatory mechanisms

exist that prohibit importing, exporting, sale, or trade of the species.

E. Other natural or manmade factors affecting its continued existence. The populations of the Ohlone tiger beetle are isolated and restricted to relatively small patches of habitat. A direct correlation exists between increased extinction rates with the reduction of available habitat area and increased distances between small populations (Gilpin 1987). This conservation biology model suggests that the isolated populations of the Ohlone tiger beetle may be more vulnerable to local extinction from random genetic and demographic events or environmental catastrophes. Effects of small habitat patches and isolated populations on other species of tiger beetles have been documented. In the eastern United States, several populations of *Cicindela dorsalis* that numbered less than 200 individuals became extinct at sites where no obvious change in habitat occurred. These extinctions were presumably due to factors related to small population sizes (C. Knisley, *in litt.* 2000).

Although some species of tiger beetles are known to disperse over sizable distances (Pearson 1988), species from the *purpurea* group of the genus *Cicindela* typically do not disperse widely, usually 12 to 18 m (40 to 60 ft) (David Pearson, Arizona State University, pers. comm. 1997). The dispersal capabilities of Ohlone tiger beetles are unknown; however, because the Ohlone tiger beetle belongs to the *purpurea* group, its dispersal distance is most likely short. Assuming individuals to be capable of dispersing distances comparable to those between populations, the likelihood of successful emigration or colonization is greatly reduced by the small size of suitable habitat patches and the unavailability of even marginal habitat among the extensive urban development in the region.

Some recreational uses of Ohlone tiger beetle habitat (*i.e.*, off-highway vehicular use or mountain biking) may pose a threat to the Ohlone tiger beetles. The beetles require open ground to maneuver, take prey, and lay eggs. They use the hard-packed bicycle trails for foraging, thermoregulation, and laying their eggs (R. Morgan, pers. comm. 1998). Bicycle traffic on a trail through the University site has been observed to result in the crushing of several individual beetles (R. Morgan, *in litt.* 1993). Similar mortality has been observed in the species' habitat west of the City of Santa Cruz (R. Morgan, *in litt.* 1993) and may occur in other Ohlone tiger beetle populations. Also,

bicycle and foot traffic could potentially collapse larval tunnels and crush the larvae. The significance of such mortality for population viability is not known at this time, but is considered a potential threat to the Ohlone tiger beetle, particularly if bicycle traffic through the habitat increases. Heavy vehicular traffic in areas with extensive use of public trails, such as on lands owned by the University, the City of Santa Cruz, and CDP, may also create soil compaction and rutting, damaging potential oviposition sites. Populations of another tiger beetle species found in the northeastern United States, *Cicindela dorsalis dorsalis*, were extirpated in several localities that were subjected to heavy recreational use (*i.e.*, heavy pedestrian foot traffic and vehicular use) but survived at other sites that had received little or no recreational disturbance (Knisley and Hill 1992).

Pesticides could pose a threat to the Ohlone tiger beetle. The effects of insecticides on other tiger beetle species are referenced by Nagano (1982). Local land owners may use pesticides to control targeted invertebrate species around their homes and gardens. These pesticides may drift aerially or be transported by water runoff into Ohlone tiger beetle habitat where they may kill nontargeted organisms including the Ohlone tiger beetle or its prey species. As urban development increases near or in Ohlone tiger beetle habitat, negative impacts from pesticides may become more frequent. The significance of pesticide effects is not known at this time, but they are recognized as a substantial potential threat to the species.

We have carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by the Ohlone tiger beetle in developing this final rule. Threats to the Ohlone tiger beetle, including habitat fragmentation and destruction due to urban development, habitat degradation due to invasion of nonnative vegetation, vulnerability to random local extirpations, and potential threats due to collection, pesticides, and recreational use of habitat, imperil the continued existence of this species. Much of the habitat of this species is suitable for development and is unprotected from these threats. The Ohlone tiger beetle is known from only 11 properties in 4 narrow geographic areas of Santa Cruz County. This species is in danger of extinction "throughout all or a significant portion of its range" (section 3(6) of the Act) and, therefore, meets the Act's definition of endangered. Because of the high

potential for these threats, if realized, to result in the extinction of the Ohlone tiger beetle, the preferred action is to list this species as endangered.

Critical Habitat

Critical habitat is defined in section 3 of the Act as—(i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species, and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by the species at the time it is listed in accordance with the provisions of section 4 of the Act, upon a determination that such areas are essential for the conservation of the species. "Conservation" means the use of all methods and procedures necessary to bring an endangered or threatened species to the point at which listing under the Act is no longer necessary.

Section 4(a)(3) of the Act, as amended, and implementing regulations (50 CFR 424.12) require that, to the maximum extent prudent and determinable, we designate critical habitat at the time the species is determined to be endangered or threatened. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist—(1) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. We find that designation of critical habitat is prudent for the Ohlone tiger beetle.

Due to the small number of populations of the Ohlone tiger beetle, and the popularity of tiger beetle collecting, this species is vulnerable to unrestricted collection, vandalism, or other disturbance. However, there is no evidence that designation of critical habitat is likely to increase this threat. In the case of this species, designation of critical habitat may provide some benefits. The record shows that certain physical and biological features where the Ohlone tiger beetle is located are essential to the conservation of the species. The primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat. While a critical habitat designation for habitat currently occupied by this species would not be

likely to change the section 7 consultation outcome because an action that destroys or adversely modifies such critical habitat would also be likely to result in jeopardy to the species, in certain instances, section 7 consultation might be triggered only if critical habitat is designated. Examples could include unoccupied habitat or occupied habitat that may become unoccupied in the future. Designating critical habitat may also provide some educational or informational benefits. Therefore, we find that designation of critical habitat is prudent for the Ohlone tiger beetle.

However, our budget for listing activities is currently insufficient to allow us to immediately complete all of the listing actions required by the Act. Listing the Ohlone tiger beetle without designation of critical habitat will allow us to concentrate our limited resources on other listing actions that must be addressed, while allowing us to invoke protections needed for the conservation of this species without further delay. This is consistent with section 4(b)(6)(C)(i) of the Act, which states that final listing decisions may be issued without critical habitat designations when it is essential that such determinations be promptly published. We will prepare a critical habitat designation in the future at such time when our available resources and priorities allow.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, recovery actions, requirements for protection, and prohibitions against certain activities. Recognition through listing results in public awareness and conservation actions by Federal, State, and local agencies, private organizations, and individuals. The Act provides for possible land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species. The protection required of Federal agencies and the prohibitions against taking and harm are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a species

proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

We are not aware of any specific federal actions within the habitat of the Ohlone tiger beetle. If any Federal agency were to fund or issue permits for a project that may affect the Ohlone tiger beetle, that agency would be required to consult with us. Possible nexuses include the Department of Housing and Urban Development and the Department of Commerce's Small Business Administration for funding, and the U.S. Army Corps of Engineers for permits authorized under section 404 of the Clean Water Act.

Listing the Ohlone tiger beetle as endangered will provide for the development of a recovery plan. Such a plan will bring together Federal, State, and local efforts for the beetle's conservation. The plan will establish a framework for agencies to coordinate activities and cooperate with each other in conservation efforts. The plan will set recovery priorities, assign responsibilities, and estimate costs of various tasks necessary to achieve conservation and survival of this species. Additionally, pursuant to section 6 of the Act, we will be able to grant funds to affected States for management actions promoting the protection and recovery of this species.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these), import or export, ship in interstate commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any endangered wildlife species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to our agents and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife under

certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. For endangered species, such permits are available for scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

Our policy, published in the **Federal Register** on July 1, 1994 (59 FR 34272), is to identify, to the maximum extent practicable, those activities that would or would not constitute a violation of section 9 of the Act at the time of listing. The intent of this policy is to increase public awareness of the effect of this listing on proposed and ongoing activities within the species' range.

We believe that, based on the best available information, the following actions are not likely to result in a violation of section 9, provided these activities are carried out in accordance with existing regulations and permit requirements:

(1) Possession, delivery, or movement, including interstate transport and import into or export from the United States, involving no commercial activity, of dead specimens of this taxon that were collected prior to the date of publication in the **Federal Register** of a final regulation adding this taxon to the list of endangered species; and

(2) Activities conducted in accordance with reasonable and prudent measures identified by us in a biological opinion issued pursuant to section 7 of the Act, and activities authorized under section 10 of the Act.

We believe that the following actions could result in a violation of section 9; however, possible violations are not limited to these actions alone:

(1) Collection of specimens of this taxon for private possession or deposition in an institutional collection;

(2) Sale or purchase of specimens of this taxon, except for properly documented antique specimens of this taxon at least 100 years old, as defined by section 10(h)(1) of the Act;

(3) Release of biological control agents that attack any life stage of this taxon;

(4) Destruction or alteration of occupied habitat of the Ohlone tiger beetle (e.g., excavating, compacting, grading, discing, or removing soil);

(5) Recreational use of occupied habitat of the Ohlone tiger beetle (e.g., off-highway vehicular use, horse riding, mountain biking, or hiking); and

(6) Management of vegetation (e.g., burning, grazing, or mowing).

Questions regarding whether specific activities risk violating section 9 should be directed to our Ventura Fish and Wildlife Office (see **ADDRESSES** section). Requests for copies of the regulations on

listed plants and animals, and general inquiries regarding prohibitions and permits, may be addressed to the U.S. Fish and Wildlife Service, Ecological Services, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, Oregon, 97232-4181 (telephone 503/231-2063; facsimile 503/231-6243).

National Environmental Policy Act

We have determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244).

Paperwork Reduction Act

This rule does not contain any new collections of information other than those already approved under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and assigned Office of Management and Budget clearance number 1018-0094. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information, unless it displays a currently valid control number. For additional information concerning permits and associated requirements for endangered wildlife species, see 50 CFR 17.22.

References Cited

A complete list of all references cited in this rulemaking is available upon request from the Ventura Fish and Wildlife Office (see **ADDRESSES** section).

Author

The primary author of this final rule is Colleen Sculley, Ventura Fish and Wildlife Office (see **ADDRESSES** section) (telephone 805/644-1766).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

Regulation Promulgation

Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as follows:

PART 17—[AMENDED]

1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500, unless otherwise noted.

2. Amend section 17.11(h) by adding the following, in alphabetical order under INSECTS, to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

* * * * *
(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
INSECTS							
Beetle, Ohlone tiger	<i>Cicindela ohlone</i> (CA)	U.S.A. (CA)	NA	E	713	NA	NA

Dated: September 21, 2001.
Marshall P. Jones Jr.,
Acting Director, U.S. Fish and Wildlife Service.
 [FR Doc. 01-24647 Filed 10-2-01; 8:45 am]
BILLING CODE 4310-55-P

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

50 CFR Part 223
[Docket No. 010926236-1236-01; I.D. 091301B]
RIN 0648-AP63

Sea Turtle Conservation; Restrictions to Fishing Activities

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.
ACTION: Interim final rule; request for comments.

SUMMARY: NMFS is closing the waters of Pamlico Sound, North Carolina, to fishing with gillnets with a mesh size larger than 4¼ inch (10.8 cm) stretched mesh ("large-mesh gillnet"), from September 28, 2001 through December 15, 2001, to protect migrating sea turtles. The closed area includes all inshore waters of Pamlico Sound south of 35°46.3' N. lat., north of 35°00' N. lat., and east of 76°30' W. long. NMFS is also considering issuance of a final rule establishing this seasonal closure each year as a permanent sea turtle conservation measure and is seeking comments on this interim rule.

DATES: This interim final rule is effective on September 28, 2001 through September 14, 2002. However, the provisions of § 223.206(d)(7) are applicable September 28, 2001 through December 15, 2001. Comments on this interim final rule are requested and

must be postmarked or transmitted by facsimile by 5 p.m., Eastern Standard Time, on January 2, 2002. Comments transmitted via e-mail or the Internet will not be accepted.

ADDRESSES: Send written comments on this interim final rule to the Chief, Endangered Species Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910. Comments may also be sent via fax to 301-713-0376, Attn: Chief, Endangered Species Division, Office of Protected Resources. Comments will not be accepted if submitted via e-mail or the Internet. Copies of the Environmental Assessment (EA) prepared for this interim final rule and for the ESA Section 10(a)(1)(B) permit to NCDMF may also be requested at the same address.

FOR FURTHER INFORMATION CONTACT: David M. Bernhart (ph. 727-570-5312, fax 727-570-5517, e-mail David.Bernhart@noaa.gov), or Barbara A. Schroeder (ph. 301-713-1401, fax 301-713-0376, e-mail Barbara.Schroeder@noaa.gov).

SUPPLEMENTARY INFORMATION: All sea turtles that occur in U.S. waters are listed as either endangered or threatened under the Endangered Species Act of 1973 (ESA). The Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*) are listed as endangered. Loggerhead (*Caretta caretta*) and green (*Chelonia mydas*) turtles are listed as threatened, except for populations of green turtles in Florida and on the Pacific coast of Mexico, which are listed as endangered.

Under the ESA and its implementing regulations, taking sea turtles—even incidentally—is prohibited, with exceptions for threatened species identified in 50 C.F.R. 223.206. The incidental take of endangered species may only legally be authorized by an incidental take statement provided or an

incidental take permit issued pursuant to section 7 or 10 of the ESA.

1999 Events

In early November 1999, significant increases were noted in inshore sea turtle strandings in the southeastern portion of Pamlico Sound. During November and December, a total of 97 strandings occurred in the area. Kemp's ridley turtles accounted for 46 of the strandings; 31 of the strandings were loggerhead turtles; 19 of the strandings were green turtles; and the species of one of the turtles was not identified. Onboard sea turtle monitoring was conducted by the NCDMF in southeastern Pamlico Sound during November 22-24, 1999. Eleven observer trips were conducted, consisting of five trips aboard deep-water flounder gillnet (5 inch (12.7 cm) and larger stretched mesh) vessels and six trips aboard spotted seatrout gillnet (3 to 4 inch (7.6 to 10.2 cm) stretched mesh, or "small-mesh gillnet") vessels. Gear characteristics, set locations and soak times were recorded for each set. Two Kemp's ridley turtles were observed captured in deep-water flounder gillnets in five observer trips. No sea turtles were captured in the observed trips aboard the small mesh gillnet vessels. While limited data had been available previously concerning gillnet takes of sea turtles, the deep-water, large-mesh gillnet fishery for flounder in southeastern Pamlico Sound was suspected of being responsible for a significant portion of the sea turtle strandings. The NCDMF Marine Patrol and NOAA Fisheries Enforcement personnel conducted joint surveillance of the Pamlico Sound shrimp and gillnet fisheries during November 1999. No shrimp trawl TED violations were detected in the area. Enforcement personnel reported significant large-mesh gillnet activity in the vicinity of the strandings. An untended large-mesh gillnet was checked by enforcement