

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17****RIN 1018-AB31****Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Puritan Tiger Beetle and the Northeastern Beach Tiger Beetle****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Final rule.**SUMMARY:** The service determines threatened status for the Puritan tiger beetle (*Cicindela puritana*) and for the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), two beach-dwelling beetles of the family Cicindelidae. Critical habitat is not being designated. The Puritan tiger beetle was known historically from numerous sites along the Connecticut River in Vermont, New Hampshire, Massachusetts and Connecticut, and from along the Chesapeake Bay in

Maryland; it is now restricted to Maryland and two Connecticut River sites, one in Massachusetts and one in Connecticut. The northeastern beach tiger beetle once occurred commonly along coastal beaches from Cape Cod, Massachusetts, to central New Jersey and along the Chesapeake Bay, from Calvert County, Maryland, south; it is now evidently extirpated from the Atlantic Coast, save for one recently discovered tiny population on Martha's Vineyard in Massachusetts. Both tiger beetles are threatened by rapid human population increase and associated development and beach alteration in the areas they occupy. Recreational vehicles on beaches are particularly damaging to the beetles' larval habitat. Population and range reductions suffered by both beetles make them more prone to chance extinctions; more vulnerable to the effects of winter storms, predators, and parasites; and less able to recolonize areas previously occupied. This rule implements protection provided by the Endangered Species Act of 1973, as amended, for these beetles.

EFFECTIVE DATE: September 6, 1990.

ADDRESSES: The complete file for this rule is available for inspection by appointment during normal business hours, at the Annapolis Field Office, U.S. Fish and Wildlife Service, 1825 Virginia Street, Annapolis, Maryland 21401.

FOR FURTHER INFORMATION CONTACT: Judy Jacobs at the above address, or by telephone (301-269-5448).

SUPPLEMENTARY INFORMATION:

Background

Tiger beetles (genus: *Cicindela*) are day-active, predatory insects that capture small arthropods in a "tiger-like" manner, grasping prey with their mandibles (mouthparts). Tiger beetle larvae, which live in burrows in the ground, are also voracious predators, fastening themselves near the tops of the burrows by means of abdominal hooks and rapidly extending from their burrows to seize passing invertebrate prey. Over 100 species and many additional subspecies of tiger beetles occur in the United States (Boyd 1982). Because of their interesting behavior and variety of forms and habitats, tiger beetles have received much study; a journal devoted exclusively to these beetles, "Cicindela," has been published since 1969. The Puritan tiger beetle (*Cicindela puritana*) and the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), both associated with beach habitats, have received little ecological study until recently.

The Puritan tiger beetle is brownish-bronze above with a metallic blue underside and measures under 11.5 mm ($\frac{1}{2}$ -inch) in total length. Each elytron (wing cover) is marked with narrow marginal and transverse white bands. It is distinguished from more common, similarly marked tiger beetles by the uneven or minutely broken edges of the middle band (Glaser 1984). Originally described by G. Horn (1876), *C. puritana* was later considered a subspecies of *Cicindela cuprascens* (Leng 1902, Horn 1930) and a subspecies of *Cicindela macra* (Vaurie 1951). Most recently, Willis (1967) established separate species status for these three taxa. The range of *C. puritana* is separated by several hundred miles from the overlapping ranges of *C. macra* and *C. cuprascens*.

Historically, the Puritan tiger beetle occurred in scattered localities along the Connecticut River in Vermont, Connecticut, New Hampshire, and Massachusetts, and along the Chesapeake Bay in Calvert County, Maryland. Within the Chesapeake Bay, its habitat is characterized by the presence of narrow sandy beaches with adjacent, well-developed bluffs of sand and clay (Glaser 1984, Knisley 1987, Knisley and Hill, 1990). Habitat of the Connecticut River population in Massachusetts is similar, with steep, clay banks adjacent to a wider (10 meters or greater) sandy beach (Nothnagel 1987).

Along the Chesapeake Bay in Maryland, Puritan tiger beetle adults are first seen in mid-June. Their numbers peak in early July and begin to wane by late July. The newly-emerged beetles feed and mate along the beach area. After mating, females move up onto the cliffs to deposit their eggs. Newly-hatched larvae construct burrows in the cliffs. The larvae pass through three instars (larval stages) before metamorphosis to the adult form. The full life cycle was believed to occur in a single year, but recent studies indicate that two years may be required (B. Knisley, Randolph-Macon College, pers. comm., 1990). Knisley (1987) found larval burrows in moist areas of sandy clay cliffs adjacent to the beaches where the adults were found, and along the back areas of these beaches. Statistical analysis of habitat features indicated that the presence of well-developed, sparsely vegetated cliffs as oviposition (egg-laying) sites is more important for this beetle than is the quality of adjacent beaches.

Most New England collection records for the Puritan tiger beetle were from the period 1900 to 1920, with the most recent collection in 1939 (Knisley 1987).

Subsequent vigorous collection attempts were unsuccessful, leading to the belief that the Puritan tiger beetle was likely extinct in New England. In July of 1986, however, a population of the Puritan tiger beetle was discovered in Hampshire County, Massachusetts, on a small island in the Connecticut River, and on a sandy beach several hundred meters to the south. This population is very small (50-100 adults) and declined in 1988 and 1989 (P. Nothnagel, pers. comm. 1990). Reasons for this decline are discussed under Factor A below. This past summer, another *C. puritana* population was located near Cromwell, Middlesex County, Connecticut, a historical site for the species. This population is larger than the Massachusetts population and apparently less threatened by human activity. In contrast to the habitat of all other known *C. puritana* populations, this site has no associated clay banks or cliffs; larvae burrow in the ground. (Nothnagel 1989).

South of New England, the Puritan tiger beetle is restricted to a 26-mile stretch of the western shore of the Chesapeake Bay in Calvert County, Maryland, and a 1.5-mile section of the Sassafras River on Maryland's eastern shore, in Kent and Cecil Counties. Status survey work conducted in Calvert County during the summers of 1985 and 1986 revealed five large populations (600+ individuals) and four small populations (100 or fewer individuals) (Knisley, 1987). The Sassafras River populations, discovered July of 1989, are medium-sized (100-500 adults), and may actually represent fewer than four discrete populations (B. Knisley, pers. comm.). It should be noted that great fluctuations in numbers of adult beetles may occur naturally from year to year. Puritan tiger beetle populations in Maryland are potentially threatened by habitat alteration and human encroachment as detailed below.

The northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), described as *C. dorsalis* by Say (1817), has white to light tan elytra, often with fine dark lines, and a bronze-green head and thorax. It is somewhat larger than the Puritan tiger beetle, measuring 13 to 15.5 mm ($\frac{1}{2}$ to $\frac{3}{5}$ inch) in total length.

Cazier (1954) considered *C. dorsalis* and three other previously described species as subspecies of the single species *C. dorsalis*. Boyd and Rust (1982) confirmed that these four subspecies are clearly distinguishable. Recent morphological analyses and breeding experiments indicate that *C. dorsalis dorsalis* is most likely a full species (Knisley and Hill 1990b). Until

this information is published, however, it is most appropriate to continue to refer to this taxon as a subspecies.

Northeastern beach tiger beetle larvae occupy burrows directly on the beach, in and above the high-tide zone. Rearing experiments (Stamatov 1972) and field observations by Knisley indicate these beetles have a full two-year life cycle, over-wintering twice as larvae, pupating at the bottoms of their burrows, and emerging as winged adults during their third summer. Adults emerge from early June through August, with peak abundance in mid-July. Adults forage mostly in the damp sand of the intertidal zone and apparently scavenge on dead fish and invertebrates for much of their diet (Knisley 1987, Knisley and Hill 1990). Habitat characteristics significantly correlated with the presence of northeastern beach tiger beetles include large beach size (length and width), high degree of exposure (dynamic beaches), fine sand particle size, and low human and vehicle activity (Knisley 1987).

Historically, the northeastern beach tiger beetle occurred on sandy beaches from Cape Cod, Massachusetts south to central New Jersey, and along the Chesapeake Bay of Maryland and Virginia. Early records indicate the abundance of this beetle on the northeast coast. Leng (1902) states that it occurred "in great swarms in July" from Martha's Vineyard south to New Jersey. Boyd (1978) cites many references, mostly from the 19th century, indicating the species' abundance in New Jersey. It was also common along the beaches of Rhode Island and Long Island, New York (Knisley 1987).

Between 1920 and 1950, the number of collections of the northeastern beach tiger beetle dropped precipitously (Knisley *et al.* 1987). Stamatov (1972) noted that northeastern beach tiger beetles were declining, and had possibly disappeared from New York and New Jersey. He suggested that this decline might be associated with increasing vehicular traffic along the beaches. He did report the existence of a breeding population at Block Island, Rhode Island. This population apparently was extirpated shortly thereafter.

During the summer of 1989, a tiny population of *C. d. dorsalis* was discovered on a privately owned section of beach on Martha's Vineyard, Massachusetts (T. Simmons, TNC, pers. comm., 1989). This population, consisting of fewer than 40 adults, is presently the only one known for this tiger beetle north of Maryland. Most of the species' historical habitat in New England has been intensively searched, without locating additional populations

(Knisley 1987; J. Stamatov, pers. comm., 1990; J. Shetterly, pers. comm., 1990). Studies should be conducted in the near future to determine whether this population is taxonomically distinct from those in the Chesapeake Bay. If this proves to be the case, endangered status would certainly be warranted for these New England beetles.

In Maryland, the northeastern beach tiger beetle is known from four locations along the Chesapeake Bay in Calvert County (Knisley 1989). Two of these populations are large and two are medium-sized. Three populations occur on private land owned by housing subdivision communities. One large population occurs in a county park.

During the summer of 1989, intensive searches for *C. d. dorsalis* were conducted along Virginia's Chesapeake Bay shoreline by staff of the Virginia Natural Heritage Program (VNHP). As a result of these surveys, a total of 40 populations of this tiger beetle were located (*C. Pague, VNHP, pers. comm., 1989*). Most of these are found in Northumberland, Matthews, and Northampton Counties. The balance occur in Accomack and Gloucester Counties. Some of these populations are located on sand spits or areas with low human use or vehicle accessibility.

Apparently, the factors causing the extirpation of this beetle from New England are not yet fully operable in Virginia and Maryland. However, the Chesapeake Bay shoreline is experiencing an unprecedented increase in residential development and recreational use. Furthermore, many areas of shoreline have been "hardened" by installation of bulkheads or riprap and are no longer suitable for occupancy by these beetles.

The northeastern beach and Puritan tiger beetles were first recognized by the Service in the **Federal Register** Notice of Review published on May 22, 1984 (49 FR 21664). That notice, which covered invertebrate wildlife being considered for classification as endangered or threatened, included these two beetles in Category 2. Category 2 comprises those taxa for which listing is possibly appropriate, but for which existing information is insufficient to support a proposed rule. In response to the publication of this notice, the Service received comments from the American Entomological Society expressing their view that the northeastern beach tiger beetle clearly qualified for endangered status, and that the status of the Puritan tiger beetle was questionable. The lack of available biological data on these taxa was also noted. Accordingly, in 1985, the Service contracted with Dr. Barry Knisley, Randolph-Macon College,

Ashland, Virginia, to conduct status survey work on these two beetles. Dr. Knisley's final report to the Service (Knisley 1987) provided substantial information that a proposal to list both species was warranted. The **Federal Register** Notice of Review published on January 6, 1989, (54 FR 555) included these two beetles in Category 1, indicating that the Service possessed sufficient information to support a proposal to list them. Subsequently, on October 2, 1989, the Service published a proposal in the **Federal Register** (54 FR 40458) to list *Cicindela dorsalis dorsalis* as endangered and *Cicindela puritana* as threatened. Status survey work conducted in Virginia during the summer of 1989 revealed many additional populations of *C. d. dorsalis*, indicating that threatened status would be more appropriate for this beetle. With the publication of this final rule, the Service now determines threatened status for these beetles.

Summary of Comments and Recommendations

In the October 2, 1989, proposed rule (54 FR 40458) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final rule. Comments were requested from appropriate state agencies, county governments, scientific organizations, and other interested parties. Newspaper notices inviting public comment were published on October 18, 19, or 20 in two newspapers in Massachusetts, two in Virginia and one in Maryland, all of local circulation in the areas where the beetles occur. A total of 14 comments were received. None of these opposed the listing. Three letters of comment, from the County of York, Virginia, the Soil Conservation Service, and the Virginia Institute of Marine Science, acknowledged receipt of the proposed rule, and expressed no position on the proposed listings. A letter from the State of Connecticut, Department of Environmental Protection, also expressed no official position but supplied further information, which has been incorporated into this final rule. Three letters were received from the U.S. Army Corps of Engineers. Those from New England Division and the Philadelphia District indicated that the proposed listing was not expected to impact their operations. The letter from the Baltimore District expressed no official position, but supplied comments that have been incorporated in this final rule. Letters from the Audubon Naturalist Society, and The Nature

Conservancy, Massachusetts/Rhode Island Office, offered their full support for the listings. Three letters, from the Maryland Department of Natural Resources, the Massachusetts Division of Fisheries and Wildlife, and a private individual who is a student of tiger beetles, Mr. J. A. Shetterly, supported the proposal and offered valuable comments, which have been incorporated in this final rule. A letter from attorneys representing the developers of a large tract of land on Virginia's eastern shore indicated that many additional populations of *Cicindela dorsalis dorsalis* had recently been located in Virginia and expressed the opinion that listing of this beetle as endangered was premature. Along a similar line, a letter from the Virginia Natural Heritage Program summarized the recent locations for this beetle in Virginia and indicated that their data would not support endangered status for these beetles, but would support a threatened status. Upon review of these recently acquired data, the Service concurs with these positions and has altered the final rule accordingly.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 153 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (50 CFR part 424) set forth the procedures for adding species to the Federal Lists. 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 Puritan tiger beetle (*Cicindela puritana*) and northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) are as follows:

A. The Present or Threatened Destruction, Modification, or Curtailment of Their Habitat or Range

Although it once occurred in swarms on many beaches along the New England coast, and as far south as central New Jersey, the northeastern beach tiger beetle's range along the Atlantic Coast is now reduced to a single tiny population in Massachusetts. All factors contributing to this dramatic range contraction are not known, but much of the decline can be attributed to the impacts of humans and vehicles on beaches (Stamatov 1972 and pers. comm., 1990, Boyd 1978 and pers. comm., 1990, Knisley, 1987 and pers. comm., 1990). Northeastern beach tiger beetle larvae are particularly vulnerable to direct crushing or repeated compaction of their burrows by vehicles and heavy

human use for two reasons. First, they occur in the intertidal zone and are therefore unavoidably in the path of beach users and their vehicles. Secondly, due to their prolonged life cycle, these beetles must pass through two summers in their vulnerable larval stage.

The significant impact of vehicles on this beetle is illustrated by a study of the related *Cicindela dorsalis media*, which Dr. Knisley conducted on Assateague Island in 1985. Adults and larvae were found only on the northern 2-mile section of the island where vehicles were restricted and human activity light. No beetles were found on the remaining 10-12 miles of beach in Maryland, including the State Park portion and the southern portion, where off-road vehicle activity is heavy. But just below the state line in Virginia, where vehicles are prohibited, adult beetles could again be found. A study of the impacts of human foot traffic on northeastern beach tiger beetle larvae in the Maryland yielded similar results; the abundance and survival of larval tiger beetles is inversely correlated with the amount of human traffic that an area receives (Knisley and Hill 1990). Southern Maryland and coastal Virginia are developing rapidly. Visible signs of development in Calvert County, Maryland, include the widening of Routes 2-4 in the southern part of the county and creation and expansion of numerous housing developments. One of Maryland's two large populations of this species occurs on a county park which opened in 1986. Since that time, the number of visitors to the park per year has increased more than six-fold. A private campground now occurs at one of Virginia's largest beetle population beaches, and several "planned community" developments have been proposed near other large populations on the eastern shore of the Chesapeake Bay. Such development leads to increased human and vehicular activity on the beaches, as well as construction of marinas and increased use of bulkheads and other structures that may eliminate or alter the beetles' beach habitat.

Pollution and alteration of the intertidal beach areas are also potential threats to these beetles. Spills of oil or other pollutants that reach the shore could be lethal to the tiger beetle larva directly or indirectly, by interfering with their feeding behavior or diminishing their prey base. Dredged material placed on beaches could also destroy larvae directly, although the long-term impacts

of beach nourishment could benefit the beetles. This requires further study.

In contrast to northeastern beach tiger beetles, Puritan tiger beetle larvae generally burrow on beachside cliffs and back beaches, where they are less susceptible to direct impacts of human and vehicular traffic or other perturbations of intertidal habitat. However, this species has not escaped the effects of habitat degradation, particularly where it occurred along the Connecticut River. A recent assessment of *C. puritana* historical collection sites along the Connecticut indicates that 23% have been flooded by dams, 38% have been heavily urbanized, and 8% have been ripped and stabilized. Along the entire course of the Connecticut River, in addition to the two known extant sites, only two sites are considered suitable to support (re-introduced) *C. puritana* populations (Nothnagel 1989). The one extant population in Massachusetts appears to be threatened by human activity. The beach is used heavily by power boaters, motorcycles and all-terrain vehicles from May through September, and the larval habitat is a locally popular camping area.

Cliff stabilization is another form of habitat alteration affecting the Puritan tiger beetle today. Continual erosion and breakdown of the cliffs, from wave action and rainfall, is necessary to create the newly exposed areas needed for oviposition and larval development. Construction of bulkheads or other means of cliff stabilization may destroy larval habitat directly, and also promotes growth of kudzu and other introduced vegetation on cliff faces, making the cliffs unsuitable for the larvae (Knisley 1987, Knisley and Hill 1989). The majority of the Puritan tiger beetle population sites on Maryland's western shore are bordered by housing subdivisions. Small areas of bayside cliffs in Calvert County have been razed to enhance visual aesthetics, and there are an increasing number of permit applications for construction of bulkheads, breakwaters, and other such structures. Permits are not required for vegetating the cliffs, or for placement or riprap material at the cliff base, as long as the material is placed above mean high tide. Along Maryland's eastern shore, potential tiger beetle habitat is also being lost. Searches for *C. puritana* at the mouth of the Elk River were unsuccessful, possibly because the area was recently stabilized with riprap and wire screen (Knisley and Hill 1990)

B. Overutilization for Commercial, Recreational Scientific or Educational Purposes

It is no exaggeration to state that tiger beetles (genus *Cicindela*) are the most highly sought after by amateur collectors of all beetle genera. Additionally, tiger beetles are frequently used as model organisms in physiological and ecological studies. In fact the genus *Cicindela* may be the subject of more intense collecting and study than any other single insect genus. This interest in tiger beetles is reflected in the publication since 1969 of a journal named for, and largely devoted to, this genus.

At present, collecting pressure on adult beetles is not believed to be contributing to the decline of these species; threats to larval survival appear to outweigh any threats to adults. However, the proposed listing of these beetles as threatened could increase their desirability and perceived value to collectors.

C. Disease or Predation

These tiger beetles are not known to be susceptible to any diseases that would threaten their survival; however, two insects known to be natural enemies have been commonly observed in their habitat. Knisley (1987) found adults of the wingless wasp, *Methocha*, at several population sites. Female *Methocha* attack and paralyze tiger beetle larvae, then lay a single egg on the beetle larva, so that their own larva may use the beetle for a food source as it develops. This parasitoid may account for significant tiger beetle mortality. Robber flies (family Asilidae) were also seen commonly at most sites visited by Knisley. These predatory flies perch and wait for adult tiger beetles or other flying prey and capture them out of the air. Ten unsuccessful attacks of robber flies on northeastern beach tiger beetles were observed during status survey work (Knisley 1987). Normally, these predators and parasitoids, which evolved in conjunction with the tiger beetles, would not pose a severe threat to the survival of their host (or prey) species, since this would, in the long run, threaten their own survival. However, this natural balance has been altered by habitat degradation and other factors, such that now these natural enemies may in some cases pose significant threats to the beetles' survival.

D. The Inadequacy of Existing Regulatory Mechanisms

The Puritan and northeastern beach tiger beetles are both classified as

endangered under Maryland state law, and their take is prohibited, except as permitted for scientific research. While this lends some protection to individual beetles, it does not adequately protect the larval beetles' habitat. However, this habitat does receive protection under Maryland's progressive Critical Areas legislation. All Maryland populations of both tiger beetles occur within the Critical Area (defined as that area within 1000 feet of the Bay or its tributaries). For any site within the Critical Area occupied by a state-designated endangered or threatened species, development and disturbance activities are greatly curtailed and in many instances are prohibited. In addition, local jurisdictions are directed to provide for the protection of those species in their local planning program. Four of the Maryland tiger beetle sites are designated as Natural Heritage Areas by regulation, further defining their protection. Without such strict protection, it is likely that the Puritan tiger beetles would qualify for endangered, rather than threatened, status. These beetles are not presently protected under Virginia's Endangered Plant and Insect Protection Act, but if they are federally listed, they will be automatically added to the State list. This law provides protection from taking, but does not regulate habitat alteration. While both tiger beetles are on the State "Endangered" list in Massachusetts, the State Endangered Species Act has not yet been approved by the legislature. However, the beetles and their habitat are protected in Massachusetts under the Wetlands Protection Act, which requires permit applicants to consider the requirements of listed species in their project plans. The State of Connecticut has passed endangered species legislation, which provides protection from take, but as yet has no official endangered species list. It is likely that *C. puritana* will be placed on the State list when one is drawn up.

E. Other Natural or Man-made Factors Affecting Their Continued Existence

Severe flooding may have contributed to the near extinction of the Puritan tiger beetle from the Connecticut River system. New England's worst floods occurred in 1927 and 1936, at about the same time new collection records for this species ceased (Knisley 1987). These intensive floods, which may have been exacerbated by timbering activities in the watershed, likely inundated the adult beetles' beach habitat and/or stripped off portions of riverside cliffs where the larvae occurred.

Populations of both tiger beetle species normally experience very high larvae mortality and dramatic year-to-year variations in abundance and local extinctions, due to factors such as flood tides, hurricanes, winter storms, and other natural phenomena. A series of nearby or contiguous populations is probably necessary to re-establish populations that have been locally depleted or extirpated. Both decrease in habitat size and number of populations make it difficult for beetles to recover from population declines caused by natural or human-related factors. Small habitat size supports a smaller population with a greater probability of extinction. Gradual elimination or disruption of adjacent habitat eliminates the source of beetles for recolonization of extirpated population sites. This problem has apparently been more severe from New Jersey to Massachusetts, where climatic conditions for the beetles are less favorable and human pressures on habitats greater.

The Service had carefully assessed the best scientific and commercial information regarding past, present and future threats faced by these species in determining to make this rule final. Based on this evaluation, the preferred action is to list both the northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) and the Puritan tiger beetle (*Cicindela puritana*) as threatened. The October 2, 1989, proposed rule (54 FR 40458) concluded that endangered status was appropriate for *C. d. dorsalis*. Information that has come into the Service's possession since the proposal was developed indicates that *C. d. dorsalis* is more abundant along the Chesapeake Bay shoreline of Virginia than previously believed. Due to this beetles' proven vulnerability to habitat alteration and human activity, as evidenced by its demise along the Atlantic Coast, listed status is still warranted. The Service concludes that threatened status is most appropriate for this beetle. For the Puritan tiger beetle, threatened status, as indicated in the proposed rule, is still deemed most appropriate.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that to the maximum extent prudent and determinable, the Secretary designate any habitat of a species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for these species at this time. As mentioned in Factor B above,

tiger beetle specimens are considered very valuable to collectors. Publication of maps detailing the specific locations of these beetles would increase the probability of their being over-collected, especially at sites containing smaller populations. Protection for these species and their habitats will be addressed through the section 7 jeopardy standard and through the recovery process. On balance, the threat of over-collection as a result of designation of critical habitat would outweigh any benefit of such designation. Therefore, it is not prudent to determine critical habitat for these beetles at this time.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the State and requires recovery actions be carried out for all listed species. Such actions are initiated by the Service following listing. The protection required of Federal agencies and the prohibitions against taking 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. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(2) requires Federal agencies to ensure that activities they authorize, fund, or carry out, are not likely to jeopardize the continued existence of a listed species. If a Federal action may affect a listed species, the responsible Federal agency must enter into formal consultation with the Service. Private developers who are working without any Federal permits, other authorizations, or monies, will be unaffected under this rule with respect to section 7(a), but would be subject to restrictions against take, as specified in section 9 of the Act and implementing regulations.

The U.S. Army Corps of Engineers (Corps) has jurisdiction over much of the area inhabited by these tiger beetles. Projects possibly affecting the beetles would include dredged material disposal, beach erosion control measures, marina construction, and other developments affecting beach

areas. Other Federal agencies that could possibly be affected by this listing action would include the U.S. Coast Guard, National Marine Fisheries Service, Soil Conservation Service, and other agencies conducting or overseeing projects in coastal areas or along the Connecticut River.

At present, the only Federal projects or permitting actions known to the Service that could affect these beetles include several minor dredged material disposal operations, and a proposed campground facility on Virginia's lower eastern shore. The Corps and affected landowners are aware of this listing and are working with the Service to avoid any adverse impacts to the beetles associated with these projects.

The listing of these beetles also brings sections 5 and 6 of the Endangered Species Act into full effect in their behalf. Section 5 authorizes the acquisition of lands for the purpose of conserving endangered and threatened species. Pursuant to section 6, the Service may grant funds to affected states for management actions aiding the protection and recovery of the beetles.

Listing these tiger beetles as threatened provides for development of a recovery plan (or plans) for them. Such plan(s) will bring together State and Federal, and private efforts for conservation of the beetles. The plan(s) will establish an administrative framework, sanctioned by the Act, for agencies to coordinate activities and cooperate with each other in conservation efforts. The plan(s) also set recovery priorities and estimate the cost of various tasks necessary to accomplish them. They assign appropriate functions to each agency and a time frame within which to complete them. They will also identify specific areas that need to be monitored and possibly managed for the beetles.

The Act and implementing regulations found at 50 CFR 17.21 and 17.31 set forth a series of general prohibitions and exceptions that apply to all threatened wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take, import or export, transport in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce, any listed species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that was illegally taken. Certain exceptions can apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving

endangered and threatened animal species under certain circumstances. Regulations governing permits are at 15 CFR 17.22, 17.23, and 17.32. Such permits are available for scientific purposes to enhance the propagation or survival of the species, and/or for incidental take in connection with otherwise lawful activities. For threatened species there are also permits for zoological exhibition, educational purposes, or other purposes consistent with the purposes of the Act. Further information regarding regulations and requirements for permits may be obtained from the U.S. Fish and Wildlife Service, Office of Management Authority, Permits Branch, P.O. Box 3507 Arlington, VA 22203-3507 (703/358-2104).

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, 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 Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the *Federal Register* on October 25, 1983 (48 FR 49244).

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List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

PART 17—[AMENDED]

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, is amended as set forth below.

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

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1543; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat 3500; unless otherwise noted.

2. Section 17.11(h) is amended 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, northeastern beach tiger	<i>Cicindela dorsalis dorsalis</i>	U.S.A. (CT, MA, MD, NJ, NY, PA, RI, VA)		T	396	NA	NA
Beetle, Puritan tiger	<i>Cicindela puritana</i>	U.S.A. (CT, MA, MD, NH, VT)		T	396	NA	NA

Dated: July 5, 1990.
 Richard N. Smith,
 Acting Director, Fish and Wildlife Service.
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