

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 17**

[Docket No. FWS-R9-ES-2009-0075; MO-9221050083-B2]

Endangered and Threatened Wildlife and Plants; Review of Native Species That Are Candidates for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of review.

SUMMARY: In this Candidate Notice of Review (CNOR), we, the U.S. Fish and Wildlife Service (Service), present an updated list of plant and animal species native to the United States that we regard as candidates for or have proposed for addition to the Lists of Endangered and Threatened Wildlife and Plants under the Endangered Species Act of 1973, as amended. Identification of candidate species can assist environmental planning efforts by providing advance notice of potential listings, allowing landowners and resource managers to alleviate threats and thereby possibly remove the need to list species as endangered or threatened. Even if we subsequently list a candidate species, the early notice provided here could result in more options for species management and recovery by prompting candidate conservation measures to alleviate threats to the species.

The CNOR summarizes the status and threats that we evaluated in order to determine that species qualify as candidates and to assign a listing priority number (LPN) to each species, or to remove species from candidate status. Additional material that we relied on is available in the Species Assessment and Listing Priority Assignment Forms (species assessment forms, previously called candidate forms) for each candidate species.

Overall, this CNOR recognizes five new candidates, changes the LPN for eight candidates, and removes four species from candidate status. Combined with other decisions for individual species that were published separately from this CNOR in the past year, the current number of species that are candidates for listing is 249.

This document also includes our findings on resubmitted petitions and describes our progress in revising the Lists of Endangered and Threatened Wildlife and Plants during the period

October 1, 2008, through September 30, 2009.

We request additional status information that may be available for the 249 candidate species identified in this CNOR.

DATES: We will accept information on this Candidate Notice of Review at any time.

ADDRESSES: This notice is available on the Internet at <http://www.regulations.gov>, and <http://endangered.fws.gov/candidates/index.html>. Species assessment forms with information and references on a particular candidate species' range, status, habitat needs, and listing priority assignment are available for review at the appropriate Regional Office listed below in **SUPPLEMENTARY INFORMATION** or at the Branch of Candidate Conservation, Arlington, VA (see address below), or on our Internet website (<http://endangered.fws.gov/candidates/index.html>). Please submit any new information, materials, comments, or questions of a general nature on this notice to the Arlington, VA, address listed below. Please submit any new information, materials, comments, or questions pertaining to a particular species to the address of the Endangered Species Coordinator in the appropriate Regional Office listed in **SUPPLEMENTARY INFORMATION**.

FOR FURTHER INFORMATION CONTACT: The Endangered Species Coordinator(s) in the appropriate Regional Office(s) or Chief, Branch of Candidate Conservation, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 420, Arlington, VA 22203 (telephone 703-358-2171; facsimile 703-358-1735). Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION: We request additional status information that may be available for any of the candidate species identified in this CNOR. We will consider this information in preparing listing documents and future revisions to the notice of review, as it will help us in monitoring changes in the status of candidate species and in management for conserving them. We also request information on additional species to consider including as candidates as we prepare future updates of this notice.

You may submit your information concerning this notice in general or for any of the species included in this notice by one of the methods listed in the **ADDRESSES** section.

Species-specific information and materials we receive will be available

for public inspection by appointment, during normal business hours, at the appropriate Regional Office listed below in under **Request for Information in SUPPLEMENTARY INFORMATION**. General information we receive will be available at the Branch of Candidate Conservation, Arlington, VA (see address above).

Candidate Notice of Review*Background*

The Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act), requires that we identify species of wildlife and plants that are endangered or threatened, based on the best available scientific and commercial information. As defined in section 3 of the Act, an endangered species is any species which is in danger of extinction throughout all or a significant portion of its range, and a threatened species is any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Through the Federal rulemaking process, we add species that meet these definitions to the List of Endangered and Threatened Wildlife at 50 CFR 17.11 or the List of Endangered and Threatened Plants at 50 CFR 17.12. As part of this program, we maintain a list of species that we regard as candidates for listing. A candidate species is one for which we have on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened, but for which preparation and publication of a proposal is precluded by higher priority listing actions. A species may be indentified by us as a candidate for listing based on an evaluation of its status that we conducted on our own initiative, or as a result of making a finding on a petition to list a species that listing is warranted but precluded by other higher priority listing action (see the Petition Findings section, below).

We maintain this list of candidates for a variety of reasons: to notify the public that these species are facing threats to their survival; to provide advance knowledge of potential listings that could affect decisions of environmental planners and developers; to provide information that may stimulate and guide conservation efforts that will remove or reduce threats to these species and possibly make listing unnecessary; to request input from interested parties to help us identify those candidate species that may not require protection under the Act or additional species that may require the Act's protections; and to request

necessary information for setting priorities for preparing listing proposals. We strongly encourage collaborative conservation efforts for candidate species and offer technical and financial assistance to facilitate such efforts. For additional information regarding such assistance, please contact the appropriate Regional Office listed in **SUPPLEMENTARY INFORMATION** or visit our Internet website, <http://endangered.fws.gov/candidates/index.html>.

Previous Notices of Review

We have been publishing candidate notices of review (CNOR) since 1975. The most recent CNOR (prior to this CNOR) was published on December 10, 2008 (73 FR 75176). CNORs published since 1994 are available on our Internet website, <http://www.fws.gov/endangered/candidates/index.html>. For copies of CNORs published prior to 1994, please contact the Branch of Candidate Conservation (see **ADDRESSES** section above).

On September 21, 1983, we published guidance for assigning an LPN for each candidate species (48 FR 43098). Using this guidance, we assign each candidate an LPN of 1 to 12, depending on the magnitude of threats, immediacy of threats, and taxonomic status; the lower the LPN, the higher the listing priority (that is, a species with an LPN of 1 would have the highest listing priority). Guidelines for such a priority-ranking guidance system is required under section 4(h)(3) of the Act (15 U.S.C. 1533(h)(3)). As explained below, in using this system we first categorize based on the magnitude of the threat(s), then by the immediacy of the threat(s), and finally by taxonomic status.

Under this priority-ranking system, magnitude of threat can be either “high” or “moderate to low.” This criterion helps ensure that the species facing the greatest threats to their continued existence receive the highest listing priority. It is important to recognize that all candidate species face threats to their continued existence, so the magnitude of threats is in relative terms. When evaluating the magnitude of the threat(s) facing the species, we consider information such as: the number of populations and/or extent of range of the species affected by the threat(s); the biological significance of the affected population(s), taking into consideration the life-history characteristics of the species and its current abundance and distribution; whether the threats affect the species in only a portion of its range, and if so the likelihood of persistence of the species in the unaffected portions;

and whether the effects are likely to be permanent.

As used in our priority-ranking system, immediacy of threat is categorized as either “imminent” or “nonimminent” and is not a measure of how quickly the species is likely to become extinct if the threats are not addressed; rather, immediacy is based on when the threats will begin. If a threat is currently occurring or likely to occur in the very near future, we classify the threat as imminent. Determining the immediacy of threats helps ensure that species facing actual, identifiable threats are given priority for listing proposals over those for which threats are only potential or species that are intrinsically vulnerable to certain types of threats but are not known to be presently facing such threats.

Our priority ranking system has three categories for taxonomic status: species that are the sole members of a genus; full species (in genera that have more than one species); and subspecies and distinct population segments of vertebrate species. We also apply this last category to species that are threatened or endangered in only significant portions of their ranges rather than their entire ranges.

The result of the ranking system is that we assign each candidate a listing priority number of 1 to 12. For example, if the threat(s) is of high magnitude, with immediacy classified as imminent, the listable entity is assigned an LPN of 1, 2, or 3 based on its taxonomic status (i.e., a species that is the only member of its genus would be assigned to the LPN 1 category, a full species to LPN 2, and a subspecies, DPS, or a species that is threatened or endangered in only a significant portion of its range would be assigned to LPN 3). In summary, the LPN ranking system provides a basis for making decisions about the relative priority for preparing a proposed rule to list a given species. No matter which LPN we assign to a species, each species included in this notice as a candidate is one for which we have sufficient information to prepare a proposed rule to list it because it is in danger of extinction or likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

For more information on the process and standards used in assigning LPNs, a copy of the guidance is available on our website at: <http://www.fws.gov/endangered/policy/index.html>. For more information on the LPN assigned to a particular species, the species assessment for each candidate contains the LPN chart and a rationale for the determination of the magnitude and

imminence of threat(s) and assignment of the LPN; that information is summarized in this CNOR.

This revised notice supersedes all previous animal, plant, and combined candidate notices of review.

Summary of This CNOR

Since publication of the CNOR on December 10, 2008 (73 FR 75176), we reviewed the available information on candidate species to ensure that a proposed listing is justified for each species, and reevaluated the relative LPN assigned to each species. We also evaluated the need to emergency-list any of these species, particularly species with high priorities (i.e., species with LPNs of 1, 2, or 3). This review and reevaluation ensures that we focus conservation efforts on those species at greatest risk first.

In addition to reviewing candidate species since publication of the last CNOR, we have worked on numerous findings in response to petitions to list species, and on proposed and final determinations for rules to list species under the Act. Some of these findings and determinations have been completed and published in the **Federal Register**, while work on others is still under way (see *Preclusion and Expeditious Progress*, below, for details).

Based on our review of the best available scientific and commercial information, with this CNOR we identify five new candidate species (see *New Candidates*, below), change the LPN for eight candidates (see *Listing Priority Changes in Candidates*, below) and determine that listing proposals are not warranted for four species and thus remove them from candidate status (see *Candidate Removals*, below). Combined with the other decisions published separately from this CNOR for individual species that previously were candidates, a total of 249 species (including 110 plant and 139 animal species) are now candidates awaiting preparation of rules proposing their listing. These 249 species, along with the 56 species currently proposed for listing (includes 1 species proposed for listing due to similarity in appearance), are included in Table 1.

Table 2 lists the changes from the previous CNOR, and includes five species identified in the previous CNOR as either proposed for listing or classified as candidates that are no longer in those categories. This includes one species for which we published a final rule to list, plus the four species that we have determined do not warrant preparation of a rule to propose listing and therefore have been removed from candidate status in this CNOR.

New Candidates

Below we present a brief summary of one new mammal, one new fish, one new mussel, and two new plant candidates, which we are recognizing in this CNOR. Complete information, including references, can be found in the species assessment forms. You may obtain a copy of these forms from the Regional Office having the lead for the species, or from our Internet website (<http://endangered.fws.gov/candidates/index.html>). For these species, we find that we have on file sufficient information on biological vulnerability and threats to support a proposal to list as endangered or threatened, but that preparation and publication of a proposal is precluded by higher priority listing actions (i.e., it met our definition of a candidate species). We also note below that three other species, yellow-billed loon, roundtail chub (Lower Colorado River Basin population), and *Astragalus anserinus* (Goose Creek milkvetch) were identified as candidates earlier this year as a result of a separate petition findings published in the **Federal Register**.

Mammals

Florida bonneted bat (*Eumops floridanus*) – The following summary is based on information in our files. Endemic to south Florida, this species is known to occur at 12 locations, 5 on private land and 7 on public land. The entire population may number less than a few hundred individuals. Recent results from a rangewide acoustical survey found a small number of locations where calls were recorded, and low numbers of calls were recorded at each location. Few active roost sites are known; all are artificial (i.e., bat houses).

Occurrences are threatened by loss and conversion of habitat to other uses and habitat alteration (e.g., removal of old trees with cavities, removal of manmade structures with suitable roosting sites); this threat is expected to continue and increase. Although occurrences on conservation lands are inherently more protected than those on private lands, habitat alteration during management practices may affect natural roosting sites even on conservation lands because the locations of any such sites are unknown. Therefore, occupied and potential habitat on forested or wooded lands, both private and public, continues to be at risk. The species is vulnerable to a wide array of natural and human factors: low population size, restricted range, low fecundity, distance between occupied locations, and small number

of occupied locations. Such factors may make recolonization unlikely if any site is extirpated and make the species vulnerable to extinction due to genetic drift, inbreeding depression, extreme weather events, and random or chance changes to the environment. Where the species occurs in or near human dwellings or structures, it is at risk to persecution, removal, and disturbance. Disturbance from humans, either intentional or inadvertent, can occur at any of the occurrences of this bat on either private or conservation lands. Disturbance of maternity roosts is of particular concern due to this species' low fecundity and small population. Pesticide applications may be affecting its foraging base, especially in coastal areas.

Due to its overall vulnerability, intense hurricanes are a significant threat; this threat is expected to continue or increase in the future. Intense storms can cause mortality during the storm, exposure to predation immediately following the storm, loss of roost sites, impacts on foraging areas and insect abundance, and disruption of the maternal period. Although disease is a significant threat for other bat species, it is not known to be a threat for the Florida bonneted bat at this time. The protection currently afforded the Florida bonneted bat is limited, provides little protection to the species' occupied habitat, and includes no provisions to protect suitable but unoccupied habitat within the vicinity of known colony sites. Overall, we find the magnitude of threats is high due to the severity of the threats on this species. We find that most of the threats are currently occurring and, consequently, overall, threats are imminent. Therefore, we assigned an LPN of 2 to this species.

Birds

Yellow-billed loon (*Gavia adamsii*) – We previously announced candidate status for this species in a separate warranted-but-precluded 12-month petition finding published on March 25, 2009 (74 FR 12931). Also, see summary below under “**Petition Findings**.”

Fishes

Roundtail chub (Lower Colorado River Basin DPS) (*Gila robusta*) – We previously announced candidate status for this species in a separate warranted-but-precluded 12-month petition finding published on July 7, 2009 (74 FR 32351).

Diamond darter (*Crystallaria cincotta*) – The following summary is based on information contained in our files. The diamond darter is a member of the Perch family (Percidae) that is generally

translucent with silvery white on the ventral side of the body and head and has four wide olive-brown saddles on the back and upper side. The fish generally grows to between 73 to 77.3 millimeters (2.9 – 3.0 inches) in standard length. The species is a benthic invertivore (feeds on invertebrates) that inhabits moderate to large warm-water streams with moderate current and clean sand and gravel substrates.

Historical records indicate that the diamond darter was distributed throughout the Ohio River Basin and that the range included the Muskingum River, Ohio; the Ohio River, Ohio; the Green River, Kentucky; and the Cumberland River Drainage, Kentucky and Tennessee. The species is currently only known to exist within a 36-kilometer (km) (22.4-mile (mi)) section of the lower Elk River in Kanawha and Clay Counties, West Virginia, and is considered extirpated from the remainder of the Ohio River Basin. Survey results and independent publications indicate that the diamond darter is very rare and that the remaining population within the Elk River is likely very small. Despite repeated and targeted survey efforts within the species' known range and preferred habitat in the Elk River, only 18 individuals have been collected in the last 29 years.

The primary threats to the diamond darter are related to the present or threatened destruction, modification, or curtailment of its habitat or range. The Elk River Watershed is threatened with ongoing water-quality degradation and habitat loss from activities such as coal mining, oil and gas development, siltation from these and other sources, and inadequate sewage and wastewater treatment. The impoundment of rivers in the Ohio River Basin, such as the Kanawha, Ohio, and Cumberland, has eliminated much of the species' habitat and isolated the existing population from other watersheds that the species historically occupied. Invasive species have the potential to affect the Elk River and diamond darter habitat. The small size and restricted range of the remaining diamond darter population make it particularly susceptible to the effects of genetic inbreeding, as well as potential extirpation from spills and other catastrophic events. The species is vulnerable to overutilization for scientific purposes; however, the significance of this threat has been reduced and can be further minimized through the administration of existing scientific collecting permit procedures. Existing Federal and State regulatory mechanisms do not currently provide protections for the species or its habitat.

The threats to the diamond darter are high in magnitude, in that the entire current range of the species is potentially affected, and the effects of the threats severely affect the reproductive capacity and can result in total mortality. The threats to the species are imminent and ongoing. Activities that pose a threat to the species already exist within the watershed and are expected to continue. Based on imminent threats of a high magnitude, we assigned an LPN of 2 to this species.

Clams

Rabbitsfoot (*Quadrula cylindrica cylindrica*) – The following summary is based on information in our files. The rabbitsfoot is a freshwater mussel native to Alabama, Arkansas, Georgia, Illinois, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Ohio, Oklahoma, Pennsylvania, Tennessee, and West Virginia. The species has disappeared from 5 of 6 rivers in the Lower Great Lakes sub-basin, 47 of 64 rivers in the Ohio River system, 10 of 12 rivers in the Cumberland River basin, 14 of 19 rivers in the Tennessee River system, 2 of 5 rivers in the Lower Mississippi River sub-basin, 3 of 12 rivers in the White River system, 4 of 8 rivers in the Arkansas River system, and 4 of 11 rivers in the Red River system, representing approximately a 65-percent decline of its range. Total range reduction (river miles) and overall population loss for the rabbitsfoot may approach, if not exceed, 90 percent. Of the 49 extant populations, 10 populations are considered to be viable in the longterm.

Population declines continue in most of the species' range, and numerous threats, including water-quality degradation, loss of stable substrates, sedimentation, channelization, gravel mining, dredging, and impoundments, are affecting the few remaining sustainable extant populations. The small size of most of the remaining rabbitsfoot populations exacerbates the threats and adverse effects of chance events to rabbitsfoot.

Threats to the continued existence of rabbitsfoot include exotic species, especially zebra mussels; delivery and deposition of fine sediments; small population sizes; isolation of populations; livestock grazing; wastewater effluents; mine runoff; unstable and coldwater flows downstream of dams; gravel mining; and channel dredging. In addition, the rabbitsfoot, like many other fresh-water mussels, requires a fish host to transport its larvae, and the fish host of rabbitsfoot is unknown for the eastern portion of its

range; thus, artificial propagation of the rabbitsfoot to reestablish the species in restored habitats and to maintain non-reproducing populations is not possible, nor is focused conservation of its fish host. Although there are ongoing attempts to alleviate some of these threats at some locations, there appear to be no populations without significant threats and many threats are without obvious or readily available solutions. The threats described above have led to the species being intrinsically vulnerable to extirpation.

Due to the number of extant populations and relatively broad distribution, the threats to rabbitsfoot are of moderate magnitude. Although some of the threats are nonimminent, most are ongoing and, therefore, overall, the threats are imminent. Thus, we assigned an LPN of 9 to this subspecies.

Flowering Plants

Astragalus anserinus (Goose Creek milkvetch) – We previously announced candidate status for this species in a separate warranted-but-precluded 12-month petition finding published on September 10, 2009 (74 FR 46521).

Leavenworthia exigua var. *laciniata* (Kentucky gladebloss) – The following summary is based on information in our files. Kentucky gladebloss is a winter annual that is adapted to environments with shallow soils interspersed with flat-bedded limestones. The natural habitat for Kentucky gladebloss is cedar glades, but the variety is also known from overgrazed pastures, eroded shallow-soil areas with exposed bedrock, and areas where the soil has been scraped off the underlying bedrock. The variety does not appear to compete well with other vegetation and is shade intolerant. Currently, there are approximately 55 occurrences in Jefferson and Bullitt Counties, Kentucky, but at least 39 of these occurrences are of poor quality with low numbers of plants and degraded conditions.

Populations of this variety are now located primarily in modified habitats such as pastureland, roadside rights of way, and cultivated or plowed fields. These populations are threatened by further habitat destruction (conversion from rural to residential land use), herbicide use, overgrazing, and competition. Some populations continue to occupy natural glade habitats, but these habitats are remnant in nature and continue to be affected by agricultural and residential conversion. The variety's primary threat, habitat destruction due to residential and commercial development, is widespread and has the potential to affect the entire

range of the variety. The effects of the threat are also permanent. Therefore, these threats are high in magnitude. These threats are imminent because the conversion from rural to residential land use is ongoing. Consequently, we assigned an LPN of 3 to this plant variety.

Ferns and Allies

Trichomanes punctatum ssp. *floridanum* (Florida bristle fern) – The following summary is based on information in our files. The Florida bristle fern has been reduced to four, or possibly five, small, isolated occurrences: Three occur in Miami-Dade County and two in Sumter County. In Miami-Dade County, it has been found exclusively in solution holes in oolitic limestone and rocky outcrops in rockland hammocks. In Sumter County, plants occur in a mesic/hydric hammock on shaded limestone boulders.

Most sites where Florida bristle fern once occurred in Miami-Dade County have been lost; few rockland hammocks remain outside of Everglades National Park. Impacts from regional water drainage in Miami-Dade County are severe, and currently occurring. Regional drainage in remaining habitat has probably been a stressor that has contributed to extirpations and population declines. Resulting drops in ambient humidity in the habitat may limit reproduction and health of populations over the longterm. Such changes in humidity may cause extirpations or make plants more vulnerable to other stressors (e.g., periodic long-term droughts, hurricanes). Climatic changes and sea-level rise are future, long term threats that are expected to affect habitat and ultimately reduce the extent of available habitat in Miami-Dade County. Agricultural conversion and development are currently occurring in Sumter County, placing any undocumented occurrences and suitable habitat at risk. Since a full survey of suitable habitats for the Florida bristle fern has never been conducted in Sumter County, we cannot determine the full extent of losses of this species due to habitat destruction and modification. All known extant occurrences are located on conservation lands; however, there is potential, especially in Sumter County, for the species to occur on private lands. Together, the extant occurrences contain fewer than 1,000 plants. Many plants are probably clones, so there may be limited genetic diversity within sites. Because there are few occurrences, populations contain few plants, and

genetic variability is low, the species is inherently at risk due to stochastic events. Droughts, tropical storms, and hurricanes are threats; Hurricane Andrew may have played a role in the extirpation of the species from two sites. Since there are few occurrences remaining, the species is threatened with extinction during these events. Invasive exotic plants are also a threat, but may be reduced due to active programs by Miami-Dade County and the State. The extent to which fungus is a threat to wild populations is unknown. Overall, the magnitude of threats is high, and most threats are occurring and are, therefore, imminent. Consequently, we assigned this subspecies an LPN of 3.

Listing Priority Changes in Candidates

We reviewed the LPN for all candidate species and are changing the numbers for the following species discussed below. Some of the changes reflect actual changes in either the magnitude or imminence of the threats. For some species, the LPN change reflects efforts to ensure national consistency as well as closer adherence to the 1983 guidelines in assigning these numbers, rather than an actual change in the nature of the threats.

Birds

Elfin-woods warbler (*Dendroica angelae*) – The elfin-woods warbler is a small entirely black and white warbler, distinguished by its white eyebrow stripe, white patches on ear covers and neck, incomplete eye ring, and black crown. The elfin-woods warbler was at first thought to occur only in the high-elevation dwarf or elfin forests of Puerto Rico, but has since been found at lower elevations including shade coffee plantations and secondary forests. This species builds a compact cup nest, usually close to the trunk and well hidden among the epiphytes of a small tree, and its breeding season extends from March to June. It forages in the middle part of trees, gleaning insects from leaves in the outer portion of the tree crown. The elfin-woods warbler has been documented from four locations in Puerto Rico: Luquillo Mountains, Sierra de Cayey, and the Commonwealth forests of Maricao and Toro Negro. However, it has not been recorded again in Toro Negro and Cayey since the passing of Hurricane Hugo in 1989. In 2003 and 2004, surveys were conducted for the elfin-woods warbler in the Carite Commonwealth Forest, Toro Negro Forest, Guilarte Forest, Bosque del Pueblo, Maricao Forest and the El Yunque National Forest (Luquillo Mountains), but the species was

detected only in the latter two. In the Maricao Commonwealth Forest, 778 elfin-woods warblers were recorded, and in the El Yunque National Forest, 196 were recorded.

The elfin-woods warbler is threatened by habitat modification. Destruction of elfin forest and *Podocarpus* forest by the installation of infrastructure (telecommunication towers and recreational facilities) threatens the long-term survival of this species. Loss of this type of habitat has been curtailed but potential for loss still exists due to Commonwealth agencies other than Department of Natural and Environmental Resources potentially installing these structures. Furthermore, restoration of this habitat would take a few decades to complete. Present regulatory processes, both Commonwealth and Federal, promote the protection of these areas. Conversion of elfin-woods warbler habitat of better quality (e.g., mature secondary forests, young secondary forests, and shade-coffee plantations) along the periphery of the Maricao Commonwealth Forest to marginal habitat (e.g., pastures, dry slope forests, residential rural forests, gallery forests, and sun-coffee plantations) may result in ineffective corridors for dispersal and expansion of the elfin-woods warbler. Although there is an effort to restore sun-coffee plantations to shade-coffee habitat, other habitats adjacent to the Maricao Forest may still be affected by residential development. We previously assessed the LPN as a 5 (high magnitude, nonimminent threats). Our analysis of the five listing factors revealed that only factors A and D applied to the species. Although habitat modification is occurring, it is limited, as the species is found mostly on protected lands managed by the Commonwealth and Federal agencies. We found no indication that the two populations of elfin-woods warbler are declining in numbers. We also found that the species can thrive in disturbed and plantation habitats, and rebounds and recovers well, in a relatively short time, from the damaging effects of hurricanes to the forest structure. Therefore, we have determined that the magnitude of threats is moderate to low because the severity of the threats on the species is not as great as we previously believed and most of the range of the elfin-woods warbler is within protected lands. The threats are not currently occurring in most of the warbler's habitat; therefore, the threats are nonimminent. As a result, we have changed the LPN from a 5 to an 11 for this species.

Fish

Pearl darter (*Percina aurora*) – Little is known about the specific habitat requirements or natural history of the Pearl darter. Pearl darters have been collected from rivers and streams with a variety of attributes, but are mainly found over gravel-bottom substrate. This species is historically known only from localized sites within the Pascagoula and Pearl River drainages in two States. Currently, the Pearl darter is considered extirpated from the Pearl River drainage and rare in the Pascagoula River drainage. Since 1983, the range of the Pearl darter has decreased by 55 percent.

The Pearl darter is vulnerable to non-point source pollution caused by urbanization and other land use activities; gravel mining and resultant changes in river geomorphology, especially head cutting; and the possibility of water reductions caused by the proposed Department of Energy Strategic Petroleum Reserve project and a proposed dam on the Bouie River. Additional threats are posed by the apparent lack of adequate State and Federal water-quality regulations due to the continuing degradation of water quality within the species' habitat. The pearl darter's localized distribution and apparent low population numbers may indicate a species with lower genetic diversity and would also make this species more vulnerable to catastrophic events. Reevaluation of the threats affecting the pearl darter has indicated that a change in the Listing Priority Number is warranted. Threats affecting the pearl darter are localized in nature, affecting portions of the population within the drainage. Thus, a threat magnitude of moderate to low is a more appropriate category in this situation. In addition, since the identified threats are currently affecting this species in these portions of its range, the threats are imminent. Therefore, we have changed the LPN from a 5 to an 8 to reflect this reevaluation.

Clams

Neosho mucket (*Lampsilis rafinesqueana*) – The Neosho mucket is a freshwater mussel native to Arkansas, Kansas, Missouri, and Oklahoma. The species has been extirpated from approximately 62 percent (835 river miles) of its range, primarily in Kansas and Oklahoma. The Neosho mucket survives in four river drainages, however, only one of these, the Spring River, currently supports a relatively large population.

Significant portions of the historical range have been inundated by the

construction of at least 11 dams. Channel instability downstream of these dams has further reduced suitable habitat and mussel distribution. Range restriction and population declines have occurred due to habitat degradation attributed to urbanization, impoundments, mining, sedimentation, and agricultural pollutants. Rapid development and urbanization in the Illinois River watershed will likely continue to increase channel instability, sedimentation, and eutrophication to this river. The rapid collapse of the entire mussel community, including Neosho mucket, since 2005 in the Arkansas portion of the Illinois River threatens to extirpate the species from approximately 30 river miles in the very near future. The Illinois River once represented one of the two viable populations, but continued viability of this stream population is doubtful and extirpation is imminent. The remaining extant populations are vulnerable to random catastrophic events (e.g., flood scour, drought, toxic spills), land-use changes within the limited range, and genetic isolation and the deleterious effects of inbreeding. These threats have led to the species being intrinsically vulnerable to extirpation. Although State regulations limit harvest of this species, there is little protection for habitat. The threats are high in magnitude because of their severity on this species, and they occur throughout the range. The majority of the threats are ongoing and thus imminent. Thus, we changed the LPN from a 5 to a 2 for this species.

Insects

Miami blue butterfly (*Cyclargus thomasi bethunebakeri*) – The Miami blue is endemic to south Florida. Historically, it occurred throughout the Florida Keys, north to Hillsborough and Volusia Counties. It is presently located at two sites in the Keys. In 1999, a metapopulation was discovered at Bahia Honda State Park (BHSP) on Bahia Honda Key and in 2006 a second metapopulation was discovered on the outer islands of Key West National Wildlife Refuge (KWNWR). The BHSP metapopulation appears restricted to a couple hundred individuals at most; the KWNWR metapopulation was believed to be several hundred in 2006-2007, but appears to be lower in abundance now. Capacity to expand at either site or successfully emigrate from either site appears to be very low due to the sedentary nature of the butterfly and isolation of habitats. Reintroduction efforts have not been successful. The Miami blue is predominantly a coastal species, occurring in disturbed and

early successional habitats such as the edges of tropical hardwood hammock, coastal berm forest, and along trails and other open sunny areas, and historically in pine rocklands. These habitats provide host plants for larvae and nectar sources for adults in close proximity, as the species requires.

Major threats to the butterfly include few occurrences, limited population size and range, hurricanes, mosquito control activities, and herbivory of hostplants by iguanas. Damage to hostplants from iguanas at BHSP is a new, ongoing, significant threat; although active steps are being taken by the State, this metapopulation is now at risk. Climatic changes and sea-level rise are long-term threats that will reduce the extent of habitat. Accidental harm or habitat destruction and illegal collection may also pose threats to the survival due to small population sizes. Loss of genetic diversity within the small and isolated populations may be occurring. The survival of the Miami blue depends on protecting the species' currently occupied habitat from further degradation and fragmentation; restoring potentially suitable habitat within its historical range; avoiding or removing threats from fire suppression, mosquito control, and accidental harm from humans; increasing the current population in size; and establishing populations at other locations. The threats are high in magnitude and constitute a significant risk to the subspecies. Given that the new threat from iguanas and other threats (hurricanes, few occurrences, and small population size) are ongoing, the threats are imminent. Therefore, we changed the LPN from a 6 to a 3.

Flowering plants

Helianthus verticillatus (whorled sunflower) – The whorled sunflower is found in moist, prairie-like openings in woodlands and along adjacent creeks. Despite extensive surveys throughout its range, only five populations are known for this species. There are two populations documented for Cherokee County, Alabama; one population in Floyd County, Georgia; and one population each in Madison and McNairy Counties, Tennessee. This species appears to have restricted ecological requirements and is dependent upon the maintenance of prairie-like openings for its survival. Active management of habitat is needed to keep competition and shading under control. Much of its habitat has been degraded or destroyed for agricultural, silvicultural, and residential purposes. Populations near roadsides or powerlines are threatened by herbicide

usage in association with right-of-way maintenance. The majority of the Georgia population is protected due to its location within a conservation easement area; however, only 15 to 20 plants are estimated to occur at this site. The remaining four sites are not formally protected, but efforts have been taken to abate threats associated with highway right-of-way maintenance at one Alabama population; and, despite past concerns about threats from timber removal degrading *H. verticillatus* habitat, the other Alabama population has responded favorably to canopy removal that took place circa 2001. Because of this, the threats are of moderate magnitude. The threats are currently occurring, and therefore imminent. To help ensure consistency in the application of our listing priority process, we changed the LPN from a 5 to an 8 for this species.

Lesquerella globosa (Short's bladderpod) – Short's bladderpod is a perennial member of the mustard family that occurs in Indiana (1 location), Kentucky (6 locations), and Tennessee (22 locations). It grows on steep, rocky, wooded slopes; talus areas, along cliff tops and bases; and on cliff ledges. It is usually associated with south-to-west-facing calcareous outcrops adjacent to rivers or streams. Road construction and road maintenance have played a significant role in the decline of *L. globosa*. Specific activities that have affected the species in the past and continue to threaten it include bank stabilization, herbicide use, mowing during the growing season, grading of road shoulders, and road widening or repaving. Sediment deposition during road maintenance or from other activities also potentially threatens the species. Because the natural processes that maintained habitat suitability and competition from invasive nonnative vegetation have been interrupted at many locations, active habitat management is necessary at those sites. The threats from roadside maintenance and habitat alterations by invasive plant encroachment are moderate in magnitude, as they are not affecting all locations of this species. However, the threats are currently occurring, and therefore imminent. To help ensure consistency in the application of our listing priority process, we changed the LPN from a 5 to an 8 for this species.

Physaria douglasii ssp. *tuplashensis* (White Bluffs bladderpod) – In previous Candidate Notices of Review, we referred to *P. douglasii* ssp. *tuplashensis* as *P. tuplashensis*. We have now dropped that name because the paper that recommended its use was never published. As a result, we are following

the treatment of a 2002 published scientific paper that recognized the White Bluffs bladderpod as *Physaria douglassii* ssp. *tuplashensis*.

White Bluffs bladderpod is a low-growing, herbaceous, short-lived perennial plant in the Brassicaceae (mustard) family. Historically and currently, White Bluffs bladderpod (*P. douglasii* ssp. *tuplashensis*) has been known from only a single population that occurs along the White Bluffs of the Columbia River in Franklin County, Washington. The entire range of the species is a narrow band, approximately 33 feet (10 meters) wide by 10.6 miles (17 km) long, at the upper edge of the bluffs. The species occurs only on cemented, highly alkaline, calcium carbonate paleosol (a "caliche" soil) and is believed to be a "calciophile."

Approximately 35 percent of the known range of the species has been moderately to severely affected by landslides, an apparently permanent destruction of the habitat. The entire population of the species is down slope of irrigated agricultural land, the source of the water seepage causing the mass failures and landslides. However, the southern portion is the closest to the agricultural land and the most affected by landslides. Other significant threats include use of the habitat by recreational off-road vehicles which destroy plants, and the presence of invasive nonnative plants that compete with *P. douglassii* ssp. *tuplashensis* for resources (light, water, nutrients). Additionally, the increasing presence of invasive nonnative plants may alter fire regimes and potentially increase the threat of fire to the *P. douglasii* ssp. *tuplashensis* population. As a result of a fire in 2007, there is a higher probability that invasion of these nonnatives will occur. We reanalyzed the magnitude and imminence of the threats, which resulted in a change in the LPN for *P. douglasii* ssp. *tuplashensis*. The threats to the population from landslides and the recreational off-road vehicle use are currently occurring and will continue to occur in the future. In addition, invasion by nonnative plants is currently occurring, and with the 2007 fire that occurred in the area of the existing population, invasive plants will likely spread and increase throughout the burned area of the population. We have therefore determined that these threats are imminent. Although approximately 35 percent of the population is severely affected by landslides in the southern portion of the range, the likelihood of the persistence of the population in the unaffected northern portion appears to be relatively

high. Currently, we know of no plans to expand or significantly modify the existing agriculture activities in areas adjacent to the population. In addition, deliberate modification of the species' immediate habitat is unlikely due to its location and 85 percent having Federal ownership. Even though off-road vehicle use is prohibited on the monument, intermittent, ongoing use does occur. However, these activities, although they are ongoing, are mainly confined to the upper portion of the White Bluffs where few *P. tuplashensis* plants occur, so there is low to moderate threat to the species from these activities. Invasive plants are present in the vicinity, but have not yet been described as a significant problem. While *P. douglasii* ssp. *tuplashensis* is inherently vulnerable because it is a narrow endemic, the magnitude of the threats to the population is moderate. The threats are currently occurring, and therefore imminent. To help ensure consistency in the application of our listing priority process and to recognize the correct taxonomic name, we changed the LPN from a 5 to a 9 for this subspecies.

Platanthera integrilabia (White fringeless orchid) – *Platanthera integrilabia* is a perennial herb that grows in partially but not fully shaded, wet, boggy areas at the heads of streams and on seepage slopes in Alabama, Georgia, Kentucky, and Tennessee. Historically, there were at least 90 populations of *P. integrilabia*. Currently there are approximately 50 extant sites supporting the species.

Several populations have been extirpated due to road, residential, and commercial construction and projects that altered soil and site hydrology such that suitability for the species was reduced. Several of the known populations are in or adjacent to powerline rights of way. Mechanical clearing of these areas may benefit the species by maintaining adequate light levels; however, the indiscriminant use of herbicides in these areas could pose a significant threat to the species. All-terrain vehicles have damaged several sites and pose a threat at most sites. Most of the known sites for the species occur in areas that are managed specifically for timber production. Timber management is not necessarily incompatible with the protection and management of the species, but care must be taken during timber management to ensure that the hydrology of the bogs that support the species is not altered. Natural succession can result in decreased light levels. Because of the species' dependence upon moderate to high light

levels, some type of active management to prevent complete canopy closure is required at most locations. Collecting for commercial and other purposes is a potential threat. Herbivory (primarily by deer) threatens the species at several sites. Due to the alteration of habitat and changes in natural conditions, protection and recovery of this species is dependent upon active management rather than just preservation of habitat. Invasive, nonnative plants such as Japanese honeysuckle and kudzu threaten several sites. Upon review of current listing guidance and threats affecting the species, we have revised the LPN to reflect the fact that threats are currently operating at most sites and are therefore imminent. While the threats are widespread, however, the impact of those threats on the species survival is moderate in magnitude. Several of the sites are protected to some degree from the threats by being within State parks, national forests, wildlife management areas, or other protected land. As a result, we changed the LPN from a 5 to an 8 for this species.

Candidate Removals

As summarized below, we have evaluated the threats to the following four species and considered factors that, individually and in combination, currently or potentially could pose a risk to these species and their habitat. After a review of the best available scientific and commercial data, we conclude that listing these four species under the Endangered Species Act is not warranted because the species are not likely to become endangered species within the foreseeable future throughout all or a significant portion of their range. Therefore, for each of these species we find that proposing a rule to list it is not warranted, and we no longer consider it to be a candidate species for listing. We will continue to monitor the status of these species, and to accept additional information and comments concerning this finding. We will reconsider our determination for each species in the event that new information indicates that the threats to the species are of a considerably greater magnitude or imminence than identified through assessments of information contained in our files, as summarized here.

Snails

Fat-whorled pondsnail (*Stagnicola bonnevillensis*) – The fat-whorled pondsnail, also known as the Bonneville pondsnail, was thought to occur in only four spring pools north of the Great Salt Lake in Box Elder County, Utah. Additional surveys found Lymnaeid snails including *S. bonnevillensis*-like

shells in springs throughout the playa. New information shows that shell characteristics vary greatly with environmental conditions. Because the fat-whelled pondsnail was classified based only on the shell appearance, the taxonomy is questionable. Because of uncertainties surrounding the validity of *S. bonnevillensis* as a species, we evaluated all *Stagnicola* sp. inhabiting the spring pools previously thought to be occupied by *S. bonnevillensis*. The primary threat to these pools has been chemical contamination of the groundwater. Significant actions have been taken to remediate this threat, including implementing corrective actions to track and remediate groundwater contamination, implementation of a site management plan, and development of a groundwater model and risk assessment. The plan has been implemented, and conservation measures are currently being monitored for effectiveness. These efforts have been under way for a sufficient period to effectively eliminate the threat from contamination. We know of no other threats to the springs in the range of *S. bonnevillensis*. Based on findings and analysis in our updated assessment, we conclude that this species is not likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and listing this species under the Endangered Species Act is therefore not warranted. The species no longer meets our definition of a candidate, and we have removed it from candidate status.

Crustaceans

Troglobitic groundwater shrimp (*Typhlatya monae*) – *Typhlatya monae* is a small subterranean small shrimp known from Puerto Rico, Barbuda, and the Dominican Republic. It is classified as a troglobite, or obligatory cave organism, of which its most extraordinary feature is the reduction or loss of vision and pigmentation. *T. monae* feeds on organic waste material and debris, such as bat guano. Little is known concerning the status of *T. monae* in either Barbuda or Dominican Republic and we are not aware of any threats to this species in those locations. This species was discovered on Mona Island, in Puerto Rico but was later found on the Puerto Rico mainland in three caves within the Guánica Commonwealth Forest in the municipalities of Guánica, Yauco, and Guayanilla. Although the species was not found on Mona Island during surveys conducted in 1974 and 1995, the species may still be found in the reef

deposit aquifers in Mona Island that have not yet been surveyed.

In 1995, the total population was estimated to be close to 2,000 individuals; over 95 percent of these were observed in one cave. Although no systematic censuses have been conducted since 1995, the Service has recently documented the presence of the species in all three mainland caves and obtained information from Puerto Rico Commonwealth Forest personnel regarding two additional caves in which the species may occur.

In past reviews, we determined that the species was threatened by habitat disturbance, human-induced fires, hurricanes and floods. However, the Guánica Commonwealth Forest and Mona Island Natural Reserve are managed for conservation by the Puerto Rico Department of Natural and Environmental Resources (DNER). Caves in the Guánica Forest are closed to public visitors; therefore, habitat modification and disturbance, and human-induced fires are not anticipated. Caves on Mona Island are seldom visited, and adverse effects to these areas have not been documented. The species is located in pools inside caves, and underground waters; thus, we do not anticipate impacts from hurricanes. *Typhlatya monae* was first described in Mona Island from el Pozo Del Portuguez and from a deep well close to the airport. At the present time, the use of this well is limited to DNER staff; therefore, additional extraction of underground waters is not expected. Currently, the DNER utilizes water cisterns and commercial potable water as alternate water sources. The species is protected by Regulation #6766 ("Reglamento para Regir las Especies Vulnerables y en Peligro de Extinción en el Estado Libre Asociado de Puerto Rico"), adopted in 2004 by the Commonwealth of Puerto Rico. Under Regulation #6766, *T. monae* is listed as Critically Endangered (CR). Regulation #6766 prohibits collecting, killing, or harming listed species. We conclude that this species is not likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and listing this species under the Endangered Species Act is not warranted. The species no longer meets our definition of a candidate, and we have removed it from candidate status.

Flowering Plants

Calliandra locoensis (no common name) – *Calliandra locoensis* is a spiny, leguminous shrub currently known from five localities within the Susúa Commonwealth Forest in the

municipalities of Yauco and Sabana Grande, in southwestern Puerto Rico. This species is endemic to Puerto Rico, and was discovered in 1991 during a study of the flora of the Susúa Commonwealth Forest; it was described by García and Kolterman in 1992. *Calliandra locoensis* is found on shallow, serpentine soils with low nutrients, high drainage, and low fertility. In 2007, local botanists reported 3 populations with approximately 1,600 adult plants and numerous seedlings in 5 localities indicating that the number of adult individuals has doubled and the number of localities has increased since surveys conducted in 1998.

In previous reviews, we determined that the species was threatened by forest-management practices (accidental trampling, brush clearing, trail maintenance), forest fires (natural or manmade), catastrophic natural events (hurricanes, floods, mudslides), and restricted distribution. We now find that this species is not currently threatened by forest management practices. The species is currently considered as a critical element under the Puerto Rico Department of Natural and Environmental Resources Natural Heritage Program; consequently activities conducted in the forest are generally scrutinized and measures to minimize or avoid impacts to species are recommended and implemented. The Susúa Commonwealth Forest is also protected by Law #133 and has been designated as a Critical Wildlife Area. We also previously indicated that this species was vulnerable to hurricanes and human-induced fires. Plants endemic to the Caribbean are naturally adapted to the impact of hurricanes (the species usually lose their leaves for a certain period of time, but recover them later). Although hurricanes are common occurrences in Puerto Rico, damage to this species by hurricanes has not been reported in any of the currently known populations in the last decade. Surveys have indicated that despite hurricanes occurring in the areas where *C. locoensis* exists, the number of adult individuals has doubled, the number of localities has increased, evidence suggests that the species is successfully reproducing. Thus, we have determined that hurricanes are not a threat. The currently known populations are not located near the roads of the forest, which are more vulnerable to fires and DNER implements a fire prevention plan within the forest, particularly during the dry season; therefore, fire is not a threat to the species. We conclude that this species is not likely to become

an endangered species within the foreseeable future throughout all or a significant portion of its range, and listing this species under the Endangered Species Act is not warranted. The species no longer meets our definition of a candidate, and we have removed it from candidate status.

Calyptanthus estremerae (no common name) – *Calyptanthus estremerae* is a small tree from the subtropical moist forest of northwestern Puerto Rico, in the municipalities of Camuy, Utuado, and Arecibo. *Calyptanthus estremerae* was only known from several individuals found near the recreation area adjacent to the Río Camuy Cave Park. At present time, about 100 individuals of *C. estremerae* are estimated for the Camuy Cave Park area, Río Abajo Commonwealth Forest (managed by the Puerto Rico Department of Natural and Environmental Resources (DNER)), and a privately owned farm in Sabana Hoyos, Arecibo.

We have found that this species is no longer threatened by the expansion of recreation facilities within Cavernas de Camuy Park and Río Abajo Commonwealth Forest, as there are no plans to expand such facilities. In addition, the Río Abajo Commonwealth Forest has a management plan in place that emphasizes protection and conservation of species classified under DNER as critical, threatened, or endangered and their habitat; *C. estremerae* is classified as a critical element by DNER. Furthermore, actions that may affect such classified species are generally scrutinized, and measures to minimize or avoid impacts to these species are recommended and implemented. The Río Abajo Commonwealth Forest is also protected by designation as a Critical Wildlife Area. In previous assessments, we indicated that the small number of individuals of *C. estremerae* in the two populations, along with the species' limited distribution made this species vulnerable to potential catastrophic natural (hurricanes) and manmade (fires) events. However, damage by hurricanes has not been reported in any of the currently known populations. In addition, because the species exists in the subtropical moist forest life zone, the threat of human-induced fires is low; further, the DNER implements an islandwide fire prevention plan in public forests. Therefore, fires are currently not a threat to this species. We conclude that this species is not likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range, and listing this species under the

Endangered Species Act is not warranted. The species no longer meets our definition of a candidate, and we have removed it from candidate status.

Petition Findings

The Act provides two mechanisms for considering species for listing. One method allows the Secretary, on his own initiative, to identify species for listing under the standards of section 4(a)(1). We implement this through the candidate program, discussed above. The second method for listing a species provides a mechanism for the public to petition us to add a species to the Lists. Under section 4(b)(3)(A), when we receive such a petition, we must determine within 90 days, to the maximum extent practicable, whether the petition presents substantial information that listing may be warranted (a "90-day finding"). If we make a positive 90-day finding, we must promptly commence a status review of the species under section 4(b)(3)(A); we must then make and publish one of three possible findings within 12 months of the receipt of the petition (a "12-month finding"):

1. The petitioned action is not warranted;
2. The petitioned action is warranted (in which case we are required to promptly publish a proposed regulation to implement the petitioned action; once we publish a proposed rule for a species, section 4(b)(5) and 4(b)(6) govern further procedures regardless of whether we issued the proposal in response to a petition); or
3. The petitioned action is warranted but (a) the immediate proposal of a regulation and final promulgation of regulation implementing the petitioned action is precluded by pending proposals, and (b) expeditious progress is being made to add qualified species to the lists of endangered or threatened species. (We refer to this as a "warranted-but-precluded finding.")

Section 4(b)(3)(C) of the Act requires that when we make a warranted-but-precluded finding on a petition, we are to treat such a petition as one that is resubmitted on the date of such a finding. Thus, we are required to publish new 12-month findings on these "resubmitted" petitions on an annual basis.

On December 5, 1996, we made a final decision to redefine "candidate species" to mean those species for which the Service has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but for which issuance of the proposed rule is precluded (61 FR 64481; December 6,

1996). Therefore, the standard for making a species a candidate through our own initiative is identical to the standard for making a warranted-but-precluded 12-month petition finding on a petition to list, and we add all petitioned species for which we have made a warranted-but-precluded 12-month finding to the candidate list.

This publication provides notice of substantial 90-day findings and the warranted-but-precluded 12-month findings pursuant to section 4(b)(3) for candidate species listed on Table 1 that we identified on our own initiative, and that subsequently have been the subject of a petition to list. Even though all candidate species identified through our own initiative already have received the equivalent of substantial 90-day and warranted-but-precluded 12-month findings, we review the status of the newly petitioned candidate species and through this CNOR publish specific section 4(b)(3) findings (i.e., substantial 90-day and warranted-but-precluded 12-month findings) in response to the petitions to list these candidate species. We publish these findings as part of the first CNOR following receipt of the petition.

Pursuant to section 4(b)(3)(C)(i) of the Act, once a petition is filed regarding a candidate species, we must make a 12-month petition finding in compliance with section 4(b)(3)(B) of the Act at least once a year, until we publish a proposal to list the species or make a final not-warranted finding. We make these annual findings for petitioned candidate species through the CNOR.

Section 4(b)(3)(C)(iii) of the Act requires us to "implement a system to monitor effectively the status of all species" for which we have made a warranted-but-precluded 12-month finding, and to "make prompt use of the [emergency listing] authority [under section 4(b)(7)] to prevent a significant risk to the well being of any such species." The CNOR plays a crucial role in the monitoring system that we have implemented for all candidate species by providing notice that we are actively seeking information regarding the status of those species. We review all new information on candidate species as it becomes available, prepare an annual species assessment form that reflects monitoring results and other new information, and identify any species for which emergency listing may be appropriate. If we determine that emergency listing is appropriate for any candidate, whether it was identified through our own initiative or through the petition process, we will make prompt use of the emergency listing authority under section 4(b)(7). We have

been reviewing and will continue to review, at least annually, the status of every candidate, whether or not we have received a petition to list it. Thus, the CNOR and accompanying species assessment forms constitute the Service's annual finding on the status of petitioned species pursuant to section 4(b)(3)(C)(i).

On June 20, 2001, the United States Court of Appeals for the Ninth Circuit held that the 1999 CNOR (64 FR 57534; October 25, 1999) did not demonstrate that we fulfilled the second component of the warranted-but-precluded 12-month petition findings for the Gila chub and Chiracahua leopard frog (*Center for Biological Diversity v. Norton*, 254 F.3d 833 (9th Cir. 2001)). The court found that the one-line designation in the table of candidates in the 1999 CNOR, with no further explanation, did not satisfy section 4(b)(3)(B)(iii)'s requirement that the Service publish a finding "together with a description and evaluation of the reasons and data on which the finding is based." The court suggested that this one-line statement of candidate status also precluded meaningful judicial review.

On June 21, 2004, the United States District Court for Oregon agreed that we can use the CNOR as a vehicle for making petition findings and that our reasoning for why listing is precluded does not need to be based on an assessment at a regional level (as opposed to a national level) (*Center for Biological Diversity v. Norton* Civ. No. 03-1111-AA (D. Or.)). However, this court found that our discussion on why listing the candidate species were precluded by other actions lacked specificity; in the list of species that were the subject of listing actions that precluded us from proposing to list candidate species, we did not state the specific action at issue for each species in the list and we did not indicate which actions were court-ordered.

On June 22, 2004, in a similar case, the United States District Court for the Eastern District of California also concluded that our determination of preclusion may appropriately be based on a national analysis (*Center for Biological Diversity v. Norton* No. CV S-03-1758 GEB/DAD (E.D. Cal.)). This court also found that the Act's imperative that listing decisions be based solely on science applies only to the determination about whether listing is warranted, not the question of when listing is precluded.

On March 24, 2005, the United States District Court for the District of Columbia held that we may not consider critical habitat activities in justifying

our inability to list candidate species, requiring that we justify both our preclusion findings and our demonstration of expeditious progress by reference to listing proceedings for unlisted species (*California Native Plant Society v. Norton*, Civ. No. 03-1540 (JR) (D.D.C.)). The court further found that we must adequately itemize priority listings, explain why certain species are of high priority, and explain why actions on these high-priority species preclude listing species of lower priority. The court approved our reliance on national rather than regional priorities and workload in establishing preclusion and approved our basic explanation that listing candidate species may be precluded by statutorily mandated deadlines, court-ordered actions, higher priority listing activities, and a limited budget.

In this CNOR we continue to incorporate information that addresses the courts' concerns. We include a description of the reasons why the listing of every petitioned candidate species is both warranted and precluded at this time. We make our determinations of preclusion on a nationwide basis to ensure that the species most in need of listing will be addressed first and also because we allocate our listing budget on a nationwide basis (see below). Regional priorities can also be discerned from Table 1, which includes the lead region and the LPN for each species. Our preclusion determinations are further based upon our budget for listing activities for unlisted species, and we explain the priority system and why the work we have accomplished does preclude action on listing candidate species.

Pursuant to section 4(b)(3)(C)(ii) and the Administrative Procedure Act (5 U.S.C. 551 *et seq.*), any party with standing may challenge the merits of any not-warranted or warranted-but-precluded petition finding incorporated in this CNOR. The analysis included herein, together with the administrative record for the decision at issue (particularly the supporting species assessment form), will provide an adequate basis for a court to review the petition finding.

Nothing in this document or any of our policies should be construed as in any way modifying the Act's requirement that we make a resubmitted 12-month petition finding for each petitioned candidate within 1 year of the date of publication of this CNOR. If we fail to make any such finding on a timely basis, whether through publication of a new CNOR or some

other form of notice, any party with standing may seek judicial review.

In this CNOR, we continue to address the concerns of the courts by including specific information in our discussion on preclusion (see below). In preparing this CNOR, we reviewed the current status of, and threats to, the 162 candidates and 6 listed species for which we have received a petition and for which we have found listing or reclassification from threatened to endangered to be warranted but precluded. We find that the immediate issuance of a proposed rule and timely promulgation of a final rule for each of these species has been, for the preceding months, and continues to be, precluded by higher priority listing actions. Additional information that is the basis for this finding is found in the species assessments and our administrative record for each species.

Our review included updating the status of, and threats to, petitioned candidate or listed species for which we published findings, pursuant to section 4(b)(3)(B), in the previous CNOR. We have incorporated new information we gathered since the prior finding and, as a result of this review, we are making continued warranted-but-precluded 12-month findings on the petitions for these species.

We have identified the candidate species for which we received petitions by the code "C*" in the category column on the left side of Table 1. The immediate publication of proposed rules to list these species was precluded by our work on higher priority listing actions, listed below, during the period from October 1, 2008, through September 30, 2009. We will continue to monitor the status of all candidate species, including petitioned species, as new information becomes available to determine if a change in status is warranted, including the need to emergency-list a species under section 4(b)(7) of the Act.

In addition to identifying petitioned candidate species in Table 1 below, we also present brief summaries of why these particular candidates warrant listing. More complete information, including references, is found in the species assessment forms. You may obtain a copy of these forms from the Regional Office having the lead for the species, or from the Fish and Wildlife Service's Internet website: <http://endangered.fws.gov/>. As described above, under section 4 of the Act we may identify and propose species for listing based on the factors identified in section 4(a)(1), and section 4 also provides a mechanism for the public to petition us to add a species to the lists

of species determined to be threatened species or endangered species under the Act. Below we describe the actions that continue to preclude the immediate proposal and final promulgation of a regulation implementing each of the petitioned actions for which we have made a warranted-but-precluded finding, and we describe the expeditious progress we are making to add qualified species to the lists of endangered or threatened species.

Preclusion and Expeditious Progress

Preclusion is a function of the listing priority of a species in relation to the resources that are available and competing demands for those resources. Thus, in any given fiscal year (FY), multiple factors dictate whether it will be possible to undertake work on a proposed listing regulation or whether promulgation of such a proposal is warranted but precluded by higher priority listing actions.

The resources available for listing actions are determined through the annual Congressional appropriations process. The appropriation for the Listing Program is available to support work involving the following listing actions: proposed and final listing rules; 90-day and 12-month findings on petitions to add species to the Lists of Endangered and Threatened Wildlife and Plants (Lists) or to change the status of a species from threatened to endangered; annual determinations on prior warranted-but-precluded petition findings as required under section 4(b)(3)(C)(i) of the Act; critical habitat petition findings; proposed and final rules designating critical habitat; and litigation-related, administrative, and program-management functions (including preparing and allocating budgets, responding to Congressional and public inquiries, and conducting public outreach regarding listing and critical habitat). The work involved in preparing various listing documents can be extensive, and may include, but is not limited to: gathering and assessing the best scientific and commercial data available and conducting analyses used as the basis for our decisions; writing and publishing documents; and obtaining, reviewing, and evaluating public comments and peer review comments on proposed rules and incorporating relevant information into final rules. The number of listing actions that we can undertake in a given year also is influenced by the complexity of those listing actions; that is, more complex actions generally are more costly. For example, during the past several years, the cost (excluding publication costs) for preparing a 12-

month finding, without a proposed rule, has ranged from approximately \$11,000 for one species with a restricted range that requires a relatively uncomplicated analysis to \$305,000 for another species that is wide-ranging and requires a complex analysis.

We cannot spend more than is appropriated for the Listing Program without violating the Anti-Deficiency Act (see 31 U.S.C. § 1341(a)(1)(A)). In addition, in FY 1998 and for each fiscal year since then, Congress has placed a statutory cap on funds which may be expended for the Listing Program, equal to the amount expressly appropriated for that purpose in that fiscal year. This cap was designed to prevent funds appropriated for other functions under the Act (for example, recovery funds for removing species from the Lists), or for other Service programs, from being used for Listing Program actions (see House Report 105-163, 105th Congress, 1st Session, July 1, 1997).

Recognizing that designation of critical habitat for species already listed would consume most of the overall Listing Program appropriation, Congress also put a critical habitat subcap in place in FY 2002, and has retained it each subsequent year to ensure that some funds are available for other work in the Listing Program: "The critical habitat designation subcap will ensure that some funding is available to address other listing activities" (House Report No. 107 - 103, 107th Congress, 1st Session, June 19, 2001). In FY 2002 and each year until FY 2006, the Service has had to use virtually the entire critical habitat subcap to address court-mandated designations of critical habitat, and consequently none of the critical habitat subcap funds have been available for other listing activities. In FY 2007, we were able to use some of the critical habitat subcap funds to fund proposed listing determinations for high-priority candidate species; however, in subsequent FYs we were unable to do this because all of the critical habitat subcap funds were needed to address our workload for designating critical habitat.

Thus, through the listing cap, the critical habitat subcap, and the amount of funds needed to address court-mandated critical habitat designations, Congress and the courts have in effect determined the amount of money available for other listing activities. Therefore, the funds in the listing cap, other than those needed to address court-mandated critical habitat for already listed species, represent the resources we must take into consideration when we make our

determinations of preclusion and expeditious progress.

Congress also recognized that the availability of resources was the key element in deciding, when making a 12-month petition finding, whether we would prepare and issue a listing proposal or instead make a warranted-but-precluded finding for a given species. The Conference Report accompanying Pub. L. 97-304, which established the current statutory deadlines and the warranted-but-precluded finding, states (in a discussion on 90-day petition findings that by its own terms also covers 12-month findings) that the deadlines were "not intended to allow the Secretary to delay commencing the rulemaking process for any reason other than that the existence of pending or imminent proposals to list species subject to a greater degree of threat would make allocation of resources to such a petition [that is, for a lower-ranking species] unwise."

In FY 2009, expeditious progress is that amount of work that can be achieved with \$8,808,000, which is the amount of money that Congress appropriated for the Listing Program (that is, the portion of the Listing Program funding not related to critical habitat designations for species that are already listed). Our process is to make our determinations of preclusion on a nationwide basis to ensure that the species most in need of listing will be addressed first and also because we allocate our listing budget on a nationwide basis. The \$8,808,000 was used to fund work in the following categories: compliance with court orders and court-approved settlement agreements requiring that petition findings or listing determinations be completed by a specific date; section 4 (of the Act) listing actions with absolute statutory deadlines; essential litigation-related, administrative, and listing program-management functions; and high-priority listing actions for some of our candidate species. The allocations for each specific listing action are identified in the Service's FY 2009 Allocation Table (part of our administrative record).

In FY 2007, we had more than 120 species with an LPN of 2, based on our September 21, 1983, guidance for assigning an LPN for each candidate species (48 FR 43098). Using this guidance, we assign each candidate an LPN of 1 to 12, depending on the magnitude of threats (high vs. moderate to low), immediacy of threats (imminent or nonimminent), and taxonomic status of the species (in order of priority: monotypic genus (a species that is the

sole member of a genus); species; or part of a species (subspecies, distinct population segment, or significant portion of the range)). The lower the listing priority number, the higher the listing priority (that is, a species with an LPN of 1 would have the highest listing priority). Because of the large number of high-priority species, we further ranked the candidate species with an LPN of 2 by using the following extinction-risk type criteria: International Union for the Conservation of Nature and Natural Resources (IUCN) Red list status/rank, Heritage rank (provided by NatureServe), Heritage threat rank (provided by NatureServe), and species currently with fewer than 50 individuals, or 4 or fewer populations. Those species with the highest IUCN rank (critically endangered), the highest Heritage rank (G1), the highest Heritage threat rank (substantial, imminent threats), and currently with fewer than 50 individuals, or fewer than 4 populations, comprised a group of approximately 40 candidate species ("Top 40"). These 40 candidate species have had the highest priority to receive

funding to work on a proposed listing determination. As we work on proposed and final listing rules for these 40 candidates, we are applying the ranking criteria to the next group of candidates with LPN of 2 and 3 to determine the next set of highest priority candidate species.

To be more efficient in our listing process, as we work on proposed rules for these species in the next several years, we are preparing multi-species proposals when appropriate, and these may include species with lower priority if they overlap geographically or have the same threats as a species with an LPN of 2. In addition, available staff resources are also a factor in determining which high-priority species will receive funding. Finally, proposed rules for reclassification of threatened species to endangered are lower priority, since as listed species, they are already afforded the protection of the Act and implementing regulations.

Thus, we continue to find that proposals to list the petitioned candidate species included in Table 1 are all warranted but precluded.

As explained above, a determination that listing is warranted but precluded must also demonstrate that expeditious progress is being made to add and remove qualified species to and from the Lists of Endangered and Threatened Wildlife and Plants. (Although we do not discuss it in detail here, we are also making expeditious progress in removing species from the list under the Recovery program, which is funded by a separate line item in the budget of the Endangered Species Program. As explained above in our description of the statutory cap on Listing Program funds, the Recovery Program funds and actions supported by them cannot be considered in determining expeditious progress made in the Listing Program.) As with our "precluded" finding, expeditious progress in adding qualified species to the Lists is a function of the resources available and the competing demands for those funds. Given that limitation, we find that we made expeditious progress in FY 2009 in the Listing Program. This progress included preparing and publishing the following determinations:

FY 2009 COMPLETED LISTING ACTIONS

Publication Date	Title	Actions	FR Pages
10/15/2008	90-Day Finding on a Petition To List the Least Chub	Notice of 90-day Petition Finding, Substantial	73 FR 61007 61015
10/21/2008	Listing 48 Species on Kauai as Endangered and Designating Critical Habitat	Proposed Listing, Endangered; Proposed Critical Habitat	73 FR 62591 62742
10/24/2008	90-Day Finding on a Petition to List the Sacramento Valley Tiger Beetle as Endangered	Notice of 90-day Petition Finding, Not substantial	73 FR 63421 63424
10/28/2008	90-Day Finding on a Petition To List the Dusky Tree Vole (<i>Arborimus longicaudus silvicola</i>) as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	73 FR 63919 63926
11/25/2008	12-Month Finding on a Petition To List the Northern Mexican Gartersnake (<i>Thamnophis eques megalops</i>) as Threatened or Endangered With Critical Habitat; Proposed Rule	Notice of 12 month petition finding, Warranted but precluded	73 FR 71787 71826
12/02/2008	90-Day Finding on a Petition To List the Black-tailed Prairie Dog as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	73 FR 73211 73219
12/05/2008	90-Day Finding on a Petition To List the Sacramento Mountains Checkerspot Butterfly (<i>Euphydryas anicia cloudcrofti</i>) as Endangered with Critical Habitat	Notice of 90-day Petition Finding, Substantial	73 FR 74123 74129
12/18/2008	90-Day Finding on a Petition to Change the Listing Status of the Canada Lynx	Notice of 90-day Petition Finding, Substantial	73 FR 76990 76994
1/06/2009	Partial 90-Day Finding on a Petition To List 475 Species in the Southwestern United States as Threatened or Endangered With Critical Habitat	Notice of 90-day Petition Finding, Not substantial	74 FR 419 427
2/05/2009	Partial 90-Day Finding on a Petition To List 206 Species in the in the Midwest and Western United States as Threatened or Endangered With Critical Habitat	Notice of 90-day Petition Finding, Not substantial	74 FR 6122 6128

FY 2009 COMPLETED LISTING ACTIONS—Continued

Publication Date	Title	Actions	FR Pages
2/10/2009	90-Day Finding on a Petition To List the Wyoming Pocket Gopher as Threatened or Endangered With Critical Habitat	Notice of 90-day Petition Finding, Substantial	74 FR 6558 6563
3/17/2009	Listing <i>Phyllostegiahispida</i> (No Common Name) as Endangered Throughout Its Range	Final Listing Endangered	74 FR 11319 11327
3/25/2009	12-Month Finding on a Petition to List the Yellow-Billed Loon as Threatened or Endangered	Notice of 12 month petition finding, Warranted but precluded	74 FR 12931 12968
4/09/2009	12-Month Finding on a Petition to List the San Francisco Bay-Delta Population of the Longfin Smelt (<i>Spirinchus thaleichthys</i>) as Endangered	Notice of 12 month petition finding, Not warranted	74 FR 16169 16175
4/22/2009	90-Day Finding on a Petition To List the Tehachapi Slender Salamander (<i>Batrachoseps stebbinsi</i>) as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	74 FR 18336 18341
5/07/2009	90-Day Finding on a Petition To List the American Pika as Threatened or Endangered with Critical Habitat	Notice of 90-day Petition Finding, Substantial	74 FR 21301 21310
5/19/2009	12-Month Finding on a Petition to List the Coaster Brook Trout as Endangered	Notice 12-month petition finding, Not warranted	74 FR 23376 23388
6/09/2009	90-Day Finding on a Petition To List <i>Oenothera acutissima</i> (Narrowleaf Evening-primrose) as Threatened or Endangered	Notice of 90-day Petition Finding, Not substantial	74 FR 27266 27271
6/29/2009	Proposed Endangered Status for the Georgia Pigtoe Mussel, Interrupted Rocksnail, and Rough Hornsnail with Critical Habitat	Proposed Listing, Endangered; Proposed Critical Habitat	74 FR 31113 31151
7/01/2009	90-Day Finding on a Petition to List the Northern Leopard Frog (<i>Lithobates</i> [=Rana] <i>pipiens</i>) in the Western United States as Threatened	Notice of 90-day Petition Finding, Substantial	74 FR 31389 31401
7/07/2009	12-Month Finding on a Petition To List a Distinct Population Segment of the Roundtail Chub (<i>Gila robusta</i>) in the Lower Colorado River Basin	Notice of 12-month petition finding, Warranted but precluded	74 FR 32351 32387
7/08/2009	90-Day Finding on a Petition to List the Coqui Llanero (<i>Eleutherodactylus juanariveroi</i>) as Endangered	Notice of 90-day Petition Finding, Substantial	74 FR 32510 32513
7/08/2009	90-Day Finding on a Petition to List the Susan's purse-making caddisfly (<i>Ochrotrichia susanae</i>) as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	74 FR 32514 32521
7/08/2009	Proposed Endangered Status for Flying Earwig Hawaiian Damselfly (<i>Megalagrion nesiotes</i>) and Pacific Hawaiian Damselfly (<i>M. pacificum</i>) Throughout Their Ranges	Proposed Listing, Endangered	74 FR 32490 32510
7/09/2009	Listing Casey's June Beetle (<i>Dinacoma caseyi</i>) as Endangered and Designation of Critical Habitat	Proposed Listing, Endangered; Proposed Critical Habitat	74 FR 32857 32875
7/22/2009	90-Day Finding on a Petition To List the White-Sided Jackrabbit (<i>Lepus callotis</i>) as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	74 FR 36152 36158
8/06/2009	Initiation of Status Review for Mountain Whitefish (<i>Prosopium williamsoni</i>) in the Big Lost River, Idaho	Notice of Status Review	74 FR 39268 39269
8/11/2009	90-Day Finding on a Petition To List the Jemez Mountains Salamander (<i>Plethodon neomexicanus</i>) as Threatened or Endangered With Critical Habitat	Notice of 90-day Petition Finding, Substantial	74 FR 40132 40138
8/18/2009	Partial 90-Day Finding on a Petition To List 206 Species in the Midwest and Western United States as Threatened or Endangered with Critical Habitat	Notice of 90-day Petition Finding, Not substantial (9 species); Notice 90-day Petition Finding, Substantial (29 species)	74 FR 41649 41662

FY 2009 COMPLETED LISTING ACTIONS—Continued

Publication Date	Title	Actions	FR Pages
8/19/2009	12-Month Finding on a Petition To List the Ashy Storm-Petrel as Threatened or Endangered	Notice of 12 month petition finding, Not warranted	74 FR 41832 41860
8/28/2009	90-Day Finding on a Petition To List the Sonoran Population of Desert Tortoise (<i>Gopherus agassizii</i>) as a Distinct Population Segment (DPS) With Critical Habitat	Notice of 90-day Petition Finding, Substantial	74 FR 44335 44344
9/02/2009	12-Month Finding on a Petition To List the Sacramento Mountains Checkerspot Butterfly as Endangered with Critical Habitat	Notice of 12 month petition finding, Not warranted	74 FR 45396 45411
9/09/2009	90-Day Finding on a Petition to List the Eastern Population of the Gopher Tortoise (<i>Gopherus polyphemus</i>) as Threatened	Notice of 90-day Petition Finding, Substantial	74 FR 46401 46406
9/10/2009	12-Month Finding on a Petition to List <i>Astragalus anserinus</i> (Goose Creek milkvetch) as Threatened or Endangered	Notice of 12 month petition finding, War-ranted but precluded	74 FR 46521 46542
9/10/2009	90-Day Finding on a Petition to List <i>Cirsium wrightii</i> (Wright's marsh thistle) as Threatened or Endangered with Critical Habitat	Notice of 90-day Petition Finding, Substantial	74 FR 46542 46547
9/10/2009	90-Day Finding on a Petition to List the Pacific Walrus as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	74 FR 46551 46557
9/10/2009	Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Amargosa Toad (<i>Bufo nelsoni</i>) as Threatened or Endangered	Notice of 90-day Petition Finding, Substantial	74 FR 46548 46551

Our expeditious progress also included work on listing actions that we funded in FY 2009 but have not yet been completed to date. These actions are listed below. Actions in the top section of the table are being conducted under a deadline set by a court. Actions in the middle section of the table are being conducted to meet statutory

timelines, that is, timelines required under the Act. Actions in the bottom section of the table are high-priority listing actions. These actions include work primarily on species with an LPN of 2, and selection of these species is partially based on available staff resources, and when appropriate, include species with a lower priority if

they overlap geographically or have the same threats as the species with the high priority. Including these species together in the same proposed rule results in considerable savings in time and funding as compared to preparing separate proposed rules for each of them in the future.

ACTIONS FUNDED IN FY 2009 BUT NOT COMPLETED IN FY 2009

SPECIES	ACTION
ACTIONS SUBJECT TO COURT ORDER/SETTLEMENT AGREEMENT	
Slickspot peppergrass	Final listing determination
Coastal cutthroat trout	Final listing determination
Mono basin sage-grouse	12-month petition finding
Greater sage-grouse	12-month petition finding
SW bald eagle population	12-month petition finding
Black-tailed prairie dog	12-month petition finding
Lynx (include New Mexico in listing)	12-month petition finding
White-tailed prairie dog	12-month petition finding
American pika	12-month petition finding
Hermes copper butterfly	90-day petition finding
Thorne's hairstreak butterfly	90-day petition finding
ACTIONS WITH STATUTORY DEADLINES	

ACTIONS FUNDED IN FY 2009 BUT NOT COMPLETED IN FY 2009—Continued

SPECIES	ACTION
48 Kauai species	Final listing determination
Black-footed albatross	12-month petition finding
Mount Charleston blue butterfly	12-month petition finding
Mojave fringe-toed lizard ¹	12-month petition finding
Pygmy rabbit (rangewide) ¹	12-month petition finding
Kokanee – Lake Sammamish population ¹	12-month petition finding
Delta smelt (uplisting)	12-month petition finding
Cactus ferruginous pygmy-owl ¹	12-month petition finding
Tucson shovel-nosed snake ¹	12-month petition finding
Northern leopard frog	12-month petition finding
Tehachapi slender salamander	12-month petition finding
Coqui Llanero	12-month petition finding
Susan's purse-making caddisfly	12-month petition finding
White-sided jackrabbit	12-month petition finding
Jemez Mountains salamander	12-month petition finding
29 of 206 species	12-month petition finding
Desert tortoise – Sonoran population	12-month petition finding
Gopher tortoise – eastern population	12-month petition finding
Wrights marsh thistle	12-month petition finding
Southeastern pop snowy plover & wintering pop. of piping plover	90-day petition finding
Berry Cave salamander ¹	90-day petition finding
Ozark chinquapin ¹	90-day petition finding
Smooth-billed ani	90-day petition finding
Bay Springs salamander ¹	90-day petition finding
Mojave ground squirrel ¹	90-day petition finding
32 species of snails and slugs	90-day petition finding
<i>Calopogon oklahomensis</i>	90-day petition finding
Striped newt	90-day petition finding
American dipper – Black Hills population	90-day petition finding
Sprague's pipit	90-day petition finding
Southern hickorynut	90-day petition finding
5 Southwest mussel species	90-day petition finding
Chihuahua scarfpea	90-day petition finding
White-bark pine	90-day petition finding
Puerto Rico harlequin	90-day petition finding
Fisher – Northern Rocky Mtns. population	90-day petition finding
42 snail species (Nevada & Utah)	90-day petition finding

ACTIONS FUNDED IN FY 2009 BUT NOT COMPLETED IN FY 2009—Continued

SPECIES	ACTION
HI yellow-faced bees	90-day petition finding
475 Southwestern species (partially completed)	90-day petition finding
HIGH PRIORITY LISTING ACTIONS ³	
19 Oahu candidate species (16 plants, 3 damselflies) (15 with LPN = 2, 3 with LPN = 3, 1 with LPN = 9)	Proposed listing
17 Maui-Nui candidate species (14 plants, 3 tree snails) (12 with LPN = 2, 2 with LPN = 3, 3 with LPN = 8)	Proposed listing
Sand dune lizard (LPN = 2)	Proposed listing
2 Arizona springsnails (<i>Pyrgulopsis bernadina</i> (LPN = 2), <i>Pyrgulopsis trivialis</i> (LPN = 2))	Proposed listing
2 New Mexico springsnails (<i>Pyrgulopsis chupaderae</i> (LPN = 2), <i>Pyrgulopsis thermalis</i> (LPN = 11))	Proposed listing
2 mussels (rayed bean (LPN = 2), snuffbox No LPN)	Proposed listing
2 mussels (sheepnose (LPN = 2), spectaclecase (LPN = 4),)	Proposed listing
Ozark hellbender ² (LPN = 3)	Proposed listing
Altamaha spiny mussel (LPN = 2)	Proposed listing
5 southeast fish (rush darter (LPN = 2), chunky madtom (LPN = 2), yellowcheek darter (LPN = 2), Cumberland darter (LPN = 5), laurel dace (LPN = 5))	Proposed listing
8 southeast mussels (southern kidneyshell (LPN = 2), round ebonyshell (LPN = 2), Alabama pearlshell (LPN = 2), southern sandshell (LPN = 5), fuzzy pigtoe (LPN = 5), Choctaw bean (LPN = 5), narrow pigtoe (LPN = 5), and tapered pigtoe (LPN = 11))	Proposed listing
3 Colorado plants (Pagosa skyrocket (<i>Ipomopsis polyantha</i>) (LPN = 2), Parachute beardtongue (<i>Penstemon debilis</i>) (LPN = 2), Debeque phacelia (<i>Phacelia submutica</i>) (LPN = 8))	Proposed listing

¹ Funds for listing actions for these species were provided in previous FYs.

² We funded a proposed rule for this subspecies with an LPN of 3 ahead of other species with LPN of 2, because the threats to the species were so imminent and of a high magnitude that we considered emergency listing if we were unable to fund work on a proposed listing rule in FY 2008.

³ Funds for these high-priority listing actions were provided in FY 2008 and 2009

³ Funds for these high-priority listing actions were provided in FY 2008 and 2009

We also funded work on resubmitted petitions findings for 162 candidate species (species petitioned prior to the last CNOR). We did not include new information in our resubmitted petition finding for the Columbia Basin population of the greater sage-grouse in this notice, as we are considering new information and will update our finding at a later date (see 73 FR 23170, April 29, 2008). We also did not include new information in our resubmitted petition findings for the 48 candidate species for which we are preparing proposed listing determinations; see summaries below regarding publication of these determinations. We also funded revised 12-month petition findings for four candidate species that we are removing from candidate status, which are being published as part of this CNOR (see *Candidate Removals*). Because the majority of these species were already candidate species prior to our receipt of a petition to list them, we had already assessed their status using funds from our Candidate Conservation Program. We also continue to monitor the status

of these species through our Candidate Conservation Program. The cost of updating the species assessment forms and publishing the joint publication of the CNOR and resubmitted petition findings is shared between the Listing Program and the Candidate Conservation Program.

During FY 2009, we also funded work on resubmitted petition findings for uplisting six listed species, for which petitions were previously received.

We have endeavored to make our listing actions as efficient and timely as possible, given the requirements of the relevant law and regulations, and constraints relating to workload and personnel. We are continually considering ways to streamline processes or achieve economies of scale, such as by batching related actions together. Given our limited budget for implementing section 4 of the Act, the actions described above collectively constitute expeditious progress.

Although we have not been able to resolve the listing status of many of the candidates, several programs in the

Service contribute to the conservation of these species. In particular, the Candidate Conservation program, which is separately budgeted, focuses on providing technical expertise for developing conservation strategies and agreements to guide voluntary on-the-ground conservation work for candidate and other at-risk species. The main goal of this program is to address the threats facing candidate species. Through this program, we work with our partners (other Federal agencies, State agencies, Tribes, local governments, private landowners, and private conservation organizations) to address the threats to candidate species and other species at-risk. We are currently working with our partners to implement voluntary conservation agreements for more than 140 species covering 5 million acres of habitat. In some instances, the sustained implementation of strategically designed conservation efforts culminates in making listing unnecessary for species that are proposed or candidates for listing.

Findings for Petitioned Candidate Species

Below are updated summaries for petitioned candidate for which we published findings, pursuant to section 4(b)(3)(B). We are making continued warranted-but-precluded 12-month findings on the petitions for these species (for our revised 12-month petition findings for species we are removing from candidate status, see summaries above under “**Candidate Removals**”).

Mammals

Pacific Sheath-tailed Bat, American Samoa DPS (*Emballonura semicaudata semicaudata*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This small bat is a member of the Emballonuridae, an Old World bat family that has an extensive distribution, primarily in the tropics. The Pacific sheath-tailed bat was once common and widespread in Polynesia and Micronesia and it is the only insectivorous bat recorded from a large part of this area. The species as a whole (*E. semicaudata*) occurred on several of the Caroline Islands (Palau, Chuuk, and Pohnpei), Samoa (Independent and American), the Mariana Islands (Guam and the CNMI), Tonga, Fiji, and Vanuatu. While populations appear to be healthy in some locations, mainly in the Caroline Islands, they have declined substantially in other areas, including Independent and American Samoa, the Mariana Islands, Fiji, and possibly Tonga. Scientists recognize four subspecies: *E. s. rotensis*, endemic to the Mariana Islands (Guam and the Commonwealth of the Northern Mariana Islands (CNMI)); *E. s. sulcata*, occurring in Chuuk and Pohnpei; *E. s. palauensis*, found in Palau; and *E. s. semicaudata*, occurring in American and Independent Samoa, Tonga, Fiji, and Vanuatu. This candidate assessment form addresses the distinct population segment (DPS) of *E. s. semicaudata* that occurs in American Samoa.

E. s. semicaudata historically occurred in American and Independent Samoa, Tonga, Fiji, and Vanuatu. It is extant in Fiji and Tonga, but may be extirpated from Vanuatu and Independent Samoa. There is some concern that it is also extirpated from American Samoa, the location of this DPS, where surveys are currently ongoing to ascertain its status. The factors that led to the decline of this subspecies and the DPS are poorly understood; however, current threats to this subspecies and the DPS include

habitat loss, predation by introduced species, and its small population size and distribution, which make the taxon extremely vulnerable to extinction due to typhoons and similar natural catastrophes. Thus, the threats are high in magnitude. The Pacific sheath-tailed bat may also be susceptible to disturbance to roosting caves. The LPN for *E. s. semicaudata* is 3 because the magnitude of the threats is high, the threats are ongoing, and therefore, imminent, and the taxon is a distinct population segment of a subspecies.

Pacific Sheath-tailed Bat (*Emballonura semicaudata rotensis*), Guam and the Commonwealth of the Northern Mariana Islands – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This small bat is a member of the Emballonuridae, an Old World bat family that has an extensive distribution, primarily in the tropics. The Pacific sheath-tailed bat was once common and widespread in Polynesia and Micronesia and it is the only insectivorous bat recorded from a large part of this area. *E. s. rotensis* is historically known from the Mariana Islands and formerly occurred on Guam and in the CNMI on Rota, Aguiuan, Tinian (known from prehistoric records only), Saipan, and possibly Anatahan and Maug. Currently, *E. s. rotensis* appears to be extirpated from all but one island in the Mariana archipelago. The single remaining population of this subspecies occurs on Aguiuan, CNMI.

Threats to this subspecies have not changed over the past year. The primary threats to the subspecies are ongoing habitat loss and degradation as a result of feral goat (*Capra hircus*) activity on the island of Aguiuan and the taxon's small population size and limited distribution. Predation by nonnative species and human disturbance are also potential threats to the subspecies. The subspecies is believed near the point where stochastic events, such as typhoons, are increasingly likely to affect its continued survival. The disappearance of the remaining population on Aguiuan would result in the extinction of the subspecies. Thus, the threats are high in magnitude. The LPN for *E. s. rotensis* remains at 3 because the magnitude of the threats is high, the threats are ongoing, and therefore, imminent, and the taxon is a subspecies.

New England cottontail (*Sylvilagus transitionalis*) – The following summary is based on information contained in our files and information received in response to our notice published on

June 30, 2004, when we announced our 90-day petition finding and initiation of a status review (69 FR 39395). We received the petition on August 30, 2000. The New England cottontail (NEC) is a medium-to large-sized cottontail rabbit that may reach 1,000 grams in weight, and is one of two species within the genus *Sylvilagus* occurring in New England. New England cottontails are considered habitat specialists, in so far as they are dependent upon early-successional habitats typically described as thickets. The species is the only endemic cottontail in New England. Historically, the NEC occurred in seven states and ranged from southeastern New York (east of the Hudson River) north through the Champlain Valley, southern Vermont, the southern half of New Hampshire, southern Maine and south throughout Massachusetts, Connecticut and Rhode Island. The current range of the NEC has declined substantially and occurrences have become increasingly separated. The species' distribution is fragmented into five apparently isolated metapopulations. The area occupied by the cottontail has contracted from approximately 90,000 sq km to 12,180 sq km. Recent surveys indicate that the long term decline in NEC continues. For example, surveys for the species in early 2008 documented the presence of NEC in 7 of the 23 New Hampshire locations that were known to be occupied in 2002 and 2003. Similarly, surveys in Maine found the species present in 12 of 57 sites identified in an extensive survey that spanned the years 2000 to 2004. Unlike the New Hampshire study, several new sites were documented in Maine during 2008. Some have suggested that the decline in NEC occurrences in 2008 may be attributed to persistent snow cover throughout northern New England during the winter of 2007-2008. Similar surveys were conducted during the winter of 2009 in Maine, New Hampshire, Rhode Island and New York. The results are pending further analysis. We estimate that less than one third of the occupied sites occur on conservation lands and fewer than 10 percent are being managed for early-successional forest species.

The primary threat to the New England cottontail is loss of habitat through succession and alteration. Isolation of occupied patches by areas of unsuitable habitat and high predation rates are resulting in local extirpation of New England cottontails from small patches. The range of the New England cottontail has contracted by 75 percent or more since 1960 and current land

uses in the region indicate that the rate of change, about two percent range loss per year, will continue. Additional threats include competition for food and habitat with introduced eastern cottontails and large numbers of native white-tailed deer; inadequate regulatory mechanisms to protect habitat; and mortality from predation. The magnitude of the threats continues to be high, because they occur rangewide, and result in mortality or significantly reduce the reproductive capacity of the species. They are imminent because they are ongoing. Thus, we retained an LPN of 2 for this species. Conservation measures that address the threats to the species are being developed.

Fisher, West Coast DPS (*Martes pennanti*) – The following summary is based on information contained in our files and in the Service's initial warranted-but-precluded finding published in the **Federal Register** on April 8, 2004 (68 FR 18770). The fisher is a carnivore in the family Mustelidae and is the largest member of the genus *Martes*. Historically, the West Coast population of the fisher extended south from British Columbia into western Washington and Oregon, and in the North Coast Ranges, Klamath-Siskiyou Mountains, and Sierra Nevada in California. Because of a lack of detections with standardized survey efforts over much of the fisher's historical range, the fisher is believed to be extirpated or reduced to scattered individuals from the lower mainland of British Columbia through Washington and northern Oregon and in the central and northern Sierra Nevada range in California. Native populations of fisher currently occur in the North Coast Ranges of California, the Klamath-Siskiyou Mountains of northern California and southern Oregon, and in isolated populations occurring in the southern Sierra Nevada in California. Descendants of a fisher reintroduction effort also occur in the southern Cascade Range in Oregon. In January of 2008, the Washington Department of Fish and Wildlife began to implement their fisher recovery goals for the state through a reintroduction effort in the Olympic National Park. Estimates of fisher numbers in native populations of the West Coast DPS vary widely. A rigorous monitoring program is lacking for the northern California/southern Oregon population making estimates of fisher numbers for this relatively large population difficult. The monitoring program of the southern Sierra Nevada population has provided preliminary estimates. No estimates are available for the introduced population in the

southern Cascade Range in Oregon. There is also a high degree of genetic relatedness within some populations, and populations of native fisher in California are separated by four times the species' maximum dispersal distance. The above-listed factors all indicate that the likely extant fisher populations are small and isolated from one another.

Major threats that fragment or remove key elements of fisher habitat include various forest-vegetation-management practices such as timber harvest and fuels reduction treatments. Other potential major threats in portions of the range include: uncharacteristically severe wildfire, changes in forest composition and structure related to the effects of climate change, urban and rural development, recreation development, and highways. Major threats to fisher that lead to direct mortality and injury to fisher include: Collisions with vehicles; predation; and viral borne diseases such as rabies, parvovirus, canine distemper, and *Anaplasma phagocytophilum*. Existing regulatory mechanisms on Federal, State, and private lands affect key elements of fisher habitat but do not provide sufficient certainty that conservation efforts will be effective or will be implemented. The magnitude of threats is high as they occur across the range of the DPS resulting in a negative impact on fisher distribution and abundance, and since they significantly affect this species' reproductive capacity. However, the threats are nonimminent as the greatest long-term risks to the fisher in its west coast range are the subsequent ramifications of the isolation of small populations and their interactions with the listed threats which will affect the species over the long-term. The three remaining areas containing fisher populations appear to be stable or not rapidly declining based on recent survey and monitoring efforts. Therefore, we assigned an LPN of 6 to this population.

New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) – The following summary is based on information contained in our files and the petition we received October 15, 2008. The New Mexico meadow jumping mouse (jumping mouse) is endemic to New Mexico, Arizona, and a small area of southern Colorado. The jumping mouse nests in dry soils but uses moist, streamside, dense riparian/wetland vegetation. Recent genetic studies confirm that the jumping mouse is a distinct subspecies from other *Z. hudsonius* subspecies, confirming the currently accepted subspecies designation.

The threats that have been identified are excessive grazing pressure, water use and management, highway reconstruction, development, recreation, and beaver removal. Surveys conducted in 2005 and 2006 documented a drastic decline in the number of occupied localities and suitable habitat across the range of the species in New Mexico and Arizona. Of the original 103 known historical localities, 95 have been surveyed since the early to mid-1990s. Of the historical localities surveyed, currently only 16 are extant, 9 in New Mexico (including 1 that is contiguous with the Colorado locality) and 7 in Arizona. Moreover, the highly fragmented nature of its distribution is also a major contributor to the vulnerability of this species and increases the likelihood of very small, isolated populations being extirpated. The insufficient number of secure populations, and the destruction, modification, or curtailment of its habitat, continue to pose the most immediate threats to this species. Because the threats affect the jumping mouse in all but two of the extant localities, and the populations in these localities are small, the threats are of a high magnitude. These threats are currently occurring and, therefore, are imminent. Thus, we continue to assign an LPN of 3 to this subspecies.

Mazama pocket gopher (*Thomomys mazama* ssp. *couchi*, *douglasii*, *glacialis*, *louiei*, *melanops*, *pugetensis*, *tacomensis*, *tumuli*, *yelmensis*) – The following summary is based on information contained in our files. No new information was provided in the petition received December 11, 2002. Seven of the nine subspecies of pocket gopher are associated with glacial outwash prairies in western Washington, an ecosystem of conservation concern (*T. m. melanops* is found on alpine meadows in Olympic National Park, and *T. m. douglasii* is found in prairies in extreme southwest Washington). Of these seven subspecies, five are likely still extant (*couchi*, *glacialis*, *pugetensis*, *tumuli*, and *yelmensis*). Few of these glacial outwash prairies remain in Washington today. Historically, such prairies were patchily distributed, but the area they occupied totaled approximately 170,000 acres. Now, residential and commercial development and ingrowth of woody and/or nonnative vegetation have reduced their numbers. In addition, development in or adjacent to these prairies has likely increased predation on Mazama pocket gophers by dogs and cats.

The magnitude of threat is high due to populations with patchy and isolated

distributions in habitats highly desirable for development and subject to a wide variety of human activities that permanently alter the habitat. The threat of invasive plant species to the quality of a highly specific habitat requirement is high and constant. There are few known populations of each subspecies. A limited dispersal capability, and the loss and degradation of additional patches of appropriate habitat will further isolate populations and increase their vulnerability to extinction. Loss of any of the subspecies will reduce the genetic diversity and the likelihood of continued existence of the *Thomomys mazama* subspecies complex in Washington.

The threats are imminent. Two of the subspecies (Cathlamet and Tacoma) are likely extinct. The status of *T. m. douglasii* is unknown, but its habitat is threatened by encroaching development. Two gravel pits are operating on part of the remaining Roy Prairie pocket gopher habitat. The largest populations of two other subspecies (Shelton and Olympia) are located on airports with planned development. Yelm pocket gophers are also threatened by proposed development. Due to its low genetic diversity, isolation, and potential for natural habitat alterations in the future, *T. m. melanops* (Olympic pocket gopher) is susceptible to stochastic events and small population effects such as genetic drift and founder effects. Thus, we assign an LPN of 3 to these subspecies.

Gunnison's prairie dog (*Cynomys gunnisoni*) – This species occurs in Arizona, Colorado, New Mexico, and Utah. However, it is threatened or endangered only in the significant portion of the range in the montane portions of central and south central Colorado and north central New Mexico, and we anticipate that if and when it is listed, only that significant portion of its range will be specified as threatened or endangered. Within this portion of the range, plague has significantly reduced the number and size of populations. Populations within montane habitat have distinct disadvantages in resisting the effects of plague due to a higher abundance of fleas that spread plague, smaller populations that cannot recover in numbers from plague epizootics, and isolated populations that limit the ability to recolonize. Poisoning and shooting continue to be threats to the Gunnison's prairie dog within the montane portion of its range and contribute to the decline of the species when combined with the effects of disease. Agriculture, urbanization,

roads, and oil and gas development each currently affect a small percentage of Gunnison's prairie dog habitat. Plague is significantly affecting the remaining small, isolated populations, and plague epizootics can extirpate populations there within a short timeframe (3 to 10 years). We have assigned an LPN of 3 to this species due to imminent threats of a high magnitude in a significant portion of its range.

Palm Springs round-tailed ground squirrel (*Spermophilus tereticaudus chlorus*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Palm Springs round-tailed ground squirrel is one of four recognized subspecies of round-tailed ground squirrels. This squirrel was believed to be limited in range to the Coachella Valley region of Riverside County, California; however, results of both a morphological study and a genetic study indicate that its range may be substantially larger. Upon receipt of a finalized report detailing the methods and results of the genetic study, the Service will make a determination as to whether listing of *S. t. chlorus* is still warranted. Primary habitat for the Palm Springs round-tailed ground squirrel is the dunes and hummocks associated with *Prosopis glandulosa* var. *torreyana* (honey mesquite) and to a lesser extent those dunes and hummocks associated with *Larrea tridentata* (creosote), or other vegetation. Rapid growth of desert cities such as Palm Springs and Palm Desert in the Coachella Valley has raised concerns about the conservation of the Palm Springs round-tailed ground squirrel. Urban development and drops in the groundwater table have eliminated approximately 90 percent of the honey mesquite in the Coachella Valley. Furthermore, urban development has fragmented habitat occupied by this squirrel thereby isolating populations. The high rate of urban development and associated lowering of the groundwater table that was likely historically responsible for the high losses of honey mesquite sand dune/hummocks habitat continues today. We continue to assign the Palm Springs ground squirrel subspecies an LPN of 3 because the threats are ongoing and are of a high magnitude as they affect a large portion of its range and significantly affect this subspecies' survival.

Southern Idaho ground squirrel (*Spermophilus brunneus endemicus*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

The southern Idaho ground squirrel is endemic to four counties in southwest Idaho; its total known range is approximately 425,630 hectares (1,051,752 acres). Threats to southern Idaho ground squirrels include: habitat degradation and fragmentation; direct killing from shooting, trapping, or poisoning; predation; competition with Columbian ground squirrels; and inadequacy of existing regulatory mechanisms. Habitat degradation and fragmentation appear to be the primary threats to the species. Nonnative annuals now dominate much of this species' range, have changed the species composition of vegetation used as forage for the southern Idaho ground squirrel, and have altered the fire regime by accelerating the frequency of wildfire. Habitat deterioration, destruction, and fragmentation contribute to the current patchy distribution of southern Idaho ground squirrels. Based on recent genetic work, southern Idaho ground squirrels are subject to more genetic drift and inbreeding than expected.

Two Candidate Conservation Agreements with Assurances (CCAAs) have been completed for this species in recent years. Both CCAAs include conservation measures that provide additional protection to southern Idaho ground squirrels from recreational shooting and other direct killing on enrolled lands, and also allow the State of Idaho, the Service and BLM to investigate ways of restoring currently degraded habitat. At this time, the acreage enrolled through these two CCAAs is approximately 38,756 hectares (95,767 acres), or 9 percent of the known range. While the ongoing conservation efforts have helped to reduce the magnitude of threats to moderate, habitat degradation remains the primary threat to the species throughout most of its range. This threat is imminent due to the ongoing and increasing prevalence and dominance of nonnative vegetation, and the current patchy distribution of the species. Thus, we assign an LPN of 9 to this subspecies.

Washington ground squirrel (*Spermophilus washingtoni*) – The following summary is based on information contained in our files and in the petition we received on March 2, 2000. The Washington ground squirrel is endemic to the Deschutes-Columbia Plateau sagebrush-steppe and grassland communities in eastern Oregon and south-central Washington. Although widely abundant historically, recent surveys suggest that its current range has contracted toward the center of its historical range. Approximately two-thirds of the Washington ground

squirrel's total historical range has been converted to agricultural and residential uses. The most contiguous, least-disturbed expanse of suitable habitat within the species' range occurs on the privately owned Threemile Canyon Farms and on the Naval Weapons Systems Training Facility near Boardman, Oregon. In Washington, the largest expanse of known suitable habitat occurs on State and Federal lands.

Agricultural, residential, and wind power development, among other forms of development, continue to eliminate Washington ground squirrel habitat in portions of the species' range. Throughout much of their range, Washington ground squirrels are threatened by the establishment and spread of invasive plant species, particularly cheatgrass, which alter available cover, food quantity and quality, and increases fire intervals. Additional threats include habitat fragmentation, recreational shooting, genetic isolation and drift, and predation. Potential threats include disease, drought, and possible competition with related species in disturbed habitat at the periphery of their range. In Oregon, some threats are being addressed as a result of the State listing of this species, and by implementation of the Threemile Canyon Farms Multi-Species Candidate Conservation Agreement with Assurances (CCAA). In Washington, there are currently no formal agreements with private landowners or with State or Federal agencies to protect the Washington ground squirrel. Additionally, no State or Federal management plans have been developed that specifically address the needs of the species or its habitat. Since current and potential threats are widespread and, in some cases, severe, we conclude the magnitude of threats remains high. The Washington ground squirrel has both imminent and nonimminent threats. At a rangewide scale, we conclude the threats are nonimminent based largely on the following: The CCAA addressed the imminent loss of a large portion of habitat to agriculture, there are no other large-scale efforts to convert suitable habitat to agriculture, and wind power project impacts can be minimized through compliance with the Oregon State Endangered Species Act (OESA) or the Columbia Basin Ecoregion wind energy siting and permitting guidelines. The potential development of shooting ranges on the Naval Weapons Systems Training Facility is nonimminent because the proposed action is still being developed, making us unable to

assess its timing and impact, which could be minimized through compliance with the OESA. We, therefore, have retained an LPN of 5 for this species.

Birds

Spotless crane, American Samoa DPS (*Porzana tabuensis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Porzana tabuensis* is a small, dark, cryptic rail found in wetlands and rank scrub or forest in the Philippines, Australia, Fiji, Tonga, Society Islands, Marquesas, Independent Samoa, and American Samoa (Ofu, Tau). The genus *Porzana* is widespread in the Pacific, where it is represented by numerous island-endemic and flightless species (many of which are extinct as a result of anthropogenic disturbances) as well as several more cosmopolitan species, including *P. tabuensis*. No subspecies of *P. tabuensis* are recognized. The American Samoa population is the only population of spotless cranes under U.S. jurisdiction. The available information indicates that distinct populations of the spotless crane, a species not noted for long-distance dispersal, are definable. The population of spotless cranes in American Samoa is discrete in relation to the remainder of the species as a whole, which is distributed in widely separated locations. Although the spotless crane (and other rails) have dispersed widely in the Pacific, island rails have tended to reduce or lose their power of flight over evolutionary time and so become isolated (and vulnerable to terrestrial predators such as rats). The population of this species in American Samoa is therefore distinct based on geographic and distributional isolation from spotless crane populations on other islands in the oceanic Pacific, the Philippines, and Australia. The American Samoa population of the spotless crane links the Central and Eastern Pacific portions of the species' range. The loss of this population would result in an increase of roughly 500 miles (805 kilometers) in the distance between the central and eastern Polynesian portions of the spotless crane's range, and could result in the isolation of the Marquesas and Society Islands populations by further limiting the potential for even rare genetic exchange. Based on the discreteness and significance of the American Samoa population of the spotless crane, we consider this population to be a distinct vertebrate population segment.

Threats to this population have not changed over the past year. The

population in American Samoa is threatened by small population size, limited distribution, predation by nonnative mammals, continued development of wetland habitat, and natural catastrophes such as hurricanes. The co-occurrence of a known predator of ground-nesting birds, the Norway rat (*Rattus norvegicus*), along with the extremely restricted observed distribution and low numbers, indicate that the magnitude of the threats to the American Samoa DPS of the spotless crane continues to be high, because the threats significantly affect the species survival. The threats are ongoing, and therefore imminent. Based on this assessment of existing information about the imminence and high magnitude of these threats, we assigned the spotless crane an LPN of 3.

Yellow-billed cuckoo, western U.S. DPS (*Coccyzus americanus*) – The following summary is based on information contained in our files and the petition we received on February 9, 1998. See also our 12-month petition finding published on July 25, 2001 (66 FR 38611). The yellow-billed cuckoo (*Coccyzus americanus*) is a medium-sized bird of about 12 inches (30 centimeters) in length with a slender, long-tailed profile and a fairly stout and slightly down-curved bill. Plumage is grayish-brown above and white below, with rufous primary flight feathers with the tail feathers boldly patterned with black and white below. Western cuckoos breed in large blocks of riparian habitats (particularly woodlands with cottonwoods (*Populus fremontii*) and willows (*Salix* sp.)). Dense understory foliage appears to be an important factor in nest-site selection, while cottonwood trees are an important foraging habitat in areas where the species has been studied in California. We consider the yellow-billed cuckoos that occur in the western United States as a distinct population segment (DPS). The area for this DPS is generally west of the crest of the Rocky Mountains.

The threats to the yellow-billed cuckoo include habitat loss, overgrazing, and pesticide application. Principal causes of riparian habitat losses are conversion to agricultural and other uses, dams and river flow management, stream channelization and stabilization, and livestock grazing. Available breeding habitats for cuckoos have also been substantially reduced in area and quality by groundwater pumping, and the replacement of native riparian habitats by invasive nonnative plants, particularly salt-cedar (*Tamarisk* sp.). Overuse by livestock has been a major factor in the degradation and modification of riparian habitats in the

western United States. The effects include changes in plant-community structure and species composition and in relative abundance of species and plant density. These changes are often linked to more widespread changes in watershed hydrology. Livestock grazing in riparian habitats typically results in reduction of plant-species diversity and density, especially of palatable broadleaf plants like willows and cottonwood saplings, and is one of the most common causes of riparian degradation. In addition to destruction and degradation of riparian habitats, pesticides may affect cuckoo populations. In areas where riparian habitat borders agricultural lands, e.g., in California's central valley, pesticide use may indirectly affect cuckoos by reducing prey numbers, or by poisoning nestlings if sprayed directly in areas where the birds are nesting. A group comprised of Federal, State, and non-governmental agencies organized by the Service is in the process of completing a range wide conservation assessment and strategy for the Western yellow-billed cuckoo. The assessment is in early stages of development with work beginning on a conservation strategy sometime in 2010. We retained an LPN of 3 for this population of yellow-billed cuckoo; the threats are ongoing and therefore imminent, and they are of a high magnitude, because ongoing habitat degradation significantly affects the survival and reproductive capacity of the DPS rangewide.

Friendly ground-dove, American Samoa DPS (*Gallicolumba stairi*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The genus *Gallicolumba* is distributed throughout the Pacific and Southeast Asia. The genus is represented in the oceanic Pacific by six species: Three are endemic to Micronesian islands or archipelagos, two are endemic to island groups in French Polynesia, and *G. stairi* is endemic to Samoa, Tonga, and Fiji. Some authors recognize two subspecies of the friendly ground-dove, one, slightly smaller, in the Samoan archipelago (*G. s. stairi*), and one in Tonga and Fiji (*G. s. vitiensis*), but because morphological differences between the two are minimal, we are not recognizing separate subspecies at this time.

In American Samoa, the friendly ground-dove has been found on the islands of Ofu and Olosega (Manua Group). Threats to this subspecies have not changed over the past year. Predation by nonnative species and natural catastrophes such as hurricanes

are the primary threats to the subspecies. Of these, predation by nonnative species is thought to be occurring now and likely has been occurring for several decades. This predation may be an important impediment to increasing the population. Predation by introduced species has played a significant role in reducing, limiting, and extirpating populations of island birds, especially ground-nesters, in the Pacific and other locations worldwide. Nonnative predators known or thought to occur in the range of the friendly ground-dove in American Samoa are feral cats (*Felis catus*), Polynesian rats (*Rattus exulans*), black rats (*R. rattus*), and Norway rats (*R. norvegicus*).

In January 2004 and February of 2005, hurricanes virtually destroyed the habitat of *G. stairi* in an area on Olosega Island where the species had been most frequently recorded. Although this species has coexisted with severe storms for millennia, this example illustrates the potential for natural disturbance to exacerbate the effect of anthropogenic disturbance on small populations. Consistent monitoring using a variety of methods over the last 5 years yielded few observations and no change in the relative abundance of this taxon in American Samoa. The total population size is poorly known, but is unlikely to number more than a few hundred pairs. The distribution of the friendly ground-dove is limited to steep, forested slopes with an open understory and a substrate of fine scree or exposed earth; this habitat is not common in American Samoa. The threats are ongoing and, therefore imminent and the magnitude is moderate because the relative abundance has remained the same for several years. Thus, we assign this subspecies an LPN of 9.

Streaked horned lark (*Eremophila alpestris strigata*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on December 11, 2002. The streaked horned lark occurs in Washington and Oregon, and is thought to be extirpated from British Columbia, Canada. The streaked horned lark nests on bare ground in sparsely vegetated sites in short-grass dominated habitats, such as native prairies, coastal dunes, fallow agricultural fields, seasonal wetlands, moderately to heavily grazed pastures, seasonal mudflats, airports, and dredge deposition sites in and along the tidal reach of the Columbia River. In Washington, surveys show that there are approximately 330 remaining breeding birds. In Oregon, the breeding

population is estimated to more than 500 birds.

The streaked horned lark's breeding habitat continues to be threatened by loss and degradation due to conversion of native grasslands to other uses (such as agriculture, homes, recreational areas, and industry), encroachment of woody vegetation, and invasion of nonnative plant species (e.g., Scot's broom, sod-forming grasses, and beachgrasses). Native prairies have been nearly eliminated throughout the range of the species. It is estimated that less than 1 to 3 percent of the native grassland and savanna remains. And those areas that remain have been invaded by nonnative sod-forming grasses. Coastal nesting areas have suffered the same fate. A recent purchase of prairie lands in Washington has secured habitat that would have been developed. Its status as suitable lark nesting habitat is unknown.

Wintering habitats are seemingly few, and are susceptible to unpredictable conversion to unsuitable overwintering habitat, plant succession, and invasion by nonnative plants. Where larks inhabit manmade habitats similar in structure to native prairies (such as airports, military reservations, agricultural fields, and dredge-formed islands), or where they occur adjacent to human habitation, they are subjected to a variety of unintentional human disturbances such as mowing, recreational and military activities, plowing, flooding, and dredge material deposition during the nesting season, as well as intentional disturbances such as at the McChord Air Force Base (AFB) where falcons and dogs are used to haze birds in order to avoid aircraft collisions. In some areas, however, landowners have taken steps to improve habitat for streaked horned lark nesting.

The magnitude of threat is high due to small populations with low genetic diversity, rapidly declining populations, and patchy and isolated habitats in areas desirable for development, many of which remain unsecured. The threat of invasive plant species is high and constant, aside from a few restoration sites. The numbers of individuals are low and the numbers of populations are few. Overwintering birds are concentrated in larger flocks and subject to unpredictable wintering habitat loss (especially in Oregon), potentially affecting a large portion of the population at one time. In Washington, known populations occur on airports, military bases, coastal beaches, and Columbia River islands, where management, training activities, recreation, and dredge material deposition continue to negatively

impact streaked horned lark breeding and wintering (although current work being conducted by The Nature Conservancy may lessen this last threat). In Oregon, breeding and wintering sites occur on Columbia River islands, in cultivated grass fields, grazed pastures, fallow fields, roadside shoulders, Christmas tree farms, seasonal wetlands, restored wet prairie, and wetland mudflats. Such areas continue to be subject to negative impacts such as dredge material deposition, development, plowing, mowing, pesticide and herbicide applications, trampling, vehicle traffic, and recreation.

Threats are imminent, as a result of continued loss of suitable lark habitat, high nest-predation rates, and low adult survival. Loss of habitat is a result of plans for development on and adjacent to several of its nesting areas, including planned and/or continued expansions of the Fort Lewis Gray Army Airfield West Ramp and the Olympia Airport. Wintering populations are at risk in Oregon due to the manner in which larks gather in large flocks that are vulnerable to stochastic events, and also due to the fact that their wintering habitat occurs on privately owned agricultural lands that are subject to unpredictable conversion. Other ongoing threats include the use of falcons and dogs to haze breeding birds at McChord AFB, the annual Air Force military training Rodeo event on McChord AFB which included firebombing on top of lark nesting habitat, and the Air Expo on McChord AFB. These two events usually occur in alternate years. Based on imminent threats of a high magnitude, we continue to assign an LPN of 3 to this subspecies.

Red knot (*Calidris canutus rufa*) – The following summary is based on information contained in our files and information provided by petitioners. Four petitions to emergency list the red knot have been received: one on August 9, 2004, two others on August 5, 2005, and the most recent on February 27, 2008. The *rufa* subspecies is one of six recognized subspecies of red knot and one of three subspecies occurring in North America. This subspecies makes one of the longest distance migrations known in the animal kingdom, as it travels between breeding areas in the central Canadian Arctic and wintering areas that are primarily in southern South America along the coast of Chile and Argentina. They migrate along the Atlantic coast of the United States, where they may be found from Maine to Florida.

The Delaware Bay area (in Delaware and New Jersey) is the largest known spring migration stopover area, with far fewer migrants congregating elsewhere along the Atlantic coast. The concentration in the Delaware Bay area occurs from the middle of May to early June, corresponding to the spawning season of horseshoe crabs. The knots feed on horseshoe crab eggs, rebuilding energy reserves needed to complete migrations to the Arctic and arrive on the breeding grounds in good condition. In the past, horseshoe crab eggs at Delaware Bay were so numerous that a knot could eat enough in two to three weeks to double its weight.

Surveys at wintering areas and at Delaware Bay during spring migration indicate a substantial decline in the red knot in recent years. At the Delaware Bay area, peak counts between 1982 and 1998 were as high as 95,360 individuals. Counts may vary considerably between years. Some of the fluctuations can be attributed to predator-prey cycles in the breeding grounds, and counts show that knots rebound from such reductions. Research shows that since 1998, a high proportion of red knots leaving the Delaware Bay failed to achieve threshold departure masses needed to fly to breeding grounds and survive an initial few days of snow cover, and this corresponded to reduced annual survival rates and reduced reproductive success. Recently, peak counts at the Delaware Bay area have been lower than in the past and do not show a rebound. The peaks were 13,315 in 2004; 15,345 in 2005; 13,455 in 2006; 12,375 in 2007; and 15,395 in 2008. Counts in recent years at the principal wintering areas in South America also are substantially lower than in the past.

The primary factor threatening the red knot is destruction and modification of its habitat, particularly the reduction in key food resources resulting from reductions in horseshoe crabs, which are harvested primarily for use as bait and secondarily to support a biomedical industry. Commercial harvest increased substantially in the 1990s. Since 1999, a series of timing restrictions and substantially lower harvest quotas have been adopted by the Atlantic States Marine Fisheries Commission (ASMFC), as well as by the States of New Jersey and Delaware. In May 2006, the ASMFC adopted restrictions effective from October 1, 2006, through September 30, 2008, including a prohibition on harvest and landing of horseshoe crabs in New Jersey and Delaware from January 1 through June 7; harvest of males only from June 8 through December 31; and harvest limited to no more than 100,000 horseshoe crabs per State per year. The

ASMFC also adopted other restrictions applicable to Maryland and Virginia. In September 2008, the ASMFC Horseshoe Crab Management Board approved an addendum extending harvest restrictions through October 31, 2009. New Jersey established regulations in 2006 which superseded ASMFC restrictions; resulting in a moratorium on all horseshoe crab harvest in New Jersey from May 15, 2006, through June 7, 2008. In March 2008, New Jersey passed legislation imposing an open-ended moratorium on horseshoe crab harvest or landing within the State until such time as the red knot has fully recovered. In February 2007, Delaware imposed a 2-year moratorium, effective January 1, 2007, on harvest of horseshoe crabs within Delaware lands or waters. In June 2007, following litigation by two businesses involved in the harvesting and sale of horseshoe crabs, Delaware's moratorium was overturned. Consequently Delaware developed regulations allowing for a male-only horseshoe crab harvest, consistent with restrictions adopted by ASMFC. In April 2009, the Maryland Department of Natural Resources implemented a 2:1 male to female horseshoe crab harvest ratio within Maryland waters.

The reductions in commercial harvest since 1999 are substantial: In 1999 in Delaware and New Jersey, 726,660 horseshoe crab landings for bait were reported, compared to 173,177 in 2004 and a preliminary 2007 report of 76,663 crabs landed for bait in Delaware and no horseshoe crabs landed in New Jersey as a result of the State-imposed harvest moratorium. However, scientists do not know whether horseshoe crab populations will rebuild or how long a lag time there may be in increased availability of eggs, as the species needs 8-10 years to reach sexual maturity, and other key information for estimating population response is lacking. Surveys in Delaware Bay of horseshoe crab spawning activity following implementation of additional harvest restrictions show that female horseshoe crab spawning activity in Delaware Bay has been stable for the overall period of 1999 through 2007 and male horseshoe crab spawning increased during that period. Spawning was likely suppressed in 2008 by low water temperatures resulting from a coastal storm. Preliminary information for 2009 indicates that a high proportion of red knots at the Delaware Bay stopover attained threshold weight gains and birds left the Delaware Bay stopover in good condition. This weight gain indicates that red knots found sufficient horseshoe crab eggs or alternate forage

resources during the 2009 stopover. However, it remains to be seen if this will be a long-term trend.

The numbers of red knots at key wintering areas in South America remained relatively steady from 2005 through 2007, inspiring some optimism that the declining trend may have ceased or slowed. In 2008, counts of red knots within principal wintering areas showed an all-time low of only 14,800 red knots, but then increased to 17,780 in 2009, similar to numbers found during 2005-2007. Presence of an increased number of juveniles and an overall increase in red knots in principal wintering areas likely indicates a good breeding season in the Arctic in summer 2008. However, the long-term trend of counts of red knots within the principal wintering areas in Chile and Argentina shows a decline of nearly 75 percent from 1985 to 2009.

Other identified threat factors include habitat destruction due to beach erosion and various shoreline protection and stabilization projects that are affecting areas used by migrating knots for foraging, the inadequacy of existing regulatory mechanisms, human disturbance, and competition with other species for limited food resources. Also, the concentration of red knots in the Delaware Bay areas and at a relatively small number of wintering areas makes the species vulnerable to potential large-scale events such as oil spills or severe weather. Overall, we conclude that the threats, in particular the modification of habitat through harvesting of horseshoe crabs, are severe enough to put the viability of the knot at substantial risk and is therefore of a high magnitude. The threats are currently occurring, and therefore imminent because of continuing suppressed horseshoe-crab-egg forage conditions for red knot within the Delaware Bay stopover. Based on imminent threats of a high magnitude, we retain an LPN of 3 for this species.

Yellow-billed loon (*Gavia adamsii*) – The following summary is based on information contained in our files and the petition we received on April 5, 2004. The yellow-billed loon is a migratory bird with solitary pairs breeding on lakes in the arctic tundra of the United States, Russia, and Canada from June to September. During the remainder of the year, the species winters in more southern coastal waters of the Pacific Ocean and the Norway and North Seas. During most of the year, individual yellow-billed loons are so widely dispersed that high adult mortality from any single factor is unlikely. However, during migration, yellow-billed loons are more

concentrated and are subject to subsistence harvest that at current levels appears to be unsustainable, based on the best available information; the population could decline substantially if such harvest continues. Future subsistence harvests in Alaska, by themselves, constitute a threat to the species rangewide. This subsistence harvest is occurring despite the species being closed to hunting under the Migratory Bird Treaty Act. In addition, up to several hundred yellow-billed loons may be taken annually on Russian breeding grounds, and small numbers of yellow-billed loons are reported in harvests in other areas in Alaska outside of the subsistence harvest area and in Canada. Other risk factors evaluated, including oil and gas development (i.e., disturbance, changes in freshwater chemistry and pollutant loads, and changes in freshwater hydrology); pollution; overfishing; climate change; vessel traffic; commercial- and subsistence-fishery bycatch; and contaminants other than those associated with oil and gas, were not found to be threats to the species. Although these other risk factors may not rise to the level of a threat individually, when taken collectively with the effects of subsistence hunting in other areas, they may reduce the rangewide population even further. One or more of the threats discussed above is occurring throughout the range of the yellow-billed loon, either in its breeding or wintering grounds, or during migration; therefore, the threats are imminent. The magnitude of the primary threat to the species, subsistence harvest, is moderate. Although subsistence harvest is ongoing, the numbers taken have varied substantially between years. Thus, we assigned the yellow-billed loon an LPN of 8.

Kittlitz's murrelet (*Brachyramphus brevirostris*) – The following summary is based on information contained in our files and the petition we received on May 9, 2001. Kittlitz's murrelet is a small diving seabird whose entire North American population, and most of the world's population, inhabits Alaskan coastal waters discontinuously from Point Lay south to northern portions of Southeast Alaska. Kittlitz's murrelets are associated with tidewater glaciers. The current population estimate for Kittlitz's murrelets in Alaska is approximately 19,578 birds. Kittlitz's murrelets in Alaska have declined at a rate of up to 18 percent per year from 1989 to 2000 and new survey information supports and strengthens

the negative population trend estimates that have been previously reported.

Threats to Kittlitz's murrelets include large-scale processes such as global climate change and marine climate regime shift. These large-scale processes may influence Kittlitz's murrelet survival and reproduction. Glacial retreat, a global phenomenon that affects many of the glaciers where Kittlitz's murrelets are found, is associated with changing forage fish availability and may result in increased predation. Other ongoing threats include oil spills, bycatch in commercial gillnet fisheries, and disturbance by tour boats. Kittlitz's murrelets are believed to have been seriously affected by the *Exxon Valdez* oil spill in Prince William Sound in 1989. Catastrophic events such as oil spills could have a significant negative effect on the population of this already diminished species. Susceptibility to mortality as bycatch in commercial fishing could be a significant factor in their population decline; Kittlitz's murrelets are caught in gillnets in numbers disproportionate to their density. Tour boat visitation to glacial fjords is a growing industry, and this activity may increasingly disrupt Kittlitz's murrelet feeding behavior; tour boats may also provide artificial perch sites for avian predators.

Based on the observed population trajectory and the severity of ongoing threats (rapid glacial retreat, acute and chronic oil spills, commercial gillnet fishing, and human disturbance from tour boats), the threats to this species are high in magnitude and imminent. Therefore, we assigned an LPN of 2 to this species.

Xantus's murrelet (*Synthliboramphus hypoleucus*) – The following summary is based on information contained in our files and the petition we received on April 16, 2002. The Xantus's murrelet is a small seabird in the Alcidae family that occurs along the west coast of North America in the United States and Mexico. The species has a limited breeding distribution, nesting only on the Channel Islands in southern California and on islands off the west coast of Baja California, Mexico. Although data on population trends are scarce, the population is suspected to have declined greatly over the last century, mainly due to introduced predators such as rats (*Rattus* sp.) and feral cats (*Felis catus*) to nesting islands, with possible extirpations on three islands in Mexico. A dramatic decline (up to 70 percent) from 1977 to 1991 was detected at the largest nesting colony in southern California, possibly due to high levels of predation on eggs by the endemic deer mouse (*Peromyscus*

maniculatus elusus). Identified threats include introduced predators at nesting colonies, oil spills and oil pollution, reduced prey availability, human disturbance, and artificial light pollution.

Although substantial declines in the Xantus's murrelet population likely occurred over the last century, some of the largest threats are being addressed, and, to some degree, ameliorated. Declines and possible extirpations at several nesting colonies were thought to have been caused by nonnative predators, which have been removed from many of the islands where they once occurred. Most notably, since 1994, Island Conservation and Ecology Group has systematically removed rats, cats, and dogs from every murrelet nesting colony in Mexico, with the exception of cats and dogs on Guadalupe Island. In 2002, rats were eradicated from Anacapa Island in southern California, which has resulted in improvements in reproductive success at that island. In southern California, there are also plans to remove rats from San Miguel Island, and to restore nesting habitat on Santa Barbara Island through the Montrose Settlements Restoration Project, which may benefit the Xantus's murrelet population at those islands.

Artificial lighting from squid fishing and other vessels, or lights on islands, remains a potential threat to the species. Bright lights make Xantus's murrelets more susceptible to predation, and they can also become disoriented and exhausted from continual attraction to bright lights. Chicks can become disoriented and separated from their parents at sea, which could result in death of the dependent chicks. High-wattage lighting on commercial market squid (*Loligo opalescens*) fishing vessels used at night to attract squid to the surface of the water in the Channel Islands was the suspected cause of unusually high predation on Xantus's murrelets by western gulls and barn owls at Santa Barbara Island in 1999. To address this threat, in 2000, the California Fish and Game Commission required light shields and a limit of 30,000 watts per boat; it is unknown if this is sufficient to reduce impacts. While squid fishing has not occurred at a particularly noticeable level near any of the colonies in the Channel Islands since 1999, this remains a potential future threat.

A proposal to build three liquid natural gas facilities near the Channel Islands could cause impacts to the nesting colonies. Although, none of these facilities would be directly adjacent to nesting colonies where their

impacts would be expected to be more significant, these facilities would include bright lights at night and lights from visiting tanker vessels, noise from the facilities and from helicopters visiting the facilities, and potential oil spills associated with visiting tanker vessels. However, these facilities are early in complex and long-term planning processes, and it is possible that none of these facilities will be built.

In summary, the remaining threats to the species are of high magnitude since they have the potential to result in mortality for a large portion of the species' range. However, the threats are nonimminent since they are not currently occurring at most of the murrelet nesting sites. Therefore, we retained an LPN of 5 for this species.

Lesser prairie-chicken (*Tympanuchus pallidicinctus*) - The following summary is based on information contained in our files and the petition received on October 5, 1995. Additional information can be found in the 12-month finding published on June 7, 1998 (63 FR 31400). Biologists estimate that the occupied range has declined by 92 percent since the 1800s. The most serious threats to the lesser prairie-chicken are loss of habitat from conversion of native rangelands to introduced forages and cultivation, conversion of suitable restored habitat in the Conservation Reserve Program to cropland, cumulative habitat degradation caused by severe grazing, and energy development, including wind, oil, and gas development. Additional threats are woody plant invasion of open prairies due to fire suppression, herbicide use (including resumption of herbicide use in shinnery oak habitat), and habitat fragmentation caused by structural and transportation developments. Many of these threats may exacerbate the normal effects of periodic drought on lesser prairie-chicken populations. In many cases, the remaining suitable habitat has become fragmented by the spatial arrangement of these individual threats. Habitat fragmentation can be a threat to the species through several mechanisms: Remaining habitat patches may become smaller than necessary to meet the requirements of individuals and populations, necessary habitat heterogeneity may be lost to areas of homogeneous habitat structure, and the probability of recolonization decreases as the distance between suitable habitat patches expands. We have determined that the overall magnitude of threats to the lesser prairie-chicken throughout its range is high, and that the threats are ongoing, and thus imminent.

Consequently, we have assigned an LPN of 2 to this species.

Greater sage-grouse (*Centrocercus urophasianus*), Columbia Basin DPS - For the reasons discussed below, we have not included new information in our finding with regard to the Columbia Basin DPS of the greater sage-grouse in this notice. On May 14, 1999, we received a petition requesting the listing of the Washington population of the western sage grouse (*C. u. phaios*). On May 7, 2001, we concluded that listing the Columbia Basin DPS of western sage grouse was warranted, but precluded by higher priority listing actions (66 FR 22984); this population was historically found in northern Oregon and central Washington. Following our May 7, 2001, finding, the Service received additional petitions requesting listing actions for various other greater sage-grouse populations, including one for the nominal western subspecies, dated January 24, 2002, and three for the entire species, dated June 18, 2002, and March 19 and December 22, 2003. The Service subsequently found that the petition for the western subspecies did not present substantial information (68 FR 6500), and that listing the greater sage-grouse throughout its historical range was not warranted (70 FR 2244). Legal actions are still pending for these latter findings, which have been remanded to the Service for further consideration. In response, we initiated a new rangewide status review for the entire species (73 FR 10218). We will update our candidate assessment and publish a new finding for the Columbia Basin DPS in the **Federal Register** following completion of the new range wide status review for the greater sage-grouse.

Band-rumped storm-petrel, Hawaii DPS (*Oceanodroma castro*) - The following summary is based on information contained in our files and the petition we received on May 8, 1989. No new information was provided in the second petition received on May 11, 2004. The band-rumped storm-petrel is a small seabird that is found in several areas of the subtropical Pacific and Atlantic Oceans. In the Pacific, there are three widely separated breeding populations - one in Japan, one in Hawaii, and one in the Galapagos. Populations in Japan and the Galapagos are comparatively large and number in the thousands, while the Hawaiian birds represent a small, remnant population of possibly only a few hundred pairs. Band-rumped storm-petrels are most commonly found in close proximity to breeding islands. The three populations in the Pacific are separated by long distances across the

ocean where birds are not found. Extensive at-sea surveys of the Pacific have revealed a broad gap in distribution of the band-rumped storm-petrel to the east and west of the Hawaiian Islands, indicating that the distribution of birds in the central Pacific around Hawaii is disjunct from other nesting areas. The available information indicates that distinct populations of band-rumped storm-petrels are definable and that the Hawaiian population is distinct based on geographic and distributional isolation from other band-rumped storm-petrel populations in Japan, the Galapagos, and the Atlantic Ocean. A population also can be considered discrete if it is delimited by international boundaries that have differences in management control of the species. The Hawaiian population of the band-rumped storm-petrel is the only population within U.S. borders or under U.S. jurisdiction. Loss of the Hawaiian population would cause a significant gap in the distribution of the band-rumped storm-petrel in the Pacific, and could result in the complete isolation of the Galapagos and Japan populations without even occasional genetic exchanges. Therefore, the population is both discrete and significant, and constitutes a DPS.

The band-rumped storm-petrel probably was common on all of the main Hawaiian Islands when Polynesians arrived about 1,500 years ago, based on storm-petrel bones found in middens on the island of Hawaii and in excavation sites on Oahu and Molokai. Nesting colonies of this species in the Hawaiian Islands currently are restricted to remote cliffs on Kauai and Lehua Island and high-elevation lava fields on Hawaii. Vocalizations of the species were heard in Haleakala Crater on Maui as recently as 2006; however, no nesting sites have been located on the island to date. The significant reduction in numbers and range of the band-rumped storm-petrel is due primarily to predation by nonnative predators introduced by humans, including the domestic cat (*Felis catus*), small Indian mongoose (*Herpestes auropunctatus*), common barn owl (*Tyto alba*), black rat (*R. rattus*), Polynesian rat (*R. exulans*), and Norway rat (*R. norvegicus*), which occur throughout the main Hawaiian Islands, with the exception of the mongoose, which is not established on Kauai. Attraction of fledglings to artificial lights, which disrupts their night-time navigation, resulting in collisions with building and other objects, and collisions with artificial structures such

as communication towers and utility lines are also threats. Erosion of nest sites caused by the actions of nonnative ungulates is a potential threat in some locations. Efforts are under way in some areas to reduce light pollution and mitigate the threat of collisions, but there are no large-scale efforts to control nonnative predators in the Hawaiian Islands. The threats are imminent because they are ongoing, and they are of a high magnitude because they can significantly affect the survival of this DPS. Therefore, we assign this distinct population segment an LPN of 3.

Elfin-woods warbler (*Dendroica angelae*) – See above in “Listing Priority Changes in Candidates.” The above summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Reptiles

Northern Mexican Gartersnake (*Thamnophis eques megalops*) – The following summary is based on information contained in our files. The northern Mexican gartersnake generally occurs in three types of habitat: (1) ponds and cienegas; (2) lowland river riparian forests and woodlands; and (3) upland stream gallery forests. Within the United States, the distribution of the northern Mexican gartersnake has been reduced by close to 90 percent and it occurs in fragmented populations within the middle/upper Verde River drainage, middle/lower Tonto Creek, and the upper Santa Cruz River, as well as in a small number of isolated wetland habitats in southeastern Arizona; its status in New Mexico is uncertain. Within Mexico, the northern Mexican gartersnake is distributed along the Sierra Madre Occidental and the Mexican Plateau in the Mexican states of Sonora, Chihuahua, Durango, Coahuila, Zacatecas, Guanajuato, Nayarit, Hidalgo, Jalisco, San Luis Potosí, Aguascalientes, Tlaxcala, Puebla, México, Michoacán, Oaxaca, Veracruz, and Querétaro. The primary threat to the northern Mexican gartersnake is competition and predation from nonnative species such as sportfish, bullfrogs, and crayfish. Degradation and elimination of its habitat and native prey base are also significant threats. Threats, particularly competition and predation by nonnative species, are high in magnitude since they result in direct mortality or reduced reproductive capacity and may be irreversible. The threats are ongoing and, therefore, imminent. Thus, we retained an LPN of 3 for this subspecies.

Sand dune lizard (*Sceloporus arenicolus*) – We continue to find that

listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. The eastern massasauga is one of three recognized subspecies of massasauga. It is a small, thick-bodied rattlesnake that occupies shallow wetlands and adjacent upland habitat in portions of Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Wisconsin, and Ontario.

Although the current range of *S. c. catenatus* resembles the subspecies' historical range, the geographic distribution has been restricted by the loss of the subspecies from much of the area within the boundaries of that range. Approximately 40 percent of the counties that were historically occupied by *S. c. catenatus* no longer support the subspecies. *S. c. catenatus* is currently listed as endangered or threatened in every State and province in which it occurs, except for Michigan, where it is designated as a species of special concern. Each State and Canadian province across the range of *S. c. catenatus* has lost more than 30 percent, and the majority more than 50 percent, of their historical populations. Furthermore, less than 35 percent of the remaining populations are considered secure. Approximately 59 percent of the remaining *S. c. catenatus* populations occur wholly or in part on public land, and Statewide or site-specific Candidate Conservation Agreements with Assurances (CCAAs) are currently being developed for many of these areas in Iowa, Illinois, Michigan, and Wisconsin. In 2004, a Candidate Conservation Agreement (CCA) with the Lake County Forest Preserve District in Illinois was completed, and in 2005, a CCA with the Forest Preserve District of Cook County in Illinois was completed. In 2006, a CCAA with the Ohio Department of Natural Resources Division of Natural Areas and Preserves was completed for Rome State Nature Preserve in Ashtabula County.

The magnitude of threats is moderate at this time. However, populations soon to be under CCAs and CCAAs have a low-to-moderate likelihood of persisting and remaining viable. Other populations are likely to suffer additional losses in abundance and genetic diversity and some will likely be extirpated unless

threats are removed in the near future. Declines have continued or may be accelerating in several States. Thus we are monitoring the status of this species to determine if a change in listing priority is warranted. Furthermore, we are working with several experts and partners in the development of an extinction risk model for the subspecies, and the results of this work may indicate that a change in listing priority number is appropriate. Threats of habitat modification, habitat succession, incompatible land management practices, illegal collection for the pet trade, and human persecution are ongoing and imminent threats to many remaining populations, particularly those inhabiting private lands. We retained an LPN of 9 for this subspecies.

Black pine snake (*Pituophis melanoleucus lodingi*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. There are historical records for the black pine snake from one parish in Louisiana, 14 counties in Mississippi, and 3 counties in Alabama west of the Mobile River Delta. Black pine snake surveys and trapping indicate that this species has been extirpated from Louisiana and from four counties in Mississippi. Moreover, the distribution of remaining populations has become highly restricted due to the destruction and fragmentation of the remaining longleaf pine habitat within the range of the subspecies. Most of the known Mississippi populations are concentrated on the DeSoto National Forest. Populations occurring on properties managed by State and other governmental agencies as gopher tortoise mitigation banks or wildlife sanctuaries represent the best opportunities for long-term survival of the subspecies in Alabama. Other factors affecting the black pine snake include vehicular mortality and low reproductive rates, which magnify the threats from destruction and fragmentation of longleaf pine habitat and increase the likelihood of local extinctions. Due to the imminent threats of high magnitude caused by the past destruction of most of the longleaf pine habitat of the black pine snake, and the continuing persistent degradation of what remains, we assigned an LPN of 3 to this subspecies.

Louisiana pine snake (*Pituophis ruthveni*) – The following summary is based on information contained in our files and the petition we received on July 19, 2000. The Louisiana pine snake historically occurred in the fire-maintained longleaf pine ecosystem

within west-central Louisiana and extreme east-central Texas. Most of the historical longleaf pine habitat of the Louisiana pine snake has been destroyed or degraded due to logging, fire suppression, roadways, short-rotation silviculture, and grazing. In the absence of recurrent fire, suitable habitat conditions for the Louisiana pine snake and its primary prey, the Baird's pocket gopher (*Geomys breviceps*), are lost due to vegetative succession. The loss and fragmentation of the longleaf pine ecosystem has resulted in extant Louisiana pine snake populations that are isolated and small. Trapping and occurrence data indicate the Louisiana pine snake is currently restricted to seven disjunct populations; five of the populations occur on Federal lands and two occur mainly on private industrial timberlands. Currently occupied habitat in Louisiana and Texas is estimated to be approximately 163,000 acres, with 53 percent occurring on public lands and 47 percent in private ownership.

All remnant Louisiana pine snake populations have been affected by habitat loss and all require active habitat management. A Candidate Conservation Agreement (CCA) was completed in 2003 to maintain and enhance occupied and potential habitat on public lands, and to protect known Louisiana pine snake populations. On Federal lands, signatories of the Louisiana pine snake CCA currently conduct habitat management (i.e., prescribed burning and thinning) that is beneficial to the Louisiana pine snake. This proactive habitat management has likely slowed or reversed the rate of Louisiana pine snake habitat degradation on many portions of Federal lands. The largest extant Louisiana pine snake population exists on private industrial timberlands. Although two conservation areas are managed to benefit Louisiana pine snakes on the private property, the majority of the neighboring occupied habitat is threatened by land management activities (habitat conversion to short-rotation pine plantations) that decrease habitat quality.

Three of the remnant Louisiana pine snake populations may be vulnerable to decreased demographic viability or other factors associated with low population sizes and demographic isolation. Although these remnant Louisiana pine snake populations are intrinsically vulnerable and thus threatened by these factors, it is not known if they are presently actually affected by these threats. Because all extant populations are currently isolated and fragmented by habitat loss in the

matrix between populations, there is little potential for dispersal among remnant populations or for the natural recolonization of vacant habitat patches. Thus, the loss of any remnant population is likely to be permanent. Other factors affecting the Louisiana pine snake throughout its range include low fecundity, which magnifies other threats and increases the likelihood of local extirpations, and vehicular mortality, which may significantly affect Louisiana pine snake populations.

While the extent of Louisiana pine snake habitat loss has been great in the past and much of the remaining habitat has been degraded, habitat loss does not represent an imminent threat, primarily because the rate of habitat loss appears to be declining on public lands. However, all populations require active habitat management, and the lack of adequate habitat remains a threat for several populations. The potential threats to a large percentage of extant Louisiana pine snake populations, coupled with the likely permanence of these effects and the species' low fecundity and low population sizes (based on capture rates and occurrence data), lead us to conclude that the threats have significant effect on the survival of the species and therefore remain high in magnitude. Based on nonimminent, high-magnitude threats, we assigned a LPN of 5 to this species.

Sonoyta mud turtle (*Kinosternon sonoriense longifemorale*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Sonoyta mud turtle occurs in a spring and pond at Quitobaquito Springs on Organ Pipe Cactus National Monument in Arizona, and in the Rio Sonoyta and Quitovac Spring of Sonora, Mexico. Loss and degradation of stream habitat from water diversion and groundwater pumping, along with its very limited distribution, is the primary threat to the Sonoyta mud turtle. Sonoyta mud turtles are highly aquatic and depend on permanent water for survival. The area of southwest Arizona and northern Sonora where the Sonoyta mud turtle occurs is one of the driest regions of the southwest. Due to continuing drought, irrigated agriculture, and development in the region, surface water in the Rio Sonoyta can be expected to dwindle further and therefore have a significant impact on the survival of this subspecies, which may also be vulnerable to aerial spraying of pesticides on nearby agricultural fields. We retained an LPN of 3 for this subspecies because threats

are of a high magnitude and continue to date, and therefore are imminent.

Amphibians

Columbia spotted frog, Great Basin DPS (*Rana luteiventris*) – The following summary is based on information contained in our files and the petition we received on May 1, 1989. Currently, Columbia spotted frogs appear to be widely distributed throughout southwestern Idaho, southeastern Oregon, and northeastern and central Nevada but local populations within this general area appear to be small and isolated from each other. Recent work by researchers in Idaho and Nevada has documented the loss of historically known sites, reduced numbers of individuals within local populations, and declines in the reproduction of those individuals.

Small highly fragmented populations, characteristic of the majority of existing populations of Columbia spotted frogs in the Great Basin, are highly susceptible to extinction processes. Poor management of Columbia spotted frog habitat, including water development, improper grazing, mining activities and nonnative species, have and continue to contribute to the degradation and fragmentation of habitat. Emerging fungal diseases such as chytridiomycosis and the spread of parasites are contributing factors to Columbia spotted frog population declines throughout portions of its range. Effects of climate change such as drought and stochastic events such as fire often have detrimental effects to small isolated populations and can often exacerbate existing threats. A 10-year Conservation Agreement/Strategy was signed in September 2003 for both the Northeast and the Toiyabe subpopulations in Nevada. The goals of the conservation agreements are to reduce threats to Columbia spotted frogs and their habitat to the extent necessary to prevent populations from becoming extirpated throughout all or a portion of their historical range and to maintain, enhance, and restore a sufficient number of populations of Columbia spotted frogs and their habitat to ensure their continued existence throughout their historical range. Additionally, a Candidate Conservation Agreement with Assurances was completed in 2006 for the Owyhee subpopulation at Sam Noble Springs, Idaho. While some threats to the species and its habitat (habitat modification and fragmentation, nonnative species, inadequate regulatory mechanisms, and climate change) occur rangewide but at various intensities, other threats (disease and mining) affect only local populations;

overall, the magnitude of the threats is moderate. Based on ongoing, and therefore, imminent threats of moderate magnitude, we assigned a LPN of 9 to this DPS of the Columbia spotted frog.

Mountain yellow-legged frog, Sierra Nevada DPS (*Rana muscosa*) – The following summary is based on information contained in our files and the petition received on February 8, 2000. Also see our 12-month petition finding published on January 16, 2003 (68 FR 2283) and our amended 12-month petition finding published on June 25, 2007 (72 FR 34657). The mountain yellow-legged frog (*Rana muscosa*) inhabits the high-elevation lakes, ponds, and streams in the Sierra Nevada Mountains of California, from near 4,500 feet (ft) (1,370 meters (m)) to 12,000 ft (3,650 m). The distribution of the mountain yellow-legged frog is from Butte and Plumas Counties in the north to Tulare and Inyo Counties in the south. A separate population in southern California is already listed as endangered (67 FR 44382).

Based on mitochondrial DNA, and morphological, and acoustic studies, scientists recently recognized two distinct species of mountain yellow-legged frog in the Sierra Nevada, *R. muscosa* and *R. sierrae*. This taxonomic distinction has been recently adopted by the American Society of Ichthyologists and Herpetologists, the Herpetologists' League, and the Society for the Study of Amphibians and Reptiles. The recent study determined that two species exist, as described by Camp, but have different geographical ranges than first described. Camp described *R. muscosa* as only occurring in southern California. A recent study determined that *R. muscosa* also occurs in the southern portion of the Sierra Nevada and *R. sierrae* occurs both in the southern and northern portions of the Sierra Nevada with no range overlap. It is the population of *R. muscosa* found in the southern portion of the Sierra Nevada that is a candidate for listing. *R. sierrae* is not a candidate.

Predation by introduced trout is the best-documented cause of the decline of the Sierra Nevada mountain yellow-legged frog, because it has been repeatedly observed that nonnative fishes and mountain yellow-legged frogs rarely co-exist. Mountain yellow-legged frogs and trout (native and nonnative) do co-occur at some sites, but these co-occurrences probably are mountain yellow-legged frog populations with negative population growth rates in the absence of immigration. To help reverse the decline of the mountain yellow-legged frog, the Sequoia and Kings Canyon National Parks have been

removing introduced trout since 2001. Over 18,000 introduced trout have been removed from 11 lakes since the project started in 2001. The lakes are completely-to-mostly fish-free, and substantial mountain yellow-legged frog population increases have resulted. The California Department of Fish and Game has also removed or is in the process of removing nonnative trout from a total of between 10 and 20 water bodies in the Inyo, Humboldt-Toiyabe, Sierra, and El Dorado National Forests. In the El Dorado National Forest golden trout were removed from Leland Lakes, and attempts have been made to remove trout from two sites near Gertrude Lake, three lakes in the Pyramid Creek watershed, and a tributary of Cole Creek; no data showing increase in mountain yellow-legged frogs at these sites were available.

In California, chytridiomycosis, more commonly known as chytrid fungus (*Batrachochytrium dendrobatidis*), has been detected in many amphibian species, including the mountain yellow-legged frog within the Sierra Nevada. Recent research has shown that this pathogenic fungus is widely distributed throughout the Sierra Nevada, and that infected mountain yellow-legged frogs die soon after metamorphosis. Several infected and uninfected populations were monitored in Sequoia and Kings Canyon National Parks over multiple years, documenting dramatic declines and extirpations in infected but not in uninfected populations. In the summer of 2005, of 43 populations assayed in Yosemite National Park, 39 were positive for chytrid fungus.

The current distribution of the Sierra Nevada mountain yellow-legged frog is restricted primarily to publicly managed lands at high elevations, including streams, lakes, ponds, and meadow wetlands located on national forests, including wilderness and nonwilderness on the forests, and national parks. In several areas where detailed studies of the effects of chytrid fungus on the mountain yellow-legged frog are on-going, substantial declines have been observed over the past several years. For example, in 2007 surveys in Yosemite National Park, mountain yellow-legged frogs were not detectable at 37 percent of 285 sites where they had been observed in 2000-2002; in 2005 in Sequoia and Kings Canyon National Parks, mountain yellow-legged frogs were not detected at 54 percent of sites where they had been recorded 3 to 8 years earlier. A compounding effect of disease-caused extinctions of mountain yellow-legged frogs is that recolonization may never occur, because streams connecting extirpated sites to

extant populations now contain introduced fishes, which act as barriers to frog movement within metapopulations. The most recent assessment of the species status in the Sierra Nevada indicates that mountain-yellow legged frogs occur at less than 8 percent of the sites from which they were historically observed. A group of prominent scientists further predict a 10-percent decline per year in the number of remaining *Rana mucosa* populations. Based on threats that are imminent (because they are ongoing) and high-magnitude (because they affect the survival of the DPS rangewide), we continue to assign the population of mountain yellow-legged frog in the Sierra Nevada an LPN of 3.

Oregon spotted frog (*Rana pretiosa*) – The following summary is based on information contained in our files and the petition we received on May 4, 1989. Historically, the Oregon spotted frog ranged from British Columbia to the Pit River drainage in northeastern California. Based on surveys of historical sites, the Oregon spotted frog is now absent from at least 76 percent of its former range. The majority of the remaining Oregon spotted frog populations are small and isolated.

The threats to the species' habitat include development, livestock grazing, introduction of nonnative plant species, vegetation succession, changes in hydrology due to construction of dams and alterations to seasonal flooding, lack of management of exotic vegetation, predators, and poor water quality. Additional threats to the species are predation by nonnative fish and introduced bullfrogs; competition with bullfrogs and nonnative fish for habitat; and diseases, such as oomycete water mold *Saprolegnia* and chytrid fungus infections. The magnitude of threat is high for this species because this wide range of threats to both individuals and their habitats could seriously reduce or eliminate any of these isolated populations and further reduce the species' range and potential survival. Habitat restoration and management actions have not prevented population declines. The threats are imminent because each population is faced with multiple ongoing and potential threats as identified above. Therefore, we retained an LPN of 2 for the Oregon spotted frog.

Relict leopard frog (*Rana onca*) – The following summary is based on information contained in our files and the petition we received on May 9, 2002. Natural relict leopard frog populations are currently only known to occur in two general areas in Nevada: Near the Overton Arm area of Lake

Mead and Black Canyon below Lake Mead. These two areas comprise a small fraction of the historical distribution of the species, which included springs, streams, and wetlands within the Virgin River drainage downstream from the vicinity of Hurricane, Utah; along the Muddy River in Nevada; and along the Colorado River from its confluence with the Virgin River downstream to Black Canyon below Lake Mead in Nevada and Arizona.

Suggested factors contributing to the decline of the species include alteration of aquatic habitat due to agriculture and water development, including regulation of the Colorado River, and the introduction of exotic predators and competitors. In 2005, the National Park Service, in cooperation with the Service and various other Federal, State, and local partners, developed a conservation agreement and strategy that is intended to improve the status of the species through prescribed management actions and protection. Conservation actions identified for implementation in the agreement and strategy include captive rearing of tadpoles for translocation and refugium populations, habitat and natural history studies, habitat enhancement, population and habitat monitoring, and translocation. Conservation is proceeding under the agreement; however, additional time is needed to determine whether or not the agreement will be effective in eliminating or reducing the threats to the point that the relict leopard frog can be removed from candidate status. However, because of these conservation efforts, the magnitude of existing threats is moderate to low. These threats remain nonimminent since there are no pending projects or actions that would adversely affect frog populations or threaten surface water associated with known sites occupied by the frog. Therefore, we assigned an LPN of 11 to this species.

Ozark hellbender (*Cryptobranchus alleganiensis bishopi*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Austin blind salamander (*Eurycea waterlooensis*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. The Austin blind salamander is known to occur in and around three of the four spring sites that comprise the Barton Springs complex in the City of Austin,

Travis County, Texas. Primary threats to this species are degradation of water quality due to expanding urbanization. The Austin blind salamander depends on a constant supply of clean water from the Edwards Aquifer that discharges from Barton Springs for its survival. Urbanization dramatically alters the normal hydrologic regime and water quality of an area. Increased impervious cover caused by development increases the quantity and velocity of runoff that leads to erosion and greater pollution transport. Pollutants and contaminants that enter the Edwards Aquifer are discharged in salamander habitat at Barton Springs and have serious morphological and physiological effects to the salamander.

The Texas Commission on Environmental Quality adopted the Edwards Rules in 1995 and 1997, which require a number of water quality protection measures for new development occurring in the recharge and contributing zones of the Edwards Aquifer. However, Chapter 245 of the Texas Local Government Code permits "grandfathering" of state regulations. Grandfathering allows developments to be exempted from any new local or state requirements for water quality controls and impervious cover limits if the developments were planned prior to the implementation of such regulations. As a result of the grandfathering law, very few developments have followed these ordinances. New developments are still obligated to comply with regulations that were applicable at the time when project applications for development were first filed. In addition, it is significant that even if they were followed with every new development, these ordinances do not span the entire watershed for Barton Springs. Consequently, development occurring outside these jurisdictions can have negative consequences on water quality and thus have an impact on the species.

Water quality impacts threaten the continued existence of the Austin blind salamander by altering physical aquatic habitats and the food sources of the salamander. The threats are imminent because urbanization is ongoing and continues to expand over the Barton Springs Segment of the Edwards Aquifer and water quality continues to degrade. Although the City of Austin and many other partners are actively working on conservation of the Barton Springs salamander, and the Austin blind salamander benefits from all of the ongoing conservation actions that are being conducted for the Barton Springs salamander, these efforts have not yet been successful in improving water quality. In addition, the existence of the

species continues to be threatened by occasional hazardous chemical spills within the Barton Springs Segment of the Edwards Aquifer, which could result in direct mortality. Because the Austin blind salamander is known from only three clustered spring sites and must rely on clear, clean spring discharges from the Edwards Aquifer for its survival, degraded water quality poses a threat to the entire population, and is therefore a high-magnitude threat. Thus, we retain an LPN of 2 for this species.

Georgetown salamander (*Eurycea naufragia*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. The Georgetown salamander is known from spring outlets along five tributaries to the San Gabriel River and one cave in the City of Georgetown, Williamson County, Texas. The Georgetown salamander has a very limited distribution and depends on a constant supply of clean water from the Northern Segment of the Edwards Aquifer for its survival.

Primary threats to this species are degradation of water quality due to expanding urbanization. Increased impervious cover by development increases the quantity and velocity of runoff that leads to erosion and greater pollution transport. Pollutants and contaminants that enter the Edwards Aquifer are discharged from spring outlets in salamander habitat and have serious morphological and physiological effects to the species. The Texas Commission on Environmental Quality (TCEQ) adopted the Edwards Rules in 1995 and 1997, which require a number of water quality protection measures for new development occurring in the recharge and contributing zones of the Edwards Aquifer. However, Chapter 245 of the Texas Local Government Code permits “grandfathering” of state regulations. Grandfathering allows developments to be exempted from any new local or state requirements for water quality controls and impervious cover limits if the developments were planned prior to the implementation of such regulations. As a result of the grandfathering law, very few developments have followed these ordinances. New developments are still obligated to comply with regulations that were applicable at the time when project applications were first filed. In addition, it is significant that even if they were followed with every new development, these ordinances do not span the entire watershed for the Edwards Aquifer. The TCEQ has developed voluntary water quality

protection measures for development in the Edwards Aquifer region of Texas; however, it is unknown if these measures will be implemented throughout a large portion of the watershed or if they will be effective in maintaining or improving water quality. Therefore, we do not rely on the protection measures in our assessment of threats.

Development occurring outside the TCEQ’s jurisdiction can have negative consequences on water quality and thus affect the species. Water quality impacts threaten the continued existence of the Georgetown salamander by altering physical aquatic habitats and the food sources of the salamander. The threats are imminent because urbanization is ongoing and continues to expand over the Northern Segment of the Edwards Aquifer. However, Williamson County and the Williamson County Conservation Foundation are actively working to protect habitat and acquire land within the contributing watershed for the Georgetown salamander. These conservation actions reduce the magnitude of the threat to the Georgetown salamander to a moderate level by reducing the amount of development occurring in the portion of the watershed that affects the species. Thus, we assigned an LPN of 8 for this species.

Jollyville Plateau salamander (*Eurycea tonkawae*) – The following summary is based on information gathered during a status review of this species (72 FR 71039, December 13, 2007). The Jollyville Plateau salamander occurs in the Jollyville Plateau and Brushy Creek areas of the Edwards Plateau in Travis and Williamson Counties, Texas. This species has a limited distribution and depends on a constant supply of clean water from the Northern Segment of the Edwards Aquifer for its survival. Primary threats to this species are degradation of water quality due to expanding urbanization. Increased impervious cover by development increases the quantity and velocity of runoff that leads to erosion and greater pollution transport. Pollutants and contaminants that enter the Edwards Aquifer are discharged from spring outlets in salamander habitat and have serious morphological and physiological effects on the species.

The Texas Commission on Environmental Quality adopted the Edwards Rules in 1995 and 1997, which require a number of water quality protection measures for new development occurring in the recharge and contributing zones of the Edwards Aquifer. However, Chapter 245 of the Texas Local Government Code permits

“grandfathering” of state regulations. Grandfathering allows developments to be exempted from any new local or state requirements for water quality controls and impervious cover limits if the developments were planned prior to the implementation of such regulations. As a result of the grandfathering law, very few developments have followed these ordinances. New developments are still obligated to comply with regulations that were applicable at the time when project applications for development were first filed. In addition, it is significant that even if they were followed with every new development, these ordinances do not span the entire watershed for the Edwards Aquifer. The TCEQ has developed voluntary water quality protection measures for development in the Edwards Aquifer region of Texas; however, it is unknown if these measures will be implemented throughout a large portion of the watershed or if they will be effective in maintaining or improving water quality.

Water quality impacts currently threaten the continued existence of the Jollyville Plateau salamander by altering physical aquatic habitats and the food sources of the salamander, producing negative population responses. Such responses have been documented at both the individual level (mortalities and deformities) and the population level (significant declines in abundance over the last 10 years and extirpation at one site). We find the overall negative response by the salamander to be at a moderate level because deformities and deaths of salamanders have been limited in scope to a few localities and only one location may have experienced an extirpation. Otherwise, the current range of the salamander changed little from the known historical range. Thus, we retain an LPN of 8 for this species.

Salado salamander (*Eurycea chisholmensis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Salado salamander is historically known from two spring sites, Big Boiling Springs and Robertson Springs, near Salado, Bell County, Texas. We have received only one anecdotal report of a salamander sighting in Big Boiling Springs in 2008; prior to that, the Salado salamander had not been sighted there since 1991. Robertson Springs is on private land and access to the site has not been granted. The last survey at Robertson Springs was in the early 1990s.

Primary threats to this species are habitat modification and degradation of water quality due to expanding

urbanization. The Salado salamander depends on a constant supply of clean water from the Northern Segment of the Edwards Aquifer for its survival. Pollutants and contaminants that enter the Edwards Aquifer discharge in salamander habitat and have morphological and physiological effects on the salamander. We do not know how likely spills are to occur within the contributing watersheds of the springs that support this species. However, several groundwater incidents have occurred within Salado salamander habitat in recent years. The salamander is vulnerable to catastrophic hazardous materials spills, groundwater contamination from the Northern Segment of the Edwards Aquifer, and impacts to its surface habitat. In addition, Big Boiling Springs is located near Interstate Highway 35 and in the center of the Village of Salado. Traffic and urbanization is likely to increase the threat of contamination of spills, higher levels of impervious cover, and subsequent impacts to groundwater. These threats significantly affect the survival of this species, and groundwater contamination and impacts to surface habitat are ongoing. Moreover, we do not have information that the magnitude or imminence of the threats to the species has changed since our previous assessment when we concluded there are ongoing, and therefore, imminent threats of a high magnitude. Therefore, we retained an LPN of 2 for this species.

Yosemite toad (*Bufo canorus*) – The following summary is based on information contained in our files and the petition we received on April 3, 2000. See also our 12-month petition finding published on December 10, 2002 (67 FR 75834). The Yosemite toad is a moderately sized toad with females having black spots edged with white or cream that are set against a grey, tan, or brown background. Males have a nearly uniform coloration of yellow-green to olive drab to greenish brown. The Yosemite toad is most likely to be found in areas with thick meadow vegetation or patches of low willows near or in water, and use rodent burrows for overwintering and temporary refuge during the summer. Breeding habitat includes the edges of wet meadows, slow flowing streams, shallow ponds and shallow areas of lakes. The historical range of the Yosemite toad in the Sierra Nevada occurs from the Blue Lakes region north of Ebbetts Pass (Alpine County) to south of Kaiser Pass in the Evolution Lake/Darwin Canyon area (Fresno County). The historical

elevational range of the Yosemite toad is 1,460 to 3,630 m (4,790 to 11,910 ft).

The threats to the Yosemite toad include cattle grazing, timber harvesting, recreation, disease, and climate change. Inappropriate grazing has been shown to cause loss in vegetative cover and destroying peat layers in meadows, which lowers the groundwater table and summer flows. This may increase the stranding and mortality of tadpoles, or make these areas completely unsuitable for Yosemite toads. Grazing can also degrade or destroy moist upland areas used as non-breeding habitat by the Yosemite toad and collapse rodent burrows used by Yosemite toads as cover and hibernation sites. Timber harvesting and associated road development could severely alter the terrestrial environment and result in the reduction and occasional extirpation of amphibian populations in the Sierra Nevada. Some of these threats result in gaps in habitat which may act as dispersal barriers and contribute to the fragmentation of Yosemite toad habitat and populations. Trails (foot, horse, bicycle, or off-highway motor vehicle) compact soil in riparian habitat, which increases erosion, displaces vegetation, and can lower the water table. Trampling or the collapsing of rodent burrows by recreationists, pets, and vehicles could lead to direct mortality of all life stages of the Yosemite toad and disrupt their behavior. Various diseases have been confirmed in the Yosemite toad. Mass die-offs of amphibians have been attributed to: chytrid fungal infections of metamorphs and adults; *Saprolegnia* fungal infections of eggs; iridovirus infection of larvae, metamorphs, or adults; and bacterial infections. The Yosemite toad is likely exposed to a variety of pesticides and other chemicals throughout its range. Environmental contaminants could negatively affect the species by causing direct mortality; suppressing the immune system; disrupting breeding behavior, fertilization, growth or development of young; and disrupting the ability to avoid predation. There is no indication that any of these threats are ongoing or planned and the threats are therefore nonimminent. In addition, since there are a number of substantial populations and these threats tend to have localized effects, the threats are moderate to low in magnitude. In addition, almost all of the species' range occurs on Federal land, which protects the species from private development and facilitates management of the species by Federal agencies. We

therefore retained an LPN of 11 for the Yosemite toad.

Black Warrior waterdog (*Necturus alabamensis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Black Warrior waterdog is a salamander that inhabits streams above the Fall Line within the Black Warrior River Basin in Alabama. There is very little specific locality information available on the historical distribution of the Black Warrior waterdog since little attention was given to this species between its description in 1937 and the 1980s. At that time, there were a total of only 11 known historical records from 4 Alabama counties. Two of these sites have now been inundated by impoundments. Extensive survey work was conducted in the 1990s to look for additional populations. Currently, the species is known from 14 sites in 5 counties.

Water-quality degradation is the biggest threat to the continued existence of the Black Warrior waterdog. Most streams that have been surveyed for the waterdog showed evidence of pollution and many appeared biologically depauperate. Sources of point and nonpoint pollution in the Black Warrior River Basin have been numerous and widespread. Pollution is generated from inadequately treated effluent from industrial plants, sanitary landfills, sewage treatment plants, poultry operations, and cattle feedlots. Surface mining represents another threat to the biological integrity of waterdog habitat. Runoff from old, abandoned coal mines generates pollution through acidification, increased mineralization, and sediment loading. The North River, Locust Fork, and Mulberry Fork, all streams that this species inhabits, are on the Environmental Protection Agency's list of impaired waters. An additional threat to the Black Warrior waterdog is the creation of large impoundments that have flooded thousands of square hectares (acres) of its habitat. These impoundments are likely marginal or unsuitable habitat for the salamander. While the water-quality threat is pervasive and problematic, the overall magnitude of the threat is moderate, reflected by the fact that there has not been a steep rate of decline in the population of this species. Water quality degradation in the Black Warrior basin is ongoing; therefore, the threats are imminent. We assigned an LPN of 8 to this species.

Fishes

Headwater chub (*Gila nigra*) – The following summary is based on

information contained in our files and the 12-month finding published in the **Federal Register** on May 3, 2006 (71 FR 26007). The headwater chub is a moderate-sized cyprinid fish. The range of the headwater chub has been reduced by approximately 60 percent. Sixteen streams (125 miles (200 kilometers) of stream) are thought to be occupied out of 19 streams (312 miles (500 kilometers) of stream) formerly occupied in the Gila River Basin in Arizona and New Mexico. All remaining populations are fragmented and isolated and threatened by a combination of factors.

Headwater chub are threatened by introductions of nonnative fish that prey on them and compete with them for food. These nonnative fish are difficult to eliminate and, therefore, pose an ongoing threat. Habitat destruction and modification have occurred and continue to occur as a result of dewatering, impoundment, channelization, and channel changes caused by alteration of riparian vegetation and watershed degradation from mining, grazing, roads, water pollution, urban and suburban development, groundwater pumping, and other human actions. Existing regulatory mechanisms do not appear to be adequate for addressing the impact of nonnative fish and also have not removed or eliminated the threats that continue to be posed through habitat destruction or modification. The fragmented nature and rarity of existing populations makes them vulnerable to other natural or manmade factors, such as drought and wildfire. Climate change is predicted to worsen these threats through increased aridity of the regions, thus reducing stream flows and warming aquatic habitats, which makes them more suitable to nonnative species.

The Arizona Game and Fish Department has finalized the Arizona Statewide Conservation Agreement for Roundtail Chub (*G. robusta*), Headwater Chub, Flannelmouth Sucker (*Catostomus latipinnis*), Little Colorado River Sucker (*Catostomus* spp.), Bluehead Sucker (*C. discobolus*), and Zuni Bluehead Sucker (*C. discobolus yarrowi*). The New Mexico Department of Game and Fish recently listed the headwater chub as endangered and created a recovery plan for the species: Colorado River Basin Chubs (Roundtail Chub, Gila Chub (*G. intermedia*), and Headwater Chub) Recovery Plan, which was approved by the New Mexico State Game Commission on November 16, 2006. Both the Arizona Agreement and the New Mexico Recovery Plan recommend preservation and

enhancement of extant populations and restoration of historical headwater-chub populations. The recovery and conservation actions prescribed by Arizona and New Mexico plans, which we believe will reduce and remove threats to this species, will require further discussions and authorizations before they can be implemented, although some actions have been completed and several are planned for the immediate future. Although threats are ongoing, new information indicates long-term persistence and stability of existing populations. Currently 10 of the 16 extant populations are considered stable based on abundance and evidence of recruitment. Based on our assessment, threats (nonnative species, habitat loss from land uses) remain imminent and are of a moderate magnitude. Thus, we retained an LPN of 8 for this species.

Arkansas darter (*Etheostoma cragini*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Arkansas darter is a small fish in the perch family native to portions of the Arkansas River basin. The species' range includes sites in extreme northwestern Arkansas, southwestern Missouri, and northeastern Oklahoma, within the Neosho River watershed. It also occurs in a number of watersheds and isolated streams in eastern Colorado, south-central and southwestern Kansas, and the Cimarron watershed in northwest Oklahoma. The species is most often found in small spring-fed streams with sand substrate and aquatic vegetation. It appears stable at most sites where spring flows persist. It has declined in areas where spring flows have decreased or been eliminated. We estimate that currently there are approximately 148 locality occurrences of the Arkansas darter distributed across the 5 States and that a minimum of 12 populations or population groups (metapopulations) now exist. Threats to the species include stream dewatering resulting from groundwater pumping in the western portion of the species' range, and potential development pressures in portions of its eastern range. Spills and runoff from confined animal feeding operations also potentially affect the species rangewide. The magnitude of threats facing this species is moderate to low, given the number of different locations where the species occurs and the fact that no single threat or combination of threats affects more than a portion of the widespread population occurrences. Overall, the threats are

nonimminent since groundwater pumping is declining and development, spills, and runoff are not currently affecting the species rangewide. Thus, we are retaining an LPN of 11 for the Arkansas darter.

Cumberland darter (*Etheostoma susanae*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Pearl darter (*Percina aurora*) – See above in "Listing Priority Changes in Candidates." The above summary is based on information contained in our files.

Rush darter (*Etheostoma phytophilum*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Yellowcheek darter (*Etheostoma moorei*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Chucky madtom (*Noturus crypticus*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Grotto sculpin (*Cottus* sp., sp. nov.) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Grotto sculpin, a small fish, is restricted to two karst areas (limestone regions characterized by sink holes, abrupt ridges, caves, and underground streams): the Central Perryville Karst and Mystery-Rimstone Karst in Perry County, southeast Missouri. Grotto sculpins have been documented in only 5 caves (Burr *et al.* 2001, p. 284). The current overall range of the grotto sculpin has been estimated to encompass approximately 260 square kilometers (100 square miles).

The small population size and endemism of the grotto sculpin make it vulnerable to extinction due to genetic drift, inbreeding depression, and random or chance changes to the

environment. The species' karst habitat is located down-gradient of the city of Perryville, Missouri, which poses a potential threat if contaminants from this urban area enter cave streams occupied by grotto sculpins. Various agricultural chemicals, such as ammonia, nitrite/nitrate, chloride, and potassium have been detected at levels high enough to be detrimental to aquatic life within the Perryville Karst area. More than half of the sinkholes in Perry County contain anthropogenic refuse, ranging from household cleansers and sewage to used pesticide and herbicide containers. As a result, potential water contamination from various sources of point and non-point pollution poses a significant threat to the grotto sculpin. Of the 5 cave systems documented to have grotto sculpins, populations in one cave system were likely eliminated, presumably as the result of point-source pollution. When the cave was searched in the spring of 2000, a mass mortality of grotto sculpin was noted, and subsequent visits to the cave have failed to document a single live grotto sculpin. Thus, the species appears to have suffered a 20 percent decrease in the number of populations from the single event. Predatory fish such as common carp, fat-head minnow, yellow bullhead, green sunfish, bluegill, and channel catfish occur in all of the caves occupied by grotto sculpin. These potential predators may escape surface farm ponds that unexpectedly drain through sinkholes into the underground cave systems and enter grotto sculpin habitat. No regulatory mechanisms are in place that would provide protection to the grotto sculpin. Current threats to the habitat of the grotto sculpin may exacerbate potential problems associated with its low population numbers and increase the likelihood of extinction. Thus, the magnitude of threats is high. The threats are ongoing and, therefore, are imminent. Thus, we assigned this species an LPN of 2.

Sharpnose shiner (*Notropis oxyrhynchus*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The sharpnose shiner is a small, slender minnow, endemic to the Brazos River Basin in Texas. Historically, the sharpnose shiner existed throughout the Brazos River and several of its major tributaries within the watershed. It has also been found in the Wichita River (within the Red River Basin), where it may have once naturally occurred but has since been extirpated. Current information indicates that the population within the

upstream of Possum Kingdom Reservoir is apparently stable, while the population downstream of the reservoir may only exist in remnant populations in areas of suitable habitat, or may be completely extirpated, representing a reduction of approximately 69 percent of its historical range.

The most significant threat to the existence of the sharpnose shiner is potential reservoir development within its current range. The current water plan for Texas provides several reservoir options that could be implemented within the Brazos River drainage. Additional threats include irrigation and water diversion, sedimentation, desalination, industrial and municipal discharges, agricultural activities, in-stream sand and gravel mining and the spread of invasive saltcedar. The current limited distribution of the sharpnose shiner within the Upper Brazos River Basin makes it vulnerable to catastrophic events such as the introduction of competitive species or prolonged drought. State law does not provide protection for the sharpnose shiner. The magnitude of threat is high since the major threat of reservoir development within the species' current range may render its remaining habitat unsuitable. The threats are nonimminent because the most significant threat - major reservoir projects - are not likely to occur in the near future, and there is potential for implementing other water supply options that could preclude reservoir development. For these reasons, we assigned an LPN of 5 to this species.

Smalleye shiner (*Notropis buccula*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The smalleye shiner is a small, pallid minnow endemic to the Brazos River Basin in Texas. The population of smalleye shiners within the Upper Brazos River drainage (upstream of Possum Kingdom Reservoir) is apparently stable. However, the shiner may be extirpated downstream from the reservoir, representing a reduction of approximately 54 percent of its historical range.

The most significant threat to the existence of the smalleye shiner is potential reservoir development within its current range. Additional threats include irrigation and water diversion, sedimentation, desalination, industrial and municipal discharges, agricultural activities, in-stream sand and gravel mining and the spread of invasive saltcedar. The current limited distribution of the smalleye shiner within the Upper Brazos River Basin

makes it vulnerable to catastrophic events such as the introduction of competitive species or prolonged drought. State law does not provide protection for the smalleye shiner. The magnitude of threat is high since the major threat of reservoir development within the species' current range may render its remaining habitat unsuitable. The threats are nonimminent because major reservoir projects are not likely to occur in the near future and there is potential for implementing other water supply options that could preclude reservoir development. For these reasons, we assigned a LPN of 5 to this species.

Zuni bluehead sucker (*Catostomus discobolus yarrowi*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Zuni bluehead sucker is a colorful fish less than 8 inches long. The range of the Zuni bluehead sucker has been reduced by over 90 percent. The Zuni bluehead sucker currently occupies 9 river miles (15 kilometers) in 3 headwater stream of the Rio Nutria in New Mexico, and potentially occurs in 27 miles in (43 kilometers) the Kinlichee drainage of Arizona. However, the number of occupied miles in Arizona is unknown and the genetic composition of these fish is still under investigation.

Zuni bluehead sucker range reduction and fragmentation is caused by discontinuous surface water flow, introduced species, and habitat degradation from fine sediment deposition. Zuni bluehead sucker persist in very small creeks that are subject to very low flows and drying during periods of drought. Because of climate change (warmer air temperatures), stream flow is predicted to decrease in the Southwest, even if precipitation were to increase moderately. Warmer winter and spring temperatures cause an increased fraction of precipitation to fall as rain, resulting in a reduced snow pack, an earlier snow melt, and a longer dry season leading to decreased stream flow in the summer and a longer fire season. These changes would have a negative effect on Zuni bluehead sucker. Another major impact to populations of Zuni bluehead sucker was the application of fish toxicants through at least two dozen treatments in the Nutria and Pescado rivers between 1960 and 1975. Large numbers of Zuni bluehead suckers were killed during these treatments. The Zuni bluehead sucker is most likely extirpated from Rio Pescado as none

have been collected from that river since 1993.

The New Mexico Department of Game and Fish developed a recovery plan for Zuni bluehead sucker which was approved by the New Mexico State Game Commission on December 15, 2004. The recovery plan recommends preservation and enhancement of extant populations and restoration of historical Zuni bluehead sucker populations. We believe the recovery actions prescribed by the recovery plan will reduce and remove threats to this subspecies, but they will require further discussions and authorizations before they can be implemented and threats are reduced. Because of the ongoing threats of high magnitude, including loss of habitat (historical and current from beaver activity), degradation of remaining habitat (nonnative species and land development), drought, fire, and climate change, we maintained an LPN of 3 for this subspecies.

Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*) – The following summary is based on information contained in our files and our status review published on May 14, 2008 (73 FR 27900). Rio Grande cutthroat trout is one of 14 subspecies of cutthroat trout found in the western United States. Populations of this subspecies are in New Mexico and Colorado in drainages of the Rio Grande, Pecos, and Canadian rivers. Although once widely distributed in connected stream networks, Rio Grande cutthroat trout populations now occupy about 10 percent of its historical habitat and the populations are fragmented and isolated from one another. The majority of populations occur in high elevation streams.

Major threats include: Loss of suitable habitat that has occurred and is likely to continue occurring due to water diversions, dams, stream drying, habitat quality degradation, and changes in hydrology; introduction of nonnative trout and ensuing competition, predation, and hybridization; and whirling disease. In addition, average air temperatures in the Southwest have increased about 1°C (2.5°F) in the past 30 years and they are projected to increase by another 1.2 to 2.8°C (3 to 7°F) by 2050. Because trout require coldwater and water temperatures depend in large part on air temperature, there is concern that the habitat of Rio Grande cutthroat trout will further decrease in response to warmer water temperatures caused by climate change. Wildfire and drought (stream drying) are additional threats to Rio Grande cutthroat trout populations that are likely to increase in magnitude in

response to climate change. Research is occurring to assess the effects of climate change on this subspecies and agencies are working to restore historically occupied streams. The threats are of moderate magnitude because there is good distribution and a comparatively large number of populations across the landscape; some populations have few threats present, and in other areas, management actions are taken to help control the threat of nonnative trout. Overall, the threats are ongoing and, therefore, imminent. Based on imminent threats of moderate magnitude, we assigned an LPN of 9 to this subspecies.

Clams

Texas hornshell (*Popenaias popei*) – The following summary is based on information contained in our files and information provided by the New Mexico Department of Game and Fish and Texas Parks and Wildlife Department. No new information was provided in the petition received on May 11, 2004. The Texas hornshell is a freshwater mussel found in the Black River in New Mexico, and the Rio Grande and the Devils River in Texas. Until March 2008, the only known extant populations were in New Mexico's Black River and one locality in the Rio Grande near Laredo, Texas. In March 2008, two new localities were confirmed in Texas – one in the Devils River and one in the mainstem Rio Grande in the Rio Grande Wild and Scenic River segment downstream of Big Bend National Park.

The primary threats to this species are habitat alterations such as stream bank channelization, impoundments, and diversions for agriculture and flood control; contamination of water by oil and gas activity; alterations in the natural riverine hydrology; and increased sedimentation from prolonged overgrazing and loss of native vegetation. Although riverine habitats throughout the species' known occupied range are under constant threat from these ongoing or potential activities, numerous conservation actions that will benefit the species are underway in New Mexico, including the completion of a state recovery plan for the species and the drafting of a Candidate Conservation Agreement with Assurances, and are beginning in Texas on the Big Bend reach of the Rio Grande. In addition, previously unknown locations where the species persists were found in Texas in 2008. Due to these ongoing conservation efforts and the discovery of new locations, the magnitude of the threats is moderate. However, the threats to the species are ongoing, and

remain imminent. Thus, we maintained a LPN of 8 for this species.

Fluted kidneyshell (*Ptychobranchus subtentum*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The fluted kidneyshell is a freshwater mussel endemic to the Cumberland and Tennessee River systems in Alabama, Kentucky, Tennessee, and Virginia. It requires shoal habitats in free-flowing rivers to survive and successfully recruit new individuals into its populations.

This species has been extirpated from numerous regional streams and is no longer found in the State of Alabama. Habitat destruction and alteration (e.g., impoundments, sedimentation, and pollutants) are the chief factors that contributed to its decline. The fluted kidneyshell was historically known from at least 37 streams but is currently restricted to no more than 12 isolated populations. Current status information for most of the 12 populations deemed to be extant is available from recent periodic sampling efforts (sometimes annually) and other field studies, particularly in the upper Tennessee River system. Some populations in the Cumberland River system have had recent surveys as well (e.g., Wolf, Little Rivers; Little South Fork; Horse Lick, Buck Creeks). Populations in Buck Creek, Little South Fork, Horse Lick Creek, Powell River, and North Fork Holston River have clearly declined over the past two decades. Based on recent information, the overall population of the fluted kidneyshell is declining rangewide. At this time, the species remains in large numbers in just the Clinch River/Copper Creek, although smaller, viable populations remain (e.g., Wolf, Little, North Fork Holston Rivers; Rock Creek). Most other populations are of questionable or limited viability, with some on the verge of extirpation (e.g., Powell River; Little South Fork; Horse Lick, Buck, Indian Creeks). Newly reintroduced populations in the Little Tennessee, Nolichucky, and Duck Rivers may begin to reverse the downward population trend of this species. The threats are high in magnitude, since the majority of populations of this species are severely affected by numerous threats (impoundments, sedimentation, small population size, isolation of populations, gravel mining, municipal pollutants, agricultural runoff, nutrient enrichment, and coal processing pollution) that result in mortality or reduced reproductive output. Since the threats are ongoing, they are imminent.

We assigned an LPN of 2 to this mussel species.

Neosho mucket (*Lampsilis rafinesqueana*) – See above in “Listing Priority Changes in Candidates.” The above summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Alabama pearlshell (*Margaritifera marrianae*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Slabside pearlymussel (*Lexingtonia dolabelloides*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The slabside pearlymussel is a freshwater mussel endemic to the Cumberland and Tennessee River systems in Alabama, Kentucky, Tennessee, and Virginia. It requires shoal habitats in free-flowing rivers to survive and successfully recruit new individuals into its populations.

Habitat destruction and alteration (e.g., impoundments, sedimentation, and pollutants) are the chief factors contributing to the decline of this species, which has been extirpated from numerous regional streams and is no longer found in Kentucky. The slabside pearlymussel was historically known from at least 32 streams, but is currently restricted to no more than 10 isolated stream segments. Current status information for most of the 10 populations deemed to be extant is available from recent periodic sampling efforts (sometimes annually) and other field studies. Comprehensive surveys have taken place in the Middle and North Forks Holston River, Paint Rock River, and Duck River in the past several years. Based on recent information, the overall population of the slabside pearlymussel is declining rangewide. Of the five streams in which the species remains in good numbers (e.g., Clinch, North and Middle Forks Holston, Paint Rock, Duck Rivers), the Middle and upper North Fork Holston Rivers have undergone drastic recent declines, while the Clinch population has been in a longer-term decline. Most of the remaining five populations (e.g., Powell River, Big Moccasin Creek, Hiwassee River, Elk River, Bear Creek) have doubtful viability, and several if not all of them may be on the verge of extirpation.

The threats remain high in magnitude, since all populations of this species are

severely affected by numerous threats (impoundments, sedimentation, small population size, isolation of populations, gravel mining, municipal pollutants, agricultural runoff, nutrient enrichment, and coal processing pollution) that result in mortality or reduced reproductive output. Since the threats are ongoing, they are imminent. We assigned an LPN of 2 to this mussel species.

Altamaha spiny mussel (*Elliptio spinosa*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Snails

Sisi snail (*Ostodes strigatus*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The sisi snail is a ground-dwelling species in the Potaridae family, and is endemic to American Samoa. The species is now known from a single population on the island of Tutuila, American Samoa.

This species is currently threatened by habitat loss and modification and by predation from nonnative predatory snails. The decline of the sisi in American Samoa has resulted, in part, from loss of habitat to forestry and agriculture and loss of forest structure to hurricanes and alien weeds that establish after these storms. All live sisi snails have been found in the leaf litter beneath remaining intact forest canopy. No snails were found in areas bordering agricultural plots or in forest areas that were severely damaged by three hurricanes (1987, 1990, and 1991). Under natural historical conditions, loss of forest canopy to storms did not pose a great threat to the long-term survival of these snails; enough intact forest with healthy populations of snails would support dispersal back into newly regrown canopy forest. However, the presence of alien weeds such as mile-a-minute vine (*Mikania micrantha*) may reduce the likelihood that native forest will re-establish in areas damaged by the hurricanes. This loss of habitat to storms is greatly exacerbated by expanding agriculture. Agricultural plots on Tutuila have spread from low elevation up to middle and some high elevations, greatly reducing the forest area and thus reducing the resilience of native forests and its populations of native snails. These reductions also increase the likelihood that future

storms will lead to the extinction of populations or species that rely on the remaining canopy forest. In an effort to eradicate the giant African snail (*Achatina fulica*), the alien rosy carnivore snail (*Euglandia rosea*) was introduced in 1980. The rosy carnivore snail has spread throughout the main island of Tutuila. Numerous studies show that the rosy carnivore snail feeds on endemic island snails including the sisi, and is a major agent in their declines and extirpations. At present, the major threat to long-term survival of the native snail fauna in American Samoa is predation by nonnative predatory snails. These threats are ongoing and are therefore imminent. Since the threats occur throughout the entire range of the species and have a significant effect on the survival of the snails, they are of a high magnitude. Therefore we assigned this species an LPN of 2.

Diamond Y Spring snail (*Pseudotryonia adamantina*) and Gonzales springsnail (*Tryonia circumstriata*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Diamond Y Spring snail and Gonzales springsnail are small aquatic snails endemic to Diamond Y Spring in Pecos County, Texas. The spring, its outflow channels, and the land surrounding them are owned and managed by The Nature Conservancy.

These snails are primarily threatened with habitat loss due to springflow declines from drought, pumping of groundwater, and potentially climate change. Additional threats include water contamination from accidental releases of petroleum products, as their habitat is in an active oil and gas field. Also, a nonnative aquatic snail (*Melanoides* sp.) was recently introduced into the native snails' habitat and may compete with endemic snails for space and resources. The magnitude of threats is high because limited distribution of these narrow endemics makes any impact from increasing threats (e.g., loss of springflow, contaminants, and nonnative species) likely to result in the extinction of the species. These species occur in one location in an arid region currently plagued by drought and ongoing aquifer withdrawals, making the eventual loss of spring flow an imminent threat of total habitat loss. Thus, we maintain the LPN of 2 for both species.

Fragile tree snail (*Samoana fragilis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

A tree-dwelling species, the fragile tree snail is a member of the Partulidae family of snails, and is endemic to the islands of Guam and Rota (Mariana Islands). Requiring cool and shaded native forest habitat, the species is now known from one population on Guam and from one population on Rota.

This species is currently threatened by habitat loss and modification and by predation from nonnative predatory snails and flatworms. Large numbers of Philippine deer (*Cervus mariannus*) (Guam and Rota), pigs (*Sus scrofa*) (Guam), water buffalo (*Bubalus bubalis*) (Guam), and cattle (*Bos taurus*) (Rota) directly alter the understory plant community and overall forest microclimate, making it unsuitable for snails. Predation by the alien rosy carnivore snail (*Euglandina rosea*) and the Manokwar flatworm (*Platydemus manokwari*) is a serious threat to the survival of the fragile tree snail. Field observations have established that the rosy carnivore snail and the Manokwar flatworm will readily feed on native Pacific island tree snails, including the Partulidae, such as those of the Mariana Islands. The rosy carnivore snail has caused the extirpation of many populations and species of native snails throughout the Pacific islands. The Manokwar flatworm has also contributed to the decline of native tree snails, in part due to its ability to ascend into trees and bushes that support native snails. Areas with populations of the flatworm usually lack partulid tree snails or have declining numbers of snails. Because all of the threats occur rangewide and have a significant effect on the survival of this snail species, they are high in magnitude. The threats are also ongoing and thus are imminent. Therefore, we assigned this species an LPN of 2.

Guam tree snail (*Partula radiolata*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. A tree-dwelling species, the Guam tree snail is a member of the Partulidae family of snails and is endemic to the island of Guam. Requiring cool and shaded native forest habitat, the species is now known from 22 populations on Guam.

This species is primarily threatened by predation from nonnative predatory snails and flatworms. In addition, the species is also threatened by habitat loss and degradation. Predation by the alien rosy carnivore snail (*Euglandina rosea*) and the alien Manokwar flatworm (*Platydemus manokwari*) is a serious threat to the survival of the Guam tree snail (see summary for the fragile tree

snail, above). On Guam, open agricultural fields and other areas prone to erosion were seeded with tangantangan (*Leucaena leucocephala*) by the U.S. Military. Tangantangan grows as a single species stand with no substantial understory. The microclimatic condition is dry with little accumulation of leaf litter humus and is particularly unsuitable as Guam tree snail habitat. In addition, native forest cannot reestablish and grow where this alien weed has become established. Because all of the threats occur rangewide and have a significant effect on the survival of this snail species, they are high in magnitude. The threats are also ongoing and thus are imminent. Therefore, we assigned this species an LPN of 2.

Humped tree snail (*Partula gibba*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. A tree-dwelling species, the humped tree snail is a member of the Partulidae family of snails, and was originally known from the island of Guam and the Commonwealth of the Northern Mariana Islands (islands of Rota, Aguiguan, Tinian, Saipan, Anatahan, Sarigan, Alamagan, and Pagan). Most recent surveys revealed a total of 13 populations on the islands of Guam, Rota, Aguiguan, Sarigan, Saipan, Alamagan, and Pagan. Although still the most widely distributed tree snail endemic in the Mariana Islands, remaining population sizes are often small.

This species is currently threatened by habitat loss and modification and by predation from nonnative predatory snails and flat worms. Throughout the Mariana Islands, feral ungulates (pigs (*Sus scrofa*), Philippine deer (*Cervus mariannus*), cattle (*Bos taurus*), water buffalo (*Bubalus bubalis*), and goats (*Capra hircus*)) have caused severe damage to native forest vegetation by browsing directly on plants, causing erosion, and retarding forest growth and regeneration. This in turn reduces the quantity and quality of forested habitat for the humped tree snail. Currently, populations of feral ungulates are found on the islands of Guam (deer, pigs, and water buffalo), Rota (deer and cattle), Aguiguan (goats), Saipan (deer, pigs, and cattle), Alamagan (goats, pigs, and cattle), and Pagan (cattle, goats, and pigs). Goats were eradicated from Sarigan in 1998 and the humped tree snail has increased in abundance on that island, likely in response to the removal of all the goats. However, the population of humped tree snails on Anatahan is likely extirpated due to the

massive volcanic explosions of the island beginning in 2003 and still continuing, and the resulting loss of up to 95 percent of the vegetation on the island. Predation by the alien rosy carnivore snail (*Euglandina rosea*) and the alien Manokwar flatworm (*Platydemus manokwari*) is a serious threat to the survival of the humped tree snail (see summary for the fragile tree snail, above). The magnitude of threats is high because these alien predators cause significant population declines to the humped tree snail rangewide. These threats are ongoing and thus are imminent. Therefore, we assigned this species an LPN of 2.

Lanai tree snail (*Partulina semicarinata*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Lanai tree snail (*Partulina variabilis*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Langford's tree snail (*Partula langfordi*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. A tree-dwelling species, Langford's tree snail is a member of the Partulidae family of snails, and is known from one population on the island of Aguiguan. This species is currently threatened by habitat loss and modification and by predation from nonnative predatory snails. In the 1930s, the island of Aguiguan was mostly cleared of native forest to support sugar cane and pineapple production. The abandoned fields and airstrip are now overgrown with alien weeds. The remaining native forest understory has greatly suffered from large and uncontrolled populations of alien goats and the invasion of weeds. Goats (*Capra hircus*) have caused severe damage to native forest vegetation by browsing directly on plants, causing erosion, and retarding forest growth and regeneration. This in turn reduces the quantity and quality of forested habitat for Langford's tree snail. Predation by the alien rosy carnivore snail (*Euglandina rosea*) and by the Manokwar flatworm (*Platydemus manokwari*) (see summary for the fragile tree snail, above) is also a serious threat to the survival of Langford's tree snail.

All of the threats are occurring rangewide and no efforts to control or eradicate the nonnative predatory snail species or to reduce habitat loss are being undertaken. The magnitude of threats is high because they result in direct mortality or significant population declines to Langford's tree snail rangewide. A survey of Aguiguan in November 2006 failed to find any live Langford's tree snails. These threats are also ongoing and thus are imminent. Therefore, we assigned this species an LPN of 2.

Phantom Cave snail (*Cochliopa texana*) and Phantom springsnail (*Tryonia cheatumi*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Phantom Cave snail and Phantom springsnail are small aquatic snails that occur in three spring outflows in the Toyah Basin in Reeves and Jeff Davis Counties, Texas.

The primary threat to both species is the loss of surface flows due to declining groundwater levels from drought, pumping for agricultural production, and potentially climate change. Much of the land immediately surrounding their spring habitat is owned and managed by The Nature Conservancy, Bureau of Reclamation, and Texas Parks and Wildlife Department. However, the water needed to maintain their habitat has declined due to a reduction in spring flows, possibly as a result of private groundwater pumping in areas beyond that controlled by these landowners. As an example, Phantom Lake Spring, one of the sites of occurrence, has already ceased flowing and aquatic habitat is artificially supported only by a pumping system. The magnitude of the threats is high because spring flow loss would result in complete habitat destruction and permanent elimination of all populations of the species. The immediacy of the threats is imminent, as evidenced by the drastic decline in spring flow at Phantom Lake Spring that is currently happening and may extirpate these populations in the near future. Declining spring flows in San Solomon Spring are also becoming evident and will affect that spring site as well within the foreseeable future. Thus, we maintained the LPN of 2 for both species.

Newcomb's tree snail (*Newcombia cumingi*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the

next annual resubmitted petition 12-month finding.

Tutuila tree snail (*Eua zebrina*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. A tree-dwelling species, the Tutuila tree snail is a member of the Partulidae family of snails, and is endemic to American Samoa. The species is known from 32 populations on the islands of Tutuila, Nuusetoga, and Ofu.

This species is currently threatened by habitat loss and modification and by predation from nonnative predatory snails and rats. All live Tutuila tree snails were found on understory vegetation beneath remaining intact forest canopy. No snails were found in areas bordering agricultural plots or in forest areas that were severely damaged by three hurricanes (1987, 1990, and 1991). (See summary for the sisi snail, above, regarding impacts of alien weeds and of the rosy carnivore snail.) Rats (*Rattus* spp) have also been shown to devastate snail populations, and rat-chewed snail shells have been found at sites where the Tutuila snail occurs. At present, the major threat to the long-term survival of the native snail fauna in American Samoa is predation by nonnative predatory snails and rats. The magnitude of threats is high because they result in direct mortality or significant population declines to the Tutuila tree snail rangewide. The threats are also ongoing and thus are imminent. Therefore, we assigned this species an LPN of 2.

Chupadera springsnail (*Pyrgulopsis chupadera*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Elongate mud meadows springsnail (*Pyrgulopsis notidicola*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. *Pyrgulopsis notidicola* is endemic to Soldier Meadow, which is located at the northern extreme of the western arm of the Black Rock Desert in the transition zone between the Basin and Range Physiographic Province and the Columbia Plateau Province, Humboldt County, Nevada. The type locality, and the only known location of the species, occurs in a stretch of thermal (between 45° and 32° Celsius, 113° and 90° Fahrenheit) aquatic habitat that is approximately 600 m (1,968 ft) long and

2 m (6.7 ft) wide. *Pyrgulopsis notidicola* occurs only in shallow, flowing water on gravel substrate. The species does not occur in deep water (i.e., impoundments) where water velocity is low, gravel substrate is absent, and sediment levels are high.

The species and its habitat are threatened by recreational use in the areas where it occurs as well as the ongoing impacts of past water diversions and livestock grazing and current off-highway vehicle travel. Conservation measures implemented recently by the Bureau of Land Management include the installation of fencing to exclude livestock, wild horses, burros and other large mammals; closing of access roads to spring, riparian, and wetland areas and the limiting of vehicles to designated routes; the establishment of a designated campground away from the habitats of sensitive species; the installation of educational signage; and increased staff presence, including law enforcement and a volunteer site steward during the 6-month period of peak visitor use. These conservation measures have reduced the magnitude of threat to the species to moderate to low; all remaining threats are nonimminent and involve long-term changes to the habitat for the species resulting from past impacts. Until a monitoring program is in place that allows us to assess the long-term trend of the species, we have assigned this species an LPN of 11.

Gila springsnail (*Pyrgulopsis gilae*) – The following summary is based on information contained in our files and the petition we received on November 20, 1985. Also see our 12-month petition finding published in the **Federal Register** on October 4, 1988 (53 FR 38969). The Gila springsnail is an aquatic species known from 13 populations in New Mexico. Surveys conducted in 2008 located three additional populations bringing the total known to 16.

The long-term persistence of the Gila springsnail is contingent upon protection of the riparian corridor and maintenance of flow to ensure continuous, oxygenated flowing water within the species' required thermal range. Occupied Gila springsnail localities on Federal lands surveyed in 2008 are subject to light levels of recreational use only at the thermal springs, and overall, recreational activities do not appear to be affecting springsnail populations. The level of recreational impacts at thermal springs on private lands is unknown. Sites visited in 2008 were excluded from grazing. Although elk use at some of the springs was evident, the level of impact

was low. Of greatest concern are the very small size of the isolated occupied habitats and the potential effects of climate change. Although the effect climate change will have on the springs of the Southwest is unpredictable, mean annual temperature in New Mexico has increased by 0.6 degrees per decade since 1970. Higher temperatures lead to higher evaporation rates, increased evapotranspiration, and decreased soil moisture which may reduce the amount of groundwater recharge. Widespread, long-term drought could affect spring flow quantity and quality, negatively affecting the springsnail populations. Based on these nonimminent threats that are currently of a low magnitude, we retained a listing priority number of 11 for this species.

Gonzales springsnail (*Tryonia circumstriata*) – See summary above under Diamond Y Spring snail (*Pseudotryonia adamantina*).

Huachuca springsnail (*Pyrgulopsis thompsoni*) – The following is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Huachuca springsnail inhabits approximately 16 springs and cienegas at elevations of 4,500 to 7,200 feet in southeastern Arizona (14 sites) and adjacent portions of Sonora, Mexico (2 sites). The springsnail is typically found in the shallower areas of springs or cienegas, often in rocky seeps at the spring source. Ongoing threats include habitat modification and destruction through catastrophic wildfire; drought; streamflow alteration; and, potentially, grazing, recreation, military activities, and timber harvest. Overall, the threats are moderate in magnitude because threats are not occurring throughout the range of the species uniformly and not all populations would likely be affected simultaneously by any of the known threats. In addition, multiple landowners (Forest Service, Fort Huachuca, The Nature Conservancy) are including consideration for the springsnail or other co-occurring listed species in their activities (e.g., reducing fuel loads, avoiding occupied sites during military operations). The threats are ongoing and, thus, imminent. Therefore, we have assigned an LPN of 8 to this species.

New Mexico springsnail (*Pyrgulopsis thermalis*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Page springsnail (*Pyrgulopsis morrisoni*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. The Page springsnail is known to exist only within a complex of springs located within an approximately 0.93-mi (1.5-km) stretch along the west side of Oak Creek around the community of Page Springs, and within springs located along Spring Creek, tributary to Oak Creek, Yavapai County, Arizona. The primary threat to the Page springsnail is modification of habitat by domestic, agricultural, ranching, fish hatchery, and recreational activities. Many of the springs where the species occurs have been subjected to some level of such modification. Arizona Game and Fish Department management plans for the Bubbling Ponds and Page Springs fish hatcheries include commitments to replace lost habitat and to monitor remaining populations of invertebrates such as the Page springsnail. A draft Candidate Conservation Agreement with Assurances was published and available for public review and comment on January 28, 2008. This Agreement should be finalized during 2009, at which time we will reassess the LPN to ensure the magnitude and immediacy of threats are still appropriately described. Based on recent survey data, it appears that the Page springsnail is abundant within natural habitats and persists in modified habitats, albeit at reduced densities. The magnitude of threats is high because limited distribution of this narrow endemic makes any detrimental effects from threats likely to result in extirpation or extinction. The immediacy of the threat of groundwater withdrawal is uncertain due to conflicting information regarding imminence. However, overall, the threats are imminent because modification of the species' habitat by threats other than groundwater withdrawal is currently occurring. Therefore, we retained an LPN of 2 for the Page springsnail.

Phantom springsnail (*Tyronia cheatumi*) – See summary above under Phantom Cave snail (*Cochliopa texana*).

Three Forks springsnail (*Pyrgulopsis trivialis*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Insects

Wekiu bug (*Nysius wekiuicola*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The wekiu bug belongs to the true bug family, Lygaeidae, and is endemic to the island of Hawaii. This species only occurs on the summit of Mauna Kea and feeds upon other insect species which are blown to the summit of this large volcano. The wekiu bug is primarily threatened by the loss of its habitat from astronomy development. In 2004 and early 2005, surveys found multiple new locations of the wekiu bug on cinder cones on the Mauna Kea summit. Several of these cinder cones within the Mauna Kea Science Reserve, as well as two cinder cones located in the State Ice Age Natural Area Reserve, are not currently undergoing development nor are they the site of any planned development. Thus, the threats, although ongoing, do not occur across the entire range of the wekiu bug. Because there are occupied locations that are not subject to the primary threat of astronomy development, the overall magnitude of the threat is moderate. The immediacy of the threats is imminent because there are still significant parts of the wekiu bug's range where development is occurring. Therefore, we assigned this species an LPN of 8.

Mariana eight spot butterfly (*Hypolimnys octocula mariannensis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Mariana eight spot butterfly is a nymphalid butterfly species that feeds upon two host plants, *Procris pedunculata* and *Elatostema calcareum*. Endemic to the islands of Guam and Saipan, the species is now known from ten populations on Guam. This species is currently threatened by predation and parasitism. The Mariana eight spot butterfly has extremely high mortality of eggs and larvae due to predation by alien ants and wasps. Because the threat of parasitism and predation by nonnative insects occurs rangewide and can cause significant population declines to this species, they are high in magnitude. The threats are imminent because they are ongoing. Therefore, we assigned an LPN of 3 for this subspecies.

Mariana wandering butterfly (*Vagrans egestina*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Mariana wandering butterfly is a nymphalid butterfly species which

feeds upon a single host plant species, *Maytenus thompsonii*. Originally known from and endemic to the islands of Guam and Rota, the species is now known from one population on Rota. This species is currently threatened by alien predation and parasitism. The Mariana wandering butterfly is likely predated on by alien ants and parasitized by native and nonnative parasitoids. Because the threat of parasitism and predation by nonnative insects occurs rangewide and can cause significant population declines to this species, they are high in magnitude. These threats are imminent because they are ongoing. Therefore, we assigned an LPN of 2 for this species.

Miami blue butterfly (*Cyclargus thomasi bethunebakeri*) – See above in “Priority Changes in Candidates.” The above summary is based on information contained in our files and in the petition we received on June 15, 2000.

Sequatchie caddisfly (*Glyphopsyche sequatchie*) – The following summary is based on information in our files. No new information was provided in the petition we received on May 11, 2004. The Sequatchie caddisfly is known from two spring runs that emerge from caves in Marion County, Tennessee - Owen Spring Branch (the type locality) and Martin Spring run in the Battle Creek system. In 1998, biologists estimated population sizes at 500 to 5000 individuals for Owen Spring Branch and 2 to 10 times higher at Martin Spring, due to the greater amount of apparently suitable habitat. In spite of greater amounts of suitable habitat at the Martin Spring run, Sequatchie caddisflies are more difficult to find at this site, and in 2001 (the most recent survey) the Sequatchie caddisfly was “abundant” at the Owen Spring Branch location, while only two individuals were observed at the Martin Spring. Threats to the Sequatchie caddisfly include siltation, point and nonpoint discharges from municipal and industrial activities and introduction of toxicants during episodic events. These threats, coupled with the extremely limited distribution of the species, its apparent small population size, the limited amount of occupied habitat, ease of accessibility, and the annual life cycle of the species, are all factors that leave the Sequatchie caddisfly vulnerable to extirpation. Therefore, the magnitude of the threat is high. These threats are gradual and not necessarily imminent. Based on high-magnitude, nonimminent threats, we assigned this species a listing priority number of 5.

Clifton cave beetle (*Pseudanophthalmus caecus*) – The following summary is based upon

information contained in our files. No new information was provided in the petition we received on May 11, 2004. Clifton cave beetle is a small, eyeless, reddish-brown predatory insect that feeds upon small cave invertebrates. It is cave dependent, and is not found outside the cave environment. Clifton cave beetle is only known from two privately owned Kentucky caves. Soon after the species was first collected in 1963 in one cave, the cave entrance was enclosed due to road construction. We do not know whether the species still occurs at the original location or if it has been extirpated from the site by the closure of the cave entrance. Other caves in the vicinity of this cave were surveyed for the species during 1995 to 1996 and only one additional site was found to support the Clifton Cave beetle. The limestone caves in which the Clifton cave beetle is found provide a unique and fragile environment that supports a variety of species that have evolved to survive and reproduce under the demanding conditions found in cave ecosystems. The limited distribution of the species makes it vulnerable to isolated events that would only have a minimal effect on the more wide-ranging insects. Events such as toxic chemical spills, discharges of large amounts of polluted water or indirect impacts from off-site construction activities, closure of entrances, alteration of entrances, or the creation of new entrances could have serious adverse impacts on this species. Therefore, the magnitude of threat is high for this species. The threats are nonimminent because there are no known projects planned that would affect the species in the near future. We therefore have assigned a listing priority number of 5 to this species.

Icebox cave beetle (*Pseudanophthalmus frigidus*) – The following summary is based upon information contained in our files. No new information was provided in the petition we received on May 11, 2004. Icebox cave beetle is a small, eyeless, reddish-brown predatory insect that feeds upon small cave invertebrates. It is not found outside the cave environment, and is only known from one privately owned Kentucky cave. The limestone cave in which this species is found provides a unique and fragile environment that supports a variety of species that have evolved to survive and reproduce under the demanding conditions found in cave ecosystems. The species has not been observed since it was originally collected, but species experts believe that it may still exist in the cave in low

numbers. The limited distribution of the species makes it vulnerable to isolated events that would only have a minimal effect on the more wide-ranging insects. Events such as toxic chemical spills or discharges of large amounts of polluted water, or indirect impacts from off-site construction activities, closure of entrances, alteration of entrances, or the creation of new entrances, could have serious adverse impacts on this species. Therefore, the magnitude of threat is high for this species because it is limited in distribution and the threats would result in mortality or reduced reproductive capacity. The threats are nonimminent because there are no known projects planned that would affect the species in the near future. We therefore have assigned an LPN of 5 to this species.

Inquirer cave beetle (*Pseudanophthalmus inquisitor*) – The following summary is based upon information contained in our files. No new information was provided in the petition we received on May 11, 2004. The inquirer cave beetle is a fairly small, eyeless, reddish-brown predatory insect that feeds upon small cave invertebrates. It is not found outside the cave environment, and is only known from one privately owned Tennessee cave. The limestone cave in which this species is found provides a unique and fragile environment that supports a variety of species that have evolved to survive and reproduce under the demanding conditions found in cave ecosystems. The species was last observed in 2006. The limited distribution of the species makes it vulnerable to isolated events that would only have a minimal effect on the more wide-ranging insects. The area around the only known site for the species is in a rapidly expanding urban area. The entrance to the cave is protected by the landowner through a cooperative management agreement with the Service, The Nature Conservancy, and Tennessee Wildlife Resources Agency; however, a sinkhole that drains into the cave system is located away from the protected entrance and is near a highway. Events such as toxic chemical spills, discharges of large amounts of polluted water or indirect impacts from off-site construction activities could adversely affect the species and the cave habitat. The magnitude of threat is high for this species because it is limited in distribution and the threats would have negative impacts on its continued existence. The threats are nonimminent because there are no known projects planned that would affect the species in the near future and it receives some

protection under a cooperative management agreement. We therefore have assigned a listing priority number of 5 to this species.

Louisville cave beetle (*Pseudanophthalmus troglodytes*) – The following summary is based upon information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Louisville cave beetle is a small, eyeless, reddish-brown predatory insect that feeds upon cave invertebrates. It is not found outside the cave environment, and is only known from two privately owned Kentucky caves. The limestone caves in which this species is found provide a unique and fragile environment that supports a variety of species that have evolved to survive and reproduce under the demanding conditions found in cave ecosystems. The limited distribution of the species makes it vulnerable to isolated events that would only have a minimal effect on the more wide-ranging insects. Events such as toxic chemical spills, discharges of large amounts of polluted water or indirect impacts from off-site construction activities, closure of entrances, alteration of entrances, or the creation of new entrances could have serious adverse impacts on this species. The magnitude of threat is high for this species, because it is limited in distribution and the threats would have negative impacts on the species. The threats are nonimminent because there are no known projects planned that would affect the species in the near future. We therefore have assigned an LPN of 5 to this species.

Tatum Cave beetle (*Pseudanophthalmus parvus*) – The following summary is based upon information contained in our files. No new information was provided in the petition we received on May 11, 2004. Tatum Cave beetle is a small, eyeless, reddish-brown predatory insect that feeds upon cave invertebrates. It is not found outside the cave environment, and is only known from one privately owned Kentucky cave. The limestone cave in which this species is found provides a unique and fragile environment that supports a variety of species that have evolved to survive and reproduce under the demanding conditions found in cave ecosystems. The species has not been observed since 1965, but species experts believe that it still exists in low numbers. The limited distribution of the species makes it vulnerable to isolated events that would only have a minimal effect on the more wide-ranging insects. Events such as toxic chemical spills or discharges of large amounts of polluted water, or

indirect impacts from off-site construction activities, closure of entrances, alteration of entrances, or the creation of new entrances could have serious adverse impacts on this species. The magnitude of threat is high for this species, because its limited numbers mean that any threats could affect its continued existence. The threats are nonimminent because there are no known projects planned that would affect the species in the near future. We therefore have assigned an LPN of 5 to this species.

Taylor's (Whulge, Edith's) checkerspot butterfly (*Euphydryas editha taylori*) – The following summary is based on information contained in our files and in the petition received on December 11, 2002. Historically, the Taylor's checkerspot butterfly was known from 70 locations: 23 in British Columbia, 34 in Washington, and 13 in Oregon. Based on the results of surveys during the 2008 flight period, butterflies were detected in just 8 populations. The total number of Taylor's checkerspot butterflies was considerably reduced in current surveys with approximately 2,300 individuals observed rangewide. The latest decline observed was from the Fort Lewis population where fewer than 200 butterflies were counted. Currently, just five populations had butterflies in flight in Washington, two in the Willamette Valley of Oregon, and one on Denman Island, British Columbia, Canada. A new population was observed on the Olympic National Forest.

Threats include degradation and destruction of native grasslands due to agriculture, residential and commercial development, encroachment by nonnative plants, succession from grasslands to native shrubs and trees, and fire. The threat of military training has greatly increased during the past year and the site where Taylor's checkerspot were known to thrive on Fort Lewis was severely affected by Armored Vehicle training. The outcome of the training's effect will not be determined until after this year's monitoring has been completed.

Bacillus thuringiensis var. *kurstake* (Btk) was routinely applied for Asian gypsy moth control in Pierce County, Washington for many years. This pesticide is documented to have deleterious effects on non-target lepidopteron species, including all moths and butterflies. Because of the timing and close proximity of the Btk application to native prairies where Taylors' checkerspot adults, or their larvae, were historically known to occur, it is likely that the spraying contributed to the extirpation of the

subspecies at three locations in Pierce County, Washington.

The grassland ecosystem on which this subspecies depends requires annual management to maintain suitable grassland habitat for the species. Important threats include changes to the structure and composition of prairie habitat brought on by the invasion of shrubs and trees (Scot's broom and Douglas-fir) or nonnative pasture grasses that quickly invade prairies when processes like fire, or its surrogate mowing, do not take place. Threats also include the loss of prairies to development or the conversion of native grasslands to agriculture. Vehicle and foot traffic that crushes larvae and larval host plants on roads where host plants have become established are also threats; these areas act as a mortality sink at several of the north Olympic Peninsula sites.

These changes to prairie habitat threaten Taylor's checkerspot by degrading prairie habitat and making it unsuitable for the butterfly. The threats that lead to habitat degradation and loss are ubiquitous, occurring rangewide, and affect the survival of the subspecies. Therefore, the threats are high in magnitude. The threats are imminent because they are ongoing and occur simultaneously at all of the known locations for the subspecies. Based on the high magnitude and the imminent nature of threats, we continue to assign the Taylor's checkerspot butterfly a listing priority number of 3.

Blackline Hawaiian damselfly (*Megalagrion nigrohamatum nigrolineatum*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Crimson Hawaiian damselfly (*Megalagrion leptodemas*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Oceanic Hawaiian damselfly (*Megalagrion oceanicum*) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*) – The

following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The orangeblack Hawaiian damselfly is a stream-dwelling species endemic to the Hawaiian Islands of Kauai, Oahu, Molokai, Maui, Lanai, and Hawaii. The species no longer is found on Kauai, and is now restricted to 16 populations on the islands of Oahu, Maui, Molokai, Lanai, and Hawaii. This species is threatened by predation from alien aquatic species such as fish and predacious insects, and habitat loss through dewatering of streams and invasion by nonnative plants. Nonnative fish and insects prey on the naiads of the damselfly, and loss of water reduces the amount of suitable naiad habitat available. Invasive plants (e. g., California grass (*Brachiaria mutica*)) also contribute to loss of habitat by forming dense, monotypic stands that completely eliminate any open water. Nonnative fish and plants are found in all the streams the orangeblack damselfly occur in, except the Oahu location, where there are no nonnative fish. We assigned this species an LPN of 8 because, although the threats are ongoing and therefore imminent, they affect the survival of the species in varying degrees throughout the range of the species and are of moderate magnitude.

Picture-wing fly (*Drosophila digressa*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004, but new information was provided by one *Drosophila* expert in 2006. This picture-wing fly, a member of the family Drosophilidae, feeds only upon species of *Charpentiera*, and is endemic to the Hawaiian Island of Hawaii. Never abundant in number of individuals observed, *D. digressa* was originally known from 5 population sites and may now be limited to as few as 1 or 2 sites. Due to the small population size of the species and its small known habitat area, *Drosophila* researchers believe this species and its habitat are particularly vulnerable to a myriad of threats. Feral ungulates (pigs, goats, and cattle) degrade and destroy *D. digressa* host plants and habitat by directly trampling plants, facilitating erosion, and spreading nonnative plant seeds. Nonnative plants degrade host plant habitat and compete for light, space, and nutrients. Direct predation of *D. digressa* by nonnative social insects, particularly yellow jacket wasps, is also a serious threat. Additionally, this species faces competition at the larval

stage from nonnative tipulid flies, which feed within the same portion of the decomposing host plant area normally occupied by the *D. digressa* larvae during their development with a resulting reduction in available host plant material. Because the threats to the native forest habitat of *D. digressa*, and to individuals of this species, occur throughout its range and are expected to continue or increase unless efforts at control or eradication are undertaken, they are high in magnitude. In addition, because of the limited distribution and small population of the species, any of the threats would significantly impair survival of the species. The threats are also imminent, because they are ongoing. No known conservation measures have been taken to date to specifically address these threats, and we have therefore assigned this species an LPN of 2.

Stephan's riffle beetle (*Heterelmis stephani*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. The Stephan's riffle beetle is an endemic riffle beetle found in limited spring environments within the Santa Rita Mountains, Pima County, Arizona. The beetle is known from Sylvester Spring in Madera Canyon, within the Coronado National Forest. Threats to that spring are largely from habitat modification – from recreational activities in the springs and potential changes in water quality and quantity due to catastrophic natural events and climate change. The threats are of low to moderate magnitude based on our current knowledge of the permanence of threats and the likelihood that the species will persist in areas that are unaffected by the threats. Although the threats from climate change are expected to occur over many years, the threats from recreational use are ongoing. Therefore, the threats are imminent. Thus, we retained an LPN of 8 for the Stephan's riffle beetle.

Dakota skipper (*Hesperia dacotae*) – The following summary is based on information contained in our files, including information from the petition received on May 12, 2003. The Dakota skipper is a small- to mid-sized butterfly that inhabits high-quality tallgrass and mixed grass prairie in Minnesota, North Dakota, South Dakota, and the provinces of Manitoba and Saskatchewan in Canada. The species is presumed to be extirpated from Iowa and Illinois and from many sites within occupied States.

The Dakota skipper is threatened by degradation of its native prairie habitat by overgrazing, invasive species, gravel mining, and herbicide applications;

inbreeding, population isolation, and prescribed fire threatens some populations. Prairie succeeds to shrubland or forest without periodic fire, grazing, or mowing; thus, the species is also threatened at sites where such disturbances are not applied. The Service and other federal agencies, state agencies, the Sisseton-Wahpeton Sioux Tribe, and some private organizations (e.g., The Nature Conservancy) protect and manage some Dakota skipper sites. Proper management is always necessary to ensure its persistence, even at protected sites. The species may be secure at a few sites where public and private landowners manage native prairie in ways that conserve Dakota skipper, but approximately half of the inhabited sites are privately owned with little or no protection. A few private sites are protected from conversion by easements, but these do not prevent adverse effects from overgrazing. Overall, the threats are moderate in magnitude because they are not occurring rangewide and have a moderate effect on the viability of the species. They are, however, ongoing and therefore imminent, particularly on private lands. Thus, we assigned a LPN of 8 to this species.

Mardon skipper (*Polites mardon*) – The following summary is based on information contained in our files and the petition we received on December 24, 2002. The Mardon skipper is a northwestern butterfly with a disjunct range. Currently this species is known from four widely separated regions: south Puget Sound region, southern Washington Cascades, Siskiyou Mountains of southern Oregon, and coastal northwestern California/southern Oregon. The number of documented locations for the species has increased from fewer than 10 in 1997 to more than 130 rangewide in 2009. New site locations have been documented in each year that targeted surveys have been conducted since 1999. In the past 9 years, significant local populations have been located in the Washington Cascades and in Southern Oregon, with a few local sites supporting populations of hundreds of Mardon skippers.

The Mardon skipper spends its entire life cycle in one location, often on the same grassland patch. The dispersal ability of Mardon skipper is restricted. Threats to the Mardon skipper include direct impacts to individuals and local populations by off-road vehicle use, livestock grazing, and pesticide drift. Habitat destruction or modification through conifer encroachment, invasive nonnative plants, roadside maintenance, and grassland/meadow management

activities such as prescribed burning and mowing are also threats. However, these threats have been substantially reduced due to protections provided by State and Federal special status species programs. The magnitude of the threats is moderate because current regulatory mechanisms associated with State and Federal special status species programs afford a relatively high level of protection from additional habitat loss or destruction across most of the species' range. Threats are imminent because all sites within the species' range currently have one or more identified threats that are resulting in direct impacts to individuals within the populations, or a gradual loss or degradation of the species' habitats. Mardon skippers face a variety of threats that may occur at any time at any of the locations. Low numbers of individuals have been found at most of the known locations. Only a few locations are known to harbor greater than 100 individuals, and specific locations could easily be lost by changes in vegetation composition or from the threat of wildfire. The great distances between the known locations for the species would not allow for dispersal of the species between populations; thus, loss of any population could lead to extirpation of the species at any of these locations. However, the discovery of new populations and the wide geographic range for the Mardon skipper provides a buffer against threats that could destroy all existing habitat simultaneously or jeopardize the continued existence of the species. Thus, based on imminent threats of moderate magnitude, we assigned an LPN of 8 to this species.

Coral Pink Sand Dunes tiger beetle (*Cicindela limbata albissima*) – The following summary is based on information contained in our files, including information from the petition we received on April 21, 1994. The Coral Pink Sand Dunes tiger beetle occurs only at the Coral Pink Sand Dunes, approximately 7 miles west of Kanab, Kane County, in south-central Utah. It is restricted to approximately 234 hectares (577 acres) of protected habitat within the dune field, situated at an elevation of about 1,820 meters (6,000 feet). Continuing drought is negatively affecting tiger beetle populations. Drought conditions have suppressed the beetle's reproductive capabilities. The continued survival of the beetle depends on the preservation of its habitat and favorable rainfall amounts. In addition, the beetle's habitat is being adversely affected by ongoing, recreational off-road vehicle

use that is limiting expansion of the species. The two agencies that manage the dune field, the Utah Department of Parks and Recreation and the Bureau of Land Management, have restricted recreational off-road vehicle use in some areas, which reduces impacts. However, continued drought may prevent the population from increasing in size. The beetle's population also is vulnerable to over-collecting by professional and hobby tiger beetle collectors. We have retained an LPN of 2 for this species primarily due to the high magnitude and imminence of drought conditions.

Highlands tiger beetle (*Cicindela highlandensis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Highlands tiger beetle is narrowly distributed and restricted to areas of bare sand within scrub and sandhill on ancient sand dunes of the Lake Wales Ridge in Polk and Highlands Counties, Florida. Adult tiger beetles have been found at 40 sites from near Haines City south to Josephine Creek. In 2004–2005 surveys, a total of 1,574 adults were found at 40 sites, compared with 643 adults at 31 sites in 1996, 928 adults at 31 sites in 1995, and 742 adults at 21 sites in 1993. Of the 40 sites in the 2004–2005 surveys with one or more adults, results ranged from 3 sites with large populations of over 100 adults, to 13 sites with fewer than 10 adults. Results from a limited removal study at four sites suggest that the actual population size at the various survey sites is likely to be as much as two times as high as indicated by the visual index counts.

Lack of fire to create open sand, habitat loss and fragmentation, and small and isolated populations pose serious threats to this species. Over-collection and pesticide use are additional concerns. Because this species is narrowly distributed with specific habitat requirements and small populations, any of the threats could have a significant impact on the survival of the species. Therefore, the magnitude of threats is high. Although the majority of its historical range has been lost, degraded, and fragmented, numerous sites are protected and land managers are implementing prescribed fire at some sites; these actions are expected to restore habitat and help reduce threats and have already helped stabilize and improve the populations. Overall, the threats are nonimminent. Therefore, we assigned the Highlands tiger beetle an LPN of 5.

Arachnids

Warton's cave meshweaver (*Cicurina wartoni*) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. Warton's Cave meshweaver is an eyeless, cave-dwelling, unpigmented, 0.23-inch-long invertebrate known only from female specimens. This meshweaver is known to occur in only one cave (Pickle Pit) in Travis County, Texas. Primary threats to the species and its habitat are predation and competition from fire ants, surface and subsurface effects from runoff from an adjacent subdivision, unauthorized entry into the area surrounding the cave, modification of vegetation near the cave from human use, and trash dumping that may include toxic materials near the feature. The magnitude of threats is high because the single location for this species makes it highly vulnerable to extinction. The threats are imminent because fire ants are known to occur in the vicinity of the cave, and impacts to the cave from runoff and human activities are an imminent threat. Thus, we retain an LPN of 2 for this species.

Crustaceans

Anchialine pool shrimp (*Metabetaeus lohena*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Metabetaeus lohena* is an anchialine pool-inhabiting species of shrimp belonging to the family Alpheidae. This species is endemic to the Hawaiian Islands and is currently known from populations on the islands of Oahu, Maui, and Hawaii. The primary threats to this species are predation by fish (which do not naturally occur in the pools inhabited by this species) and habitat loss from degradation (primarily from illegal trash dumping). The pools where this species occurs on the islands of Maui and Hawaii are located within State Natural Area Reserves (NAR). Hawaii's State statutes prohibit the collection of the species and the disturbance of the pools in State NARs. However, enforcement of collection and disturbance prohibitions is difficult, and the negative effects from the introduction of fish are extensive and happen quickly. In addition, the pools where this species occurs on the island of Oahu do not receive protection from collection of the species or disturbance of the pools. Therefore, threats to this species could have a significant adverse effect on the survival of the species, and are of a high magnitude. However, the primary

threats of predation from fish and loss of habitat due to degradation are nonimminent overall, because on the islands of Maui and Hawaii no fish were observed in any of the pools where this species occurs and there has been no documented trash dumping in these pools. Only one site on Oahu had a trash dumping instance, and in that case the trash was cleaned up immediately and the species subsequently observed. No additional dumping events are known to have occurred. Therefore, we assigned this species an LPN of 5.

Anchialine pool shrimp (*Palaemonella burnsi*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Palaemonella burnsi* is an anchialine pool-inhabiting species of shrimp belonging to the family Palaemonidae. This species is endemic to the Hawaiian Islands and is currently known from three populations on the island of Maui and one population on the island of Hawaii. The primary threats to this species are predation by fish (which do not naturally occur in the pools inhabited by this species) and habitat loss due to degradation (primarily from illegal trash dumping). The pools where this species occurs on Maui are located within a State Natural Area Reserve (NAR). Hawaii's State statutes prohibit the collection of the species and the disturbance of the pools in State NARs. On the island of Hawaii, the species occurs within a National Park, and collection and disturbance are also prohibited. However, enforcement of these prohibitions is difficult, and the negative effects from the introduction of fish are extensive and happen quickly. Therefore, threats to this species could have a significant adverse effect on the survival of the species, and are of a high magnitude. However, the threats are nonimminent, because surveys in 2004 and 2007 did not find fish in the pools where these shrimp occur on Maui or the island of Hawaii. Also, there was no evidence of recent habitat degradation at those pools. We assigned this species an LPN of 5.

Anchialine pool shrimp (*Procaris hawaiiensis*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Procaris hawaiiensis* is an anchialine pool-inhabiting species of shrimp belonging to the family Procarididae. This species is endemic to the Hawaiian Islands, and is currently known from two populations on the island of Maui and one population on the island of Hawaii. The primary

threats to this species are predation from fish (which do not naturally occur in the pools inhabited by this species) and habitat loss due to degradation (primarily from illegal trash dumping). The pools where this species occurs on Maui are located within a State Natural Area Reserve (NAR). Hawaii's State statutes prohibit the collection of the species and the disturbance of the pools in State NARs. However, enforcement of these prohibitions is difficult and the negative effects from the introduction of fish are extensive and happen quickly. In addition, there are no conservation efforts underway to alleviate the potential for any of these threats in the one pool on the island of Hawaii. Therefore, threats to this species could have a significant adverse effect on the survival of the species, and thus remain at a high magnitude. However, the threats to the species are nonimminent because, during 2004 and 2007 surveys, no fish were observed in the pools where these shrimp occur on Maui, and no fish were observed in the one pool on the island of Hawaii during a site visit in 2005. In addition, there were no signs of trash dumping or fill in any of the pools where the species occurs. Therefore, we assigned this species an LPN of 5.

Anchialine pool shrimp (*Vetericaris chaceorum*) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Vetericaris chaceorum* is an anchialine pool-inhabiting species of shrimp belonging to the family Procarididae; it is the only species in its genus. This species is endemic to the Hawaiian Islands, and is only known from one population in a single pool on the island of Hawaii. The primary threats to this species are predation from nonnative fish and habitat degradation (primarily by contamination from illegal trash dumping). This species would be highly vulnerable to predation by any intentionally or accidentally introduced fish, or contamination from illegal dumping into its single known location. This pool lies within lands administered by the State of Hawaii Department of Hawaiian Home Lands. The threats to *V. chaceorum* from habitat degradation and destruction, as well as from predation by nonnative fish are of high magnitude, because this species occurs in only one pool; thus the threats could significantly impair the survival of the species. All individuals of this species may be adversely affected by a single dumping of trash or release of nonnative fish in

its only known pool. However, the threats are nonimminent, as fish have not been introduced into the pool (nor is there any reason to believe that introduction is imminent) and a site visit in early 2005 showed there were no signs of dumping or fill. Therefore we assigned this species an LPN of 4 because the threats are of high magnitude but nonimminent, and the species is in a monotypic genus.

Flowering Plants

***Abronia alpina* (Ramshaw Meadows sand-verbena)** – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Abronia alpina* is a small perennial herb, 2.5 to 15.2 centimeters (1 to 6 inches) across forming compact mats with lavender-pink, trumpet-shaped, and generally fragment flowers. *Abronia alpina* is known from one main population center in Ramshaw Meadow on the Kern Plateau of the Sierra Nevada, California and from one subpopulation found in adjacent Templeton Meadow. The total estimated area occupied is approximately 6 hectares (15 acres). The population fluctuates from year to year without any clear trends. Population estimates from 1985-1994 range from a low of 69,652 plants in 1986 to 132,215 plants in 1987. Surveys conducted since 1994 indicate that no significant changes have occurred in population size or location, although, the 2003 survey showed population numbers to be at the low end of the range. The population was last surveyed in 2007.

The factors currently threatening *Abronia alpina* include natural and human habitat alteration, hydrologic changes to the water table, and recreational use within meadow habitats. Lodgepole pine encroachment has altered the meadow and trees are becoming established within *A. alpina* habitat. Lodgepole pine encroachment may alter soil characteristics by increasing organic matter levels, decreasing porosity, and moderating diurnal temperature fluctuations thus reducing the competitive ability of *A. alpina* to persist in an environment more hospitable to other plant species. The Ramshaw Meadow ecosystem is subject to potential alteration by lowering of the water table due to downcutting of the South Fork of the Kern River (SFKR). The SFKR flows through Ramshaw Meadow and at times comes within 15 m (50 ft) of *A. alpina* habitat, particularly in the vicinity of five subpopulations. The habitat occupied by *A. alpina* directly borders the meadow system supported by the

SFKR. Drying out of the meadow system could potentially affect *A. alpina* pollinators and seed dispersal agents. Established hiker, packstock, and cattle trails pass through *A. alpina* subpopulations. Two main hiker trails pass through Ramshaw Meadow, but were rerouted out of *A. alpina* subpopulations, where feasible, in 1988 and 1997. Remnants of cattle trails that pass through subpopulations in several places receive occasional incidental use by horses and sometimes hikers. Cattle use, however, currently, is not a threat due to the 2001 implementation of a ten-year moratorium on the Templeton allotment that prohibits cattle from all *A. alpina* locations. The Service is funding studies to determine appropriate conservation measures and working with the U.S. Forest Service on developing a conservation strategy for the species. The threats are of a low magnitude and nonimminent because of the conservation actions already implemented. We continue to assign an LPN of 11 for *A. alpina* based on nonimminent threats of moderate to low magnitude.

Arabis georgiana (Georgia rockcress) – The following summary is based on information in our files. No new information was provided in the petition we received on May 11, 2004. The Georgia rockcress grows in a variety of dry situations, including shallow soil accumulations on rocky bluffs, ecotones of gently sloping rock outcrops, and in sandy loam along eroding river banks. It is occasionally found in adjacent mesic woods, but it will not persist in heavily shaded conditions. Currently, approximately 20 populations are known from the Gulf Coastal Plain, Piedmont, and Ridge and Valley physiographic provinces of Alabama and Georgia. Populations of this species typically have a limited number of individuals over a small area. Habitat degradation, rather than outright habitat destruction, is the most serious threat to the continued existence of this species. Disturbance associated with timber harvesting, road building, and grazing has created favorable conditions for the invasion of exotic weeds, especially Japanese honeysuckle (*Lonicera japonica*), in this species' habitat. A large number of the populations are currently or potentially threatened by the presence of exotics. The heritage programs in Alabama and Georgia have initiated plans for exotic control at several populations. The magnitude of threats to this species is moderate to low due to the number of populations (20) across multiple counties in two states and due to the fact that several sites are

protected. However, since a number of the populations are currently being affected by nonnative plants, the threat is imminent. Thus, we assigned an LPN of 8 to this species.

Argythamnia blodgettii (Blodgett's silverbush) – The following summary is based on information in our files. No new information was provided in the petition we received on May 11, 2004. Blodgett's silverbush occurs in Florida and is found in open, sunny areas in pine rockland, edges of rockland hammock, edges of coastal berm, and sometimes disturbed areas at the edges of natural areas. Plants can be found growing from crevices on limestone, or on sand. The pine rockland habitat where the species occurs in Miami-Dade County and the Florida Keys requires periodic fires to maintain habitat with a minimum amount of hardwoods. There are approximately 27 extant occurrences, 12 in Monroe County and 15 in Miami-Dade County; many occurrences are on conservation lands. However, 4–5 sites are recently thought to be extirpated. The estimated population size of Blodgett's silverbush in the Florida Keys, excluding Big Pine Key, is roughly 11,000; the estimated population in Miami-Dade County is 375 to 13,650 plants.

Blodgett's silverbush is threatened by habitat loss, which is exacerbated by habitat degradation due to fire suppression, the difficulty of applying prescribed fire to pine rocklands, and threats from exotic plants. Remaining habitats are fragmented. Threats such as road maintenance and enhancement, infrastructure, and illegal dumping threaten some occurrences. Blodgett's silverbush is vulnerable to natural disturbances, such as hurricanes, tropical storms, and storm surges. Climatic change, particularly sea-level rise, is a long-term threat that is expected to continue to affect pine rocklands and ultimately reduce the extent of available habitat, especially in the Keys. Overall, the magnitude of threats is moderate because not all of the occurrences are affected by the threats. In addition, land managers are aware of the threats from exotic plants and lack of fire, and are, to some extent, working to reduce this threat where possible. While some of the threats are occurring in some areas, the threat from development is nonimminent since most occurrences are on public land, and sea-level rise is not currently affecting this species. Overall, the threats are nonimminent. Thus, we assigned an LPN of 11 to this species.

Artemisia campestris var. *wormskioldii* (Northern wormwood) – The following summary is based on

information contained in our files. No new information was provided in the petition we received on May 11, 2004. Historically known from eight sites, northern wormwood is currently known from two populations in Klickitat and Grant Counties, Washington. This plant is restricted to exposed basalt, cobbly-sandy terraces, and sand habitat along the shore and on islands in the Columbia River. The two populations are separated by 200 miles (322 kilometers) of the Columbia River and three large hydroelectric dams. The Klickitat County population is declining; the status is unclear for the Grant County population; however, both are vulnerable to environmental variability. Surveys have not detected any additional plants.

Threats to northern wormwood include direct loss of habitat through regulation of water levels in the Columbia River and placement of riprap along the river bank; human trampling of plants from recreation; competition with nonnative invasive species; burial by wind- and water-borne sediments; small population sizes; susceptibility to genetic drift and inbreeding; and the potential for hybridization with two other species of *Artemisia*. Ongoing conservation actions have reduced trampling, but have not eliminated or reduced the other threats at the Grant County site. Active conservation measures are not currently in place at the Miller Island site. The magnitude of threat is high for this subspecies because, although the two remaining populations are widely separated and distributed, one or both populations could be eliminated by a single disturbance. The threats are imminent because recreational use is ongoing, invasive nonnative species occur at both sites, erosion of the substrate is ongoing at the Klickitat County site, and high water flows are random, naturally occurring events that may occur unpredictably in any year. Therefore, we have retained an LPN of 3 for this subspecies.

Astragalus tortipes (Sleeping Ute milkvetch) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Sleeping Ute milkvetch is a perennial plant that grows only on the Smokey Hills layer of the Mancos Shale Formation on the Ute Mountain Ute Indian Reservation in Montezuma County, Colorado. In 2000, 3,744 plants were recorded at 24 locations covering 500 acres within an overall range of 64,000 acres. Available information from 2000 indicates that the species remains stable. Previous and ongoing

threats from borrow pit excavation, off-highway vehicles, irrigation canal construction, and a prairie dog colony have had minor impacts that reduced the range and number of plants by small amounts. Off-highway vehicle use of the habitat has reportedly been controlled by fencing. Oil and gas development is active in the general area, but the Service has received no information to indicate whether there is development within plant habitat. The Tribe reported this year that the status of the species remains unchanged, the population is healthy, and that a management plan for the species is currently in draft form. Despite these positive indications, we have no documentation concerning the current status of the plants, condition of habitat, and terms of the species management plan being drafted by the Tribe. Thus, at this time we cannot accurately assess whether populations are being adequately protected from previously existing threats. The threats are moderate in magnitude, since they have had minor impacts and, based on information we have, the population appears to be stable. Until the management plan is completed and made available, there are no regulatory mechanisms in place to protect the species. Overall, we conclude threats are nonimminent. Therefore, we assigned an LPN of 11 to this species.

Bidens amplexans (Kookoolau) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Bidens campylotheca ssp. *pentamera* (Kookoolau) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Bidens campylotheca ssp. *waihoiensis* (Kookoolau) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Bidens conjuncta (Kookoolau) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Bidens micrantha ssp. *ctenophylla* (Kookoolau) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This subspecies is an erect, perennial herb found in open mixed shrubland to dry *Metrosideros* (ohia) forest on the island of Hawaii, Hawaii. This subspecies is endemic to the island of Hawaii, where wild populations are restricted to an area of less than 10 square miles (26 square kilometers). *Bidens micrantha* ssp. *ctenophylla* is known from four wild and four outplanted populations totaling approximately 130 to 140 individuals, the majority of which occur in only two (wild) populations. This subspecies is threatened by fire and nonnative plants, and two populations are threatened by residential and commercial development. The threats to *B. micrantha* ssp. *ctenophylla* from fire and nonnative plants are of a high magnitude and imminent because they are occurring rangewide, they threaten the continued existence of the species, and no efforts for their control have been undertaken. Therefore, we retained an LPN of 3 for this subspecies.

Brickellia mosieri (Florida brickell-bush) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is restricted to pine rocklands of Miami-Dade County, Florida. This habitat requires periodic prescribed fires to maintain the low understory and prevent encroachment by native tropical hardwoods and exotic plants, such as Brazilian pepper. Only one large population is known to exist; 15 other occurrences contain less than 100 individuals. Eleven occurrences are on conservation lands. Climatic changes and sea-level rise are long-term threats that will reduce the extent of habitat. This species is threatened by habitat loss, which is exacerbated by habitat degradation due to fire suppression, the difficulty of applying prescribed fire to pine rocklands, and threats from exotic plants. Remaining habitats are fragmented. The species is vulnerable to natural disturbances, such as hurricanes, tropical storms, and storm surges. Due to its restricted range and the small sizes of most isolated occurrences, this species is vulnerable to environmental (catastrophic hurricanes), demographic (potential episodes of poor reproduction), and genetic (potential inbreeding depression) threats. Ongoing conservation efforts include projects aimed at facilitating restoration and

management of privately owned pine rockland habitats in Miami-Dade County and projects to restore suitable habitat and reintroduce and establish new populations of the plants in pine rocklands. The Service is also pursuing additional habitat restoration projects, which could help further improve the status of the species. Because of these efforts, the overall magnitude of threats is moderate. The threats are ongoing and thus imminent. We assigned this species an LPN of 8.

Calamagrostis expansa (Maui reedgrass) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is a robust, short-rhizomatous perennial found in wet forest, open bogs, and bog margins on the islands of Maui and Hawaii, Hawaii. Historically rare, *C. expansa* was restricted to wet forest and bogs on Maui. Its historical status is unknown on Hawaii. Currently, this species is known from 11 populations totaling approximately 230 individuals on Maui, and was recently discovered in nine populations totaling approximately 350 individuals on the island of Hawaii. *Calamagrostis expansa* is threatened by pigs that degrade and destroy habitat and by nonnative plants that outcompete and displace it. Feral pigs have been fenced out of most of the west Maui populations, and nonnative plants have been reduced in the fenced areas. However, the threats are not controlled and are ongoing in the remaining unfenced populations on Maui and at all of the populations on the island of Hawaii. Therefore, overall the threats from feral pigs and nonnative plants are of a high magnitude and imminent for *C. expansa*, and we retained an LPN of 2 for this species.

Calamagrostis hillebrandii (Hillebrand's reedgrass) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Calamagrostis hillebrandii* is a slender, short-rhizomatous perennial found in *Metrosideros-Machaerina* (ohia-uki) montane wet bog or *Metrosideros-Rhynchospora-Oreobolus* (ohia-kuolohia-oreobolus) mixed bog on Maui, Hawaii. This species is known from two populations of fewer than 2,000 individuals, restricted to the bogs of west Maui. There is an unconfirmed report of *C. hillebrandii* from central Molokai. This species is currently threatened by pigs that degrade and destroy habitat and nonnative plants that outcompete and displace it. A portion of one population is protected

by an ungulate exclosure fence while the second population may indirectly benefit from conservation actions for ungulate control and control of nonnative plants conducted in a nearby preserve. The threats are imminent because they are ongoing in one of the two known populations. The threats are high in magnitude because they result in direct mortality or significantly negatively affect the reproductive capacity of this species. Therefore, we retained an LPN of 2 for this species.

Calochortus persistens (Siskiyou mariposa lily) – The following summary is based on information contained in our files and the petition we received on September 10, 2001. The Siskiyou mariposa lily is a narrow endemic that is restricted to three disjunct ridge tops in the Klamath-Siskiyou Range on the California-Oregon border. The southern-most occurrence of this species is composed of nine separate sites on approximately 10 hectares (ha) (24.7 acres (ac)) of Klamath National Forest and privately owned lands that stretch for 6 kilometers (km) (3.7 miles (mi)) along the Gunsight-Humbug Ridge, Siskiyou County, California. In 2007, a new occurrence was confirmed in the locality of Cottonwood Peak and Little Cottonwood Peak, Siskiyou County, where several populations are distributed over 164 ha (405 ac) on four individual mountain peaks in the Klamath National Forest and on private lands. The northern-most occurrence consists of not more than five Siskiyou mariposa lily plants that were discovered in 1998, on Bald Mountain, west of Ashland, Jackson County, Oregon.

Major threats include competition and shading by native and nonnative species fostered by suppression of wild fire; increased fuel loading and subsequent risk of wild fire; fragmentation by roads, fire breaks, tree plantations, and radio-tower facilities; maintenance and construction around radio towers and telephone relay stations located on Gunsight Peak and Mahogany Point; and soil disturbance, direct damage, and exotic weed and grass species introduction as a result of heavy recreational use and construction of fire breaks. Dyer's woad (*Isatis tinctoria*), an invasive, nonnative plant that may prevent germination of Siskiyou mariposa lily seedlings, is now found throughout the southern-most California occurrence, affecting 75 percent of the known lily habitat on Gunsight-Humbug Ridge. Forest Service staff and the Klamath-Siskiyou Wildlands Center cite competition with dyer's woad as a significant and chronic threat to the survival of Siskiyou mariposa lily.

The combination of restricted range, extremely low numbers (five plants) in one of three disjunct populations, poor competitive ability, short seed dispersal distance, slow growth rates, low seed production, apparently poor survival rates in some years, herbivory, and competition from exotic plants threaten the continued existence of this species. These threats are of high magnitude because of their potential to negatively affect the overall survival of the species. Because the threats of competition from exotic plants are being addressed, they are not anticipated to overwhelm a large portion of the species' range in the immediate future, and the threats from low seed production and survival are longer-term threats, overall the threats are nonimminent. Therefore, we assigned a listing priority number of 5 to this species.

Canavalia pubescens (Awikiwiki) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Awikiwiki is a perennial climber found in open lava fields and lowland dryland forest on Maui and Lanai, and is possibly on the island of Niihau, Hawaii. This species is known from five populations totaling a little over 200 individuals. This species is threatened by development (Maui), goats (Maui) and axis deer (Maui and Lanai) that degrade and destroy habitat, and by nonnative plants that outcompete and displace native plants (both islands). Fire is a possible threat at the Keokea population on Maui. An ungulate exclosure fence protects six individuals of *C. pubescens*, and weed control is ongoing at this location on Maui. This species is represented in two *ex situ* collections. Threats to this species from feral goats, axis deer, and nonnative plants are ongoing, or imminent, and of high magnitude because they significantly affect the species throughout its range. Fire is a nonimminent threat. Therefore, we retained an LPN of 2 for this species.

Castilleja christii (Christ's paintbrush) – The following summary is based on information contained in our files and the petition we received on January 2, 2001. *Castilleja christii* is found in one population covering approximately 85 ha (220 ac) on the summit of Mount Harrison in Cassia County, Idaho. This endemic species is considered a hemiparasite (dependent on the health of their surrounding native plant community), and it grows in association with subalpine meadow and sagebrush habitats. The population may be large (greater than 10,000 individual plants); however, the species is considered to be

subject to large variations in annual abundance and an accurate current population estimate is not available. Monitoring indicates that reproductive stems per plant and plant density declined between 1995 and 2007.

The primary threat to the species is the nonnative invasive plant smooth brome (*Bromus inermis*). Despite cooperative Forest Service and Service efforts to control smooth brome in 2005, 2006, and 2007, it still persists and has increased in some *C. christii* habitats. Other threats to *C. christii* from recreational use and livestock trespass appear to be mostly seasonal and affect only a small portion of the population, although they too are imminent. The magnitude of the threats to this species is moderate at this time because although the smooth brome control efforts have not eliminated the invasive plant, the Service and Forest Service are continuing their efforts in order to protect this potentially large population of plants. The threat from smooth brome is imminent because the threat still persists at a level that affects the native plant communities that provide habitat for *C. christii*. Thus, we assign an LPN of 8 to this species.

Chamaecrista lineata var. *keyensis* (Big Pine partridge pea) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This pea is endemic to the lower Florida Keys, and restricted to pine rocklands, hardwood hammock edges, and roadsides and firebreaks within these ecosystems. Historically, it was known from Big Pine, Cudjoe, No Name, Ramrod, and Little Pine Keys (Monroe County, Florida). In 2005, a small population was detected on lower Sugarloaf Key, but this population was apparently extirpated later in 2005, due to the effects of Hurricane Wilma. It presently occurs on Big Pine Key, with a very small population on Cudjoe Key. It is fairly well distributed in Big Pine Key pine rocklands, which encompass approximately 580 hectares (1,433 acres), approximately 360 hectares (890 acres) of which are within the Service's National Key Deer Refuge (NKDR). Over 80 percent of the population probably exists on NKDR, with the remainder distributed among State, County, and private properties. Hurricane Wilma (October 2005) resulted in a storm surge that covered most of Big Pine Key with sea water. The surge reduced the population by as much as 95 percent in some areas.

Pine rockland communities are maintained by relatively frequent fires. In the absence of fire, shrubs and trees

encroach on pine rockland and this subspecies is eventually shaded out. NKDR has a prescribed fire program, although with many constraints on implementation. Habitat loss due to development was historically the greatest threat to the pea. Much of the remaining habitat is now protected on public lands. Absence of fire now appears to be the greatest of the deterministic threats. Given the recent increase in hurricane activity, storm surges are the greatest of the stochastic threats. The small range and patchy distribution of the subspecies increases risk from stochastic events. Climatic changes and sea-level rise are serious long-term threats. Models indicate that even under the best of circumstances, a significant proportion of upland habitat will be lost on Big Pine Key by 2100. Additional threats include restricted range, invasive exotic plants, roadside dumping, loss of pollinators, seed predators, and development. We maintain the previous assessment that hurricane storm surges, lack of fire, and limited distribution results in a moderate magnitude of threat because a large part of the range is on conservation lands wherein threats are being controlled, although fire management is at much slower rate than is required. The immediacy of hurricane threats is difficult to characterize. Sea-level rise remains uncontrolled, but overall, is nonimminent. Overall, the threats from limited distribution and inadequate fire management are imminent since they are ongoing. Therefore, we retained an LPN of 9 for Big Pine partridge pea.

Chamaesyce deltoidea ssp. *pinetorum* (Pineland sandmat) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The pineland sandmat is only known from Miami-Dade County, Florida. The largest occurrence, estimated at more than 10,000 plants, is located on Long Pine Key within Everglades National Park. All other occurrences are smaller and are in isolated pine rockland fragments in heavily urbanized Miami-Dade County.

Occurrences on private lands and on one county-owned parcel are at risk from development and habitat degradation and fragmentation. Conditions related to climate change, particularly sea-level rise, will be a factor over the long-term. All occurrences of the species are threatened by habitat loss and degradation due to fire suppression, the difficulty of applying prescribed fire, and exotic plants. These threats are severe within small and unmanaged

fragments in urban areas. However, the threats of fire suppression and exotics are reduced on lands managed by the National Park Service. Another threat is hydrology changes. Hydrology has been altered within Long Pine Key due to artificial drainage, which lowered ground water, and construction of roads, which either impounded or diverted water. Regional water management intended to restore the Everglades could negatively affect the pinelands of Long Pine Key. At this time, we do not know whether the proposed restoration and associated hydrological modifications will have a positive or negative effect on pineland sandmat. This narrow endemic may be vulnerable to catastrophic events and natural disturbances, such as hurricanes. Overall, the magnitude of threats to this species is moderate, since by applying regular prescribed fire, the National Park Service has kept Long Pine Key's pineland vegetation intact and relatively free of exotic plants, and the extent to which proposed restoration will negatively affect this subspecies are unclear. Overall, the threats are nonimminent since fire management at the largest occurrence is regularly conducted, and sea-level rise and hurricanes are longer-term threats. Therefore, we assigned a LPN of 12 to this subspecies.

Chamaesyce deltoidea ssp. *serpyllum* (Wedge spurge) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Systematic surveys of publicly owned pine rockland throughout this plant's range were conducted during 2005-2006 and 2007-2008 to determine population size and distribution. Wedge spurge is a small prostrate herb. It was historically, and remains, restricted to pine rocklands on Big Pine Key in Monroe County, Florida. Pine rocklands encompass approximately 580 hectares (1,433 acres) on Big Pine Key, approximately 360 hectares (890 acres) of which are within the Service's National Key Deer Refuge (NKDR). Most of the species' range falls within the NKDR, with the remainder on State, County, and private properties. It is not widely dispersed within the limited range. Occurrences are sparser in the southern portion of Big Pine Key, which contains smaller areas of NKDR lands than does the northern portion. Wedge spurge inhabits sites with low woody cover (e.g., low palm and hardwood densities) and usually, exposed rock or gravel.

Pine rockland communities are maintained by relatively frequent fires. In the absence of fire, shrubs and trees

encroach on pine rockland and the subspecies is eventually shaded out. NKDR has a prescribed fire program, although with many constraints on implementation. Habitat loss due to development was historically the greatest threat to the wedge spurge. Much of the remaining habitat is now protected on public lands. Absence of fire now appears to be the greatest of the deterministic threats. Given the recent increase in hurricane activity, storm surges are the greatest of the stochastic threats. The small range and patchy distribution of the subspecies increases risk from stochastic events. Climatic changes and sea-level rise are serious long-term threats. Models indicate that even under the best of circumstances, a significant proportion of upland habitat will be lost on Big Pine Key by 2100. Additional threats include restricted range, invasive exotic plants, roadside dumping, loss of pollinators, seed predators, and development. We maintain the previous assessment that low fire return intervals plus hurricane-related storm surges, in combination with a limited, fragmented distribution and threats from sea-level rise, results in a moderate magnitude of threat, in part, because a large part of the range is on conservation lands wherein some threats can be substantially controlled. The immediacy of hurricane threats is difficult to categorize. Sea-level rise remains uncontrolled, but over much of the range is nonimminent compared to other prominent threats. Threats resulting from limited fire occurrences are imminent. Since major threats are ongoing, overall, the threats are imminent. Therefore, we retained an LPN of 9 for this subspecies.

Chorizanthe parryi var. *fernandina* (San Fernando Valley spineflower) – The following summary is based on information contained in our files and the petition we received on December 14, 1999. *Chorizanthe parryi* var. *fernandina* is a low-growing herbaceous annual plant in the buckwheat family. Germination occurs following the onset of late-fall and winter rains and typically represents different cohorts from the seed bank. Flowering occurs in the spring, generally between April and June. *Chorizanthe parryi* var. *fernandina* grows up to 30 centimeters in height and 5 to 40 centimeters across. The plant currently is known from two disjunct localities: the first is in the southeastern portion of Ventura County on a site within the Upper Las Virgenes Canyon Open Space Preserve, formerly known as Ahmanson Ranch, and the second is in an area of southwestern Los Angeles County known as Newhall

Ranch. Investigations of historical locations and seemingly suitable habitat within the range of the species have not revealed any other occurrences.

The threats currently facing San Fernando Valley spineflower include threatened destruction, modification, or curtailment of its habitat or range, and other natural or manmade factors. The threats to *Chorizanthe parryi* var. *fernandina* from habitat destruction or modification are slightly less than they were several years ago. One of the two populations (Upper Las Virgenes Canyon Open Space Preserve) is in permanent, public ownership and is being managed by an agency that is working to conserve the plant; however, the use of adjacent habitat for filming movies is a recently identified threat to the species, and the potential impacts to *Chorizanthe parryi* var. *fernandina* have not yet been fully evaluated. We will be working with the landowners to manage the site for the benefit of *Chorizanthe parryi* var. *fernandina*. The other population (Newhall Ranch) is under the threat of development; however, a Candidate Conservation Agreement (CCA) is being developed with the landowner, and it is possible that the remaining plants can also be conserved. Until such an agreement is finalized, the threat of development and the potential damage to the Newhall Ranch population still exists, as evidenced by the destruction of some plants during installation of an agave farm. Furthermore, cattle grazing on Newhall Ranch may be a current threat. Cattle grazing may harm *Chorizanthe parryi* var. *fernandina* by trampling plants and compacting soil. Grazing activity could also alter the nutrient content of the soils through fecal inputs, which in turn may favor the growth of other plant species that would otherwise not grow so readily on the mineral-based soils. Over time, changes in species composition may render the sites less favorable for the persistence of *Chorizanthe parryi* var. *fernandina*. *Chorizanthe parryi* var. *fernandina* may be threatened by invasive nonnative plants, including grasses, which could potentially displace it from available habitat; compete for light, water, and nutrients; and reduce survival and establishment.

The threats to this plant are high in magnitude since *Chorizanthe parryi* var. *fernandina* is particularly vulnerable to extinction due to its concentration in two isolated areas. The existence of only two areas of occurrence, and a relatively small range, makes the variety highly susceptible to extinction or extirpation from a significant portion of its range due to random events such as fire,

drought, or erosion. The primary threat from habitat destruction by development is nonimminent due to the ongoing development of a CCA. We retained a listing priority number of 6 for *Chorizanthe parryi* var. *fernandina* due to a high magnitude of nonimminent threats.

Chromolaena frustrata (Cape Sable thoroughwort) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is found most commonly in open sun to partial shade at the edges of rockland tropical hammock and in coastal rock barrens. There are nine extant occurrences located at five islands in the Florida Keys; two occurrences are within Everglades National Park (ENP). The plant has been extirpated from half of the islands where it occurred. Prior to Hurricane Wilma in 2005, the population was estimated at roughly 5,000 individuals, with all but 500 occurring on one privately owned island. More recently, an estimate of 1,500 plants was given for areas within ENP.

This species is threatened by habitat loss and modification, even on public lands, and habitat loss and degradation due to threats from exotic plants at almost all sites. The species is vulnerable to natural disturbances, such as hurricanes, tropical storms, and storm surges. While these factors may also work to maintain coastal rock barren habitat in the long-term, Hurricane Wilma appeared to have had severe impacts, at least in the short-term. Occurrences probably declined due to inundation of its coastal barren and rockland hammock habitats in the short-term; long-term effects on this species are unknown. Sea-level rise is considered a major threat over the long-term. Potential effects from other changes in freshwater deliveries and the construction of the Buttonwood Canal are unknown. Problems associated with small population size and isolation are likely major factors, as occurrences may not be large enough to be viable; this narrowly endemic plant has uncertain viability at most locations, especially following Hurricane Wilma. Thus, these factors constitute a high magnitude of threat. The threats of small population size, isolation, and uncertain viability are imminent because they are ongoing. As a result, we assigned an LPN of 2 to this species.

Consolea corallicola (Florida semaphore cactus) – The following summary is based on information in our files. No new information was provided in the petition we received on May 11,

2004. The Florida semaphore cactus is endemic to the Florida Keys, and was discovered on Big Pine Key in 1919, but that population was extirpated as a result of road building and poaching. This cactus grows close to salt water on bare rock with a minimum of humus soil cover in or along the edges of hammocks near sea level. The species is known to occur naturally only in two areas, Swan Key within Biscayne National Park and Little Torch Key. Outplantings have been attempted in several locations in the upper and lower Keys; however, success has been low. Few plants remain in the population at The Nature Conservancy's Torchwood Hammock Preserve on Little Torch Key. During monitoring work conducted in 2005, a total of 655 plants were documented at the Swan Key population. In 2008 the population was estimated by Biscayne National Park staff to consist of at least 600 plants. The cactus does not propagate sexually, and asexual reproduction is the main life-history strategy of this species. Recent genetic studies have shown no variation within populations and very limited variation between populations. Findings support the conclusion that the Swan Key (upper Keys), Little Torch Key, and Big Pine Key (outplanting; lower Keys) populations are clonally derived and genetically distinct from each other. Studies examining the reproductive biology of the species indicate that all extant wild and cultivated plants are male.

The causes for the population decline of this species include destruction or modification of habitat, predation from nonnative *Cactoblastis cactorum* moths and disease, poaching and vandalism, sea-level rise, and hurricanes. Sea level rise is considered a serious threat to the species and its habitat; all extant populations are located in low-lying areas. All remaining populations are under threat of predation from the exotic moth and are susceptible to crown rot disease. Because of low population numbers, lack of variation between and within populations, and reproductive problems, the threats are of high magnitude. The numerous threats are ongoing and therefore, are imminent. Thus, we assigned this species an LPN of 2.

Cordia rupicola (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Cordia rupicola*, a small shrub, has been described from southwestern Puerto Rico, Vieques Island, and Anegada Island (British Virgin Islands). All sites lay within the subtropical dry forest life

zone overlying a limestone substrate. *Cordia rupicola* has a restricted distribution. Currently, approximately 226 individuals are known from 3 locations in Puerto Rico: Peñuelas and Guánica Commonwealth Forests and Vieques National Wildlife Refuge. Additionally, the species is reported as common on Anegada Island.

This species is threatened by maintenance of trails and power line right-of-ways in the Guánica Commonwealth Forest, residential development in Peñuelas, and residential and commercial development in Anegada Island. This species is also vulnerable to natural (e.g., hurricanes) or manmade (e.g., human-induced fires) threats. Approximately 68 percent of the currently known reproductive adults are located in the Guánica Commonwealth Forest where, due to the difficulty in identifying this species, it may be threatened by management and maintenance activities; another 32 percent of the currently known reproductive adults are located on privately owned property where habitat destruction or modification may affect this species. Since threats may significantly affect the majority of the reproducing population, the magnitude of the threats is high. The population of *C. rupicola* on Anegada Island is currently in good condition and the threats this species faces there are ones that will arise in the future, if conservation measures are not implemented and long-term impacts are not averted. For these reasons, the threats to the species as a whole are nonimminent. Therefore we have assigned a LPN of 5 to this species.

Cyanea asplenifolia (Haha) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyanea calycina (Haha) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyanea kunthiana (Haha) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyanea lanceolata (Haha) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyanea obtusa (Haha) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyanea tritomantha ('Aku) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Cyanea tritomantha* is a palm-like tree found in *Metrosideros-Cibotium* (ohia-hapuu) montane wet forest on the island of Hawaii. This species is known from 16 populations with a total of approximately 300 to 400 individuals. *Cyanea tritomantha* is threatened by pigs and cattle that degrade and destroy habitat, and nonnative plants that outcompete and displace it. Potential threats to this species include predation by feral pigs, cattle, rats, and slugs that may directly prey upon and defoliate individuals, and human trampling of individuals located near trails. Feral pigs and cattle have been fenced out of three outplanted populations of *C. tritomantha*, and nonnative plants have been reduced in the fenced areas; however, there are no efforts to control the ongoing and imminent threats to the other 13 populations. The threats continue to be of a high magnitude to *C. tritomantha* because they significantly affect the species resulting in direct mortality or reduced reproductive capacity. They are ongoing and therefore imminent for more than seventy-five percent of the population where no control measures have been implemented. Because the threats continue to be of a high magnitude and are imminent for the unmanaged populations, we retained an LPN of 2 for this species.

Cyrtandra filipes (Hawaii) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Hawaii is a shrub found in lowland to montane wet forest on Maui and Molokai, Hawaii. Historically rare, *C. filipes* was found in southeastern Molokai and west Maui. Currently, this species is known from 10 populations, 3 on Molokai and 7 on west Maui, totaling approximately 2,000

individuals. There is some question as to the true identity of the Maui populations, which do not fit the description of the species precisely. If, upon further taxonomic study, the Maui populations are determined not to be this species, then it is even rarer, with only the Molokai populations of a few individuals remaining. *Cyrtandra filipes* is threatened by pigs, goats, and deer that degrade and destroy habitat and may prey upon it, by nonnative plants that outcompete and displace it, and potentially by predation by rats and slugs. Landslides are a likely threat to two populations. Feral pigs have been fenced out of one population of *C. filipes* on Maui, and strategic fencing for axis deer is under construction on west Maui, but deer are able to jump over most pig exclusion fences, so they are still considered a threat. Nonnative plants are being reduced in the population that is fenced but all populations are potentially threatened by rats and slugs. The threats from pigs and nonnative plants are of a high magnitude because of their severity and the fact that they occur in eight of the 10 known populations. In addition, these threats are imminent because they are ongoing. Therefore, we retained an LPN of 2 for this species.

Cyrtandra kaulantha (Hawaii) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyrtandra oxybapha (Hawaii) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Cyrtandra sessilis (Hawaii) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Dalea carthagenensis ssp. *floridana* (Florida prairie-clover) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Dalea carthagenensis* var. *floridana* occurs in Big Cypress National Preserve (BCNP) in Monroe and Collier Counties, Florida. It is also known from small populations in Miami-Dade County. There are a total of nine extant

occurrences, most of which are on conservation land.

Existing occurrences are extremely small and may not be viable, especially those in Miami-Dade County. Remaining habitats are fragmented. Climatic changes and sea-level rise are long-term threats that are expected to reduce the extent of habitat. This plant is threatened by habitat loss and degradation due to fire suppression, the difficulty of applying prescribed fire to pine rocklands, and threats from exotic plants. Damage to plants by off-road vehicles is a serious threat within the BCNP; the threat from illegal mountain biking at the R. Hardy Matheson Preserve has been reduced. One location within BCNP is threatened by changes in mowing practices; this threat is low in magnitude. This species is being parasitized by the introduced insect lobate lac scale at some localities (e.g., R. Hardy Matheson Preserve), but we do not know the extent of this threat. This plant is vulnerable to natural disturbances, such as hurricanes, tropical storms, and storm surges. Due to its restricted range and the small sizes of most isolated occurrences, this species is vulnerable to environmental (catastrophic hurricanes), demographic (potential episodes of poor reproduction), and genetic (potential inbreeding depression) threats. The magnitude of threats is high, and threats are imminent because of the limited number of occurrences and the small number of individual plants at each occurrence. In addition, even though many sites are on conservation lands, these plants still face significant ongoing threats. Therefore, we have assigned an LPN of 3 to this subspecies.

Dichantheium hirstii (Hirsts' panic grass) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *D. hirstii* is a perennial grass that produces erect leafy flowering stems from May to October. *D. hirstii* occurs in coastal plain intermittent ponds, usually in wet savanna or pine barren habitats and is found at only two sites in New Jersey, one site in Delaware, and one site in North Carolina. While all four extant *D. hirstii* populations are located on public land or privately owned conservation lands, natural threats to the species from encroaching vegetation and fluctuations in climatic conditions remain of concern and may be exacerbated by anthropomorphic factors occurring adjacent to the species' wetland habitat. Given the low numbers of plants found at each site, even minor changes in the species' habitat could result in local extirpation. Loss of any

known sites could result in a serious protraction of the species' range. However, the most immediate and severe of the threats to this species (i.e., ditching of the Laboundsky Pond site, and encroachment of aggressive vegetative competitors) have been curtailed or are being actively managed by The Nature Conservancy at one New Jersey site and by the Delaware Division of Fish and Wildlife and Delaware Natural Heritage Program at the Assawoman Pond, Delaware site. Based on nonimminent threats of a high magnitude, we retain an LPN of 5 for this species.

Digitaria pauciflora (Florida pineland crabgrass) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Pine rocklands in Miami-Dade County have largely been destroyed by residential, commercial, and urban development and agriculture. With most remaining habitat having been negatively altered, this species has been extirpated from much of its historical range, including extirpation from all areas outside of National Parks. Two large occurrences remain within Everglades National Park and Big Cypress National Preserve. Although privately owned pine rocklands and prairies are at risk to development, the plants on Federal lands are protected from this threat. However, extant occurrences are in low-lying areas and will be affected by climate change and rising sea level.

This species is threatened by habitat loss and degradation due to fire suppression, the difficulty of applying prescribed fire to pine rocklands, and exotic plants. Since the only remaining populations are on lands managed by the National Park Service, the threats of fire suppression and exotics are somewhat reduced. The presence of the exotic Old World climbing fern is of particular concern due to its ability to spread rapidly. In Big Cypress National Preserve, plants have been threatened by off-road vehicle use. Another threat is hydrology changes. Hydrology has been altered within Long Pine Key due to artificial drainage, which lowered ground water, and construction of roads, which either impounded or diverted water. Regional water management intended to restore the Everglades has the potential to affect the pinelands of Long Pine Key, where a large population occurs. At this time, it is not known whether Everglades restoration will have a positive or negative effect. This narrow endemic may be vulnerable to catastrophic events and natural disturbances, such as hurricanes.

Overall, the magnitude of threats is high because only two occurrences remain, and various threats exist. Impacts from climate change and sea-level rise are expected to be severe in the future. The majority of threats are nonimminent as they are long-term in nature (water management, hurricanes, and sea-level rise). Therefore, we assigned an LPN of 5 for this species.

Echinomastus erectocentrus var. *acunensis* (Acuna cactus) – The following summary is based on information contained in our files and the petition we received on October 30, 2002. The Acuna cactus is known from six sites on well-drained gravel ridges and knolls on granite soils in Sonoran Desert scrub association at 1300 to 2000 feet elevation.

Habitat destruction has been a threat in the past and is a potential future threat to this species. New roads and illegal activities have not yet directly affected the cactus populations at Organ Pipe Cactus National Monument, but areas in close proximity to these known populations have been altered. Cactus populations located in the Florence area have not been monitored and these populations may be in danger of habitat loss due to recent urban growth in the area. Urban development near Ajo, Arizona, as well as that near Sonoyta, Mexico, is a significant threat to the Acuna cactus. Populations of the Acuna cactus within the Organ Pipe Cactus National Monument have shown a 50 percent mortality rate in recent years. The reason(s) for the mortality are not known, but continuing drought conditions are thought to play a role. The Arizona Plant Law and the Convention on International Trade in Endangered Species of Wild Fauna and Flora provide some protection for the Acuna cactus. However, illegal collection is a primary threat to this cactus variety and has been documented on the Organ Pipe Cactus National Monument in the past. The threats continue to be of a high magnitude. The threats are imminent, mainly due to the continued decline of the species, most likely from effects from the on-going drought. Conditions in 2006 to 2008 worsened, and the drought is prevalent throughout the range of this variety. For this reason, drought as the main threat is on-going and is a significant threat to the long-term viability of this variety. Therefore, we assigned an LPN of 3 to this cactus variety.

Erigeron lemmonii (Lemmon fleabane) – The following summary is based on information contained in our files and the petition we received in July 1975. The species is known from one site in a canyon in the Fort Huachuca Military

Reservation (Fort Huachuca) of southeastern Arizona. In the 1990s, surveys found approximately 450 plants. A survey in 2006 found approximately 950 plants; occupied habitat encompasses about 1 square kilometer.

The threats to this species are from catastrophic wildfire in the canyon and on-going drought conditions. We do not know if this species has any adaptations to fire. Due to its location on cliffs, we suspect that fires that may have occurred at more regular intervals and burned at low intensities may have had little to no effect on this species. Lack of fire and the accumulated fuel load that lead to high fire intensity and associated heat may now damage or kill plants on adjacent cliffs, especially near the ground. Plants that are much higher on the cliff face would probably not be affected. We consider the magnitude of threats to be moderate rather than high because we believe that not all of the population would be adversely affected by a wildfire or drought. The threats are still imminent because the likelihood of a fire is high. The LPN for Lemmon fleabane remains an 8 due to moderate, imminent threats.

Eriogonum codium (Umtanum Desert buckwheat) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is a long-lived, slow-growing, woody perennial plant that forms low dense mats. The species occupies a single location on the Hanford National Monument in Washington State. It is found only on an exposed basalt ridge; we do not know if this association is related to the chemical or physical characteristics of the bedrock or other factors. Individual plants may exceed 100 years of age, based on counts of annual growth rings. A count in 1997 reported 5,228 individuals; by 2005 the figure had dropped to 4,418, declining 15 percent over eight years. A population viability analysis in 2006 based on 9 years of demographic data estimated that there is a 72 percent chance of a decline of 50 percent within the next 100 years. Another analysis is expected in 2009, based on 12 years of demographic monitoring.

The major threats to the species are wildfire, firefighting activities, trampling, and invasive weeds. However, the relationship between the decline in population numbers and the known threats is not understood at this time. With the possible exception of wildfire, the observed decline in population numbers and recruitment since 1997 is not directly attributable to

the currently known threats. Because the population is small, limited to a single site, and sensitive to fire and disturbance, the species remains vulnerable to the identified threats. The magnitude of threats is high because, given the limited range of the species, any of the threats could adversely affect its continued existence. The threats are ongoing and, therefore, imminent. Because the species continues to be vulnerable to these threats, we retained an LPN of 2 for this species.

Eriogonum corymbosum var. *nilesii* (Las Vegas buckwheat) – The following summary is based on information contained in our files and the petition we received on April 23, 2008. The Las Vegas buckwheat is a woody perennial shrub up to 4 feet high with a mounding shape. The flowers of this plant are numerous, small and yellow with small bract-like leaves at the base of each flower. The Las Vegas buckwheat is very conspicuous when flowering in late September and early October. It is restricted to gypsum soil outcroppings in Clark and Lincoln Counties, Nevada. Only recently has the taxonomy been verified using molecular genetic analyses.

Loss of habitat from development is a significant threat with over 95 percent of the historical range and potential habitat of the subspecies lost to development. In 2005, the Las Vegas buckwheat was known from 9 locations on approximately 1,150 acres. However, since that time, approximately 290 acres were or soon will be developed, and the current distribution of the plant occupies about 890 acres. In addition, off-highway vehicle activity and other public land uses (casual public use, mining, and illegal dumping) directly and indirectly threaten over half of the remaining habitat. To date, regulatory mechanisms to protect the Las Vegas buckwheat are inadequate. Its designation as a Bureau of Land Management (BLM) special status species and limited resource and law enforcement personnel have not provided adequate protection on lands managed by the BLM. The Las Vegas buckwheat is not protected by the State of Nevada or any other regulatory mechanisms on other federal lands. Conservation measures are being developed that could reduce the risks to occupied habitat, but we believe it would be premature to consider these measures sufficiently complete as to remove these threats. The magnitude of threats is high since the more significant threats (development and surface mining) would result in direct mortality of the plants in over half of its known habitat. While both development and

mining are very likely to occur in the future, they are not expected to happen in the immediate future, and thus, the threats are nonimminent. Accordingly, we assigned the Las Vegas buckwheat an LPN of 6.

Eriogonum kelloggii (Red Mountain buckwheat) – The following summary is based on information contained in our files and information provided by the California Department of Fish and Game. No new information was provided in the petition we received on May 11, 2004. Red Mountain buckwheat is a perennial herb endemic to serpentine habitat of lower montane forests found between 1,900 and 4,100 feet. Its distribution is limited to the Red Mountain and Little Red Mountain areas of Mendocino County, California, where it occupies in excess of 81 acres, and 900 square feet, respectively. Occupied habitat at Red Mountain is scattered over 4 square miles. Total population size has not been determined, but a preliminary estimate suggests the population may be in excess of 63,000 plants, occupying more than 44 discrete habitat polygons. Intensive monitoring of permanent plots on three study sites in Red Mountain suggests considerable annual variation in plant density and reproduction, but no discernable population trend was evident in two of three study sites. One study site showed a 65 percent decline in plant density over 11 years.

The primary threat to this species is the potential for surface mining for chromium and nickel. Virtually the entire distribution of Red Mountain buckwheat is either owned by mining interests, or is covered by existing mining claims, none of which are currently active. Surface mining would destroy habitat suitability for this species. The species is also believed threatened by tree and shrub encroachment into its habitat, in absence of fire. Some 42 percent of its known distribution occurred within the boundary of the Red Mountain Fire of June, 2008. However, the extent and manner in which *Eriogonum kelloggii* and its habitat were affected by that fire is not yet known. The single population located at Little Red Mountain appears to have been impacted, and perhaps eliminated by fire control efforts. The primary threat of surface mining is high in magnitude because it could extirpate the species in the majority of its range. That threat is nonimminent because none of the mining claims are active. Because of the high-magnitude, nonimminent threat to the small, scattered populations, we assigned a listing priority number of 5 to this species.

Festuca hawaiiensis (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is a cespitose (growing in dense, low tufts) annual found in dry forest on the island of Hawaii. *Festuca hawaiiensis* is known from four populations totaling approximately 1,000 individuals in and around the Pohakuloa Training Area (PTA). Historically, this species was also found on Hualalai and Puu Huluhulu on Hawaii and possibly Ulupalakua on Maui, but it no longer occurs at these sites. *Festuca hawaiiensis* is threatened by pigs, goats, mouflon, and sheep that degrade and destroy habitat; fire; military training activities; and nonnative plants that outcompete and displace it. Feral pigs, goats, mouflon, and sheep have been fenced out of a portion of the populations of *F. hawaiiensis*, and nonnative plants have been reduced in the fenced areas but the majority of this population is still affected by threats from fire and will require long-term monitoring and management. The threats are imminent because they are not controlled and are ongoing in the remaining, unfenced populations. Firebreaks have been established at two other populations but again fire is an imminent threat to the other two populations that have no firebreaks. The threats are of a high magnitude because they could adversely affect the majority of *F. hawaiiensis* populations resulting in direct mortality or reduced reproductive capacity. Therefore, we retained an LPN of 2 for this species.

Festuca ligulata (Guadalupe fescue) – The following summary is based on information obtained from the original species petition, received in 1975, and from our files, on-line herbarium databases, and scientific publications. Five small populations of Guadalupe fescue, a member of the Poaceae (grass family), have been documented in mountains of the Chihuahuan desert in Texas and in Coahuila, Mexico. Only two extant populations have been confirmed in the last five years, in the Chisos Mountains, Big Bend National Park, Texas, and in the privately owned Maderas del Carmen protected natural area in Coahuila. Despite intensive searches, a population known from Guadalupe Mountains National Park, Texas has not been found since 1952 and is presumed extirpated. Two additional Mexican populations, near Fraile in southern Coahuila, and the Sierra de la Madera in central Coahuila, have not been monitored since 1941 and

1977, respectively. A great amount of potentially suitable habitat in Coahuila has never been surveyed. The potential threats to Guadalupe fescue include changes in the wildfire cycle and vegetation structure, trampling from humans and pack animals, grazing, trail runoff, fungal infection of seeds, small sizes and isolation of populations, and limited genetic diversity. The Service and the National Park Service established a Candidate Conservation Agreement in 2008 to provide additional protection for the Chisos Mountains population, and to promote cooperative conservation efforts with U.S. and Mexican partners. The threats to Guadalupe fescue are of moderate magnitude, and are not imminent, due to the provisions of the Candidate Conservation Agreement and other conservation efforts, as well as the likelihood that other populations exist in mountains of Coahuila that have not been surveyed. We have assigned a LPN of 11 to this species.

Gardenia remyi (Nanu) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Nanu is a tree found in mesic to wet forest on the islands of Kauai, Molokai, Maui, and Hawaii, Hawaii. *Gardenia remyi* is known from 20 populations totaling between 77 and 104 individuals. This species is threatened by pigs, goats, and deer that degrade and destroy habitat and possibly prey upon the species, and by nonnative plants that outcompete and displace it. It is also threatened by landslides on the island of Hawaii. This species is represented in *ex situ* collections. Feral pigs have been fenced out of the west Maui populations of *G. remyi*, and nonnative plants have been reduced in those areas. However, these threats are not controlled and are ongoing in the remaining, unfenced populations, and are, therefore, imminent. In addition, the threat from goats and deer is ongoing and imminent throughout the range of the species, because no goat or deer control measures have been undertaken for any of the populations of *G. remyi*. All of the threats are of a high magnitude because habitat destruction, predation, and landslides could significantly affect the entire species resulting in direct mortality or reduced reproductive capacity. Therefore, we retained an LPN of 2 for this species.

Geranium hanaense (Nohoanu) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish

prior to making the next annual resubmitted petition 12-month finding.

Geranium hillebrandii (Nohoanu) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Gonocalyx concolor (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Gonocalyx concolor* is a small, evergreen, epiphytic or terrestrial shrub endemic to Puerto Rico. Currently, *G. concolor* is known from two populations: one at Cerro La Santa and other at Charco Azul, both in the Carite Commonwealth Forest. The forest is located in the Sierra de Cayey and extends through the municipalities of Guayama, Cayey, Caguas, San Lorenzo, and Patillas in southeastern Puerto Rico. The population previously reported in the Caribbean National Forest is apparently no longer extant. In 1996, approximately 172 plants were reported at Cerro La Santa. However, in 2006 only 25 individuals were reported at Cerro La Santa and four individuals located at Charco Azul.

The species is threatened by habitat disturbance related to the maintenance of existing telecommunication facilities at Cerro La Santa, limited distribution (two sites), low population numbers (less than 30 individuals total), and hurricanes. Although the species is located in the Carite Commonwealth Forest, a public forest managed by DNER, applicable laws and regulations are not always effectively enforced and Service personnel have documented some damage to the population located adjacent to existing communication towers at the forest. Because of extremely low population numbers and the vulnerability to threats (maintenance activities and hurricanes), the magnitude of current threats on the species is high. Overall, threats are nonimminent since *G. concolor* is located in the Carite Commonwealth Forest, administered and managed by the DNER for conservation and recreation, and actions that may affect such species are generally scrutinized and measures to minimize or avoid impacts to these species are recommended and implemented. Therefore, we have assigned a listing priority number of 5 to this species.

Hazardia orcuttii (Orcutt's hazardia) – The following summary is based on information contained in our files and the petition we received on March 8,

2001. *Hazardia orcuttii* is an evergreen shrubby species in the Asteraceae (sunflower family). The erect shrubs are 50-100 centimeters (20-40 inches) high. The only known extant native occurrence of this species in the U.S. is in the Manchester Conservation Area in northwestern San Diego County, California. This site is managed by Center for Natural Lands Management. *Hazardia orcuttii* also occurs at a few coastal sites in Mexico, where it has no conservation protections. The occurrences in Mexico are threatened by coastal development from Tijuana to Ensenada. There are approximately 668 native adult plants and 50 seedlings remaining in the U.S., and the population in Mexico is estimated to be 1300 plants. Because the extant population in the U.S. is within an area that receives a great deal of public use, trampling, dumping, and other unintentionally destructive impacts are affecting these *Hazardia orcuttii* plants. This species has a very low reproductive output, although the causes are as-yet unknown. Competition from invasive nonnative plants may pose a threat to the reproductive potential of this species. In one study, 95 percent of the flowers examined were damaged by insects or fungal agents or aborted prematurely, and insects or fungal agents damaged 50 percent of the seeds produced. However, if low seed production is because of ecosystem disruptions, such as loss of effective pollinators, there could be additional threats that need to be addressed. Overall, the threats to *Hazardia orcuttii* are of a high magnitude because they have the potential to significantly reduce the reproductive potential of this species. The threats are nonimminent overall because although trampling and other recreational impacts are ongoing, the most significant threats (invasive nonnative plants and low reproductive output) are nonimminent and long-term in nature. This species faces high-magnitude nonimminent threats so we have assigned this species a listing priority of 5.

Hedyotis fluviatilis (Kamapuaa) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Kamapuaa is a scandent shrub found in mixed shrubland to wet lowland forest on Oahu and Kauai, Hawaii. This species is known from 12 populations totaling 1,000 to 1,400 individuals. *Hedyotis fluviatilis* is threatened by pigs and goats that degrade and destroy habitat, and by nonnative plants that outcompete and displace it. Landslides

are a potential threat to populations on Kauai. This species is represented in *ex situ* collections; however, there are no other conservation actions implemented for this species. We retained an LPN of 2 because the severity of the threats to the species is high and the threats are ongoing and, therefore, imminent.

Helianthus verticillatus (Whorled sunflower) – See above in “Listing Priority Changes in Candidates.” The above summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Hibiscus dasycalyx (Neches River rose-mallow) – The following summary is based on information contained in our files. No new information was provided in the petition received on May 11, 2004. This species, found in eastern Texas, appears to be restricted to those portions of wetlands that are exposed to open sun and normally hold standing water early in the growing season, with water levels dropping during late summer and fall. This habitat has been affected by drainage or filling of floodplain depressions and oxbows, stream channelization, road construction, timber harvesting, agricultural activities (primarily mowing and grazing), and herbicide use. Threats that continue to affect the species include wetland alteration, herbicide use, grazing, mowing during the species’ growing and flowering period, and genetic swamping by other *Hibiscus* species.

A 1995 status survey of 10 counties resulted in confirmation of the species at only three sites, but in three separate counties and three different watersheds, suggesting a relatively wide historical range. These three populations were all within highway rights-of-way and vulnerable to herbicides and adjacent agricultural activities. As of 2005, only 20 plants remained at one of these sites. Additional surveys for *Hibiscus dasycalyx* discovered new populations. About 300 plants were found on land owned by Temple-Inland Corporation in east Trinity County. A Candidate Conservation Agreement was developed for this site, but smaller plant numbers have been seen in recent years, possibly due to changes in the wetland’s hydrology. Another site discovered on land previously owned by Champion International Corporation (near White Rock Creek in west Trinity County) once supported 300-400 plants. This site was modified in 2007 and will be reassessed in the near future. In west Houston County, a population of 300 to 400 plants discovered on private land has been purchased by the Natural Area Preservation Association in order to

protect this land in perpetuity. In east Houston County, a population discovered in Compartment 55 in Davy Crockett National Forest numbered over 1000 in 2006. In 2000, nearly 800 plants were introduced into Compartments 16 and 20 of Davy Crockett National Forest as part of a reintroduction effort. One population retained high numbers (350 in 2006), but was subjected to high water conditions in 2007 and may have been adversely affected. The second site was affected by a change in hydrology and had declined to 50 plants in 2006. In 2004, 200 plants were placed in a wetland in Compartment 11 of Davy Crockett National Forest, but only 10 plants were seen in 2006. High water from heavy spring and summer rains prevented further assessment of these rose-mallow sites.

The threats to the species continue to be of a high magnitude because they can severely affect the survival and reproductive capacity of the species. Overall the threats are nonimminent since they are not currently affecting or likely to affect the majority of the populations of this species in the immediate future. Thus, we have retained an LPN of 5 for the Neches River rose-mallow.

Ivesia webberi (Webber ivesia) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Ivesia webberi* is a low, spreading, perennial herb that occurs very infrequently in Lassen, Plumas, and Sierra Counties in California, and in Douglas and Washoe Counties, Nevada. The species is restricted to sites with sparse vegetation and shallow, rocky soils composed of volcanic ash or derived from andesitic rock. Occupied sites generally occur on mid-elevation flats, benches, or terraces on mountain slopes above large valleys along the transition zone between the eastern edge of the northern Sierra Nevada and the northwestern edge of the Great Basin. Currently, the global population is estimated at approximately 4.8 million individuals at 14 known sites. The Nevada sites support nearly 98 percent of the total number of individuals (4.7 million) on about 30 acres (12 hectares) of occupied habitat. The California sites are larger in area, totaling about 156 acres (63 hectares), but support fewer individuals (approximately 115,000).

The primary threats to *I. webberi* include urban development, authorized and unauthorized roads, off-road vehicle activities and other dispersed recreation, livestock grazing and trampling, fire and fire suppression activities including fuels reduction and

prescribed fires, and displacement by noxious weeds. Despite the high numbers of individuals, observations in 2002 and 2004 confirmed that direct and indirect impacts to the species and its habitat, specifically from urban development and off-highway vehicle activity remain high and are likely to increase. However, the U.S. Forest Service has committed to develop a conservation strategy and monitoring program to protect this species on National Forest lands where most population are found, and the State of Nevada has listed the species as critically endangered, which provides a mechanism to track future impacts on private lands. In addition, both the U.S. Forest Service and State of Nevada have agreed to coordinate closely with the Fish and Wildlife Service on all activities that may affect this species. In light of these conservation commitments, we have determined that the threats to Webber ivesia are nonimminent and retained an LPN of 5 for this species.

Joinvillea ascendens ssp. *ascendens* (Ohe) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Ohe is an erect herb found in wet to mesic *Metrosideros polymorpha-Acacia koa* (ohia-koa) forest on the islands of Kauai, Oahu, Molokai, Maui, and Hawaii, Hawaii. Ohe is known from 38 widely scattered populations totaling approximately 180 individuals throughout its range. Plants are typically found as only one or two individuals, with miles between populations. This subspecies is threatened by destruction or modification of habitat due to pigs, goats, and deer, and by nonnative plants that outcompete and displace native plants. Predation by pigs, goats, deer, and rats is a likely threat to this species. Landslides are a potential threat to populations on Kauai and Molokai. Seedlings have rarely been observed in the wild. Seeds germinate in cultivation, but most die soon thereafter. It is uncertain if this rarity of reproduction is typical of this subspecies, or if it is related to habitat disturbance. Feral pigs have been fenced out of a few of the populations of this subspecies, and nonnative plants have been reduced in a few populations that are fenced. However, these threats are not controlled and are ongoing in the many remaining, unfenced populations. This species is represented in *ex-situ* collections. The threats are of high magnitude because habitat degradation, nonnative plants, and predation result in mortality or adversely affect the

reproductive capacity of the majority of populations of this species. The threats are ongoing, and thus are imminent. Therefore, we retained an LPN of 3 for this subspecies.

Korthalsella degeneri (Hulumoa) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Leavenworthia crassa (Gladeccress) – The following information is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species of gladeccress is a component of glade flora, occurring in association with limestone outcroppings. *Leavenworthia crassa* is endemic to a 13-mile radius area in north central Alabama in Lawrence and Morgan Counties, Alabama, where only six populations of this species are documented. Glade habitats today have been reduced to remnants fragmented by agriculture and development. Populations of this species are now located in glade-like areas exhibiting various degrees of disturbance including pastureland, roadside rights-of-way, and cultivated or plowed fields. The most vigorous populations of this species are located in areas which receive full, or near full, sunlight with limited herbaceous competition. The magnitude of threat is high for this species, because with the limited number of populations, the threats could result in direct mortality or reduced reproductive capacity of the species. This species appears to be able to adjust to periodic disturbances and the potential impacts to populations from competition, exotics, and herbicide use are nonimminent. Thus, we assigned an LPN of 5 to this species.

Leavenworthia texana (Texas golden gladeccress) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Leavenworthia texana* occurs only on the Weches outcrops of east Texas in San Augustine and Sabine counties. The Weches geologic formation consists of a layer of calcareous sediment, lying above a layer of glauconite clay deposited up to 50 million years ago. Erosion of this complex has produced topography of steep, flat-topped hills and escarpments, as well as the unique ecology of Weches glades: islands of thin, loamy, seepy, alkaline soils that support open-sun, herbaceous, and highly diverse and specialized plant communities.

Leavenworthia texana was historically recorded at eight sites, all in a narrow region along north San Augustine and Sabine Counties. All sites are on private land. Three sites have been lost to glauconite mining and two sites are currently closed to visitors. The Sabine County site supported 1000 plants within 9 square meters (97 square feet) in 2007. The Tiger Creek site in San Augustine County (less than 0.1 hectare (.2 acre) in size) was found to have about 200 plants in 2007. The Kardell site (less than 9 square meters (97 square feet)) has supported 400-500 plants in past years, but none in 2005. An introduced population in Nacogdoches County numbered about 1000 within an area of about 18 square meters (194 square feet) in 2007.

Historical habitat has been affected by highway construction, residential development, conversion to pasture and cropland, widespread use of herbicide, overgrazing, and glauconite mining. However, the primary threat to existing *Leavenworthia texana* populations is the invasion of nonnative and weedy shrubs and vines (primarily Macartney rose (*Rosa bracteata*) and Japanese honeysuckle (*Lonicera japonica*)). All known sites are undergoing severe degradation by the incursion of nonnative shrubs and vines, which restrict both growth and reproduction of the gladeccress. Brushclearing carried out in 1995 resulted in the reappearance of *L. texana* after a 10-year absence at one site. However, nonnative shrubs have again invaded this area. More effective control measures, such as burning and selective herbicide use, need to be tested and monitored. The small number of known sites also makes *L. texana* vulnerable to extreme natural disturbance events. A severe drought in 1999 and 2000 had a pronounced adverse effect on *L. texana* reproduction. Since the threat from nonnative plants severely affects all known sites, the magnitude is high. The threats are imminent since they are ongoing. Therefore, we retain an LPN of 2 for *L. texana*.

Lesquerella globosa (Desvaux) Watson (Short's bladderpod) – See above in "Listing Priority Changes in Candidates." The above summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Linum arenicola (Sand flax) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Sand flax is found in pine rockland and marl prairie habitats which require

periodic wildfires in order to maintain an open, shrub free subcanopy and reduce leaf litter levels. Based upon available data, there are 11 extant occurrences of sand flax; 11 others are extirpated or destroyed. Only small and isolated occurrences remain in low-lying areas in a restricted range of southern Florida and the Florida Keys.

Habitat loss and degradation due to development is a major threat; most of the remaining occurrences are on private land or non-conservation public land. However, much of the pine rockland on Big Pine Key, the location of the largest occurrence, is protected from development. Climatic changes and sea-level rise are long-term threats that are expected to affect the species and ultimately reduce the extent of available habitat. Nearly all remaining populations are threatened by fire suppression, difficulty in applying prescribed fire, road maintenance activities, exotic species, or illegal dumping. However, some efforts are underway to use prescribed fire to control exotics on conservation lands where this species occurs. Sand flax is vulnerable to natural disturbances, such as hurricanes, tropical storms, and storm surges. Hurricane Wilma inundated most of its habitat on Big Pine Key in 2005, and plants were not found 8–9 weeks post-storm; the density of sand flax declined to zero in all management units at The Nature Conservancy's preserve in 2006. In a 2007 post-hurricane assessment, sand flax was found in northern plots, but not in any of the southern plots on Big Pine Key. Due to the small and fragmented nature of the current population, stochastic events, disease, or genetic bottlenecks may strongly affect this species. Reduced pollinator activity and suppression of pollinator populations from pesticides used in mosquito control and decreased seed production due to increased seed predation in a fragmented wildland urban interface may also affect sand flax; however, not enough information is known on this species' reproductive biology or life history to assess these potential threats. Overall, the magnitude of threats is high; most threats are ongoing and thus are imminent. Therefore, we assigned an LPN of 2 to this species.

Linum carteri var. *carteri* (Carter's small-flowered flax) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This plant occupies open and disturbed sites in pinelands of Miami-Dade County, Florida. Currently, there are 9 known occurrences. Occurrences with

fewer than 100 individuals are located on 3 county-owned preserves. A site with more than 100 plants is owned by the U.S. government, but the site is not managed for conservation. Climatic changes and sea-level rise are long-term threats that will likely reduce the extent of habitat. The 9 existing occurrences are small and vulnerable to habitat loss, which is exacerbated by habitat degradation due to fire suppression, the difficulty of applying prescribed fire to pine rocklands, and threats from exotic plants. Remaining habitats are fragmented. Non-compatible management practices are also a threat at most protected sites; several sites are mowed during the flowering and fruiting season. The species is vulnerable to natural disturbances, such as hurricanes, tropical storms, and storm surges. This species exists in such small numbers at so few sites, that it may be difficult to develop and maintain viable occurrences on the available conservation lands. Although no population viability analysis has been conducted for this plant, indications are that existing occurrences are at best marginal, and it is possible that none are truly viable. As a result, the magnitude of threats is high. The threats are ongoing, and thus are imminent. Therefore, we assigned an LPN of 3 to this plant variety.

Melicope christophersenii (Alani) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Melicope hiiakae (Alani) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Melicope makahae (Alani) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Myrsine fosbergii (Kolea) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Myrsine fosbergii* is a branched shrub or small tree found in cloud swept ridges and lowland mesic and wet forest on Kauai and Oahu, Hawaii. This species is currently known from 11 populations

totaling approximately 58 individuals on Kauai and from 8 populations totaling between 73 and 83 individuals in the Koolau Mountains of Oahu.

Myrsine fosbergii is threatened by feral pigs and goats that degrade and destroy habitat and may prey upon the plant, and nonnative plants that compete for light and nutrients. This species is represented in an *ex situ* collection. Although there are plans to fence and remove ungulates from the Helemano area of Oahu, which may benefit this species, no conservation measures have been taken to date to alleviate these threats for this species. Feral pigs and goats are found throughout the known range of *M. fosbergii*, as are nonnative plants. The threats from feral pigs, goats, and nonnative plants are of a high magnitude because they pose a severe threat throughout the limited range of this species, and they are ongoing and therefore imminent. We retained an LPN of 2 for this species.

Myrsine vaccinioides (Kolea) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Narthecium americanum (Bog asphodel) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Bog asphodel is a perennial herb that is found in savannah areas, usually with water moving through the substrate, as well as in sandy bogs along streams and rivers. The historical range of bog asphodel included New York, New Jersey, Delaware, North Carolina, and South Carolina, but it is now only found within the Pine Barrens region of New Jersey.

As an obligate wetland species, *N. americanum* is threatened by loss of habitat due to filling or draining of wetlands, changes in hydrology, and indirect impacts from development in adjacent uplands. The Pine Barrens savannahs that support bog asphodel provide a scarce, specialized habitat that has declined from several thousand acres around 1900 to only a thousand acres in recent decades. Within its savannah habitats, bog asphodel appears limited to a relatively narrow range of hydrologic and topographic conditions that make this species particularly sensitive to hydrologic changes, such as those resulting from filling or draining of wetlands, flooding as a result of reservoir construction, water extractions or diversions, and conversion of natural wetlands to commercial cranberry bogs.

Most bog asphodel occurs in New Jersey's regulated Pinelands Area, in which development of wetlands or uplands is prohibited unless designed to avoid irreversible adverse impacts upon the survival of any local populations of federally or State-listed plant or animal species. However, exemptions are granted for cranberry production and other agricultural uses, and illegal wetland filling has occurred. Outside the Pinelands Area, wetlands and wetland buffers are State-regulated, but many activities in uplands are not. Cumulative effects of upland development impact wetlands through sedimentation, non-point source pollution, changes in pH, and lowered water tables.

Of the known extant populations of bog asphodel, at least 55 occur on State-owned lands, 4 occur on federally owned lands, and at least 13 occur on private lands. Bog asphodel occurrences on public lands receive the highest levels of protection, but lack of enforcement regarding off-road vehicles is a problem on both public and private lands. Over-collection, as well as trampling, erosion, and siltation caused by recreational activities, may also affect some populations. Natural threats to bog asphodel at some sites include beaver-induced flooding, succession of savannahs to Atlantic white cedar swamps, and suppression of natural wildfires. The threats are moderate in magnitude since many occurrences receive some level of protection from some threats. The threats are imminent because conversion to cranberry bogs, natural succession, wildfire suppression, recreational impacts, and erosion are all ongoing. Overall, based on these imminent, moderate threats, we retain a listing priority number of 8 for this species.

Nothocestrum latifolium ('Aiea) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Aiea is a small tree found in dry to mesic forest and diverse mesic forests on Kauai, Oahu, Maui, Molokai, and Lanai, Hawaii. *Nothocestrum latifolium* is known from 20 steadily declining populations totaling fewer than 1,100 individuals. This species is threatened by feral pigs, goats, and axis deer that degrade and destroy habitat and may prey upon it; by nonnative plants that compete for light and nutrients; and by the loss of pollinators that negatively affect the reproductive viability of the species. This species is represented in an *ex situ* collection. Ungulates have been fenced out of some areas where *N. latifolium* currently occurs, and

nonnative plants have been reduced in some populations that are fenced. However, these ongoing conservation efforts for this species benefit only a few of the known populations. The threats are not controlled and are ongoing in the remaining unfenced populations. In addition, little regeneration is observed in this species. The threats are of a high magnitude, since they are severe enough to affect the continued existence of the species. The threats are imminent, since they are ongoing. Therefore, we retained an LPN of 2 for this species.

Ochrosia haleakalae (Holei) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Holei is a tree found often on lava and in dry to mesic forest on the islands of Hawaii and Maui, Hawaii. This species is currently known from 11 populations totaling fewer than 130 individuals. *Ochrosia haleakalae* is threatened by fire; feral pigs, goats, and cattle that degrade and destroy habitat and may directly prey upon it; and nonnative plants that compete for light and nutrients. This species is represented in *ex situ* collections. Feral pigs, goats, and cattle have been fenced out of one wild and one outplanted population on private lands on the island of Maui and one outplanted population in Hawaii Volcanoes National Park on the island of Hawaii. Nonnative plants have been reduced in the fenced areas. The threat from fire is of a high magnitude and imminent because no control measures have been undertaken to address this threat that could adversely affect *O. haleakalae* as a whole. The threats from feral pigs, goats, and cattle are ongoing to the unfenced populations of *O. haleakalae*. The threat from nonnative plants is ongoing and imminent and of a high magnitude to the wild populations on both islands, and adversely affects the survival and reproductive capacity of the majority of the species. Therefore, we retained an LPN of 2 for this species.

Pediocactus peeblesianus var. *fickeiseniae* (Fickeisen plains cactus) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. The Fickeisen plains cactus is a small cactus known from the Gray Mountain vicinity to the Arizona strip in Coconino, Navajo, and Mohave counties, Arizona. The cactus grows on exposed layers of Kaibab limestone on canyon margins and well-drained hills in Navajoan desert or grassland. In 1999, the Arizona Game and Fish Department noted 23 occurrences for the species,

including historical ones. The species is located on Bureau of Land Management (BLM), U.S. Forest Service, tribal, and possibly State lands. Recent reports from the BLM and Navajo Nation describe populations of the species as being in decline. The main human-induced threats to this cactus are activities associated with road maintenance, off-road vehicles, and trampling associated with livestock grazing. Monitoring data has detected mortality associated with livestock grazing. Illegal collection of this species has been noted in the past, but we do not know if it is a continuing threat. The populations that have been monitored have been affected, in part, by the continuing drought. There has been very low recruitment, and rabbits and rodents have consumed adult plants since there is reduced forage available during these dry conditions. Given that there are only a few known populations, that the range of this taxon is limited, and that the majority of the known populations on BLM lands and the Navajo Nation are experiencing declines, we conclude that the threats are of a high magnitude. The threats are ongoing and, therefore, are imminent. Thus, we have retained an LPN of 3 for this plant variety.

Penstemon debilis (Parachute beardtongue) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Penstemon scariousus var. *albifluvis* (White River beardtongue) – The following summary is based on information contained in our files and the petition we received on October 27, 1983. The White River beardtongue is restricted to calcareous soils derived from oil shale barrens of the Green River Formation in the Uinta Basin of northeastern Utah and adjacent Colorado. There are 14 occurrences known in Utah and 1 in Colorado. Most of the occupied habitat of the White River beardtongue is within developed and expanding oil and gas fields. The location of the species' habitat can expose it to destruction from road, pipeline, and well-site construction in connection with oil and gas development. Recreational off-road vehicle use, heavy grazing by livestock, and wildlife and livestock trampling are additional threats. A future threat and potentially the greatest threat to the species is oil shale development. The threats are of high magnitude because they involve habitat destruction that

could adversely affect the majority of the occurrences of this plant variety. The threats are nonimminent because threats associated with oil and gas and oil shale development will probably not be increasing substantially within the near future. Oil shale development remains uncertain within the species' habitat, and is not expected to be a significant factor in the near term. Therefore, based on current information, we retained an LPN of 6.

Peperomia subpetiolata ('Ala 'ala wai nui) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Phacelia submutica (DeBeque phacelia) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Phyllostegia bracteata (no common name) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Phyllostegia floribunda (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is an erect subshrub found in mesic to wet forest on the island of Hawaii, Hawaii. This species is known from 10 locations totaling fewer than 270 wild and outplanted individuals on State, private, and Federal lands. *Phyllostegia floribunda* is threatened by feral pigs that degrade and destroy habitat, and nonnative plants that compete for light and nutrients. The National Park Service, The Nature Conservancy, and the State have outplanted more than 170 individuals at Olaa Forest Reserve, Kona Hema, and Waiakea Forest Reserve (more than 50, 20 individuals, and 100 individuals, respectively). Fences protect approximately five populations on private, State, and National Park lands. Nonnative plants have been reduced in these fenced areas. However, no conservation efforts have been implemented for the unfenced populations. This species is represented in *ex situ* collections. Overall, the threats are moderate because conservation efforts for over half of the

populations reduce the severity of the threats. The threats are ongoing in the unfenced portions and must be constantly managed in the fenced portions. Therefore, the threats are imminent. We retained an LPN of 8 because the threats are of moderate magnitude and are imminent for the majority of the populations.

Physaria douglasii ssp. *tuplashensis* (White Bluffs bladder-pod) – See above in "Listing Priority Changes in Candidates." The above summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Platanthera integrilabia (Correll) Leur (White fringeless orchid) – See above in "Listing Priority Changes in Candidates." The above summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Platydesma cornuta var. *cornuta* (no common name) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Platydesma cornuta var. *decurrens* (no common name) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Platydesma remyi (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Platydesma remyi* is a shrub or shrubby tree found in wet forests on old volcanic slopes on the island of Hawaii, Hawaii. This species is known from two populations totaling fewer than 50 individuals. *Platydesma remyi* is threatened by feral pigs and cattle that degrade and destroy habitat, nonnative plants that compete for light and nutrients, reduced reproductive vigor, and stochastic extinction due to naturally occurring events. This species is represented in an *ex situ* collection, and by one individual included in a rare plant enclosure in the Laupahoehoe Natural Area Reserve. The threats are ongoing and therefore imminent, and of a high magnitude because of their severity; the threats cause direct mortality or significantly reduce the reproductive capacity of the species

throughout its limited range. Therefore, we retained an LPN of 2 for this species.

Pleomele forbesii (Hala pepe) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Potentilla basaltica (Soldier Meadow cinquefoil or basalt cinquefoil) – The following summary is based on information contained in our files; the petition we received on May 11, 2004, provided no additional information on the species. *Potentilla basaltica* is a low growing, rhizomatous, herbaceous perennial that is associated with alkali meadows, seeps, and occasionally marsh habitats bordering perennial thermal springs, outflows, and meadow depressions. In Nevada, the species is known only from Soldier Meadow in Humboldt County. In northeastern California, a single population occurs in Lassen County. At Soldier Meadow, there are 11 discrete known occurrences within an area of about 24 acres (9.6 hectares) that support about 130,000 individuals. The California population occurs on private and public land and supports fewer than 1,000 plants. The public land has been designated as an Area of Critical Environmental Concern by the Bureau of Land Management.

The species and its habitat are threatened by recreational use as well as the impacts of past water diversions, livestock grazing, and off-road vehicle travel. Conservation measures implemented recently by the Bureau of Land Management in Nevada include the installation of fencing to exclude livestock, wild horses, burros, and other large mammals; the closure of access roads to spring, riparian, and wetland areas and the limiting of vehicles to designated routes; the establishment of a designated campground away from the habitats of sensitive species; the installation of educational signage; and an increased staff presence, including law enforcement and a volunteer site steward during the 6-month period of peak visitor use. In California, public land management actions include prohibiting livestock salting in the vicinity of springs, a proposed long-term monitoring plot, limitations on camping near springs, withdrawal from salable mineral leasing, and recommendations to withdraw the land from mineral entry. These conservation measures have reduced the magnitude of threat to the species to moderate; all remaining threats are nonimminent and involve long-term changes to the habitat for the species resulting from past impacts.

Until a monitoring program is in place that allows us to assess the long-term trend of the species, we have assigned a LPN of 11.

Pseudognaphalium (Gnaphalium) sandwicensium var. *molokaiense* (Enaena) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Pseudognaphalium sandwicensium* var. *molokaiense* is a perennial herb found in strand vegetation in dry consolidated dunes on Molokai and Maui, Hawaii. This variety is known from five populations totaling approximately 10,000 to 20,000 individuals (depending upon rainfall) in the Moomomi area on the island of Molokai, and from two populations of a few individuals at Waiehu dunes and at Puu Kahulianapa on west Maui. *Pseudognaphalium sandwicensium* var. *molokaiense* is threatened by feral goats and axis deer that degrade and destroy habitat and possibly prey upon it, and by nonnative plants that compete for light and nutrients. Potential threats also include collection for lei and off-road vehicles that directly damage plants and degrade habitat. Weed control protects one population on Molokai; however, no conservation efforts have been initiated to date for the other populations on Molokai or for the individuals on Maui. This species is represented by an *ex situ* collection. The ongoing threats from axis deer, cattle, nonnative plants, collection, and off-road vehicles are of a high magnitude because no control measures have been undertaken for the Maui population and the threats result in direct mortality or significantly reduce reproductive capacity for the majority of the populations. Therefore, we retained an LPN of 3 for this plant variety.

Psychotria hexandra ssp. *oahuensis* var. *oahuensis* (Kopiko) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Pteralyxia macrocarpa (Kaulu) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Ranunculus hawaiiensis (Makou) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004.

Ranunculus hawaiiensis is an erect or ascending perennial herb found in mesic to wet forest dominated by *Metrosideros polymorpha* and *Acacia koa* with scree substrate (loose stones or rocky debris on a slope) on Maui and the island of Hawaii, Hawaii. Populations formerly within Haleakala National Park have been extirpated. This species is currently known from fewer than 15 individuals in four populations: three wild populations occur on Hawaii totaling 11 individuals, and a Maui population (Kukui planeze) which was not relocated on a survey conducted in 2006. In addition, one wild population at Waikamoi (on Maui) was last observed in 1995. *Ranunculus hawaiiensis* is threatened by direct predation by slugs, feral pigs, goats, cattle, mouflon, and sheep; by pigs, goats, cattle, mouflon and sheep that degrade and destroy habitat; and by nonnative plants that compete for light and nutrients. Three populations have been outplanted into protected exclosures; however, feral ungulates and nonnative plants are not controlled in the remaining, unfenced populations. In addition, the threat from introduced slugs is of a high magnitude because slugs occur throughout the limited range of this species and no effective measures have been undertaken to control them or prevent them from causing significant adverse impacts to this species. Overall, the threats from pigs, goats, cattle, mouflon, sheep, slugs, and nonnative plants are of a high magnitude, and ongoing (imminent) for *R. hawaiiensis*. We retained an LPN of 2 for this species.

Ranunculus mauensis (Makou) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Ranunculus mauensis* is an erect to weakly ascending perennial herb found in open sites in mesic to wet forest and along streams on the islands of Maui, Kauai, and Molokai, Hawaii. This species is currently known from 13 locations totaling fewer than 170 individuals. *Ranunculus mauensis* is threatened by feral pigs, goats, mule deer and axis deer, and slugs that consume it; by habitat degradation and destruction by feral pigs, goats and deer; and by nonnative plants that compete for light and nutrients. This species is represented in *ex situ* collections. Feral pigs have been fenced out of the Maui populations of *R. mauensis*, and nonnative plants have been reduced in the fenced areas. One individual occurs in the Kamakou Preserve on Molokai, managed by The Nature Conservancy. However, ongoing conservation efforts

benefit only the Maui and Molokai individuals, and absent conservation efforts for the Kauai individuals, the threats continue to be of a high magnitude on Kauai. Therefore, since half of the individuals are found on Kauai, threats to the species overall are also of a high magnitude because these threats significantly reduce the reproductive capacity and thus, the survival of this species. In addition, the threats are imminent because they are ongoing in the Kauai and the majority of the Maui populations. Therefore, we retained an LPN of 2 for this species.

Rorippa subumbellata (Tahoe yellow cress) – The following summary is based on information contained in our files and the petition we received on December 27, 2000. *Rorippa subumbellata* is a small perennial herb known only from the shores of Lake Tahoe in California and Nevada. Data collected over the last 25 years generally indicate that species occurrence fluctuates yearly as a function of both lake level and the amount of exposed habitat. Records kept since 1900 show a preponderance of years with high lake levels that would isolate and reduce *R. subumbellata* occurrences at higher beach elevations. Less favorable peak years have occurred almost twice as often as more favorable low-level years. Annual surveys are conducted to determine population numbers, site occupancy, and general disturbance regime. During the 2003 and 2004 annual survey period, the lake level was approximately 6,224 ft (1,898 m); 2004 was the fourth consecutive year of low water. *Rorippa subumbellata* was present at 45 of the 72 sites surveyed (65 percent occupied), up from 15 sites (19 percent occupied) in 2000 when the lake level was high at 6,228 ft. Approximately 25,200 stems were counted or estimated in 2003, whereas during the 2000 annual survey, the estimated number of stems was 4,590. Lake levels began to rise again in 2005 and less habitat was available. Lake levels began to drop again in 2006 though 2008 leading to an increase in both occupied sites and estimated stem counts. Lake levels are expected to continue to drop in 2009.

Many *Rorippa subumbellata* sites are intensively used for commercial and public purposes and are subject to various activities such as erosion control, marina developments, pier construction, and recreation. The U.S. Forest Service, California Tahoe Conservancy, and California Department of Parks and Recreation have management programs for *R. subumbellata* that include monitoring, fenced exclosures, and transplanting

efforts when funds and staff are available. Public agencies (including the Service), private landowners, and environmental groups collaborated to develop a conservation strategy coupled with a Memorandum of Understanding/Conservation Agreement. The conservation strategy, completed in 2003, contains goals and objectives for recovery and survival, a research and monitoring agenda, and serves as the foundation for an adaptive management program. Because of the continued commitments to conservation demonstrated by regulatory and land management agencies participating in the conservation strategy, we have determined the threats to *R. subumbellata* from various land uses have been reduced to a moderate magnitude. In high lake level years such as 2005, however, recreational use is concentrated within *R. subumbellata* habitat, and we consider this threat in particular to be ongoing and imminent. Therefore, we have maintained an LPN of 8 for this species.

Schiedea pubescens (Maolioli) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Schiedea pubescens* is a reclining or weakly climbing vine found in diverse mesic to wet forest on Maui, Molokai, and Hawaii. Currently, this species is known from six populations totaling between 29 and 71 individuals on Maui, from four populations totaling 25 individuals on Molokai, and from one population of 4 to 6 individuals on the island of Hawaii. *Schiedea pubescens* is threatened by feral pigs and goats that consume it and degrade and destroy habitat, and by nonnative plants that compete for light and nutrients. Feral ungulates have been fenced out of the population of *S. pubescens* on Hawaii. Feral goats have been fenced out of a few of the west Maui populations of *S. pubescens*. Nonnative plants have been reduced in the populations that are fenced on Maui. However, the threats are not controlled and are ongoing in the remaining unfenced populations on Maui and the three populations on Molokai. Fire is a potential threat to the Hawaii Island population. In light of the extremely low number of individuals of this species, the threats from goats and nonnative plants are of a high magnitude because they result in mortality and reduced reproductive capacity for the majority of the populations. The threats are imminent because they are ongoing with respect to most of the populations. Therefore, we retained an LPN of 2 for this species.

Schiedea salicaria (no common name) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Sedum eastwoodiae (Red Mountain stonecrop) – The following summary is based on information contained in our files and information provided by the California Department of Fish and Game. The petition we received on May 11, 2004 provided no new information on the species. Red Mountain stonecrop is a perennial succulent which occupies relatively barren, rocky openings and cliffs in lower montane coniferous forests, between 1,900 and 4,000 feet elevation. Its distribution is limited to Red Mountain, Mendocino County, California, where it occupies in excess of 54 acres scattered over 4 square miles. Total population size has not been determined, but a preliminary estimate suggests the population may be in excess of 29,000 plants, occupying more 27 discrete habitat polygons. Intensive monitoring suggests considerable annual variation in plant seedling success and inflorescence production. The primary threat to the species is the potential for surface mining for chromium and nickel. The entire distribution Red Mountain stonecrop is either owned by mining interests, or is covered by mining claims, none of which are currently active. Surface mining would destroy habitat suitability for this species. The species is also believed threatened by tree and shrub encroachment into its habitat, in the absence of fire. Some 25 percent of its known distribution occurred within the boundary of the Red Mountain Fire of June 2008. However, the extent and manner in which Red Mountain stonecrop and its habitat were affected by that fire is not yet known. Given the high magnitude and nonimminent threats to the small, scattered populations of this plant species, we assigned an LPN of 5 to Red Mountain stonecrop.

Sicyos macrophyllus ('Anunu) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Sicyos macrophyllus* is a perennial vine found in wet *Metrosideros polymorpha* (ohia) forest and subalpine *Sophora chrysophylla*-*Myoporum sandwicense* (mamane-naio) forest on the island of Hawaii, Hawaii. This species is known from 11 populations totaling fewer than 50 individuals in the Kohala and Mauna Kea areas and in Hawaii Volcanoes

National Park (Puna area) on the island of Hawaii. It appears that a naturally occurring population at Kipuka Ki in Hawaii Volcanoes National Park is reproducing by seeds, but seeds have not been successfully germinated under nursery conditions. This species is threatened by feral pigs, cattle, and mouflon sheep that degrade and destroy habitat, and nonnative plants that compete for light and nutrients. This species is represented in *ex situ* collections. Feral pigs have been fenced out of some of the areas where *S. macrophyllus* currently occurs, but the fences do not exclude sheep. Nonnative plants have been reduced in the populations that are fenced. However, the threats are not controlled and are ongoing in the remaining, unfenced populations, and are, therefore, imminent. Similarly the threat from sheep is ongoing and imminent in all populations, because the current fences do not exclude sheep. In addition, all of the threats are of a high magnitude because habitat degradation and competition from nonnative plants present a risk to the species, resulting in direct mortality or significantly reducing the reproductive capacity. Therefore, we retained an LPN of 2 for this species.

Solanum nelsonii (popolo) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Solanum nelsonii* is a sprawling or trailing shrub found in coral rubble or sand in coastal sites. This species is known from populations in Molokai (approximately 300 plants), the island of Hawaii (5 plants), and the northwestern Hawaiian Islands (NWHI): The current populations in the NWHI are found on: Midway (approximately 260 plants), Laysan (approximately 490 plants), Pearl and Hermes (unknown number of individuals), Nihoa (8,000 to 15,000 adult plants). On Molokai, *S. nelsonii* is moderately threatened by ungulates that degrade and destroy habitat, and may eat *S. nelsonii*. On Molokai and the northwestern Hawaiian Islands this species is threatened by nonnative plants that outcompete and displace it, and by predation by a nonnative grasshopper. This species is represented in *ex situ* collections. Ungulate exclusion fences, routine fence monitoring and maintenance, and weed control protect the population of *S. nelsonii* on Molokai. Limited weed control is conducted in the northwestern Hawaiian Islands. These threats are of moderate magnitude because of the relatively large number of

plants, and are imminent for the majority of the populations because they are ongoing and are not being controlled. We therefore retained an LPN of 8 for this species.

Stenogyne cranwelliae (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. *Stenogyne cranwelliae* is a creeping vine found in wet forest dominated by *Metrosideros polymorpha* on the island of Hawaii, Hawaii.

Stenogyne cranwelliae is known from 11 populations totaling fewer than 100 individuals. This species is threatened by feral pigs that degrade and destroy habitat, and nonnative plants that compete for light and nutrients. In addition, this species is potentially threatened by rats that may directly prey upon it, and by randomly occurring natural events such as hurricanes and landslides. This species is represented in an *ex situ* collection. All of the threats are ongoing rangewide, and no efforts for control or eradication are being undertaken for the pigs, nonnative plants, or rats. These threats significantly affect the entire species particularly in light of its small population size. We retained an LPN of 2 because these imminent threats are of a high magnitude.

Symphyotrichum georgianum (Georgia aster) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Georgia aster currently occurs in the states of Alabama, Georgia, North Carolina and South Carolina. The species is presumed extant in three counties in Alabama, ten counties in Georgia, nine counties in North Carolina, and eleven counties in South Carolina. The species appears to have been eliminated from Florida.

Georgia aster is a relict species of post oak savannah/prairie communities that existed in the southeast prior to widespread fire suppression and extirpation of large native grazing animals. Most remaining populations survive adjacent to roads, utility rights of way, and other openings where current land management mimics natural disturbance regimes. Most populations are small (10-100 stems), and since the species' main mode of reproduction is vegetative, each isolated population may represent only a few genotypes. Many populations are threatened by one or more of the following factors: woody succession due to fire suppression, development, highway expansion/improvement, and

herbicide application. The threats described above are currently occurring and are therefore, imminent. These threats are expected to operate throughout the range of the species; however data on the frequency, timing, and consequences of these threats are lacking. Based upon data on other rare plant species, some of which are federally listed, occurring in similar habitats and possessing similar life histories, we do not currently expect that these threats are likely to be irreversible (e.g., to result in the extirpation of populations) in the near future. Therefore, the magnitude of threats is moderate to low. Thus we assigned an LPN of 8 to this species.

Zanthoxylum oahuense (Ae) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to publish prior to making the next annual resubmitted petition 12-month finding.

Ferns and Allies

Christella boydiae (no common name) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is a small- to medium-sized fern found in mesic to wet forest along streambanks on Oahu and Maui, Hawaii. Historically, this species was also found on the island of Hawaii, but it has been extirpated there. Currently, this species is known from five populations totaling 316 individuals. This species is threatened by feral pigs that degrade and destroy habitat and may eat this plant, nonnative plants that compete for light and nutrients, and stream diversion. Feral pigs have been fenced out of the largest population on Maui, and nonnative plants have been reduced in the fenced area. No conservation efforts are under way to alleviate threats to the other two populations on Maui, or for the two populations on Oahu. This species is represented in an *ex situ* collection. The magnitude of the threats acting upon the currently extant populations is moderate because the largest population is protected from pigs, and nonnative plants have been reduced in this area. The threats are ongoing and therefore imminent. Therefore, we retained an LPN of 8 for this species.

Doryopteris takeuchii (no common name) – We continue to find that listing this species is warranted-but-precluded as of the date of publication of this notice. However, we are working on a proposed listing rule that we expect to

publish prior to making the next annual resubmitted petition 12-month finding.

Huperzia stemmerrmanniae (Waewaeiole) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. This species is an epiphytic pendant clubmoss found in mesic to wet *Metrosideros polymorpha*-*Acacia koa* (ohia-koa) forests on the islands of Maui and Hawaii, Hawaii. Only four populations are known, totaling 19 to 29 individuals on Hawaii and Maui. *Huperzia stemmerrmanniae* is threatened by feral pigs, goats, cattle, and deer that degrade and destroy habitat, and by nonnative plants that compete for light, space, and nutrients. It is also threatened by randomly occurring natural events due to its small population size. One individual at Waikamoi Preserve may benefit from fencing for deer and pigs. This species is represented in *ex situ* collections. The threats from pigs, goats, cattle, deer, and nonnative plants are of a high magnitude because they are sufficiently severe to adversely affect the species throughout its limited range, resulting in direct mortality or significantly reducing reproductive capacity. The threats are imminent because they are ongoing. Therefore, we retained an LPN of 2 for this species.

Microlepia strigosa var. *mauiensis* (Palapalai) – The following summary is based on information contained in our files. No new information was provided in the petition we received on May 11, 2004. Palapalai is a terrestrial fern found in mesic to wet forests. It is currently found on the islands of Maui, Hawaii, and Oahu, from at least 10 populations totaling at least 46 individuals. There is a possibility that the range of this plant variety could be larger and include the other main Hawaiian Islands.

Microlepia strigosa var. *mauiensis* is threatened by feral pigs that degrade and destroy habitat, and nonnative plants that compete for light and nutrients. Pigs have been fenced out of areas on east and west Maui, and on Hawaii, where *M. strigosa* var. *mauiensis* currently occurs, and nonnative plants have been reduced in the fenced areas. However, the threats are not controlled and are ongoing in the remaining unfenced populations on Maui, Hawaii, and Oahu. Therefore, the threats from feral pigs and nonnative plants are imminent. The threats are of a high magnitude because they are sufficiently severe to adversely affect the species throughout its range, resulting in direct mortality or significantly reducing reproductive

capacity. We therefore retained an LPN of 3 for *M. strigosa* var. *mauiensis*.

Petitions To Reclassify Species Already Listed

We previously made warranted-but-precluded findings on six petitions seeking to reclassify threatened species to endangered status. The taxa involved are three populations of the grizzly bear (*Ursus arctos horribilis*), the spikedace (*Meda fulgida*), the loach minnow (*Tiaroga cobitis*), and *Sclerocactus brevispinus* (Pariette cactus). Because these species are already listed under the Act, they are not candidates for listing and are not included in Table 1. However, this notice and associated species assessment forms also constitute the resubmitted petition findings for these species. For the three grizzly bear populations, we have not updated the information in our assessments through this notice as explained below. Although, we are completing an ongoing review of the status of the grizzly bear in the lower 48 States outside of the Greater Yellowstone Areas (see below), we continue to find that reclassification to endangered for each of the three populations (described below) is warranted but precluded by work identified above (see “*Petition Findings for Candidate Species*”). For the spikedace, loach minnow, and *Sclerocactus brevispinus*, our updated assessments are provided below. We find that reclassification to endangered status for the spikedace, loach minnow, and *Sclerocactus brevispinus* is currently warranted but precluded by work identified above (see “*Petition Findings for Candidate Species*”). One of the primary reasons that the work identified above is considered higher priority is that the grizzly bear populations, spikedace, loach minnow, and *Sclerocactus brevispinus* are currently listed as threatened, and therefore already receive certain protections under the Act. The Service promulgated regulations extending take prohibitions for endangered species under section 9 to threatened species (50 CFR 17.31). Prohibited actions under section 9 include, but are not limited to, take (i.e., to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in such activity). For plants, prohibited actions under section 9 include removing or reducing to possession any listed plant from an area under Federal jurisdiction (50 CFR 17.61). Other protections include those under section 7(a)(2) of the Act whereby Federal agencies must insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued

existence of any endangered or threatened species.

Grizzly bear (*Ursus arctos horribilis*) North Cascades ecosystem, Cabinet-Yaak, and Selkirk populations (Region 6) – We have not updated the information in our uplisting findings with regard to the grizzly bear (*Ursus arctos horribilis*) populations in the North Cascade, the Cabinet-Yaak, or the Selkirk Ecosystems in this notice. Between 1991 and 1999, we issued warranted-but-precluded findings to reclassify grizzly bears as endangered in the North Cascades (56 FR 33892–33894, July 24, 1991; 63 FR 30453–30454, June 4, 1998), the Cabinet-Yaak (58 FR 8250–8251, February 12, 1993; 64 FR 26725–26733, May 17, 1999), and the Selkirk Ecosystems (64 FR 26725–26733, May 17, 1999). However, none of these findings included a formal analysis under our 1996 Policy Regarding the Recognition of Distinct Vertebrate Population Segments (DPS) under the Endangered Species Act (61 FR 4722–4725, February 7, 1996). Under this policy a formal analysis of discreteness and significance is necessary to determine if the petitioned entity is a “listable entity” and, therefore, if the petitioned action remains warranted-but-precluded. While our 1999 revised 12-month finding included a preliminary DPS analysis, it appears to have incorrectly analyzed significance to the listed entity (i.e., grizzly bears in the lower 48 States) instead of significance to the taxon (*Ursus arctos horribilis*) as required by our DPS policy (64 FR 26725–26733, May 17, 1999; 61 FR 4722–4725, February 7, 1996; *National Association of Home Builders v. Norton*, 340 F. 3d 835, 852 (9th Cir. 2003)). Additionally, emerging biological information now suggests increasing levels of connectivity among some of these populations casting doubt on their discreteness.

Also relevant is the March 16, 2007, Department of the Interior Office of the Solicitor memorandum (available at: <http://www.doi.gov/solicitor/M37013.pdf>) regarding the meaning of “significant portion of [a species] range.” This memorandum states that “whenever the Secretary concludes because of the statutory five-factor analysis that a species is ‘in danger of extinction throughout... a significant portion of its range,’ it is to be listed and the protections of the ESA applied to the species in that portion of its range.” The memorandum goes on to say “the Secretary has broad discretion in defining what portion of a range is ‘significant.’” To date, the Service has not determined whether the North

Cascade, the Cabinet-Yaak, or the Selkirk Ecosystems constitute a significant portion of the grizzly bear’s range.

On April 18, 2007, the Service initiated a 5-year review to evaluate the current status of grizzly bears in the lower 48 States outside of the Greater Yellowstone Area (72 FR 19549–19551). This status review will fully evaluate the status of each population and determine if any of the populations warrant endangered status. We expect this 5-year review to be completed in late 2009.

Spikedace (*Meda fulgida*) (Region 2) (see 59 FR 35303, July 11, 1994, and the species assessment form (see **ADDRESSES**) for additional information on why reclassification to endangered is warranted-but-precluded) – The spikedace, a small fish species in a monotypic genus, is found in moderate-to-large perennial waters, where it inhabits shallow shear zones, sheet flow, and eddies with sand, gravel, and rubble substrates, and moderate-to-swift currents and swift pools over sand or gravel substrates. This species is now common only in Aravaipa Creek and portions of the upper Gila River in New Mexico. Smaller, less stable populations occur in some areas of the upper Gila, and possibly the Verde River. Spikedace have been translocated into Hot Springs and Redfield Canyon (San Pedro River tributaries), Fossil Creek (Verde River tributary), Bonita Creek (Gila River tributary), and the San Francisco River (in New Mexico). Should these populations become self-sustaining, they will ultimately contribute to species recovery.

The threats to this species are primarily from nonnative aquatic species and water withdrawals, including groundwater pumping. Other threats include improper livestock grazing, road construction, and recreation. Spikedace occur in only 5 to 10 percent of their historical range, and threats occur over the majority of their range, to varying degrees. Threats are exacerbated by ongoing drought. In addition, different threats can interact with each other to further cause decline. For example, drought and water withdrawals may decrease the amount of habitat available to all species within a given stream, forcing natives and nonnatives into closer proximity to one another. Effects from nonnative species introductions are permanent, unless streams are actively renovated and/or barriers installed to preclude further recolonization by nonnatives. Grazing pressures have eased as Federal agencies remove cattle from streams directly, but upland conditions continue

to affect watersheds in general. Groundwater withdrawals or exchanges that affect streamflow are not reversible. For these reasons, the magnitude of the threat to this species is high. In addition, most of the threats to this species are already ongoing, in particular grazing, water withdrawals, nonnative stocking programs, recreational use, and drought. Because threats have gone on for many years in the past, are associated with irreversible commitments (i.e., water exchanges), or are not easily reversed (i.e., nonnative stocking and impacts from grazing), the threats to the species are imminent. Therefore, we assigned this species an LPN of 1 for uplisting to endangered.

Loach minnow (*Tiaroga cobitis*) (Region 2) (see 59 FR 35303, July 11, 1994, and the species assessment form (see **ADDRESSES**) for additional information on why reclassification to endangered is warranted-but-precluded) – This small fish, the only species within the genus, is found in small-to-large perennial streams and uses shallow, turbulent riffles with primarily cobble substrate and swift currents. This species is now common only in Aravaipa Creek and the Blue River in Arizona, and in limited portions of the San Francisco, upper Gila, and Tularosa rivers in New Mexico. Smaller, less stable populations occur in some areas of the upper Gila, such as the Middle Fork and in small areas of several tributary streams to Aravaipa Creek and the Blue and Tularosa rivers, such as Pace, Frieborn, and Negrito creeks. Small populations are also present in Eagle Creek and the Black River. Loach minnow have been translocated into Hot Springs and Redfield Canyon (San Pedro River tributaries), Fossil Creek (Verde River tributary), and Bonita Creek (Gila River tributary). Should these populations become self-sustaining, they will ultimately contribute to species' recovery.

The threats to this species are primarily from nonnative aquatic species and water withdrawals, including groundwater pumping. Other threats include improper livestock grazing, road construction, and recreation. Loach minnow occur in only 10 to 15 percent of their historical range, and threats occur over the majority of their range, to varying degrees. Threats are exacerbated by ongoing drought. In addition, different threats can interact with each other to further cause decline. For example, drought and water withdrawals may decrease the amount of habitat available to all species within a given stream, bringing natives and nonnatives into closer contact. Effects from nonnative species introductions

are permanent, unless streams are actively renovated and/or barriers installed to preclude further recolonization by nonnatives. Grazing pressures have eased as Federal agencies remove cattle from streams directly, but upland conditions continue to affect watersheds in general. Groundwater withdrawals or exchanges that affect streamflow are not reversible. For these reasons, the magnitude of the threats to this species is high. In addition, most of the threats to this species are already ongoing, in particular grazing, water withdrawals, nonnative stocking programs, recreational use, and drought. Because threats have gone on for many years in the past, are associated with irreversible commitments (i.e., water exchanges), or are not easily reversed (i.e., nonnative stocking and impacts from grazing), the threats to this species are imminent. Therefore, we assigned this species an LPN of 1 for uplisting to endangered.

Sclerocactus brevispinus (Pariette cactus) (Region 6) (see 72 FR 53211, September 18, 2007, and the species assessment form (see **ADDRESSES**) for additional information on why reclassification to endangered is warranted-but-precluded) – The Pariette cactus is restricted to clay bad-lands of the Wagon Hound member of the Uinta Formation in the Uinta Basin of northeastern Utah. The species is restricted to one population with an overall range of approximately 10 miles by 5 miles in extent. The species' entire population is within a developed and expanding oil and gas field. The location of the species' habitat exposes it to destruction from road, pipeline, and well-site construction in connection with oil and gas development. The species is collected as a specimen plant for horticultural use. Recreational off-road vehicle use and livestock trampling are additional threats. The species is currently federally listed as threatened by its previous inclusion within the species *Sclerocactus glaucus*. The ongoing threats are of a high magnitude since any one of the threats has the potential to severely affect this species because it is a narrow endemic species with a highly limited range and distribution. Thus, we assigned this species an LPN of 2 for uplisting to endangered.

Current Notice of Review

We gather data on plants and animals native to the U.S. that appear to merit consideration for addition to the Lists of Endangered and Threatened Wildlife and Plants. This notice identifies those species that we currently regard as candidates for addition to the Lists.

These candidates include species and subspecies of fish, wildlife, or plants and DPSs of vertebrate animals. This compilation relies on information from status surveys conducted for candidate assessment and on information from State Natural Heritage Programs, other State and Federal agencies, knowledgeable scientists, public and private natural resource interests, and comments received in response to previous notices of review.

Tables 1 and 2 list animals arranged alphabetically by common names under the major group headings, and list plants alphabetically by names of genera, species, and relevant subspecies and varieties. Animals are grouped by class or order. Plants are subdivided into two groups: (1) flowering plants and (2) ferns and their allies. Useful synonyms and subgeneric scientific names appear in parentheses with the synonyms preceded by an "equals" sign. Several species that have not yet been formally described in the scientific literature are included; such species are identified by a generic or specific name (in italics), followed by "sp." or "ssp." We incorporate standardized common names in these notices as they become available. We sort plants by scientific name due to the inconsistencies in common names, the inclusion of vernacular and composite subspecific names, and the fact that many plants still lack a standardized common name.

Table 1 lists all candidate species, plus species currently proposed for listing under the Act. We emphasize that in this notice we are not proposing to list any of the candidate species; rather, we will develop and publish proposed listing rules for these species in the future. We encourage State agencies, other Federal agencies, and other parties to give consideration to these species in environmental planning.

In Table 1, the "category" column on the left side of the table identifies the status of each species according to the following codes:

PE - Species proposed for listing as endangered. Proposed species are those species for which we have published a proposed rule to list as endangered or threatened in the **Federal Register**. This category does not include species for which we have withdrawn or finalized the proposed rule.

PT - Species proposed for listing as threatened.

PSAT – Species proposed for listing as threatened due to similarity of appearance.

C - Candidates: Species for which we have on file sufficient information on biological vulnerability and threats to

support proposals to list them as endangered or threatened. Issuance of proposed rules for these species is precluded at present by other higher priority listing actions. This category includes species for which we made a 12-month warranted-but-precluded finding on a petition to list. We made new findings on all petitions for which we previously made "warranted-but-precluded" findings. We identify the species for which we made a continued warranted-but-precluded finding on a resubmitted petition by the code "C**" in the category column (see "Findings for Petitioned Candidate Species" section for additional information).

The "Priority" column indicates the LPN for each candidate species which we use to determine the most appropriate use of our available resources. The lowest numbers have the highest priority. We assign LPNs based on the immediacy and magnitude of threats as well as on taxonomic status. We published a complete description of our listing priority system in the **Federal Register** (48 FR 43098, September 21, 1983).

The third column, "Lead Region," identifies the Regional Office to which you should direct information, comments, or questions (see addresses under **Request for Information** at the end of the **SUPPLEMENTARY INFORMATION** section).

Following the scientific name (fourth column) and the family designation (fifth column) is the common name (sixth column). The seventh column provides the known historical range for the species or vertebrate population (for vertebrate populations, this is the historical range for the entire species or subspecies and not just the historical range for the distinct population segment), indicated by postal code abbreviations for States and U.S. territories. Many species no longer occur in all of the areas listed.

Species in Table 2 of this notice are those we included either as proposed species or as candidates in the previous CNOR (published December 10, 2008) that are no longer proposed species or candidates for listing. Since December 10, 2008, we listed one species and removed four species from candidate status for the reasons indicated by the codes. The first column indicates the present status of each species, using the following codes (not all of these codes may have been used in this CNOR):

E - Species we listed as endangered.

T - Species we listed as threatened.

Rc - Species we removed from the candidate list because currently available information does not support a proposed listing.

Rp - Species we removed from the candidate list because we have withdrawn the proposed listing.

The second column indicates why we no longer regard the species as a candidate or proposed species using the following codes (not all of these codes may have been used in this CNOR):

A - Species that are more abundant or widespread than previously believed and species that are not subject to the degree of threats sufficient to warrant continuing candidate status, or issuing a proposed or final listing.

F - Species whose range no longer includes a U.S. territory.

I - Species for which we have insufficient information on biological vulnerability and threats to support issuance of a proposed rule to list.

L - Species we added to the Lists of Endangered and Threatened Wildlife and Plants.

M - Species we mistakenly included as candidates or proposed species in the last notice of review.

N - Species that are not listable entities based on the Act's definition of "species" and current taxonomic understanding.

U - Species that are not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status due, in part or totally, to conservation efforts that remove or reduce the threats to the species.

X - Species we believe to be extinct.

The columns describing lead region, scientific name, family, common name, and historical range include information as previously described for Table 1.

Request for Information

We request you submit any further information on the species named in this notice as soon as possible or whenever it becomes available. We are particularly interested in any information:

(1) indicating that we should add a species to the list of candidate species;

(2) indicating that we should remove a species from candidate status;

(3) recommending areas that we should designate as critical habitat for a species, or indicating that designation of critical habitat would not be prudent for a species;

(4) documenting threats to any of the included species;

(5) describing the immediacy or magnitude of threats facing candidate species;

(6) pointing out taxonomic or nomenclature changes for any of the species;

(7) suggesting appropriate common names; and

(8) noting any mistakes, such as errors in the indicated historical ranges.

Submit information, materials, or comments regarding a particular species to the Regional Director of the Region identified as having the lead responsibility for that species. The regional addresses follow:

Region 1. Hawaii, Idaho, Oregon, Washington, American Samoa, Guam, and Commonwealth of the Northern Mariana Islands. Regional Director (TE), U.S. Fish and Wildlife Service, Eastside Federal Complex, 911 N.E. 11th Avenue, Portland, OR 97232-4181 (503/231-6158).

Region 2. Arizona, New Mexico, Oklahoma, and Texas. Regional Director (TE), U.S. Fish and Wildlife Service, 500 Gold Avenue SW., Room 4012, Albuquerque, NM 87102 (505/248-6920).

Region 3. Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. Regional Director (TE), U.S. Fish and Wildlife Service, Bishop Henry Whipple Federal Building, One Federal Drive, Fort Snelling, MN 55111-4056 (612/713-5334).

Region 4. Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the U.S. Virgin Islands. Regional Director (TE), U.S. Fish and Wildlife Service, 1875 Century Boulevard, Suite 200, Atlanta, GA 30345 (404/679-4156).

Region 5. Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, and West Virginia. Regional Director (TE), U.S. Fish and Wildlife Service, 300 Westgate Center Drive, Hadley, MA 01035-9589 (413/253-8615).

Region 6. Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, and Wyoming. Regional Director (TE), U.S. Fish and Wildlife Service, P.O. Box 25486, Denver Federal Center, Denver, CO 80225-0486 (303/236-7400).

Region 7. Alaska. Regional Director (TE), U.S. Fish and Wildlife Service, 1011 East Tudor Road, Anchorage, AK 99503-6199 (907/786-3505).

Region 8. California and Nevada. Regional Director (TE), U.S. Fish and Wildlife Service, 2800 Cottage Way, Suite W2606, Sacramento, CA 95825 (916/414-6464).

We will provide information received in response to the previous CNOR to the Region having lead responsibility for each candidate species mentioned in the submission. We will likewise consider all information provided in response to this CNOR in deciding whether to propose species for listing and when to

undertake necessary listing actions (including whether emergency listing pursuant to section 4(b)(7) of the Act is appropriate). Information and comments we receive will become part of the administrative record for the species, which we maintain at the appropriate Regional Office.

Before including your address, phone number, e-mail address, or other

personal identifying information in your submission, be advised that your entire submission – including your personal identifying information – may be made publicly available at any time. Although you can ask us in your submission to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Authority

This notice is published under the authority of the Endangered Species Act (16 U.S.C. 1531 *et seq.*).

Dated: October 29, 2009

Christine E. Eustis

Acting Director, Fish and Wildlife Service

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
MAMMALS						
C	2	R4	<i>Eumops floridanus</i>	Molossidae	Bat, Florida bonneted	U.S.A. (FL)
C*	3	R1	<i>Emballonura semicaudata rotensis</i>	Emballonuridae	Bat, Pacific sheath-tailed (Mariana Islands subspecies)	U.S.A. (GU, CNMI)
C*	3	R1	<i>Emballonura semicaudata semicaudata</i>	Emballonuridae	Bat, Pacific sheath-tailed (American Samoa DPS)	U.S.A. (AS), Fiji, Independent Samoa, Tonga, Vanuatu
C*	2	R5	<i>Sylvilagus transitionalis</i>	Leporidae	Cottontail, New England	U.S.A. (CT, MA, ME, NH, NY, RI, VT)
C*	6	R8	<i>Martes pennanti</i>	Mustelidae	Fisher (west coast DPS)	U.S.A. (CA, CT, IA, ID, IL, IN, KY, MA, MD, ME, MI, MN, MT, ND, NH, NJ, NY, OH, OR, PA, RI, TN, UT, VA, VT, WA, WI, WV, WY), Canada
C*	3	R2	<i>Zapus hudsonius luteus</i>	Zapodidae	Mouse, New Mexico meadow jumping	U.S.A. (AZ, CO, NM)
C*	3	R1	<i>Thomomys mazama couchi</i>	Geomyidae	Pocket gopher, Shelton	U.S.A. (WA)
C	3	R1	<i>Thomomys mazama douglasii</i>	Geomyidae	Pocket gopher, Brush Prairie	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama glacialis</i>	Geomyidae	Pocket gopher, Roy Prairie	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama louiei</i>	Geomyidae	Pocket gopher, Cathlamet	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama melanops</i>	Geomyidae	Pocket gopher, Olympic	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama pugetensis</i>	Geomyidae	Pocket gopher, Olympia	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama tacomensis</i>	Geomyidae	Pocket gopher, Tacoma	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama tumuli</i>	Geomyidae	Pocket gopher, Tenino	U.S.A. (WA)
C*	3	R1	<i>Thomomys mazama yelmensis</i>	Geomyidae	Pocket gopher, Yelm	U.S.A. (WA)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	3	R6	<i>Cynomys gunnisoni</i>	Sciuridae	Prairie dog, Gunnison's (central and south-central Colorado, north-central New Mexico SPR)	U.S.A. (CO, NM)
C*	3	R8	<i>Spermophilus tereticaudus chlorus</i>	Sciuridae	Squirrel, Palm Springs (= Coachella Valley) round-tailed ground	U.S.A. (CA)
C*	9	R1	<i>Spermophilus brunneus endemicus</i>	Sciuridae	Squirrel, Southern Idaho ground	U.S.A. (ID)
C*	5	R1	<i>Spermophilus washingtoni</i>	Sciuridae	Squirrel, Washington ground	U.S.A. (WA, OR)
BIRDS						
PE	—	R1	<i>Loxops caeruleirostris</i>	Fringillidae	Akekee (honeycreeper)	U.S.A. (HI)
PE	2	R1	<i>Oreomystis bairdi</i>	Fringillidae	Akikiki (Kauai creeper)	U.S.A. (HI)
C*	3	R1	<i>Porzana tabuensis</i>	Rallidae	Crake, spotless (American Samoa DPS)	U.S.A. (AS), Australia, Fiji, Independent Samoa, Marquesas, Philippines, Society Islands, Tonga
C*	3	R8	<i>Coccyzus americanus</i>	Cuculidae	Cuckoo, yellow-billed (Western U.S. DPS)	U.S.A. (Lower 48 States), Canada, Mexico, Central and South America
C*	9	R1	<i>Gallicolumba stairi</i>	Columbidae	Ground-dove, friendly (American Samoa DPS)	U.S.A. (AS), Independent Samoa
C*	3	R1	<i>Eremophila alpestris strigata</i>	Alaudidae	Horned lark, streaked	U.S.A. (OR, WA), Canada (BC)
C*	3	R5	<i>Calidris canutus rufa</i>	Scolopacidae	Knot, red	U.S.A. (Atlantic coast), Canada, South America
C*	8	R7	<i>Gavia adamsii</i>	Gaviidae	Loon, yellow-billed	U.S.A. (AK), Canada, Norway, Russia, coastal waters of southern Pacific and North Sea
C*	2	R7	<i>Brachyramphus brevirostris</i>	Alcidae	Murrelet, Kittlitz's	U.S.A. (AK), Russia.
C*	5	R8	<i>Synthliboramphus hypoleucus</i>	Alcidae	Murrelet, Xantus's	U.S.A. (CA), Mexico
C*	2	R2	<i>Tympanuchus pallidicinctus</i>	Phasianidae	Prairie-chicken, lesser	U.S.A. (CO, KA, NM, OK, TX)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	6	R1	<i>Centrocercus urophasianus</i>	Phasianidae	Sage-grouse, greater (Columbia Basin DPS)	U.S.A. (AZ, CA, CO, ID, MT, ND, NE, NV, OR, SD, UT, WA, WY), Canada (AB, BC, SK)
C*	3	R1	<i>Oceanodroma castro</i>	Hydrobatidae	Storm-petrel, band-rumped (Hawaii DPS)	U.S.A. (HI), Atlantic Ocean, Ecuador (Galapagos Islands), Japan
C*	11	R4	<i>Dendroica angelae</i>	Emberizidae	Warbler, elfin-woods	U.S.A. (PR)
REPTILES						
C*	3	R2	<i>Thamnophis eques megalops</i>	Colubridae	Gartersnake, northern Mexican	U.S.A. (AZ, NM, NV), Mexico
C*	2	R2	<i>Sceloporus arenicolus</i>	Iguanidae	Lizard, sand dune	U.S.A. (TX, NM)
C*	9	R3	<i>Sistrurus catenatus catenatus</i>	Viperidae	Massasauga (=rattlesnake), eastern	U.S.A. (IA, IL, IN, MI, MO, MN, NY, OH, PA, WI), Canada
C*	3	R4	<i>Pituophis melanoleucus lodingi</i>	Colubridae	Snake, black pine	U.S.A. (AL, LA, MS)
C*	5	R4	<i>Pituophis ruthveni</i>	Colubridae	Snake, Louisiana pine	U.S.A. (LA, TX)
C*	3	R2	<i>Kinosternon sonoriense longifemorale</i>	Kinosternidae	Turtle, Sonoyta mud	U.S.A. (AZ), Mexico
AMPHIBIANS						
C*	9	R8	<i>Rana luteiventris</i>	Ranidae	Frog, Columbia spotted (Great Basin DPS)	U.S.A. (AK, ID, MT, NV, OR, UT, WA, WY), Canada (BC)
C*	3	R8	<i>Rana muscosa</i>	Ranidae	Frog, mountain yellow-legged (Sierra Nevada DPS)	U.S.A. (CA, NV)
C*	2	R1	<i>Rana pretiosa</i>	Ranidae	Frog, Oregon spotted	U.S.A. (CA, OR, WA), Canada (BC)
C*	11	R8	<i>Rana onca</i>	Ranidae	Frog, relict leopard	U.S.A. (AZ, NV, UT)
C*	3	R3	<i>Cryptobranchus alleganiensis bishopi</i>	Cryptobranchidae	Hellbender, Ozark	U.S.A. (AR, MO)
C*	2	R2	<i>Eurycea waterlooensis</i>	Plethodontidae	Salamander, Austin blind	U.S.A. (TX)
C*	8	R2	<i>Eurycea naufragia</i>	Plethodontidae	Salamander, Georgetown	U.S.A. (TX)
C*	8	R2	<i>Eurycea tonkawae</i>	Plethodontidae	Salamander, Jollyville Plateau	U.S.A. (TX)
C*	2	R2	<i>Eurycea chisholmensis</i>	Plethodontidae	Salamander, Salado	U.S.A. (TX)
C*	11	R8	<i>Bufo canorus</i>	Bufonidae	Toad, Yosemite	U.S.A. (CA)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C	3	R2	<i>Hyla wrightorum</i>	Hylidae	Treefrog, Arizona (Huachuca/Canelo DPS)	U.S.A. (AZ), Mexico (Sonora)
C*	8	R4	<i>Necturus alabamensis</i>	Proteidae	Waterdog, black warrior (=Sipsey Fork)	U.S.A. (AL)
FISHES						
C*	8	R2	<i>Gila nigra</i>	Cyprinidae	Chub, headwater	U.S.A. (AZ, NM)
C*	9	R2	<i>Gila robusta</i>	Cyprinidae	Chub, roundtail (Lower Colorado River Basin DPS)	U.S.A. (AZ, CO, NM, UT, WY)
C	5	R4	<i>Phoxinus saylori</i>	Cyprinidae	Dace, laurel	U.S.A. (TN)
C*	11	R6	<i>Etheostoma cragini</i>	Percidae	Darter, Arkansas	U.S.A. (AR, CO, KS, MO, OK)
C*	5	R4	<i>Etheostoma susanae</i>	Percidae	Darter, Cumberland	U.S.A. (KY, TN)
C	2	R5	<i>Crystallaria cincotta</i>	Percidae	Darter, diamond	U.S.A. (KY, OH, TN, WV)
C*	8	R4	<i>Percina aurora</i>	Percidae	Darter, Pearl	U.S.A. (LA, MS)
C*	2	R4	<i>Etheostoma phytophilum</i>	Percidae	Darter, rush	U.S.A. (AL)
C*	2	R4	<i>Etheostoma moorei</i>	Percidae	Darter, yellowcheek	U.S.A. (AR)
C*	2	R4	<i>Noturus crypticus</i>	Ictaluridae	Madtom, chunky	U.S.A. (TN)
C	5	R4	<i>Moxostoma sp.</i>	Catostomidae	Redhorse, sicklefin	U.S.A. (GA, NC, TN)
C*	2	R3	<i>Cottus sp.</i>	Cottidae	Sculpin, grotto	U.S.A. (MO)
C*	5	R2	<i>Notropis oxyrhynchus</i>	Cyprinidae	Shiner, sharpnose	U.S.A. (TX)
C*	5	R2	<i>Notropis buccula</i>	Cyprinidae	Shiner, smalleye	U.S.A. (TX)
C*	3	R2	<i>Catostomus discobolus yarrowi</i>	Catostomidae	Sucker, Zuni bluehead	U.S.A. (AZ, NM)
PSAT	N/A	R1	<i>Salvelinus malma</i>	Salmonidae	Trout, Dolly Varden	U.S.A. (AK, WA), Canada, East Asia
C*	9	R2	<i>Oncorhynchus clarki virginalis</i>	Salmonidae	Trout, Rio Grande cutthroat	U.S.A. (CO, NM)
CLAMS						
C	5	R4	<i>Villosa choctawensis</i>	Unionidae	Bean, Choctaw	U.S.A. (AL, FL)
C	2	R3	<i>Villosa fabalis</i>	Unionidae	Bean, rayed	U.S.A. (IL, IN, KY, MI, NY, OH, TN, PA, VA, WV), Canada (ON)
C	2	R4	<i>Fusconaia rotulata</i>	Unionidae	Ebonyshe, round	U.S.A. (AL, FL)
C*	8	R2	<i>Popenaias popei</i>	Unionidae	Hornshell, Texas	U.S.A. (NM, TX), Mexico
C*	2	R4	<i>Ptychobranchus subtentum</i>	Unionidae	Kidneyshell, fluted	U.S.A. (AL, KY, TN, VA)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C	2	R4	<i>Ptychobranchnus jonesi</i>	Unionidae	Kidneyshell, southern	U.S.A. (AL, FL)
C*	2	R4	<i>Lampsilis rafinesqueana</i>	Unionidae	Mucket, Neosho	U.S.A. (AR, KS, MO, OK)
C	2	R3	<i>Plethobasus cyphus</i>	Unionidae	Mussel, sheepnose	U.S.A. (AL, IA, IL, IN, KY, MN, MO, MS, OH, PA, TN, VA, WI, WV)
C*	2	R4	<i>Margaritifera marrianae</i>	Margaritiferidae	Pearlshell, Alabama	U.S.A. (AL)
C*	2	R4	<i>Lexingtonia dolabelloides</i>	Unionidae	Pearlymussel, slabside	U.S.A. (AL, KY, TN, VA)
C	5	R4	<i>Pleurobema strodeanum</i>	Unionidae	Pigtoe, fuzzy	U.S.A. (AL, FL)
PE	2	R4	<i>Pleurobema hanleyianum</i>	Unionidae	Pigtoe, Georgia	U.S.A. (AL, GA, TN)
C	5	R4	<i>Fusconaia escambia</i>	Unionidae	Pigtoe, narrow	U.S.A. (AL, FL)
C	11	R4	<i>Fusconaia (=Quincuncina) burkei</i>	Unionidae	Pigtoe, tapered	U.S.A. (AL, FL)
C	9	R4	<i>Quadrula cylindrica cylindrica</i>	Unionidae	Rabbitsfoot	U.S.A. (AL, AR, GA, IN, IL, KS, KY, LA, MS, MO, OK, OH, PA, TN, WV)
C	5	R4	<i>Hamiota (=Lampsilis) australis</i>	Unionidae	Sandshell, southern	U.S.A. (AL, FL)
C	4	R3	<i>Cumberlandia monodonta</i>	Margaritiferidae	Spectaclecase	U.S.A. (AL, AR, IA, IN, IL, KS, KY, MO, MN, NE, OH, TN, VA, WI, WV)
C*	2	R4	<i>Elliptio spinosa</i>	Unionidae	Spinymussel, Altamaha	U.S.A. (GA)
SNAILS						
PE	2	R4	<i>Pleurocera foremani</i>	Pleuroceridae	Hornsnail, rough	U.S.A. (AL)
C	8	R4	<i>Elimia melanoides</i>	Pleuroceridae	Mudalia, black	U.S.A. (AL)
PE	2	R4	<i>Leptoxis foremani (=downei)</i>	Pleuroceridae	Rocksnail, Interrupted (= Georgia)	U.S.A. (GA, AL)
C*	2	R1	<i>Ostodes strigatus</i>	Potariidae	Sisi snail	U.S.A. (AS)
C*	2	R2	<i>Pseudotryonia adamantina</i>	Hydrobiidae	Snail, Diamond Y Spring	U.S.A. (TX)
C*	2	R1	<i>Samoana fragilis</i>	Partulidae	Snail, fragile tree	U.S.A. (GU, MP)
C*	2	R1	<i>Partula radiolata</i>	Partulidae	Snail, Guam tree	U.S.A. (GU)
C*	2	R1	<i>Partula gibba</i>	Partulidae	Snail, Humped tree	U.S.A. (GU, MP)
C*	2	R1	<i>Partulina semicarinata</i>	Achatinellidae	Snail, Lanai tree	U.S.A. (HI)
C*	2	R1	<i>Partulina variabilis</i>	Achatinellidae	Snail, Lanai tree	U.S.A. (HI)
C*	2	R1	<i>Partula langfordi</i>	Partulidae	Snail, Langford's tree	U.S.A. (MP)
C*	2	R2	<i>Cochliopa texana</i>	Hydrobiidae	Snail, Phantom cave	U.S.A. (TX)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	2	R1	<i>Newcombia cumingi</i>	Achatinellidae	Snail, Newcomb's tree	U.S.A. (HI)
C*	2	R1	<i>Eua zebrina</i>	Partulidae	Snail, Tutuila tree	U.S.A. (AS)
C*	2	R2	<i>Pyrgulopsis chupadera</i>	Hydrobiidae	Springsnail, Chupadera	U.S.A. (NM)
C*	11	R8	<i>Pyrgulopsis notidicola</i>	Hydrobiidae	Springsnail, elongate mud meadows	U.S.A. (NV)
C*	11	R2	<i>Pyrgulopsis gilae</i>	Hydrobiidae	Springsnail, Gila	U.S.A. (NM)
C*	2	R2	<i>Tryonia circumstriata</i> (=stocktonensis)	Hydrobiidae	Springsnail, Gonzales	U.S.A. (TX)
C*	8	R2	<i>Pyrgulopsis thompsoni</i>	Hydrobiidae	Springsnail, Huachuca	U.S.A. (AZ), Mexico
C*	11	R2	<i>Pyrgulopsis thermalis</i>	Hydrobiidae	Springsnail, New Mexico	U.S.A. (NM)
C*	2	R2	<i>Pyrgulopsis morrisoni</i>	Hydrobiidae	Springsnail, Page	U.S.A. (AZ)
C*	2	R2	<i>Tryonia cheatumi</i>	Hydrobiidae	Springsnail (=Tryonia), Phantom	U.S.A. (TX)
C	2	R2	<i>Pyrgulopsis bernardina</i>	Hydrobiidae	Springsnail, San Bernardino	U.S.A. (AZ), Mexico (Sonora)
C*	2	R2	<i>Pyrgulopsis trivialis</i>	Hydrobiidae	Springsnail, Three Forks	U.S.A. (AZ)
INSECTS						
C*	8	R1	<i>Nysius wekiuicola</i>	Lygaeidae	Bug, Wekiu	U.S.A. (HI)
C	3	R4	<i>Strymon acis bartrami</i>	Lycaenidae	Butterfly, Bartram's hairstreak	U.S.A. (FL)
C	3	R4	<i>Anaea troglodyta floridalis</i>	Nymphalidae	Butterfly, Florida leafwing	U.S.A. (FL)
C*	3	R1	<i>Hypolimnas octocula mariannensis</i>	Nymphalidae	Butterfly, Mariana eight-spot	U.S.A. (GU, MP)
C*	2	R1	<i>Vagrans egistina</i>	Nymphalidae	Butterfly, Mariana wandering	U.S.A. (GU, MP)
C*	3	R4	<i>Cyclargus thomasi bethunebakeri</i>	Lycaenidae	Butterfly, Miami blue	U.S.A. (FL), Bahamas
C*	5	R4	<i>Glyphopsyche sequatchie</i>	Limnephilidae	Caddisfly, Sequatchie	U.S.A. (TN)
C	5	R4	<i>Pseudanophthalmus insularis</i>	Carabidae	Cave beetle, Baker Station (= insular)	U.S.A. (TN)
C*	5	R4	<i>Pseudanophthalmus caecus</i>	Carabidae	Cave beetle, Clifton	U.S.A. (KY)
C	11	R4	<i>Pseudanophthalmus colemanensis</i>	Carabidae	Cave beetle, Coleman	U.S.A. (TN)
C	5	R4	<i>Pseudanophthalmus fowlerae</i>	Carabidae	Cave beetle, Fowler's	U.S.A. (TN)
C*	5	R4	<i>Pseudanophthalmus frigidus</i>	Carabidae	Cave beetle, icebox	U.S.A. (KY)
C	5	R4	<i>Pseudanophthalmus tiresias</i>	Carabidae	Cave beetle, Indian Grave Point (= Soothsayer)	U.S.A. (TN)
C*	5	R4	<i>Pseudanophthalmus inquisitor</i>	Carabidae	Cave beetle, inquirer	U.S.A. (TN)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	5	R4	<i>Pseudanophthalmus troglodytes</i>	Carabidae	Cave beetle, Louisville	U.S.A. (KY)
C	5	R4	<i>Pseudanophthalmus paulus</i>	Carabidae	Cave beetle, Noblett's	U.S.A. (TN).
C*	5	R4	<i>Pseudanophthalmus parvus</i>	Carabidae	Cave beetle, Tatum	U.S.A. (KY)
C*	3	R1	<i>Euphydryas editha taylori</i>	Nymphalidae	Checkerspot butterfly, Taylor's (= Whulge)	U.S. A. (OR, WA), Canada (BC)
C*	9	R1	<i>Megalagrion nigrohamatum nigrolineatum</i>	Coenagrionidae	Damselfly, blackline Hawaiian	U.S.A. (HI)
C*	2	R1	<i>Megalagrion leptodemas</i>	Coenagrionidae	Damselfly, crimson Hawaiian	U.S.A. (HI)
PE	2	R1	<i>Megalagrion nesiotes</i>	Coenagrionidae	Damselfly, flying earwig Hawaiian	U.S.A. (HI)
C*	2	R1	<i>Megalagrion oceanicum</i>	Coenagrionidae	Damselfly, oceanic Hawaiian	U.S.A. (HI)
C*	8	R1	<i>Megalagrion xanthomelas</i>	Coenagrionidae	Damselfly, orangeblack Hawaiian	U.S.A. (HI)
PE	2	R1	<i>Megalagrion pacificum</i>	Coenagrionidae	Damselfly, Pacific Hawaiian	U.S.A. (HI)
PE	2	R8	<i>Dinacoma caseyi</i>	Scarabidae	June beetle, Casey's	U.S.A. (CA)
C	5	R8	<i>Ambrysus funebris</i>	Naucoridae	Naucorid bug (=Furnace Creek), Nevares Spring	U.S.A. (CA)
PE	2	R1	<i>Drosophila attigua</i>	Drosophilidae	fly, Hawaiian picture-wing	U.S.A. (HI)
C*	2	R1	<i>Drosophila digressa</i>	Drosophilidae	fly, Hawaiian Picture-wing	U.S.A. (HI)
C*	8	R2	<i>Heterelmis stephani</i>	Elmidae	Riffle beetle, Stephan's	U.S.A. (AZ)
C*	8	R3	<i>Hesperia dacotae</i>	Hesperiidae	Skipper, Dakota	U.S.A. (MN, IA, SD, ND, IL), Canada
C*	8	R1	<i>Polites mardon</i>	Hesperiidae	Skipper, Mardon	U.S.A. (CA, OR, WA)
C*	2	R6	<i>Cicindela albissima</i>	Cicindelidae	Tiger beetle, Coral Pink Sand Dunes	U.S.A. (UT)
C*	5	R4	<i>Cicindela highlandensis</i>	Cicindelidae	Tiger beetle, highlands	U.S.A. (FL)
ARACHNIDS						
C*	2	R2	<i>Cicurina wartoni</i>	Dictynidae	Meshweaver, Warton's cave	U.S.A. (TX)
CRUSTACEANS						
C	2	R2	<i>Gammarus hyalleloides</i>	Gammaridae	Amphipod, diminutive	U.S.A. (TX)
C*	5	R1	<i>Metabetaeus lohena</i>	Alpheidae	Shrimp, anchialine pool	U.S.A. (HI)
C*	5	R1	<i>Palaemonella burnsi</i>	Palaemonidae	Shrimp, anchialine pool	U.S.A. (HI)
C*	5	R1	<i>Procaris hawaiana</i>	Procarididae	Shrimp, anchialine pool	U.S.A. (HI)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	4	R1	<i>Vetericaris chaceorum</i>	Procaridae	Shrimp, anchialine pool	U.S.A. (HI)
FLOWERING PLANTS						
C*	11	R8	<i>Abronia alpina</i>	Nyctaginaceae	Sand-verbena, Ramshaw Meadows	U.S.A. (CA)
C*	8	R4	<i>Arabis georgiana</i>	Brassicaceae	Rockcress, Georgia	U.S.A. (AL, GA)
C*	11	R4	<i>Argythamnia blodgettii</i>	Euphorbiaceae	Silverbush, Blodgett's	U.S.A. (FL)
C*	3	R1	<i>Artemisia campestris</i> var. <i>wormskioldii</i>	Asteraceae	Wormwood, northern	U.S.A. (OR, WA)
PE	2	R1	<i>Astelia waialealae</i>	Liliaceae	Pa'iniu	U.S.A. (HI)
C*	5	R1	<i>Astragalus anserinus</i>	Fabaceae	Milkvetch, Goose Creek	U.S.A. (ID, NV, UT)
C*	11	R6	<i>Astragalus tortipes</i>	Fabaceae	Milkvetch, Sleeping Ute	U.S.A. (CO)
C*	2	R1	<i>Bidens amplexans</i>	Asteraceae	Ko'oko'olau	U.S.A. (HI)
C*	3	R1	<i>Bidens campylotheca pentamera</i>	Asteraceae	Ko'oko'olau	U.S.A. (HI)
C*	3	R1	<i>Bidens campylotheca waihoiensis</i>	Asteraceae	Ko'oko'olau	U.S.A. (HI)
C*	8	R1	<i>Bidens conjuncta</i>	Asteraceae	Ko'oko'olau	U.S.A. (HI)
C*	3	R1	<i>Bidens micrantha ctenophylla</i>	Asteraceae	Ko'oko'olau	U.S.A. (HI)
C*	8	R4	<i>Brickellia mosieri</i>	Asteraceae	Brickell-bush, Florida	U.S.A. (FL)
C*	2	R1	<i>Calamagrostis expansa</i>	Poaceae	Reedgrass, Maui	U.S.A. (HI)
C*	2	R1	<i>Calamagrostis hillebrandii</i>	Poaceae	Reedgrass, Hillebrand's	U.S.A. (HI)
C*	5	R8	<i>Calochortus persistens</i>	Liliaceae	Mariposa lily, Siskiyou	U.S.A. (CA, OR)
PE	2	R1	<i>Canavalia napaliensis</i>	Fabaceae	'Awikiwiki	U.S.A. (HI)
C*	2	R1	<i>Canavalia pubescens</i>	Fabaceae	'Awikiwiki	U.S.A. (HI)
C*	8	R1	<i>Castilleja christii</i>	Scrophulariaceae	Paintbrush, Christ's	U.S.A. (ID)
C*	9	R4	<i>Chamaecrista lineata</i> var. <i>keyensis</i>	Fabaceae	Pea, Big Pine partridge	U.S.A. (FL)
C*	12	R4	<i>Chamaesyce deltoidea pinetorum</i>	Euphorbiaceae	Sandmat, pineland	U.S.A. (FL)
C*	9	R4	<i>Chamaesyce deltoidea serpyllum</i>	Euphorbiaceae	Spurge, wedge	U.S.A. (FL)
PE	2	R1	<i>Chamaesyce eleanoriae</i>	Euphorbiaceae	'Akoko	U.S.A. (HI)
PE	3	R1	<i>Chamaesyce remyi</i> var. <i>kauaiensis</i>	Euphorbiaceae	'Akoko	U.S.A. (HI)
PE	3	R1	<i>Chamaesyce remyi</i> var. <i>remyi</i>	Euphorbiaceae	'Akoko	U.S.A. (HI)
PE	2	R1	<i>Charpentiera densiflora</i>	Amaranthaceae	Papala	U.S.A. (HI)
C*	6	R8	<i>Chorizanthe parryi</i> var. <i>fernandina</i>	Polygonaceae	Spineflower, San Fernando Valley	U.S.A. (CA)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	2	R4	<i>Chromolaena frustrata</i>	Asteraceae	Thoroughwort, Cape Sable	U.S.A. (FL)
C*	2	R4	<i>Consolea corallicola</i>	Cactaceae	Cactus, Florida semaphore	U.S.A. (FL)
C*	5	R4	<i>Cordia rupicola</i>	Boraginaceae	No common name	U.S.A. (PR), Anegada
C*	2	R1	<i>Cyanea asplenifolia</i>	Campanulaceae	Haha	U.S.A. (HI)
C*	2	R1	<i>Cyanea calycina</i>	Campanulaceae	Haha	U.S.A. (HI)
PE	—	R1	<i>Cyanea dolichopoda</i>	Campanulaceae	Haha	U.S.A. (HI)
PE	2	R1	<i>Cyanea eleeleensis</i>	Campanulaceae	Haha	U.S.A. (HI)
PE	—	R1	<i>Cyanea kolekoleensis</i>	Campanulaceae	Haha	U.S.A. (HI)
PE	2	R1	<i>Cyanea kuhihewa</i>	Campanulaceae	Haha	U.S.A. (HI)
C*	2	R1	<i>Cyanea kunthiana</i>	Campanulaceae	Haha	U.S.A. (HI)
C*	2	R1	<i>Cyanea lanceolata</i>	Campanulaceae	Haha	U.S.A. (HI)
C*	2	R1	<i>Cyanea obtusa</i>	Campanulaceae	Haha	U.S.A. (HI)
C*	2	R1	<i>Cyanea tritomantha</i>	Campanulaceae	'Aku	U.S.A. (HI)
C*	2	R1	<i>Cyrtandra filipes</i>	Gesneriaceae	Ha'i'wale	U.S.A. (HI)
C*	2	R1	<i>Cyrtandra kaulantha</i>	Gesneriaceae	Ha'i'wale	U.S.A. (HI)
PE	2	R1	<i>Cyrtandra oenobarba</i>	Gesneriaceae	Ha'i'wale	U.S.A. (HI)
C*	2	R1	<i>Cyrtandra oxybapha</i>	Gesneriaceae	Ha'i'wale	U.S.A. (HI)
PE	—	R1	<i>Cyrtandra paliku</i>	Gesneriaceae	Ha'i'wale	U.S.A. (HI)
C*	2	R1	<i>Cyrtandra sessilis</i>	Gesneriaceae	Ha'i'wale	U.S.A. (HI)
C*	3	R4	<i>Dalea carthagenensis</i> var. <i>floridana</i>	Fabaceae	Prairie-clover, Florida	U.S.A. (FL)
C*	5	R5	<i>Dichanthelium hirstii</i>	Poaceae	Panic grass, Hirsts'	U.S.A. (DE, GA, NC, NJ)
C*	5	R4	<i>Digitaria pauciflora</i>	Poaceae	Crabgrass, Florida pineland	U.S.A. (FL)
PE	3	R1	<i>Dubautia imbricata</i> <i>imbricata</i>	Asteraceae	Na'ena'e	U.S.A. (HI)
PE	—	R1	<i>Dubautia kalalauensis</i>	Asteraceae	Na'ena'e	U.S.A. (HI)
PE	—	R1	<i>Dubautia kenwoodii</i>	Asteraceae	Na'ena'e	U.S.A. (HI)
PE	3	R1	<i>Dubautia plantaginea</i> <i>magnifolia</i>	Asteraceae	Na'ena'e	U.S.A. (HI)
PE	2	R1	<i>Dubautia waialealae</i>	Asteraceae	Na'ena'e	U.S.A. (HI)
C*	3	R2	<i>Echinomastus</i> <i>erectocentrus</i> var. <i>acunensis</i>	Cactaceae	Cactus, Acuna	U.S.A. (AZ), Mex- ico
C*	8	R2	<i>Erigeron lemmonii</i>	Asteraceae	Fleabane, Lemmon	U.S.A. (AZ)
C*	2	R1	<i>Eriogonum codium</i>	Polygonaceae	Buckwheat, Umtanum Desert	U.S.A. (WA)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	6	R8	<i>Eriogonum corymbosum</i> var. <i>nilesii</i>	Polygonaceae	Buckwheat, Las Vegas	U.S.A. (NV)
C	5	R8	<i>Eriogonum diatomaceum</i>	Polygonaceae	Buckwheat, Churchill Narrows	U.S.A (NV)
C*	5	R8	<i>Eriogonum kelloggii</i>	Polygonaceae	Buckwheat, Red Mountain	U.S.A. (CA)
C*	2	R1	<i>Festuca hawaiiensis</i>	Poaceae	No common name	U.S.A. (HI)
C*	11	R2	<i>Festuca ligulata</i>	Poaceae	Fescue, Guadalupe	U.S.A. (TX), Mex- ico
C*	2	R1	<i>Gardenia remyi</i>	Rubiaceae	Nanu	U.S.A. (HI)
C*	8	R1	<i>Geranium hanaense</i>	Geraniaceae	Nohoanu	U.S.A. (HI)
C*	8	R1	<i>Geranium hillebrandii</i>	Geraniaceae	Nohoanu	U.S.A. (HI)
PE	5	R1	<i>Geranium kauaiense</i>	Geraniaceae	Nohoanu	U.S.A. (HI)
C*	5	R4	<i>Gonocalyx concolor</i>	Ericaceae	No common name	U.S.A. (PR)
C	2	R4	<i>Harrisia aboriginum</i>	Cactaceae	Pricklyapple, aboriginal (shellmound applecactus)	U.S.A. (FL)
C*	5	R8	<i>Hazardia orcuttii</i>	Asteraceae	Orcutt's hazardia	U.S.A. (CA), Mex- ico
C*	2	R1	<i>Hedyotis fluviatilis</i>	Rubiaceae	Kampua'a	U.S.A. (HI)
C*	8	R4	<i>Helianthus verticillatus</i>	Asteraceae	Sunflower, whorled	U.S.A. (AL, GA, TN)
C*	5	R2	<i>Hibiscus dasycalyx</i>	Malvaceae	Rose-mallow, Neches River	U.S.A. (TX)
C	2	R6	<i>Ipomopsis polyantha</i>	Polemoniaceae	Skyrocket, Pagosa	U.S.A. (CO)
C*	5	R8	<i>Ivesia webberi</i>	Rosaceae	Ivesia, Webber	U.S.A. (CA, NV)
C*	3	R1	<i>Joinvillea ascendens</i> <i>ascendens</i>	Joinvilleaceae	'Ohe	U.S.A. (HI)
PE	2	R1	<i>Keysseria erici</i>	Asteraceae	No common name	U.S.A. (HI)
PE	8	R1	<i>Keysseria helenae</i>	Asteraceae	No common name	U.S.A. (HI)
C*	2	R1	<i>Korthalsella degeneri</i>	Viscaceae	Hulumoa	U.S.A. (HI)
PE	2	R1	<i>Labordia helleri</i>	Loganiaceae	Kamakahala	U.S.A. (HI)
PE	2	R1	<i>Labordia pumila</i>	Loganiaceae	Kamakahala	U.S.A. (HI)
C*	5	R4	<i>Leavenworthia crassa</i>	Brassicaceae	Gladeccress, unnamed	U.S.A. (AL)
C	3	R4	<i>Leavenworthia exigua</i> var. <i>laciniata</i>	Brassicaceae	Gladeccress, Kentucky	U.S.A. (KY)
C*	2	R2	<i>Leavenworthia texana</i>	Brassicaceae	Gladeccress, Texas golden	U.S.A. (TX)
PE	—	R1	<i>Lepidium papilliferum</i>	Brassicaceae	Peppergrass, slickspot	U.S.A. (ID)
C*	8	R4	<i>Lesquerella globosa</i>	Brassicaceae	Bladderpod, Short's	U.S.A. (IN, KY, TN)
C*	2	R4	<i>Linum arenicola</i>	Linaceae	Flax, sand	U.S.A. (FL)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	3	R4	<i>Linum carteri</i> var. <i>carteri</i>	Linaceae	Flax, Carter's small-flowered	U.S.A. (FL)
PE	8	R1	<i>Lysimachia daphnoides</i>	Myrsinaceae	Lehua makanoe	U.S.A. (HI)
PE	—	R1	<i>Lysimachia iniki</i>	Myrsinaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Lysimachia pendens</i>	Myrsinaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Lysimachia scopulensis</i>	Myrsinaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Lysimachia venosa</i>	Myrsinaceae	No common name	U.S.A. (HI)
C*	2	R1	<i>Melicope christophersenii</i>	Rutaceae	Alani	U.S.A. (HI)
PE	2	R1	<i>Melicope degeneri</i>	Rutaceae	Alani	U.S.A. (HI)
C*	2	R1	<i>Melicope hiiakae</i>	Rutaceae	Alani	U.S.A. (HI)
C*	2	R1	<i>Melicope makahae</i>	Rutaceae	Alani	U.S.A. (HI)
PE	2	R1	<i>Melicope paniculata</i>	Rutaceae	Alani	U.S.A. (HI)
PE	2	R1	<i>Melicope puberula</i>	Rutaceae	Alani	U.S.A. (HI)
C*	2	R1	<i>Myrsine fosbergii</i>	Myrsinaceae	Kolea	U.S.A. (HI)
PE	—	R1	<i>Myrsine knudsenii</i>	Myrsinaceae	Kolea	U.S.A. (HI)
PE	2	R1	<i>Myrsine mezii</i>	Myrsinaceae	Kolea	U.S.A. (HI)
C*	2	R1	<i>Myrsine vaccinioides</i>	Myrsinaceae	Kolea	U.S.A. (HI)
C*	8	R5	<i>Narthecium americanum</i>	Liliaceae	Asphodel, bog	U.S.A. (DE, NC, NJ, NY, SC)
C*	2	R1	<i>Nothocestrum latifolium</i>	Solanaceae	'Aiea	U.S.A. (HI)
C*	2	R1	<i>Ochrosia haleakalae</i>	Apocynaceae	Holei	U.S.A. (HI)
C*	3	R2	<i>Pediocactus peeblesianus</i> var. <i>fickeiseniae</i>	Cactaceae	Cactus, Fickeisen plains	U.S.A. (AZ)
C*	2	R6	<i>Penstemon debilis</i>	Scrophulariaceae	Beardtongue, Parachute	U.S.A. (CO)
C*	6	R6	<i>Penstemon scariosus</i> var. <i>albifluvis</i>	Scrophulariaceae	Beardtongue, White River	U.S.A. (CO, UT)
C*	2	R1	<i>Peperomia subpetiolata</i>	Piperaceae	'Ala 'ala wai nui	U.S.A. (HI)
C	5	R8	<i>Phacelia stellaris</i>	Hydrophyllaceae	Phacelia, Brand's	U.S.A. (CA), Mexico
C*	8	R6	<i>Phacelia submutica</i>	Hydrophyllaceae	Phacelia, DeBeque	U.S.A. (CO)
C*	2	R1	<i>Phyllostegia bracteata</i>	Lamiaceae	No common name	U.S.A. (HI)
C*	8	R1	<i>Phyllostegia floribunda</i>	Lamiaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Phyllostegia renovans</i>	Lamiaceae	No common name	U.S.A. (HI)
C*	9	R1	<i>Physaria douglasii</i> <i>tuplashensis</i>	Brassicaceae	Bladderpod, White Bluffs	U.S.A. (WA)
PE	2	R1	<i>Pittosporum napaliense</i>	Pittosporaceae	Ho'awa	U.S.A. (HI)
C*	8	R4	<i>Platanthera integrilabia</i>	Orchidaceae	Orchid, white fringeless	U.S.A. (AL, GA, KY, MS, NC, SC, TN, VA)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	3	R1	<i>Platydesma cornuta</i> var. <i>cornuta</i>	Rutaceae	No common name	U.S.A. (HI)
C*	3	R1	<i>Platydesma cornuta</i> var. <i>decurrens</i>	Rutaceae	No common name	U.S.A. (HI)
C*	2	R1	<i>Platydesma remyi</i>	Rutaceae	No common name	U.S.A. (HI)
PE	2	R1	<i>Platydesma rostrata</i>	Rutaceae	Pilo kea lau li'i	U.S.A. (HI)
C	2	R1	<i>Pleomele fernaldii</i>	Agavaceae	Hala pepe	U.S.A. (HI)
C*	2	R1	<i>Pleomele forbesii</i>	Agavaceae	Hala pepe	U.S.A. (HI)
C*	11	R8	<i>Potentilla basaltica</i>	Rosaceae	Cinquefoil, Soldier Meadow	U.S.A. (NV)
PE	2	R1	<i>Pritchardia hardyi</i>	Asteraceae	Lo'ulu	U.S.A. (HI)
C*	3	R1	<i>Pseudognaphalium</i> (=Gnaphalium) <i>sandwicensium</i> var. <i>molokaiense</i>	Asteraceae	'Ena'ena	U.S.A. (HI)
PE	2	R1	<i>Psychotria grandiflora</i>	Rubiaceae	Kopiko	U.S.A. (HI)
C*	3	R1	<i>Psychotria hexandra</i> ssp. <i>oahuensis</i> var. <i>oahuensis</i>	Rubiaceae	Kopiko	U.S.A. (HI)
PE	2	R1	<i>Psychotria hobbdi</i>	Rubiaceae	Kopiko	U.S.A. (HI)
C*	2	R1	<i>Pteralyxia macrocarpa</i>	Apocynaceae	Kaulu	U.S.A. (HI)
C*	2	R1	<i>Ranunculus hawaiiensis</i>	Ranunculaceae	Makou	U.S.A. (HI)
C*	2	R1	<i>Ranunculus mauiensis</i>	Ranunculaceae	Makou	U.S.A. (HI)
C*	8	R8	<i>Rorippa subumbellata</i>	Brassicaceae	Cress, Tahoe yellow	U.S.A. (CA, NV)
PE	2	R1	<i>Schiedea attenuata</i>	Caryophyllaceae	No common name	U.S.A. (HI)
C*	2	R1	<i>Schiedea pubescens</i>	Caryophyllaceae	Ma'oli'oli	U.S.A. (HI)
C*	2	R1	<i>Schiedea salicaria</i>	Caryophyllaceae	No common name	U.S.A. (HI)
C*	5	R8	<i>Sedum eastwoodiae</i>	Crassulaceae	Stonecrop, Red Mountain	U.S.A. (CA)
C*	2	R1	<i>Sicyos macrophyllus</i>	Cucurbitaceae	'Anunu	U.S.A. (HI)
C	12	R4	<i>Sideroxylon reclinatum</i> <i>austrofloridense</i>	Sapotaceae	Bully, Everglades	U.S.A. (FL)
C*	8	R1	<i>Solanum nelsonii</i>	Solanaceae	Popolo	U.S.A. (HI)
C	8	R4	<i>Solidago plumosa</i>	Asteraceae	Goldenrod, Yadkin River	U.S.A. (NC)
C	2	R2	<i>Sphaeralcea gierischii</i>	Malvaceae	Mallow, Gierisch	U.S.A. (AZ, UT)
C*	2	R1	<i>Stenogyne cranwelliae</i>	Lamiaceae	No common name	U.S.A. (HI)
PE	2	R1	<i>Stenogyne kealiae</i>	Lamiaceae	No common name	U.S.A. (HI)
C*	8	R4	<i>Symphyotrichum georgianum</i>	Asteraceae	Aster, Georgia	U.S.A. (AL, FL, GA, NC, SC)
PE	—	R1	<i>Tetraplasandra bisattenuata</i>	Araliaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Tetraplasandra flynnii</i>	Araliaceae	No common name	U.S.A. (HI)

TABLE 1. - CANDIDATE NOTICE OF REVIEW (ANIMALS AND PLANTS)—Continued

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status		Lead region	Scientific name	Family	Common name	Historical range
Category	Priority					
C*	2	R1	<i>Zanthoxylum oahuense</i>	Rutaceae	A'e	U.S.A. (HI)
FERNS AND ALLIES						
C*	8	R1	<i>Christella boydiae</i> (= <i>Cyclosorus boydiae</i> var. <i>boydiae</i> + <i>Cyclosorus boydiae</i> <i>kipahuluensis</i>)	Thelypteridaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Diellia mannii</i>	Aspleniaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Doryopteris angelica</i>	Pteridaceae	No common name	U.S.A. (HI)
C*	2	R1	<i>Doryopteris takeuchii</i>	Pteridaceae	No common name	U.S.A. (HI)
PE	—	R1	<i>Dryopteris crinalis</i> var. <i>podosorus</i>	Dryopteridaceae	Palapalai aumakua	U.S.A. (HI)
C*	2	R1	<i>Huperzia</i> (= <i>Phlegmariurus</i>) <i>stemmermanniae</i>	Lycopodiaceae	Wawae'iole	U.S.A. (HI)
C*	3	R1	<i>Microlepia strigosa</i> var. <i>mauiensis</i> (= <i>Microlepia mauiensis</i>)	Dennstaedtiaceae	Palapalai	U.S.A. (HI)
C	3	R4	<i>Trichomanes punctatum floridanum</i>	Hymenophyllaceae	Florida bristle fern	U.S.A. (FL)

TABLE 2. ANIMALS AND PLANTS FORMERLY CANDIDATES OR FORMERLY PROPOSED FOR LISTING

Note: See end of SUPPLEMENTARY INFORMATION for an explanation of symbols used in this table.

Status	Lead region	Scientific name	Family	Common name	Historical range	
					Code	Expl.
SNAILS						
Rc	A	R6	<i>Stagnicola bonnevillensis</i>	Lymnaeidae	Pondsnail, fat-whorled (=Bonneville)	U.S.A. (UT)
CRUSTACEANS						
Rc	A	R4	<i>Typhlatya monae</i>	Atyidae	Shrimp, troglobitic groundwater	U.S.A. (PR), Barbuda, Dominican Republic
FLOWERING PLANTS						
Rc	A	R4	<i>Calliandra locoensis</i>	Mimosaceae	No common name	U.S.A. (PR)
Rc	A	R4	<i>Calyptranthes estremerae</i>	Myrtaceae	No common name	U.S.A. (PR)
E	L	R1	<i>Phyllostegia hispida</i>	Lamiaceae	No Common Name	U.S.A. (HI)

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