representing them should also be submitted.

§ 268.17 Project selection criteria.

Except as qualified by § 268.19, the following criteria will govern FRA's selection of projects to receive funding under the Maglev Deployment Program.

(a) *Purpose and significance of the project.*

(1) The degree to which the project description demonstrates attractiveness to travelers, as measured in passengers and passenger-miles.

(2) The extent to which implementation of the project will reduce congestion, and attendant delay costs, in other modes of transportation; will reduce emissions and/or energy consumption; or will reduce the rate of growth in needs for additional highway or airport construction. Measures for this criterion will include but not be limited to the present value of congestion reduction, pollution reduction, and/or facility cost-avoidance benefits.

(3) The degree to which the project will demonstrate the variety of operating conditions which are to be expected in the United States.

(4) The degree to which the project will augment a Maglev corridor or network that has been identified, by any State, group of States, or the FRA, as having Partnership Potential.

(b) *Timely implementation.* The speed with which the project can realistically be brought into full revenue service, based on the project description and on the current and projected development status of the Maglev technology selected by the applicant for the project.

(c) *Benefits for the American economy.* The extent to which the project is expected to create new jobs in traditional and emerging industries in the United States.

(d) *Partnership potential.* The degree to which the project description demonstrates Partnership Potential for the corridor in which it is involved, and/or for the project independently.

(e) *Funding limits and sources.*

(1) The extent and proportion to which States, regions, and localities commit to financially contributing to the project, both in terms of their own locally-raised, entirely non-Federal funds, and in terms of commitments of scarce Federal resources from non-Maglev funds; and

(2) The extent and proportion to which the private sector contributes financially to the project.

Note to § 268.17: FRA recognizes that applicants for preconstruction planning assistance may not have detailed information with respect to each of these criteria, and that the purpose of the preconstruction planning assistance is to develop much of this information with respect to a particular Maglev project. The preconstruction planning application requirements of this part 268 are designed to elicit whatever information an applicant may have pertaining to these criteria.

§ 268.19 Evaluation of applications for preconstruction planning assistance.

The FRA will evaluate the applications for their completeness and responsiveness to the requirements listed in § 268.15. In addition, applicants are advised that the Maglev Deployment Program contains a number of project eligibility standards (minimum threshold standards) and project evaluation criteria that will guide the FRA's review of the project descriptions produced under the Planning Grants. The FRA's implementation of these standards and criteria appears in § 268.11 and § 268.17, respectively. Although subject to revision, the information in § 268.11 and § 268.17 should assist the States in completing their applications in the competition for planning grants, since the project descriptions will need to respond to the standards and criteria. In evaluating the applications for planning grants, FRA will consider how consistent the applicant's project is to the standards and criteria, and the application's likelihood of leading to a project that meets all the standards and criteria.

§ 268.21 Down-selection of one or more Maglev projects for further study and selection of one project for final design, engineering, and construction funding.

(a) Upon completion of Phase III of the Maglev Deployment Program, FRA will down-select one or more projects to complete additional environmental studies, investment grade revenue forecasts, and other studies and analyses necessary prior to initiation of construction. Final design and engineering work will also be initiated for the down-selected project(s). To be down-selected a project must appear to meet the project eligibility standards contained in § 268.11 (b), rate highly in the project selection criteria specified in § 268.17, be judged by FRA to have a good chance of being constructed with the Federal funds authorized for this program, and be successfully operated by a public/private partnership.

(b) Only one project will be selected in Phase IV of the Maglev Deployment Program and be eligible for any Federal construction funds that Congress chooses to make available. That one project must meet each and every project eligibility standard contained in § 268.11 (b). If more than one project down-selected in Phase III and funded through Phase IV meets all of these standards, then FRA will evaluate and compare the eligible projects according to the set of project selection criteria contained in § 268.17.

(c) In reviewing competing projects under the project eligibility standards and project selection criteria, the FRA will exercise particular vigilance regarding the following elements of the preconstruction planning process, although not to the exclusion of others:

(1) The credibility of the demand and revenue forecasts, cost estimates, and benefit/cost comparisons; and

(2) The credibility of the financial plan.

(d) FRA intends to make periodic reviews of the processes and products of grant recipients. Such reviews may include, at the FRA's option, reviews at key milestones in the preparation of project descriptions.

Issued in Washington, DC on January 4, 2000.

Jolene M. Molitoris,

Federal Railroad Administrator.

[FR Doc. 00–613 Filed 1–13–00; 8:45 am]

BILLING CODE 4910–06–P

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018—AE39

Endangered and Threatened Wildlife and Plants; Final Rule To List Two Cave Animals From Kauai, Hawaii, as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: We, the U.S. Fish and Wildlife Service (Service), determine endangered status pursuant to the Endangered Species Act of 1973, as amended (Act), for two animals—the Kauai cave wolf spider (*Adelocosa anops*), and the Kauai cave amphipod (*Spelaeorchestia koloana*). These two species are found on the Hawaiian island of Kauai. The Kauai cave wolf spider is known from three populations, and the Kauai cave amphipod is known from five populations. These animals and their habitats have been variously affected or are currently threatened by the following—habitat degradation and loss through the removal of perennial vegetation, soil fill, grading, paving, quarrying, and other activities

associated with development and agriculture; predation and competition for space, water, and nutrients by introduced, alien animals; biological and chemical pesticide control activities; and an increased likelihood of extinction from naturally occurring events due to the small number of remaining populations and their limited distribution. This final rule implements the Federal protection and recovery provisions provided by the Act for these animal taxa.

EFFECTIVE DATE: This rule takes effect February 14, 2000.

ADDRESSES: The complete file for this rule is available for inspection, by appointment during normal business hours, at the office of the U.S. Fish and Wildlife Service, Pacific Islands Ecoregion, 300 Ala Moana Boulevard, Room 3–122, P.O. Box 50088, Honolulu, Hawaii 96850.

FOR FURTHER INFORMATION CONTACT: Robert P. Smith, Pacific Islands Ecoregion Manager, at the above address (808/541–3441); facsimile: 808/541–3470.

SUPPLEMENTARY INFORMATION:

Background

The Kauai cave wolf spider (*Adelocosa anops*) and Kauai cave amphipod (*Spelaeorchestia koloana*) are known only from the Hawaiian island of Kauai. The Kauai cave wolf spider is known from three populations, and the Kauai cave amphipod, from five populations.

The Hawaiian archipelago includes eight large volcanic islands (Niihau, Kauai, Oahu, Molokai, Lanai, Kahoolawe, Maui, and Hawaii), as well as offshore islets, shoals, and atolls set on submerged volcanic remnants at the northwest end of the chain (the Northwestern Hawaiian Islands). Each island was built sequentially from frequent, voluminous basaltic lava flows (Stearns 1985). The youngest island, Hawaii, is still volcanically active and retains its form of coalesced, gently sloping, relatively unweathered shield volcanoes. Vulcanism on the older islands has long since ceased, and subsequent erosion formed numerous valleys with steep walls and well-developed streams and soils (Zimmerman 1948).

In the formation of the islands, the lava flows created caves, cracks, gas pockets, and smaller, interconnected subterranean spaces or mesocaverns (Howarth 1973; 1987a). While unique subterranean faunas have long been known from temperate continental cave systems, until the 1970s obligate cave-inhabiting (dependent on cave habitat) animals were thought to be absent from tropical and island systems (Howarth 1987a). In the last 3 decades, however, a remarkable assemblage of about 50 species of cave-adapted animals have been discovered in Hawaiian caves (Howarth 1972; 1987a, b). Cave-adapted species evolved directly from native surface-dwelling ancestors in at least 12 groups of Hawaiian arthropods (Howarth 1991a).

These obligate cave-dwellers are generally found on the younger islands where an abundance of young lava flows exist (Howarth 1983a). On older islands, soil formation, erosion, and siltation have filled in most subterranean voids, thus eliminating the habitat for cave animals. The island of Kauai is the oldest of the eight major Hawaiian islands and was formed by a single shield volcano (formed by one volcano) approximately 5.6 million years ago (Stearns 1985). Four million years of weathering eliminated most cave habitats formed during this initial vulcanism. Between 0.6 and 1.4 million years ago, the Koloa series of post-erosional lava flows again provided available habitat for subterranean animals. Subsequent erosion also filled in most of the habitat in the Koloa series, leaving only a small area of suitable cave habitat along the arid southern coast.

Because of the age of Kauai and the extensive erosion, it was not originally expected to harbor any cave animals. However, in 1971, two eyeless cave arthropods, a spider and amphipod were discovered in caves of the Koloa series lava flows. These animals are known only from a single exposed lava flow in the ''very rocky'' to ''extremely rocky'' Waikomo soil series (U.S. Department of Agriculture, Soil Conservation Service 1972). The lava flow covers approximately 10.5 square kilometers (sq km) (4 sq miles (mi)), and exhibits no covering by erosional sediments. The amphipod also occurs in a younger limestone cave formed on top of a portion of the exposed Koloa series flow. These animals are restricted to the dark, moist areas of larger caverns and smaller subterranean spaces. The amphipod is a detritivore, feeding primarily on rotting tree roots, whereas the spider is a carnivore, preying upon the amphipod and alien arthropods that venture underground. The land supporting these two animal species is privately owned, as are adjacent areas with potentially suitable habitat.

Discussion of the Two Animal Taxa Included in This Final Rule

Frank Howarth first discovered the Kauai cave wolf spider (*Adelocosa anops*) in Koloa Cave # 2 in 1971 (Gertsch 1973), and Willis Gertsch (Gertsch 1973) formally described the spider. This species is a member of the wolf spider family (Lycosidae). Spiders in this family are characterized by a distinct eye pattern, including two particularly large eyes in the middle row (Foelix 1982). The most conspicuously diagnostic character of the Kauai cave spider is its complete lack of eyes. This character is unique among wolf spiders and its distinction justifies the recognition of a separate genus for this taxon. A few species of wolf spider have reduced eyes, including another cave-adapted species on the island of Hawaii, but only in the Kauai cave wolf spider are the eyes entirely absent. Adults of the Kauai cave wolf spider are about 12.7 to 19.0 millimeters (mm) (0.5 to 0.75 inches (in)) in total length with a reddish-brown carapace (hard outer covering), pale abdomen, and bright orange legs. The hind margin of each chelicera (biting jaw) bears three large teeth: Two situated basally (on the bottom), and the third at the distal (far) end of the chelicera. The tibiae (inner large bone of the leg) of the two anterior pairs of legs have four pairs of ventral spines, and tarsi (ultimate segments) and metatarsi (penultimate segments) of all legs bear unusually long and silky trichobothria (sensory hairs).

The Kauai cave wolf spider is a predator and, although blind, can detect the presence of potential food items by touch or by detecting chemical compounds; this species actively stalks its prey (Howarth 1983b). Although predation has not been observed in the field, the spider probably feeds primarily on the Kauai cave amphipod and, to a lesser extent on alien species of arthropods that enter the cave system. Compared to most wolf spiders, the reproductive capacity of the Kauai cave wolf spider is extremely low, with only 15 to 30 eggs laid per clutch (Howarth 1981; Wells *et al.* 1983). Newly hatched spiderlings are unusually large, and carried on the back of the female for only a few days (Howarth 1991a; Howarth and Mull 1992).

Biologists found the Kauai cave wolf spider only in two lava tube systems in the Koloa area of Kauai; specifically the Koloa Caves and Kiahuna Caves (Gertsch 1973; Frank Howarth, Bishop Museum, *in litt.* 1979). The spider is restricted to the dark zones (Howarth 1981) of the caves and adjoining fissures. Similar to other Hawaiian cave-adapted spiders, this species is highly susceptible to desiccation (Hadley *et al.* 1981; Ahearn and Howarth 1982). The spider is active in the large caverns only

during wetter times of the year (Howarth, *in litt.* 1979) or in smaller areas of the cave that maintain a saturated atmosphere (Howarth 1981). Because of the seasonal and spatial movement of the spider, as well as an inability to mark or tag the animals, survey methods have not been developed to obtain accurate population estimates. However, survey counts of the spider have ranged from 12 to 28 in Koloa Cave #2, 0 to 4 in Kiahuna Cave Makai (cave #210), and 0 to 2 in Kiahuna Cave Mauka (Service, unpublished data, 1998–99).

Frank Howarth also discovered the Kauai cave amphipod (*Spelaeorchestia koloana*) along with the Kauai cave wolf spider in Koloa Cave #2 in 1971 (Bousfield and Howarth 1976). Because of the unusual attributes of a highly reduced pincher-like condition of the first gnathopod (cephalothoracic appendage—an appendage located on the part of the amphipod which is the fused head and thorax (the middle region)) and the second gnathopod being mitten-like in both sexes, this taxon is placed in its own unique genus (*Spelaeorchestia*) within the family Talitridae (Bousfield and Howarth 1976). This species is also distinctive in its lack of eye facets (lenslike division of a compound eye) and pigment, and extremely elongate, spiny, postcephalic (behind the head) appendages. Adult amphipods are 7 to 10 mm (0.25 to 0.4 in) in length and very slender-bodied, with a hyaline cuticle (translucent outer layer). Gnathopod 1 is highly reduced, and gnathopod 2 is mitten-like. Antenna 2 is slender and elongate, with the flagellum (long thread-like structure used for movement) only slightly longer than the peduncle (a stalklike structure). Peraeopods (abdominal walking legs) are very elongate, with slender, attenuated claws. All pleopods (swimming legs) are reduced, with branches vestigial (small rudimentary part, usually non-functioning) or lacking. Uropods (tail-like appendages) 1 and 2 have well developed prepeduncles, and brood plates in the mature female are vestigial or entirely absent (Bousfield and Howarth 1976).

The Kauai cave amphipod is a detritivore (feeds on organic debris from decomposing plants, animals, and fecal material) and has been observed feeding on rotting roots of *Pithecellobium dulce* (Manila tamarind) and *Ficus* sp. (fig); rotting sticks, branches, and other plant material washed into the caves; and arthropod fecal material. In large cave passages, most individuals are found on or underneath roots or rotting debris. However, this amphipod does not appear to be particularly gregarious. When disturbed, this species typically moves slowly away rather than jumping like other amphipods. Nothing is known of the reproductive biology of this amphipod, but the vestigial brood plates of the female suggest they give birth to a small brood of large offspring (Bousfield and Howarth 1976; Poulson and White 1969).

While found in the same caves as the Kauai cave wolf spider, the cave amphipod is also known from a short lava tube (cave #210) located 1 km (0.6 mi) inland of the seaward Kiahuna Cave, the Limestone Quarry Cave 7 km (4.5 mi) to the east at Mahaulepu, and most recently from a small cave that was exposed during construction of the Koloa Town road (Adam Asquith, Service, pers. comm. 1999; Jan Tenbruggencate, Honolulu Star Bulletin, *in litt.* 1999). The Mahaulepu Cave occurs in a calcareous (containing calcium) sandstone hill formed from a cemented sand-dune that was deposited on top of a disjunct exposure of the Koloa lava formation during a higher stand of the sea (Stearns 1985). The limestone cave was formed by water erosion from the ocean and a still-active freshwater stream that runs through the lowest cave level. The amphipod probably colonized this cave by migrating from the underlying Koloa lava formation. Due to the inability to mark amphipods for demographic studies, no attempt has been made to estimate the population sizes of the cave amphipod. However, survey counts for this species in the caves where they have been surveyed regularly range from 8 to 27 in Koloa Cave #2 and 11 to 71 in Kiahuna Cave Mauka (Service, unpublished data, 1998–99).

The two cave animals are restricted to dark, moist areas of larger caverns and smaller subterranean spaces or mesocaverns (Howarth 1983a). As with the subterranean animals on younger Hawaiian islands (Howarth 1991a), the small mesocaverns may be the primary habitat for these species. For example, the Kauai cave amphipod was not seen during initial surveys of Kiahuna cave #210 (Miura and Howarth 1978). On a subsequent survey however, the floor of a small, dead end passage was saturated with 40 liters (10 gallons) of water, and 24 hours later amphipods had moved into this area, presumably from the surrounding mesocaverns (Howarth, *in litt.* 1979; Howarth 1983a). On younger islands, these mesocaverns also allow animals to move among larger, adjacent lava tubes (Howarth 1991a). However, because these smaller voids become filled with erosional sediment in older flows like Koloa and as a result of surface disturbance (Hammatt *et al.* 1988; Adam Asquith, *in litt.* 1994a), it is unlikely that the Kauai cave animals can move among separate lava tube systems. Because distinct species can evolve in adjacent lava tubes even when cave animals can move extensively through mesocaverns (Hoch and Howarth 1993), it is prudent to consider the separate localities of these animals as different populations, even though intervening areas of potential habitat cannot be surveyed. Thus, the Koloa Caves #1 and #2 and adjacent areas are considered to harbor one population of the spider and one population of the amphipod. The seaward Kiahuna Caves #267 and #276 harbor another population of both the spider and amphipod; the Kiahuna Cave #210 harbors a separate population each of the spider and amphipod; the Mahaulepu Cave harbors a population of the cave amphipod (Service, unpublished data, 1998–99); and a small cave near the Koloa Town road harbors a fifth amphipod population.

The restricted area where these animals occur is rapidly undergoing development. The shallow cave habitat is degraded or destroyed through surface alterations such as the removal of perennial vegetation, soil fill, grading, paving, and other activities associated with development and agriculture. In fact, the Koloa cave systems are considered to be 1 of the 10 most endangered cave ecosystems worldwide (Culver *in litt.*, 1998). These animals are also increasingly at risk from predation and competition for space, water, and nutrients by introduced, alien animals; biological and chemical pesticide control activities associated with residential and golf course development; and an increased likelihood of extinction from naturally occurring events due to the small number of remaining individuals and populations and their limited distribution.

Previous Federal Action

On June 16, 1978, we published a proposal in the **Federal Register** (43 FR 26084) to list the Kauai cave wolf spider as an endangered species and the Kauai cave amphipod as threatened. We withdrew that proposal on September 2, 1980 (45 FR 58171) as a result of a provision in the 1978 Amendments to the Endangered Species Act of 1973 that required withdrawal of all pending proposals that were not made final within 2 years of the proposal or within 1 year after passage of the Amendments, whichever period was longer. We published an initial comprehensive Notice of Review for invertebrate animals on May 22, 1984 (49 FR 21664),

in which we treated the Kauai cave wolf spider and Kauai cave amphipod as category 2 candidates for Federal listing. Category 2 taxa were those for which conclusive data on biological vulnerability and threats were not currently available to support proposed rules. We published an updated Notice of Review for animals on January 6, 1989 (54 FR 554). In this notice, we treated the Kauai cave wolf spider and Kauai cave amphipod as category 1 candidates for Federal listing. Category 1 taxa were those for which we had on file substantial information on biological vulnerability and threats to support preparation of listing proposals. In the Notice of Review for all animal taxa we published on November 21, 1991 (58 FR 58804), we again listed the two Kauai cave arthropods as category 2 candidates. In the November 15, 1994, Notice of Review for all animal taxa (59 FR 58982), we elevated the two Kauai cave arthropods to category 1 candidates. Upon publication of the February 28, 1996, Notice of Review (61 FR 7596), we stopped using category designations and included the two cave arthropods simply as candidate species. Candidate species are those for which we have on file sufficient information on biological vulnerability and threats to support proposals to list the species as threatened or endangered. We also included the two cave arthropods as candidate species in the September 19, 1997 (62 FR 49398), Notice of Review. We published a proposed rule to list these two species as endangered on December 5, 1997 (62 FR 64340).

The processing of this final rule conforms with our Listing Priority Guidance published in the **Federal Register** on October 22, 1999 (64 FR 57114). The guidance clarifies the order in which we will process rulemakings. Highest priority is processing emergency listing rules for any species determined to face a significant and imminent risk to its well-being (Priority 1). Second priority (Priority 2) is processing final determinations on proposed additions to the lists of endangered and threatened wildlife and plants. Third priority is processing new proposals to add species to the lists. The processing of administrative petition findings (petitions filed under section 4 of the Act) is the fourth priority. This final rule is a Priority 2 action and is being completed in accordance with the current Listing Priority Guidance. We have updated this rule to reflect any changes in information concerning distribution, status, and threats since the publication of the proposed rule.

Summary of Comments and Recommendations

In the December 5, 1997, proposed rule (62 FR 64340), we requested interested parties to submit comments or information that might contribute to the final listing determination for these two species. The public comment period ended on February 3, 1998. We contacted and sent announcements of the proposed rule to appropriate Federal and State agencies, county governments, scientific organizations, and other interested parties. We also published announcements of the proposed rule in the following newspapers—the Garden Island on December 18, 1997, the Honolulu Advertiser on December 24, 1997, and the Honolulu Star-Bulletin on December 24, 1997.

We received a total of seven comments. Two individuals and one conservation organization supported the proposal. Two commenters did not support the proposal. Two commenters neither supported nor objected to the proposal, including a Kauai county agency that asked us to identify habitat areas for the two cave species so that the agency's concerns about potential utility easements could be discussed.

In addition, we solicited formal scientific peer review of the proposal in accordance with our July 1, 1994, Interagency Cooperative Policy (59 FR 34270). We requested three qualified and independent specialists to review the proposed rule and comment on the pertinent scientific and/or commercial data and assumptions relating to the taxonomy, demography, and supportive biological and ecological information of the Kauai cave wolf spider and Kauai cave amphipod. We received written comments from one of these experts; that information is incorporated into this final rule.

We grouped and discussed comments of a similar nature under the following issue headings. In addition, we considered and incorporated, as appropriate, into the final rule, all biological and commercial information obtained through the public comment period.

Issue 1: One commenter suggested that these species would be better protected if a Candidate Conservation Agreement (CCA) or Habitat Conservation Plan (HCP) was developed for the animals.

Our Response: We are required to base listing decisions on the best available scientific and commercial information. In this regard, we reviewed information from the scientific literature as well as commercial information. Based on this information, we conclude that the Kauai cave wolf spider and Kauai cave amphipod are in danger of extinction throughout a significant portion of their ranges. In addition, no new information was submitted during the public comment period that indicated other viable populations of these animals existed or that the remaining populations are not at risk. HCPs provide excellent opportunities for conservation of species. We encourage landowners and managers to explore all the conservation mechanisms available.

Issue 2: One commenter opposed the listing of the Kauai cave wolf spider and Kauai cave amphipod because of economic impacts of the listing on the local economy.

Our Response: In accordance with 16 U.S.C. sec. 1533(b)(1)(A) and 50 CFR 424.11(b), listing decisions are made solely on the basis of the best scientific and commercial data available. In adding the word ''solely'' to the statutory criteria for listing a species, Congress specifically addressed this issue in the 1982 amendments to the Act. The legislative history of the 1982 amendments states: ''The addition of the word 'solely' is intended to remove from the process of the listing or delisting of species any factor not related to the biological status of the species. The Committee strongly believes that economic considerations have no relevance to determinations regarding the status of species. * * *'' H.R. Rep. No. 567, Part I, 97th Cong., 2d Sess. 20 (1982). Therefore, we have not considered the impacts of listing on economic development in making this listing determination.

Issue 3: One commenter argued that we lacked authority to list the Kauai cave wolf spider and Kauai cave amphipod under the Endangered Species Act because such power would exceed the scope of Federal Commerce Clause power.

Our Response: We believe that listing these species is within the scope of the Commerce Clause for the reasons contained in Judge Wald's opinion and Judge Henderson's concurring opinion in *National Association of Home Builders* v. *Babbitt*, 130 F.3d 1041 (D.C. Cir. 1997) *cert. denied*, 1185 S.Ct. 2340 (1998). That case involved a challenge to the application of the Act's prohibitions to protect the listed Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*) under the Act. As with these two Kauai cave species, the Delhi Sands flower-loving fly is endemic only to one State. However, Judge Wald held that application of the Act's prohibition against taking of endangered species to this fly was a

proper exercise of Commerce Clause power to regulate the use of channels of interstate commerce, and activities substantially affecting interstate commerce, because it prevented destruction of biodiversity and destructive interstate competition. Judge Henderson concluded that the protection of the Delhi Sands flower-loving fly was within the Federal Government's Commerce Clause authority because the listing of the fly prevents harm to the ecosystem upon which interstate commerce depends, and because doing so regulates commercial development that is part of interstate commerce.

Summary of Factors Affecting These Species

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

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* These animals are restricted to a 10.5 sq km (4 sq mi) coastal section of the Koloa series lava flows that have not been filled with erosional sediment. Surface modifications in this area directly impact the subterranean habitat that supports the spider and amphipod (Hammatt *et al.* 1988; Miller and Burgett 1995; Asquith, *in litt.* 1994). Prior to arrival of Polynesians in Hawaii, the aboveground habitat of this area probably comprised a coastal dry shrubland and would have included plants such as *Sida fallax* (ilima), *Myoporum sandwicense* (naio), *Chamaesyce celastroides* (akoko), and *Santalum ellipticum* (iliahialoe) (Gagne and Cuddihy 1990). On the islands of Maui and Hawaii, these plants are known to produce extensive root systems into underlying lava tube fissures, and probably also formed the primary nutrient source for the cave ecosystem at Koloa.

The first thousand years of Polynesian habitation in Hawaii had little significant impact on the cave system at Koloa. However, with a rapid population increase after 1400 A.D., heavy modification of most leeward areas of the Hawaiian Islands probably occurred (Kirch 1982; Cuddihy and Stone 1990). This modification was due to the subsequent expansion of agriculture from more favorable, mesic (an environment that is neither extremely wet nor extremely dry) valleys and the use of fire to clear plant communities. A perennial stream flowing directly through the Koloa area allowed Polynesians to develop extensive irrigated fields of *Colocasia esculenta* (taro), *Ipomoea batatas* (sweet potato), and *Saccharum officinarum* (sugar cane) and to cultivate sweet potato on dry land (Handy and Handy 1972; Hammatt and Tomonari 1978; Hammatt *et al.* 1988; Sinoto 1975).

Field irrigation of traditional crops continued in the Koloa area until 1835, when the first sugar plantation in the Hawaiian Islands was established at Koloa. Thereafter, most of the land with suitable topsoil was used for large-scale sugar cane cultivation (Hammatt *et al.* 1988). This activity included the mechanical clearing of stones and boulders and consolidation of smaller field plots. The surface modifications associated with these past agricultural activities greatly reduced underground root biomass through the destruction of perennial vegetation (Howarth 1981; Miller and Burgett 1995), which removes the necessary food base for the amphipod and other cave-dwelling herbivores (Howarth 1973, 1981, 1982). Large-scale agricultural practices brought on by the sugar cane industry also increased the amount and mobility of the overlying sediments. As a consequence, the rate of sediment deposition into the underlying subterranean voids increased, eliminating or greatly reducing the amount of available cave habitat (Howarth 1973; Hammatt *et al.* 1988; Asquith, *in litt.* 1994).

Thus, with the exception of a narrow 0.5 km-wide (0.25 mi-wide) strip of particularly rocky land immediately along the coast, most of the habitat for both the spider and the amphipod was heavily modified prior to the 1950s. On interior lands, small areas of exposed pahoehoe lava, rock outcrops, and the entrances to lava tubes were generally unsuited for cultivation of crops and were left less disturbed. In areas improved for pasture use, however, some cave entrances were filled or covered (Hammatt *et al.* 1988; Howarth, *in litt.* 1977). The remaining pockets of uncultivated land around collapsed lava tubes and exposed lava probably served as refugia for the cave animals. Significantly, all the known populations of both the spider and amphipod are in areas never used for plantation sugar cane cultivation.

In the last 5 decades, the Koloa area changed from an agriculture-based economy to one increasingly dependent on tourism (Kauai Office of Economic Development, *in litt.* 1994). Approximately 75 percent of the original habitat available for the cave animals is now designated as ''urban'' or ''urban residential'' (County of Kauai, *in litt.* 1994), and the human population of the Koloa area is expected to double by the year 2015 (KPMG Peat Marwick 1993). This population growth has led to rapid development of homes, condominiums, and resort hotels originally centered along the coastal strip. In recent years, interior lands supporting both populations of the spider and all but one population of the amphipod have been rezoned from agriculture to urban usage and are undergoing development. With the construction of roads, residences, and golf courses, the subterranean habitat is degraded through the removal of perennial vegetation and its root systems, the collapse of lava tubes from heavy construction equipment, and increased siltation of caves from grading and filling activities (Howarth 1973; Hammatt *et al.* 1988; Asquith, *in litt.* 1994a). The population of the Kauai cave wolf spider in Koloa Cave #2 is threatened by a proposed bypass road, as well as blasting and excavation of a drainage ditch from an adjacent housing development (David Hopper, Service, *in litt.* 1998, 1999). The recent uncovering of a lava tube during the construction of the Koloa bypass road exemplifies the continuing threat posed by ongoing development (Jan Tenbruggencate, *in litt.* 1999). Until recently, the disjunct population of the amphipod in the limestone cave was threatened by a quarrying operation directly above and adjacent to the cave system (Howarth, *in litt.* 1977, 1978). Thus, most of the land that potentially harbored these animals has been highly modified, and an estimated 75 percent of the area has probably been rendered uninhabitable. The remaining habitat, harboring virtually all known populations of the spider and amphipod, is being degraded by current land use or is threatened with degradation and destruction from proposed development.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* Direct overutilization of the organisms is not known to be a factor, but unrestricted collecting for scientific purposes or excessive visits by individuals interested in exploring the lava tubes could result from increased

publicity associated with listing under the Act.

Increased human use of caves can result in the direct trampling, intentional or otherwise, of cave animals as well as indirect impacts due to destruction of root systems (Howarth 1982; Culver 1992). In addition to direct habitat destruction, human impacts include the use of campfires (D. Hopper, pers. comm. 1988) as well as introduction of cigarette smoke into the cave environment. Cigarette smoke contains a strong insecticide which, within the enclosed cave, is likely to negatively impact the resident cave animals (Howarth 1982). Both the smoke from cigarettes and fires dries the cave air, and studies and observations have shown that reduced cave humidity is detrimental to cave organisms (Ahearn and Howarth 1982; Howarth 1981, 1982). Such disturbances by human visitation can also promote greater invasion by alien arthropod species, such as cockroaches and their predators, through the introduction of trash (Howarth 1982; D. Hopper, pers. comm. 1998). Howarth (1982) indicated that species diversity and population levels of cave invertebrates are inversely related to human visitation and disturbance.

C. *Disease and predation.* Several alien spiders including the brown violin spider (*Loxosceles rufescens*), spitting spider (*Scytodes longipes*), and *Dysdera crocata* (no common name (NCN)) have invaded the cave habitats in Koloa (Gerstch 1973; F. Howarth, pers comm. 1994; Asquith, *in litt.* 1994b), and prey on immature stages of the Kauai cave wolf spider and probably all life stages of the cave amphipod (Howarth 1981). The American cockroach (*Periplaneta americana*) is abundant in some of the caves (Bousfield and Howarth 1976; Asquith, *in litt.* 1994a) and probably opportunistically preys on immature cave amphipods (F. Howarth, pers. comm. 1994) and competes for space at amphipod food sources (Asquith, *in litt.* 1994a). In the Limestone Quarry Cave, the introduced amphipod *Tallitroides topitotum* (NCN) may compete with the Kauai cave amphipod for detritus food (Bousfield and Howarth 1976; F. Howarth, pers. comm. 1994).

In addition, as noted in the Background section of this final rule, the Kauai cave wolf spider is a predator. Although predation has not been observed in the field, this spider probably feeds primarily on the Kauai cave amphipod and, to a lesser extent, on alien species of arthropods that periodically enter the cave system.

D. *The inadequacy of existing regulatory mechanisms.* The Kauai cave wolf spider and the Kauai cave amphipod are found entirely on private land. One population of the cave spider is provided some protection by a County ordinance requiring the landowner to conserve two Kiahuna lava tubes known to harbor the spider (County of Kauai Development Plan 1979). However, existing conservation measures under this ordinance protect only the cave entrances and not the surface footprint, adjacent mesocaverns, or surrounding aboveground habitat that help to maintain the microhabitat conditions within the caves that the animals need to survive. Evaluation of one of the caves conserved under this ordinance showed significant degradation from surface disturbance over the dark zone of the cave (Asquith, *in litt.* 1994). In addition, this ordinance protects only a single population of each of the cave animals, which is not sufficient to ensure the continued existence of these species, given the range of threats that affect all remaining populations.

No State laws or existing regulatory mechanisms at the present time protect or prevent further decline of these animals. However, Federal listing would automatically invoke listing under Hawaii State law, which prohibits taking and encourages conservation by State government agencies (see ''Hawaii State Law'' section of this final rule).

E. *Other natural or manmade factors affecting its continued existence.* Insecticide use, coincident with the change to urban land development, poses a serious threat to the cave animals (Howarth and Stone 1993). While plantation-scale sugar cane cultivation in the Koloa area involves seasonal use of herbicides, intensive usage is generally limited to spot applications of glyphosate (trademark name, Roundup), and generally no insecticides are used (Murdoch and Green 1989). Furthermore, in recent years most sugar cane cultivation in the area has been restricted to land with deep soil, which is generally unsuitable habitat for the cave animals.

Golf courses exist on, or are proposed for, the land directly above or adjacent to both populations of the spider and all but one population of the amphipod. At least 30 different pesticides are used on golf courses in Hawaii, including insecticides to control pests of turf grass (Murdoch and Mitchell 1975; Murdoch and Green 1989). Most golf courses in Hawaii apply the insecticide chlorpyrifos at the rate of 453 grams active ingredient per 0.41 hectares (1 pound active ingredients per acre), 1 to 3 times per year, but rates and frequency of applications are sometimes much higher (Murdoch and Green 1989; Brennan *et al.* 1992). Predators, such as the Kauai cave wolf spider, are generally more susceptible to insecticides than the target pests (Croft 1990). Even if not killed outright, the sublethal effects of both insecticides and herbicides on the cave animals could include reduced fecundity (reproductive capacity), reduced lifespan, slowed development rate, and impaired mobility and feeding efficiency (Messing and Croft 1990).

In addition to the use of pesticides on golf courses, pesticide usage on residential property also poses a threat. It is estimated that residential lots use more pesticides per unit area than either sugar cane cultivation or golf courses and that 90 percent of this use involves insecticides. Much of this insecticide is applied directly to the ground for termite control (Hawaii Office of State Planning 1992). With an estimated increase of 4,000 houses in the Koloa area by the year 2015 (KPMG Peat Marwick 1993), residential pesticides are considered a serious threat to the cave animals.

These cave animals are particularly susceptible to pesticides because of their tendency to seek water sources (Howarth 1983a; Asquith, *in litt.* 1994a). Even if pesticides are not used directly above a lava tube, pesticides that leach into adjacent subterranean caverns with water from runoff or irrigation are serious threats because the animals may be attracted to the water and come into contact with the chemicals.

Biological control agents (living organisms used to control pests) are usually perceived as preferable to the use of chemicals because they represent less of a threat to human health and generally do not stimulate resistance in pests. Some of these organisms, however, attack species other than their intended targets and have caused or contributed to the decline and extinction of several Hawaiian insects (Gagne and Howarth 1985; Howarth 1983b; Howarth 1991b). The nematode *Steinernema carpocapsae* (NCN) is marketed for use against turf pests and has been petitioned for use on golf courses in Hawaii (Faust 1992). This nematode can infect at least 250 species of arthropods (Poinar 1979), including arachnids such as the Kauai cave wolf spider (Poinar and Thomas 1985). Other biocontrol agents such as *Bacillus* bacteria, which have been used for mosquito control, have caused serious damage to nontarget species of insects (Howarth 1991b). Unlike most chemical pesticides, biocontrol agents will not break down or decay. Should such biocontrols become established, they will likely remain resident in the area, spread to new areas with suitable host

arthropods, and become impossible to eliminate. Lastly, biocontrol agents may undergo great proliferations in the presence of ubiquitous and numerous arthropod pests and other species. The resultant population increase of biocontrol predators or parasites would have devastating impacts on species such as the Kauai cave spider and cave amphipod, given their restricted ranges and low fecundities. Biological controls have been emphasized for golf course management in the Koloa area (Townscape 1993) and are a potential threat to the cave spider and amphipod.

The small number of populations and small numbers of observed individuals of the Kauai cave wolf spider (three populations) and Kauai cave amphipod (five populations) increases the risk of extinction from naturally occurring events such as storms or earthquakes.

At present, there are a number of conservation activities that are planned for three of the Koloa caves. In 1995, we signed a Cooperative Agreement with the Kukui'ula Development Company (a subsidiary of Alexander & Baldwin), which includes a number of conservation activities for two caves (Koloa Caves # 1 & 2). These activities include gating of the cave openings to restrict human access and reduce air-flow (to increase ambient humidity) and planting of native plant species over the caves to develop a root system that will serve as a food base for the cave animals. Kukui'ula Development Company agreed to set aside the land area above these two caves as either a limited-use park or reserve. The entire land area to be protected includes a 45.7-meter (150-foot) wide buffer area around both caves, in which restricted or no development will occur. In addition, no pesticides or dumping will be allowed within this buffer area or above the caves. At present, the National Resource Conservation Service (NRCS) is planning to assist the Kukui'ula Development Company in more extensive planting of native plants in the park/reserve area. We and the NRCS are currently working with a second landowner (Sport Shinko Group) to conduct similar conservation activities over a single cave located below a portion of their golf course (Kiahuna Golf Club). We are currently reviewing a Cooperative Agreement between us and the Sport Shinko Group.

We carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by these species and determined that the Kauai cave wolf spider and Kauai cave amphipod should be listed as endangered. These two species are threatened by one or more of the following—habitat degradation and loss through the removal of perennial vegetation, soil fill, grading, paving, quarrying, and other activities associated with development and agriculture; predation and competition for space, water, and nutrients by introduced, alien animals; direct or indirect mortality from the use of biological control agents and chemical pesticides; and an increased likelihood of extinction from naturally occurring events due to the small number of remaining populations and their limited distribution. Because the two species are in danger of extinction throughout all or a significant portion of their ranges, they fit the definition of endangered, as defined in the Act. Therefore, the determination of endangered status for the Kauai cave wolf spider and Kauai cave amphipod is warranted.

Critical Habitat

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

In the proposed rule, we indicated that designation of critical habitat was not prudent for the Kauai cave wolf spider and Kauai cave amphipod because of a concern that publication of precise maps and descriptions of critical habitat in the **Federal Register** could increase human visitation to their highly sensitive cave habitats which could lead to incidents of vandalism and destruction of habitat. We also indicated that designation of critical habitat was not prudent because we believed it would not provide any additional benefit beyond that provided through listing as endangered.

In the last few years, a series of court decisions have overturned Service determinations regarding a variety of species that designation of critical habitat would not be prudent (e.g., *Natural Resources Defense Council* v. *U.S. Department of the Interior* 113 F. 3d 1121 (9th Cir. 1997); *Conservation Council for Hawaii* v. *Babbitt*, 2 F. Supp. 2d 1280 (D. Hawaii 1998)). Based on the standards applied in those judicial opinions, we have reexamined the question of whether critical habitat for the Kauai cave wolf spider and Kauai cave amphipod would be prudent.

Due to the small number of populations, the Kauai cave wolf spider and Kauai cave amphipod are vulnerable to collection, vandalism, or other disturbance. We remain concerned that these threats might be exacerbated by the publication of critical habitat maps and further dissemination of locational information. However, we have examined the evidence available for the Kauai cave wolf spider and Kauai cave amphipod and have not found specific evidence of taking, vandalism, collection, or trade of these species or any similarly situated species. Consequently, consistent with applicable regulations (50 CFR 424.12(a)(1)(i)) and recent case law, at this time we cannot make a finding that the identification of critical habitat will increase the degree of threat to these species of taking or other human activity.

In the absence of a finding that critical habitat would increase threats to a species, if there are any benefits to critical habitat designation, then a prudent finding is warranted. In the case of these species, there may be some benefits to designation of critical habitat. The primary regulatory effect of critical habitat is the section 7 requirement that Federal agencies refrain from taking any action that destroys or adversely modifies critical habitat. While a critical habitat designation for habitat currently occupied by these species would not be likely to change the section 7 consultation outcome because an action that destroys or adversely modifies such critical habitat would also be likely to result in jeopardy to these species, there may be a few instances where section 7 consultation would be triggered only if critical habitat is designated, such as habitat that may become unoccupied in the future. There may also be some educational or informational benefits to designating critical habitat. Therefore, while we believe the benefits of designating critical habitat for these species would not be significant, we find that critical habitat is prudent for the Kauai cave wolf spider and Kauai cave amphipod.

The Final Listing Priority Guidance for FY 2000 (64 FR 57114) states, ''The processing of critical habitat determinations (prudency and determinability decisions) and proposed or final designations of critical habitat will be funded separately from other

section 4 listing actions and will no longer be subject to prioritization under the Listing Priority Guidance. Critical habitat determinations, which were previously included in final listing rules published in the **Federal Register**, may now be processed separately, in which case stand-alone critical habitat determinations will be published as notices in the **Federal Register**. We will undertake critical habitat determinations and designations during FY 2000 as allowed by our funding allocation for that year.'' As explained in detail in the Listing Priority Guidance, our listing budget is currently insufficient to allow us to immediately complete all of the listing actions required by the Act. Deferral of the critical habitat designation for the Kauai cave wolf spider and Kauai cave amphipod will allow us to concentrate our limited resources on higher priority critical habitat and other listing actions, while allowing us to put in place protections needed for the conservation of the Kauai cave wolf spider and Kauai cave amphipod without further delay.

We plan to employ a priority system for deciding which outstanding critical habitat designations should be addressed first. We will focus our efforts on those designations that will provide the most conservation benefit, taking into consideration the efficacy of critical habitat designation in addressing the threats to the species, and the magnitude and immediacy of those threats. We will develop a proposal to designate critical habitat for the Kauai cave wolf spider and Kauai cave amphipod as soon as feasible, considering our workload priorities.

Available Conservation Measures

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

Section 7(a) of the Act requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal agencies to confer with us on any action that is likely to jeopardize the continued existence of a species proposed for listing or result in destruction or adverse modification of proposed critical habitat. If a species is listed subsequently, section 7(a)(2) requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat. If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency must enter into formal consultation with us.

All known populations of the Kauai cave wolf spider and the Kauai cave amphipod are located on private property. Federally supported activities that could affect these taxa and their habitat in the future include, but are not limited to, the following—construction of roads and highways; construction of public or private facilities; construction of diversions for flood control; pesticide use; and the release of biological control agents.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. The prohibitions, codified at 50 CFR 17.21, in part, make it illegal for any person subject to the jurisdiction of the United States to take (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, or collect; or attempt any of these), import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale in interstate or foreign commerce any endangered wildlife. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to our agents and agents of State conservation agencies.

We may issue permits to carry out otherwise prohibited activities involving endangered wildlife under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22 and 17.23. Such permits are available for scientific purposes, to enhance the propagation or survival of the species, and/or for incidental take in the course of otherwise lawful activities.

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

(1) Possession, delivery, or movement, including interstate transport, involving no commercial activity, of dead specimens of these taxa that were collected prior to the publication in the **Federal Register** of the final regulation adding these taxa to the list of endangered species; and

(2) Landscaping that does not include filling or grading the area above or adjacent to the surface footprint of the caves.

Potential activities involving these taxa that we believe will likely be considered a violation of section 9 include, but are not limited to, the following:

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

(2) The use of chemical insecticides that results in killing or injuring these taxa;

(3) The unauthorized release of biological control agents that attack any life stage of these taxa; and

(4) Habitat modification that results in actually killing or injuring these taxa by significantly impairing essential life-sustaining requirements such as breeding, feeding, and shelter. Such habitat modification may include but may not be limited to—removal or destruction of perennial vegetation within or adjacent to the surface footprint of the caves; construction, clearing, grading, digging, or filling within or adjacent to the surface footprint of the caves; blasting for construction in proximity to the caves; and alteration of the natural drainage of surface and subsurface water flow into the caves.

You should direct any questions regarding whether specific activities will constitute a violation of section 9 of the Act to the Field Supervisor of the Service's Pacific Islands Ecoregion (see **ADDRESSES** section). Address your requests for copies of the regulations concerning listed wildlife and inquiries about prohibitions and permits to the U.S. Fish and Wildlife Service, Endangered Species Permits, 911 N.E. 11th Avenue, Portland, Oregon, 97232–4181 (telephone 503/231–6241; facsimile 503/231–6243).

Hawaii State Law

Federal listing will automatically invoke listing under the State's endangered species act. Hawaii's

Endangered Species Act (HRS, Sect. 195D–4(a)) states, ''Any species of aquatic life, wildlife, or land plant that has been determined to be an endangered species pursuant to the (Federal) Endangered Species Act shall be deemed to be an endangered species under the provisions of this chapter and any indigenous species of aquatic life, wildlife, or land plant that has been determined to be a threatened species pursuant to the (Federal) Endangered Species Act shall be deemed to be a threatened species under the provisions of this chapter.'' Listing of these two arthropod species will, therefore, also invoke protection available under State law, which prohibits the taking of listed wildlife species in the State, encourages conservation of such species by State agencies, and triggers other State regulations to protect the species (HRS, sect. 195AD–4 and 5).

National Environmental Policy Act

We determined that we do not need to prepare Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969, in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. On October 25, 1983, we published in the **Federal Register** (48 FR 49244), a notice outlining our reasons for this determination.

Required Determinations

This rule does not contain any new collections of information other than those already approved under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.*, and assigned Office of Management and Budget clearance number 1018–0094. For additional information concerning permit and associated requirements for endangered species, see 50 CFR 17.22.

References Cited

A complete list of all references we cited is available upon request from the Pacific Islands Ecoregion (see **ADDRESSES** above).

Author

The primary author of this final rule is Mr. David Hopper, with significant contributions by Dr. Adam Asquith, U.S. Fish and Wildlife Service (phone 808/541-3441; or facsimile 808/541–3470) (see **ADDRESSES** section).

List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and record keeping requirements, Transportation.

Regulation Promulgated

Amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

PART 17—[AMENDED]

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

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

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

§ 17.11 Endangered and threatened wildlife.

* * * * *

(h) * * *

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
ARACHNIDS:							
* * *		*	*		*		*
Spider, Kauai cave wolf	*Adelocosa anops*	U.S.A. (HI)	NA	E	676	NA	NA
* * *		*	*		*		*
CRUSTACEANS:							
* * *		*	*		*		*
Amphipod, Kauai cave	*Spelaeorchestia koloana*	U.S.A. (HI)	NA	E	676	NA	NA
* * *		*	*		*		*

Dated: December 31, 1999.

Jamie Rappaport Clark,

Director, Fish and Wildlife Service.

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