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**DEPARTMENT OF THE INTERIOR**
**Fish and Wildlife Service****50 CFR Part 17**
**Endangered and Threatened Wildlife and Plants; Proposed Endangered Status for *Bidens cuneata* and *Schiedea adamantis***

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** The Service proposes to determine two plants, *Bidens cuneata* (cuneate bidens) and *Schiedea adamantis* (Diamond Head schiedea), to be Endangered. These two species are known from a single small population each, restricted to the rim of Diamond Head Crater, Oahu, Hawaii. This action is being taken because of the threat to the plants resulting from habitat degradation and potential fire hazards. The proposed rule would implement the protection provided by the Endangered Species Act of 1973, as amended. The Service is also requesting information on environmental and economic impacts and effects on small entities that would result from listing these species as Endangered, and information on other possible conservation or use measures.

**DATES:** Comments from the public and the Governor of Hawaii must be received by November 22, 1982.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Pacific Islands Administrator, U.S. Fish and Wildlife Service; P.O. Box 50167; Honolulu, Hawaii 96850.

Comments and materials received will

be available for public inspection during normal business hours at the Service's Office of Endangered Species; 300 Ala Moana Boulevard, Room 5302; Honolulu, Hawaii 96850.

**FOR FURTHER INFORMATION CONTACT:**

Mr. Dale T. Coggeshall; Pacific Islands Administrator; U.S. Fish and Wildlife Service; P.O. Box 50167; Honolulu, Hawaii 96850 (808) 546-5608 or John Spinks, Office of Endangered Species, (703) 235-2771.

**SUPPLEMENTARY INFORMATION:** *Bidens cuneata* and *Schiedea adamantis* are known from a single small population each, growing on the rim of Diamond Head Crater, Honolulu, Hawaii. The continued existence of these species is threatened by several factors documented in recent status reports (Takeuchi, 1980a, 1980b).

1. Both populations are located just below the trail following the crater crestline. Passage of hikers and sightseers through this summit area results in soil compaction and removal of vegetation cover which promotes runoff and the consequent erosion of habitat. The State's intention to develop Diamond Head into a public park and recreation area will increase the number of persons using the area and necessitate measures to protect these two species from human impacts.

2. Due to the dry conditions that generally exist in the area, fire hazards are a significant potential threat. This threat, too, will increase as the number of persons using the area increases.

3. Pressures attributable to the presence of exotic vegetation and the concomitant competition for soil moisture and space also are probable threats.

4. The extremely small numbers of extant individuals and their limited distribution also threaten the continued existence of these species. A single fire or natural fluctuation in the number of individuals in the community could cause their demise.

Both plants are of great scientific interest because they are members of families which have undergone much evolutionary diversification in Hawaii. Both are members of genera that would make excellent models for the study of evolution and adaptive radiation in insular floras. The Hawaiian species of *Bidens* have been and are being used for such studies (Gillet and Lim, 1970). Additionally, *Schiedea*, an endemic genus of the carnation family, has an unusual floral structure for that family,

and is of scientific interest due to its breeding systems.

### Background

Section 12 of the Endangered Species Act of 1973 (the Act) directed the Secretary of the Smithsonian Institution to conduct a review of the species of plants that were then or might become Endangered or Threatened according to the criteria set forth in the Act. His report, designated as House Document 94-51, Report on Endangered and Threatened Plant Species of the United States, included a list of those plants considered by the Smithsonian Institution to qualify for Endangered or Threatened status. The Service accepted the report as a petition within the context of the Act, and it was the principal basis for a notice published in the July 1, 1975, *Federal Register* (40 FR 27824-27924), indicating that over 3,000 plant taxa were being considered for listing as Endangered or Threatened.

Subsequently, in the June 16, 1976 *Federal Register* (41 FR 24524-24572), the Service published a proposal advising that sufficient evidence was then on file to support determinations that 1,783 plant taxa were Endangered species as defined by the Act. That is each of the included taxa was in danger of extinction over all or a significant portion of its range because of one or more of the factors set forth in Section 4(a) of the Act. The proposal solicited comments suggestions, objections and factual information from all interested persons.

Notification of the proposal and a solicitation for comments or suggestions were sent to the Governor of Hawaii and other interested parties on July 1, 1976. A public hearing regarding the proposal was held on July 14, 1976, in Honolulu, Hawaii. *Bidens cuneata* and *Schiedea adamantis* were included in House Document 94-51, the July 1, 1975, notice of review and the June 16, 1976, proposal.

Following the June 16, 1976, proposal, hundreds of comments were received from individuals, conservation organizations, botanical groups, and business and professional organizations. Few of these comments were specific in nature in that they did not address specific plant species. Most comments addressed the program or the concept of endangered plants and their protection and regulation. These comments are summarized in the April 26, 1978, *Federal Register* publication of a final rulemaking which also determined 13 plant species to be Endangered or Threatened (43 FR 17909-17916). Additional comments received during the comment period for the present

proposal also will be summarized in any final rulemaking.

The 1978 Amendments to the Act subsequently required that all proposals over 2 years old be withdrawn. A 1-year grace period was given to proposals already over 2 years old. On December 10, 1979, the Service published a notice withdrawing the June 16, 1976, proposal along with four other proposals that had expired (44 FR 70796-70797). The Service now has sufficient new information contained in detailed status reports on both species (Takeuchi, 1980a, 1980b) to warrant repropounding *B. cuneata* and *S. adamantis*.

In the June 24, 1977, *Federal Register*, the Service published a Final Rule (43 FR 32373-32381, codified at 50 CFR, Part 17) detailing regulations to protect Endangered and Threatened plant species. The rule established prohibitions and a permit procedure to grant exemptions to the prohibitions under certain circumstances.

### Summary of Factors Affecting the Species

Section 4(a) of the Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424) set out the procedures to be followed by the Service in determining whether any species is Endangered or Threatened due to one or more of the five factors described in the Act. These factors as they apply to the status of *B. cuneata* and *S. adamantis* and as they are documented by Takeuchi (1980a, 1980b) are:

1. *Present or Threatened Destruction, Modification, or Curtailment of habitat or range.* Direct, man-induced threats probably were not significant before 1906, due to limited use of the crater rim habitat prior to that date. Subsequent to that time, several facilities were constructed on the Diamond Head crestline. These include the Federal Aviation Administration link site on the northeast crest and military emplacements along the southern and western ridge summits. It is not known what effects, if any, these constructions may have had on the distribution of *B. cuneata* and *S. adamantis*, although it is of possible significance that no collection of either species has ever been made from the summit region in which these structures were erected. The proliferation of exotic plant species may also have been responsible for serious reductions in the populations as they existed in their original, undisturbed state. This possibility is difficult to evaluate since extensive introduction into the native lowland flora had already occurred by the time

of the initial discovery of *B. cuneata* in 1903, and *S. adamantis* in 1955. However, very few of the species found associated with the surviving *B. cuneata* and *S. adamantis* individuals are native. Throughout the Diamond Head area, there are numerous indications of competitive displacement of natives by introduced species. A hiking trail extends completely around the Diamond Head crater, following its crest. The presence of this trail constitutes a significant threat, since all reported sightings of the two plant species have been at or near the top of the crater rim, in exactly the areas through which the trail passes. Habitat deterioration in the form of soil compaction, promotion of erosion, trampling of plants, and dislodging of rocks due to the passage of hikers has been documented in the 1980 status reports cited above and result from continued use of this path.

2. *Overutilization for Commercial, Sporting, Scientific, or Educational Purposes.* Not known to affect these species.

3. *Disease or Predation, including Grazing.* Not known to affect these species.

4. *The Inadequacy of Regulatory Mechanisms.* Although *B. cuneata* and *S. adamantis* do appear on an informal State list developed by botanists (Fosberg and Herbst, 1975), no local, State or Federal laws presently protect these species.

5. *Other Natural or Manmade Factors Affecting Continued Existence.* Although the principal factor endangering these taxa is past and potential degradation or loss of habitat, it is possible that their reproductive success has been affected by a decline of native pollinating insects. Due to the dry conditions that generally prevail in the area, fires are also a significant potential threat. Because of dry conditions, vegetative litter decomposes very slowly and tends to accumulate over the soil surface. During the months of April-September, this litter dries out and is easily ignited. The location of the *Schiedea* colony on windward-facing slopes makes it particularly susceptible to this potential hazard. Any fire originating on the lower rim in the vicinity of the proposed crater entrance facilities would be fanned towards the *Schiedea* population by the prevailing winds. Such a fire could be very severe if it were to occur in the dry season following a particularly wet winter, since the volume of litter capable of sustaining a blaze would be especially great. Fire could easily result in the extinction of *S. adamantis*, not only through the immediate destruction of

established plants and propagules, but also by initiating a secondary vegetational succession in which the *Schiedea* might be excluded. Fires are less of a threat to the *Bidens*, which grows in a comparatively litter-free area.

The State's intention to develop Diamond Head into a public park and recreation area will increase the number of persons using the area. The increased levels of human activity in this environment can be expected to increase the fire hazard potential as well as the rate of degradation of the habitat noted in the 1980 status reports unless control measures are undertaken. Finally, the small number of individuals of both species and their limited distribution must be considered a threat to their existence. A single action could extirpate the taxa, as could natural fluctuations in their populations.

#### Critical Habitat:

The Act defines Critical Habitat as:

(i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of Section 4 of [the] Act on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by the species at the time it is listed in accordance with the provisions of Section 4 of [the] Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Section 4(a)(1) of the Act requires that, to the maximum extent prudent, Critical Habitat be specified for a species at the time it is proposed for listing as Endangered or Threatened.

The single known remaining wild population of *B. cuneata* is estimated to be comprised of 10 mature individuals, while that of *S. adamantis* is estimated to number 78. Both colonies are adjacent to a trail heavily used by hikers. Inadvertent or deliberate damage to or destruction of these small populations could result from vandalism or curiosity generated by listing the species. Acts of vandalism to vegetation are well documented in Hawaii, as well as elsewhere. So few individuals of either species remain that any damage or destruction of these small populations would seriously jeopardize their survival. For these reasons, it is not considered prudent to specify Critical Habitat in this proposal.

#### Information Sources

Fosberg, F. R. and D. Herbst. 1975. Rare and endangered species of Hawaiian vascular plants. *Allertonia* 1(1):1-72.

Gillett, G. W. and E. K. S. Lim. 1970. An experimental study of the genus *Bidens* (Asteraceae) in the Hawaiian Islands. *U.C. Publ. Bot.* 56:1-63.

Takeuchi, W. 1980a. Unpublished status report on *Bidens cuneata* Sherff

Takeuchi, W. 1980b. Unpublished status report on *Schiedea adamantis* St. John.

#### Effect of This Proposal if Adopted as a Final Rule

Listing of these plants as Endangered would serve to alert local governments and the public of their status and encourage conservation efforts on their behalf.

Section 7(a) of the Act, as amended, provides:

Federal Agency Actions and Consultations—(1): "The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act. All other Federal agencies shall in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act.

(2) Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption of such action by the Committee pursuant to subsection (h) of this section. In fulfilling the requirements of this paragraph, each agency shall use the best scientific and commercial data available.

(3) Each Federal agency shall confer with the Secretary on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under section 4 or result in the destruction or adverse modification of critical habitat proposed to be designated for such species. This paragraph does not require a limitation on the commitment of resources as described in subsection (d).

Provisions for interagency cooperation were published on January 4, 1978, in the *Federal Register* (43 FR 870-876) and codified at 50 CFR Part 402. These regulations are intended to assist Federal agencies in complying with Section 7 of the Act. The present rule would require Federal agencies to satisfy these statutory and regulatory obligations with respect to the plants treated herein. Endangered species regulations in Title 50 Part 17 of the Code of Federal Regulations set forth a series of general prohibitions and exceptions which apply to all

Endangered species. Regulations pertaining to Endangered plants are found at § 17.61-17.63.

With respect to *B. cuneata* and *S. adamantis*, all pertinent prohibitions of Section 9(a)(2) of the Act, as implemented by 50 CFR Part 17.61 would apply. These prohibitions, in general, make it illegal for any person subject to the jurisdiction of the United States to import or export Endangered plants; deliver, receive, carry, transport, or ship them in interstate commerce in the course of a commercial activity; or to sell them or offer them for sale in interstate or foreign commerce.

Section 10 of the Act and regulations published in the *Federal Register* of June 24, 1977 (42 FR 32379-32380), codified at 50 CFR 17.62 and 17.63 provide for the issuance of permits to carry out otherwise prohibited activities involving Endangered species under certain circumstances. Such permits involving Endangered species are available for scientific purposes or to enhance the propagation or survival of the species. In some instances, permits may be issued during a specified period of time to relieve undue economic hardship which would be suffered if such relief were not available.

In addition to the protection provided by the Act, the Service will review these plants to determine whether they should be proposed to the Secretariat of the Convention on International Trade in Endangered Species of Wild Fauna and Flora for placement upon the appropriate appendix(ices) to that Convention or whether they should be considered under other appropriate international agreements.

#### National Environmental Policy Act

A draft Environmental Assessment has been prepared in conjunction with this proposal. Copies are on file in the Service's Office of Endangered Species; 1000 North Glebe Road, Room 531; Arlington, Virginia; and 300 Ala Moana Boulevard, Room 5302; Honolulu, Hawaii.

**Note.**—The Department of the Interior has determined that the present proposal is not a major rule and does not require the preparation of a regulatory analysis under Executive Order 12291.

The Department has also determined in accordance with the Regulatory Flexibility Act, that this proposal will not have a significant economic effect on a substantial number of small entities.

The only anticipated cost that would be incurred by small entities as a result of this rule would be that required of research institutions in obtaining permits to allow international movement

of scientific specimens. Such permits are likely to be few in number and require only minor expenditures. This finding is a result of staff discussions and analysis of data provided by the State of Hawaii.

**Public Comments Solicited**

The Service intends that any rule finally adopted will be as accurate and effective as possible in the conservation of any Endangered or Threatened species. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party concerning any aspect of these proposed rules are hereby solicited. Comments particularly are sought concerning:

1. Biological, commercial, or other relevant data concerning any threat (or the lack thereof) to the species included in this proposal.
2. Additional information concerning the range and distribution of these species.

3. Current or planned activities in the subject areas.

4. Environmental and economic impacts and effects on small entities (including small businesses, small organizations, and small governmental jurisdictions) that would result from the listing of these species as Endangered and information on other possible conservation or use measures. This information will aid the Service in complying with the requirements of the National Environmental Policy Act, Executive Order 12291 on Federal Regulation, and the Regulatory Flexibility Act, and in preparing any required analyses of effect.

Final promulgation of regulations on *B. cuneata* and *S. adamantis* will take into consideration comments and any additional information received by the Service, and such communications may lead to the adoption of final regulations that differ from this proposal. This proposal is being published under the authority contained in the Endangered

Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*; 87 Stat. 884).

**Primary Authors**

The primary authors of this proposed rule are Derral Herbst and Wayne Takeuchi, U.S. Fish and Wildlife Service, 300 Ala Moana Boulevard, Room 5302, P.O. Box 50167, Honolulu, Hawaii 96850 (808/546-7530).

**List of Subjects in 50 CFR Part 17**

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

**Regulation Promulgation**

**PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS**

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the Code of Federal Regulations, as set forth below:

**§17.12 [Amended]**

1. It is proposed to amend § 17.12(h) by adding, in alphabetical order, the following to the "List of Endangered and Threatened Plants:"

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
Asteraceae—Sunflower family: <i>Bidens cuneata</i> .....	Cuneate bidens.....	U.S.A. (HI).....	E.....		N/A.....	N/A.....
Caryophyllaceae—Pink Family: <i>Schiedea adamantis</i> .....	Diamond Head schiedea.....	U.S.A. (HI).....	E.....		N/A.....	N/A.....

Dated: July 26, 1982.

J. Craig Potter,  
Acting Assistant Secretary for Fish and Wildlife and Parks.

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