DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB83

Endangered and Threatened Wildlife and Plants; Proposed Rule To List the Plant Astrophytum Asterias (Star Cactus) as Endangered

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Proposed rule.

SUMMARY: The Fish and Wildlife Service (Service) proposes to list the plant *Astrophytum asterias* (star cactus), as an endangered species under the authority of the Endangered Species Act of 1973 (Act), as amended. This cactus is known from only two sites, one in Starr County, Texas, and the other in Tamaulipas, Mexico. Only about 2100 plants are known in the wild. The species is threatened by collecting, conversion of its habitat to agriculture or improved pasture, and habitat alteration from severe overgrazing. This proposal, if made final, would implement Federal protection provided by the Act for star cactus. Critical habitat is not being proposed. The Service seeks data and comments from the public on this proposal.

DATES: Comments from all interested parties must be received by December 8, 1992. Public hearing requests must be received by November 23, 1992.

ADDRESSES: Comments and materials concerning this proposal should be sent to the Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services Field Office, c/o Corpus Christi State University, Campus Box 338, 6300 Ocean Drive, Corpus Christi, Texas 78412. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

FOR FURTHER INFORMATION CONTACT: Tim Cooper, at the above address (Telephone 512/888-3346).

SUPPLEMENTARY INFORMATION:

Background

Star cactus was first collected in Tamaulipas, Mexico, by Baron von Karwinsky in 1843, and was named *Echinocactus asterias* by Joseph Zuccarini in 1845. In 1868, C.A. Lemaire described *Astrophytum prismaticum* and included *Echinocactus asterias* and several other Mexican species in the new genus *Astrophytum*. Thus, *Echinocactus asterias* Zuccarini became *Astrophytum asterias* (Zuccarini) Lemaire. Since these initial treatments, various taxonomic experts have placed star cactus in one genus or the other. The Service takes no position on the correct generic placement of star cactus, but will use the name *Astrophytum asterias* because of its prevalence in most current horticultural cactus literature.

Astrophytum asterias is a small spineless cactus. It is disk- or dome-shaped, 2–15 cm (1–6 in) across, up to 7 cm (3 in) tall, brownish or dull green, and often speckled with a covering of tiny white scales. Vertical grooves divide the main body into eight vaguely triangular sections, each section marked with a central line of circular indentations filled with straw-colored to whitish wooly hairs. Flowers are yellow with orange centers, and up to about 5 cm (2 in) in diameter. Fruits are green to grayish-red, about 1.25 cm (0.5 in) long, oval, and fleshy (Damude and Poole 1990).

Star cactus is a strikingly attractive plant that has been a favorite in the cactus and succulent trade for many years. Plants are easily grown from seed and propagation techniques have been studied in detail (Martin *et al.* 1971, Backeberg 1977, Pilbean 1987, Minnich and Hutflesz 1991). In a greenhouse environment, plants grown from seed are consistently hardier and more disease resistent than plants taken from the wild, which tend to be highly sensitive to cold and excess moisture. Cultivated plants of star cactus probably outnumber those in the wild many times. Despite relatively easy propagation and the superior quality of cultivated plants for horticultural purposes, field collected plants of star cactus still enter the commercial market. In a recent survey of the cactus trade in Texas, approximately 400 field collected star cactus plants were found at one nursery (Damude and Poole 1990).

The star cactus grows at low elevations in the grasslands and shrublands of the Rio Grande Plains or the Tamaulipan thornshrub. Originally the vegetation in this area was likely a subtropical grassland, perhaps with scattered trees. Now, because of fire suppression and severe overgrazing, much of the area has been invaded with thorny shrub and tree species. The habitat of star cactus in the original grassland is unclear. Today the species is found in sparse, fairly open brushland. It is most often found in the partial shade of other plants or rocks, growing on gravelly, saline clays or loams overlaying the Tertiary Catahoula and Frio formations. The Texas site is in a creek drainage (Damude and Poole 1990).

Much of the probable native habitat of star cactus has been converted to agriculture or improved pasture. In the area where plants presently occur, pasture improvement is done by clearing the shrubs and then planting buffelgrass (*Cenchrus ciliaris*). This aggressive non-native grass forms dense stands for several years after which the grass is reduced by grazing and shrubs begin returning. The landscape is, therefore, a mosaic of buffelgrass pasture and shrub stands of various ages. It is unlikely star cactus could survive this land management regime. Much of the probable suitable habitat in Mexico has been converted to corn fields or orange groves (Sanchez-Mejorada, *et al.* 1986).

Historically, star cactus occurred in Cameron, Hidalgo, and Starr Counties in south Texas, and the adjacent states of Nuevo Leon, and Tamaulipas in Mexico. Presently, star cactus is known from only one locality in Texas and one in Tamaulipas, both privately owned, with only about 2,100 plants known in the wild (Damude and Poole 1990). The Nuevo Leon site is believed to have been extirpated by collectors, and the Tamaulipas site has been reduced to very few individuals (Sanchez-Mejorada, *et al.* 1986).

Star cactus was included (under the name *Echinocactus asterias*) in category 2 in the September 27, 1985, and February 21, 1990, **Federal Register** notices (50 FR 39526 and 55 FR 6184) of plants under review for threatened or endangered classification. Category 2 includes those taxa for which there is some evidence of vulnerability, but for which there are not enough data to support listing proposals at the time. A status report on star cactus was completed December 1, 1990 (Damude and Poole 1990). This report provided sufficient information on the biological vulnerability and threats to star cactus to support a category 1 status and proposal to list the species as endangered.

Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act set forth the procedures for adding species to the Federal lists. 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 *Astrophytum asterias* (Zuccarini) Lemaire are as follows:

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

Several common range management practices threaten the present habitat of star cactus. Root-plowing or other mechanical or chemical brush clearing activities, introduction of aggressive exotic grass species such as buffelgrass, suppression of the natural fire cycle, and excessive livestock numbers may all destroy or significantly alter the natural habitat (Damude and Poole 1990). Brush has been mechanically cleared in the past on the site of the Texas population, altering the habitat and possibly destroying many plants. Part of the Texas population is bisected by a paved road, and plants may have been destroyed during construction. Any potential road widening would present a threat to the population, as would the management practice of roadside pesticide or herbicide use (Damude and Poole 1990). Most of the historic range of star cactus in Mexico no longer contains suitable habitat because the natural vegetation has been destroyed and the land is under cultivation for oranges or corn. In Mexico today, the plant is restricted to rockier sites less threatened by cultivation and these sites are usually heavily grazed. Observers have noted that grazing practices are slowly altering the natural vegetation (Sanchez-Mejorada, *et al.* 1986).

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

Star cactus is highly prized by cactus enthusiasts for its rarity and unusual appearance. Though the plant has been in cultivation since the 1930's, and propagated material is available for sale, wild collected plants remain on the market. A recent survey of the cactus trade in Texas revealed 400 field dug specimens of star cactus at a Texas nursery, these presumably from Mexico. In addition to its desirability for horticultural collections, the plant has been reported to be used as a hallucinogen and to be actively sought in the wild for this purpose (E. Haner, Soil Conservation Service, Habbronville, Texas, *in litt.* 1992). The one known population in Nuevo Leon, Mexico is believed to be extirpated due to collecting. The known population in Tamaulipas, Mexico had many large individuals up to 15 cm (5 in) in diameter in 1978, but when visited in 1985 no plants remained over 7 cm (3 in) in diameter, and fewer than 100 individuals could be found in an extensive search (Sanchez-Mejorada, *et al.* 1986). Fewer than 2,100 individuals are known in the wild (Damude and Poole 1990).

C. Disease or Predation

Occasionally plants in deteriorated condition have been observed, but disease has not been confirmed in the known populations. No evidence of predation has been noted (Damude and Poole 1990).

D. The Inadequacy of Existing Regulatory Mechanisms

Commercial trade in field collected material of star cactus is not presently prohibited in the United States by Federal or Texas State law. Star cactus is listed in appendix I of the Convention on International Trade in Endangered Species of wild Fauna and Flora (CITES), 50 CFR 23.23, but protection under this treaty is limited to international trade. Mexico also has laws prohibiting the export of its native cacti. However, enforcement of Mexican export laws and CITES protections in this near-border area can be difficult. Listing under the Act would provide protection by prohibiting interstate commerce in this species without a permit, and would make it a Federal violation to collect this plant in knowing violation of any State law or regulation, including State criminal trespass law.

E. Other Natural or Manmade Factors Affecting its Continued Existence

With fewer than 2,100 individuals known in two populations, the species may well be vulnerable to extinction because of lowered viability and genetic variability in the wild.

The Service has carefully assessed the best scientific and commercial information available regarding the past, present, and future threats faced by this species in determining to propose this rule. Based on this evaluation, the preferred action is to list *Astrophytum asterias* as endangered. The status of endangered is appropriate because of the species' limited distribution, low population numbers, and imminent threats of collecting and habitat destruction.

Critical Habitat

Section 4(a)(3) of the Act, as amended, requires that, to the maximum extent prudent and determinable, the Secretary proposed critical habitat at the time the species is proposed to be endangered or threatened. The Service finds that designation of critical habitat is not presently prudent for this species. As discussed under Factor B in the "Summary of Factors Affecting the Species," star cactus is threatened by taking, an activity difficult to enforce against and only regulated by the Act with respect to plants in cases of (1) removal and reduction to possession of listed plants from lands under Federal jurisdiction, or their malicious damage or destruction on such lands; and (2) removal, cutting, digging up, or damaging or destroying in knowing violation of any State law or regulation, including State criminal trespass law. Such provisions are difficult to enforce, and publication of critical habitat descriptions and maps would make star cactus more vulnerable and increase enforcement problems. All involved parties and principal landowners have been notified of the location and importance of protecting this species' habitat. Protection of this species' habitat will be addressed through the recovery process and through the section 7 jeopardy standard. Therefore, it would not now be prudent or beneficial to the species to determine critical habitat for star cactus.

Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for possible land acquisition and cooperation with the States and authorizes recovery plans for all listed species. The protection required of Federal agencies and the prohibition against certain activities involving listed plants are discussed, in part, below.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its critical habitat, if any is being designated. Regulations implementing this interagency cooperation provision of the Act are codified at 50 CFR part 402. Section 7(a)(4) requires Federal agencies to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species 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 ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of such a 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 the Service.

Some Federal actions that may affect this species include soil conservation and range improvement recommendations by the Soil Conservation Service to private landowners, the funding of these activities by the Agricultural Stabilization and Conservation Service, and the registration of herbicides and pesticides for rangeland use by the Environmental Protection Agency.

The Act and its implementing regulations found at 50 CFR 17.61, 17.62, and 17.63 set forth a series of general prohibitions and exceptions that apply to all endangered plants. All trade prohibitions of section 9(a)(2) of the Act, implemented by 50 CFR 17.61, apply. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to import or export, transport in interstate or foreign commerce in the course of a commercial activity, sell or offer for sale this species in interstate or foreign commerce, or to move and reduce to possession the species for areas under Federal jurisdiction. In addition, for listed plants, the 1988 amendments (Pub. L. 100-478) to the Act prohibit the malicious damage or destruction on Federal lands and the removal, cutting, digging up, or damaging or destroying of listed plants in knowing violation of any State law or regulation, including State criminal trespass law. Certain exceptions apply to agents of the Service and State conservation agencies. The Act and 50 CFR 17.62 and 17.63 also provide for the issuance of permits to carry out otherwise prohibited activities involving endangered species under certain circumstances.

Star cactus is a popular species with cactus and succulent enthusiasts and considerable commercial trade exists. The vast majority of trade involves plants artificially propagated from seed. However, some field collected plants are also being offered for sale (Damude and Poole 1990). Requests for copies of the regulations on listed plants and inquiries regarding prohibitions and permits may be addressed to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, room 432, Arlington, Virginia 22203 (703/358-2104).

On October 22, 1987, *Astrophytum asterias* was included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 50 CFR 23.23. The effect of this action is that both export and import permits are generally required before international shipment of this species may occur. Such shipment is strictly regulated by CITES party nations to prevent effects that may be detrimental to the species' survival. Generally, the import or export cannot be allowed if it is for primarily commercial purposes. If plants are certified as artificially propagated, however, international shipment requires only export documents under CITES, and commercial shipments may be allowed.

Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, or any other interested party concerning this proposed rule are hereby solicited. Comments particularly are sought concerning:

(1) Biological, commercial trade, or other relevant data concerning any threat (or lack thereof) to this species;

(2) The location of any additional populations of this species and the reasons why any habitat should or should not be determined to be critical habitat as provided by section 4 of the Act;

(3) Additional information concerning the range, distribution, and population size of this species; and

(4) Current or planned activities in the subject area and their possible impacts on this species.

Final promulgation of the regulation on this species will take into consideration the comments and any additional information received by the Service, and such communications may lead to a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be received within 45 days of the date of publication of the proposal. Such requests must be made in writing and addressed to: Field Supervisor, U.S. Fish and Wildlife Service, Ecological Services Field Office, c/o Corpus Christi State University, Campus Box 338, 6300 Ocean Drive, Corpus Christi, Texas 78412.

National Environmental Policy Act

The Fish and Wildlife Service has determined that an Environmental Assessment, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Endangered Species Act of 1973, as amended. A notice outlining the Service's reasons for this determination was published in the Federal Register on October 25, 1983 (48 FR 49244).

References Cited

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Minnich, W.S. and F. Hutflesz. 1991. Cacti and succulents for the Amateur. Cactus and Succulent Journal (U.S.) 63:122-123.

Pilbean, J. 1987. Cacti for the Connoisseur: A guide for growers and collectors. Timber Press, Portland, Oregon.

Sanchez-Majorada, H., E. Anderson, N. Taylor, and R. Taylor. 1986. Succulent Plant Conservation Studies and Training in Mexico. World Wildlife Fund, Washington, DC.

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Author

The primary authors of this proposed rule are Tim Cooper, U.S. Fish and Wildlife Service, Ecological Services Corpus Christi Field Office (see ADDRESSES) Telephone 512/888-3346 and Kathryn Kennedy, U.S. Fish and Wildlife Service, Ecological Services Austin Field Office, 611 East 6th Street, Austin, Texas 78701, Telephone 512/482-5436.

List of Subjects in 50 CFR Part 17

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

Proposed Regulation Promulgation

PART 17—[AMENDED]

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:

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

§ 17.12 Endangered and threatened plants.

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(h) * * *

Species		Historic range	Status	When listed	Critical habitat	Special rules
Scientific name	Common name					
*	*	*	*	*	*	*
Cactaceae—Cactus family:						
*	*	*	*	*	*	*
Astrophytum asterias (=*Echinocactus asterias*).	Star cactus	U.S.A. (TX); Mexico	E		NA	NA
*	*	*	*	*	*	*

Dated: September 14, 1992.

Bruce Blanchard

Director, Fish and Wildlife Service.

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