

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

RIN 1018-AB73

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Oregon Chub

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The U.S. Fish and Wildlife Service (Service) determines endangered status for the Oregon chub (*Oregonichthys crameri*) throughout its range, pursuant to the Endangered Species Act of 1973, as amended (Act). The Oregon chub is a small cyprinid fish that formerly inhabited sloughs and overflow ponds throughout the Willamette River drainage in Oregon. The only remaining established populations are restricted to an 18.6 mile (30 kilometer) stretch of the Middle Fork Willamette River drainage, just 2 percent of its historic range. Most remaining populations occur near rail, highway, and power transmission corridors and within public park and campground facilities. These populations are threatened by (1) direct mortality from chemical spills from overturned truck or rail tankers, runoff or accidental spill of brush control and agricultural chemicals, and overflow from chemical toilets in campgrounds; (2) competition for resources or predation resulting from intentional or accidental introductions of nonindigenous fishes; and (3) loss of habitat from siltation of shallow habitats from logging and construction activities, unauthorized fill activities, and changes in water level or flow conditions from construction, diversions, or natural desiccation. This rule implements the protection and recovery provisions afforded by the Act for this fish.

EFFECTIVE DATE: November 17, 1993.

ADDRESSES: The complete file for this rule is available for public inspection, by appointment, during normal business hours at the U.S. Fish and Wildlife Service, Portland Field Office, 2600 S.E. 98th Avenue, Suite 100, Portland, Oregon 97266.

FOR FURTHER INFORMATION CONTACT: Russell D. Peterson, Field Supervisor, at the above address (telephone number 503/231-6179).

SUPPLEMENTARY INFORMATION:

Background

The Oregon chub was first described by Synder in 1908 as *Hybopsis crameri* (Long 1978), and considered to be the sole western member of the genus *Hybopsis* (Markle *et al.* 1991). Subsequent taxonomic revisions included placing the chub in the monotypic genus *Oregonichthys* in 1929, and again within *Hybopsis* in 1951 (Markle *et al.* 1991). Further revisions of *Hybopsis* recognized several subgenera including *Oregonichthys* (Markle *et al.* 1991) and the current treatment of *Oregonichthys* as a monotypic genus by Maden (Pearsons 1989). The genus *Oregonichthys* is endemic to the Umpqua and Willamette Rivers of western Oregon. In the past, the common name "Oregon chub" as been used to refer to all *Oregonichthys* from both of these drainages. However, the Umpqua River form of *Oregonichthys* (*O. kalawatseti*) has been formally described (Markle *et al.* 1991) as taxonomically distinct from the *Oregonichthys* in the Willamette River drainage, which retains the earlier name of *O. crameri*. Use of the term "Oregon chub," therefore, refers only to *O. crameri*.

The Oregon chub was formerly distributed throughout the lower elevation backwaters of the Willamette River drainage (Pearsons 1989). Known established populations of the Oregon chub are now restricted to an 18.6 mile (30 kilometer (km)) stretch of the Middle Fork Willamette River in the vicinity of Dexter and Lookout Point Reservoirs in Lane County, Oregon. Small numbers of chubs (one to four fish) have also been observed in recent years on the lower North Santiam River, which forms the boundary between Linn and Marion Counties and in Gray Creek within the Finley National Wildlife Refuge in Benton County. Surveys in 1992 discovered an additional population in a tributary to Lake Creek in Linn County (Douglas F. Markle, Oregon State University (OSU), pers. comm., 1992). The long-term viability of the Gray Creek, North Santiam River, and Lake Creek populations remain unknown.

Decline of the Oregon chub is attributed to changes in and elimination of its backwater habitats. The mainstem of the Willamette River was formerly a braided channel with numerous secondary channels, meanders, oxbows, and overflow ponds that may have provided habitat for the chub. However, the construction of flood control projects and revetments have altered historical flooding patterns and

eliminated much of the river's braided channel pattern (Corps of Engineers (COE) 1970, Li *et al.* 1987). The period of construction of flood control structures coincides with the period of decline of this species. In addition, the introduction of nonindigenous species (e.g., bass, crappie, mosquito fish) may have exacerbated the species' decline and may limit the potential for the Oregon chub to expand beyond its present restricted range.

Habitat at the remaining population sites of the Oregon chub is typified by low- or zero-velocity water flow conditions, depositional substrates, and abundant aquatic, or overhanging riparian, vegetation. Life history information on the Oregon chub was derived primarily from observations made at the Shady Dell Pond (Pearsons 1989). Spawning occurred from the end of April through early August when water temperatures ranged from 16° to 28 °C. Males greater than 25 mm in standard length (SL) were involved in spawning. Males over 35 mm SL defended territories in or near aquatic vegetation (mostly *Fontinalis antipyretica*). The number of eggs produced per female ranged from 147 to 671. During the May sampling period, adult Oregon chub (27 to 58 mm SL) fed most heavily on copepods, cladocerans, and chironomid larvae (Markle *et al.* 1991).

Previous Federal Action

Service action began when it included the Oregon chub on the December 30, 1982, Notice of Review for vertebrate wildlife as a category 2 candidate species (47 FR 58454). A category 2 candidate species is one for which information contained in Service files indicates that proposing to list is possibly appropriate but additional data are needed to support a listing proposal. The Oregon chub was included in the September 18, 1985 (50 FR 37958), and January 6, 1989 (54 FR 554), Animal Notices of Review as a category 2 candidate. All inclusions on the Notice of Review have been under the earlier name *Hybopsis crameri*.

On April 10, 1990, the Service received a petition to list the Oregon chub (*Oregonichthys crameri*) as an endangered species and to designate critical habitat. The petition and supporting documentation were submitted by Dr. Douglas F. Markle and Mr. Todd N. Pearsons, both of OSU. The petitioners submitted taxonomic, biological, distributional, and historic information and cited numerous scientific articles in support of the petition. The petition and accompanying data described the

Oregon chub as endangered because of a 98 percent reduction in the range of the species and potential threats at existing known population sites. The Service made a 90-day finding that substantial information had been presented which indicated that the requested action may be warranted and published this finding in the *Federal Register* on November 1, 1990 (55 FR 46080).

Important new data on the ecology, distribution, and taxonomic status of *Oregonichthys crameri* (Pearsons 1989, Markle *et al.* 1991) provided the Service with sufficient information to elevate it to category 1 status and support a proposed listing. On November 19, 1991, the Service published a proposal to list the species as endangered (56 FR 58348). The proposal also constituted the 1-year finding that the petitioned action was warranted, in accordance with section 4(b)(3)(B) of the Act. Information evaluated in this listing determination includes pertinent data available from both published and unpublished sources. Unpublished sources include solicited draft reports, letters, and personal contacts with agencies, organizations, and individuals.

Summary of Comments and Recommendations

In the November 19, 1991, proposed rule (56 FR 58348) and associated notifications, all interested parties were requested to submit factual reports or information that might contribute to the development of a final decision. The comment period closed on January 21, 1992. Appropriate State agencies, county governments, Federal agencies, scientific organizations, and other interested parties were contacted and requested to comment. No requests for public hearings were received. One comment was received and is discussed below.

The single comment expressed the position that enacting conservation measures specified in the Conservation Agreement for the Oregon chub would preclude the need for Federal listing. The Service responds by stating the following: A Conservation Agreement for the Oregon chub in the Willamette Valley of Oregon was prepared by the Oregon Department of Fish and Wildlife (ODFW), in conjunction with Oregon State University, to help coordinate management efforts among State and Federal agencies for the species and its habitat. This Conservation Agreement was finalized in January 1992 and became effective on May 8, 1992. The signatory agencies consist of ODFW, Oregon Parks and Recreation

Department, COE, Bureau of Land Management, the Service, and Forest Service (Willamette National Forest). The goal of the Conservation Agreement is to " * * * reverse the declining trend of Oregon chub populations, and to increase the abundance of this species in healthy, wild populations through protection of habitat, re-introductions to suitable habitat within its historic range, and public education and involvement." The objectives of the Conservation Agreement are to (1) establish a task force to oversee and coordinate Oregon chub conservation and management actions, (2) protect existing populations, (3) establish new populations, and (4) foster greater public understanding of the Oregon chub and its status.

Although the goal of the Conservation Agreement is to provide for the conservation and recovery of the species, the document does not outline specific tasks or a timetable for implementing them, nor does it address the estimated costs of implementing these actions. The Conservation Agreement may serve as a useful basis for a recovery plan in the future. At present, however, accomplishment of tasks adequate to substantially reduce existing threats has not occurred, and the species remains in danger of extinction from the threats discussed in this rule.

Summary of Factors Affecting the Species

After a thorough review and consideration of all information available, the Service has determined that the Oregon chub should be classified as an endangered species throughout its range. Procedures found in section 4 of the Act (16 U.S.C. 1533) and regulations (50 CFR part 424) promulgated to implement the listing provisions of the Act were followed. A species may be determined to be an endangered or threatened species due to one or more of the five criteria described in section 4(a)(1). These factors and their application to the Oregon chub (*Oregonichthys crameri*) are as follows:

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

Based on a 1987 survey (Markle *et al.* 1989) and compilation of all known historical records, presently viable populations of the Oregon chub occur in the following locations: Dexter Reservoir, Shady Dell Pond, Buckhead Creek near Lookout Point Reservoir, and possibly Elijah Bristow State Park, and Finley National Wildlife Refuge. These represent a small fraction—estimated as 2 percent based on stream miles—of the

species' formerly extensive distribution within the Willamette River drainage. This 98 percent decline in the range of the species prompted the petitioners to request endangered status for the Oregon chub.

The decline of the Oregon chub has been correlated with the construction of dams. Based on the date of last capture at a site, Pearsons (1989) estimated that the most severe decline occurred during the 1950's and 1960's. Eight of 11 flood control projects in the Willamette River drainage were completed between 1953 and 1968 (COE 1970). Other structural changes along the Willamette River corridor, such as revetment and channelization, diking and drainage, and the removal of floodplain vegetation, have removed or altered the slack water habitats of the Oregon chub (Willamette Basin Task Force 1969, Hjort *et al.* 1984, Sedell and Froggatt 1984, Li *et al.* 1987, Scheerer *et al.* 1992). Channel confinement, isolation of the Willamette River from the majority of its floodplain, and elimination or degradation of both seasonal and permanent wetland habitats within the floodplain began as early as 1872 and, for example, has reduced the 15-mile (25-km) reach between Harrisburg and the McKenzie River confluence from over 155 miles (250 km) of shoreline in 1854 to less than 40 miles (64 km) presently (Sedell and Froggatt 1984, Sedell *et al.* 1990).

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

Not known to be applicable.

C. Disease or Predation

The establishment and expansion of nonindigenous species in Oregon has likely contributed to the decline of the Oregon chub and limits the species' ability to expand beyond its current restricted range. Nonindigenous fishes and amphibians (bass, crappie, mosquito fish, bullfrogs and others) are now a significant element of the pond and slough habitats of the Willamette River drainage (Willamette Basin Task Force 1969, Hjort *et al.* 1984, Li *et al.* 1984, Scheerer *et al.* 1992). Many sites formerly inhabited by the Oregon chub are now inhabited by nonindigenous species (Markle *et al.* 1989). Of the remaining population sites, Shady Dell Pond and Buckhead Creek are not known to have nonindigenous fish populations and Elijah Bristow State Park had only a single juvenile largemouth bass (ODFW 1992). Though a number of otherwise similar habitats were sampled on Finley National Wildlife Refuge, the site where Oregon

chub were collected was apparently the only site within the refuge where nonindigenous fishes were infrequent; a single brown bullhead (*Ictalurus nebulosus*) was collected during the survey (Scheerer *et al.* 1992). Nonindigenous fish populations are present in Dexter and Lookout Point Reservoirs. However, the Oregon chub population in Dexter is relatively isolated and the population in Lookout Point "has diminished greatly since the 1950's" (ODFW 1992). Although the recently identified Lake Creek population occurs in an area occupied by numerous exotic fishes (Drs. Douglas Markle and Stanley Gregory, OSU, pers. comm., 1992), the viability of this population has not been established.

Adult centrarchids (bass and crappie) and ictalurids (bullhead and catfish) are documented piscivores (Li *et al.* 1987, see also Carlander 1969, Moyle 1976, Carlander 1977, Wydoski and Whitney 1979). These fishes are frequently the dominant inhabitants of ponds and sloughs within the Willamette River drainage and may constitute a major detriment to recolonization efforts. Adult bullfrogs (*Rana catesbeiana*), an introduced amphibian, prefer habitat similar in characteristics (little to no water velocity, abundant aquatic and emergent vegetation) to preferred habitat for Oregon chub, and are omnivorous and consume small fish as part of their diet (Cohen and Howard 1958, Bury and Whelan 1984). Nonindigenous fishes may also serve as sources of parasites and diseases. However, disease and parasite problems are not well studied in the Oregon chub.

D. The Inadequacy of Existing Regulatory Mechanisms

Although the Oregon chub "clearly meets the criteria for listing" (William Haight, ODFW, pers. comm., 1991), it is not currently listed under Oregon's Act. The Oregon chub is listed as a "sensitive" species by ODFW (ODFW Adm. Rule 635-100-049). This designation is similar to the Service's category 2 designation in that it highlights the possibly precarious status of a species but requires no protective measures. The Oregon chub is listed as a sensitive species by Region 6 of the Forest Service, and as a threatened species by the American Fisheries Society (Williams *et al.* 1990). All of these designations were made when the Oregon chub was believed to include populations from the Umpqua River drainage as well as those of the Willamette River drainage.

As discussed in the Summary of Contents section of this rule, an interagency Conservation Agreement

was established for the Oregon chub in the spring of 1992. The Conservation Agreement was developed in an effort to coordinate management activities among the State and Federal agencies responsible for managing the species and/or its habitat. The goal of the Conservation Agreement is to conserve and recover the Oregon chub through protection of the species' habitat, introductions into suitable habitat within its historic range, and public education and involvement. Despite the goals and objectives of this Conservation Agreement to protect and enhance Oregon chub populations, it is a relatively new agreement, and significant tasks have not yet been accomplished. Threats from chemical spills, siltation from logging or road construction, predation and/or competition from nonnative fishes, loss of habitat, and changes in water level and flow conditions continue to threaten this species. In addition, the implementation of this agreement does not provide for any consultation with the Service pursuant to section 7 of the Act, as would listing the chub as an endangered species.

E. Other Natural or Manmade Factors Affecting its Continued Existence

All known extant populations of the Oregon chub occur near rail, highway, and power transmission corridors and within public park and campground facilities. These populations are threatened by chemical spills from overturned truck or rail tankers, runoff or accidental spills of brush control chemicals, overflow from chemical toilets in campgrounds, siltation of shallow habitats from logging and construction activities, loss of habitat from illegal fill activities, and changes in water level or flow conditions from construction, diversions, or natural desiccation. There is public pressure to develop additional sport fisheries in Lookout Point and Dexter Reservoirs. Because all remaining population sites are easily accessible, there also continues to be a potential for illegal introductions of nonindigenous species, particularly mosquito fish and game fishes such as bass and walleye.

Observed feeding strategies and diet of introduced fishes, particularly juvenile centrarchids and adult mosquito fish (Li *et al.* 1987), and bullfrogs (Cohen and Howard 1958, Kane *et al.* 1992) in many cases overlap with diet and feeding strategies described for Oregon chub (Pearsons 1989). This suggests that direct competition for food between Oregon chub and introduced species may further impede species survival, as well

as recovery efforts. The failure to find Oregon chub in waters also inhabited by mosquito fish (Dr. Douglas Markle, OSU, pers. comm., 1990) may reflect food-based competitive exclusion.

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 make this rule final. Based on this evaluation, the preferred action is to list the Oregon chub as endangered. The distribution of the Oregon chub has declined to 2 percent of its historic range and remaining populations are threatened by direct mortality from chemical spills, competition or predation from nonindigenous fishes and amphibians, and loss of habitat from siltation, unauthorized fill activities, and changes in water level or flow conditions. Critical habitat is not being designated at this time as discussed below.

Critical Habitat

Section 4(a)(3) of the Act requires that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not presently determinable for this species.

When prompt listing of a species is essential to its conservation but sufficient information to perform analyses of the impacts of critical habitat designation is lacking, the Service may go forward with a final listing decision without designating critical habitat. A critical habitat determination, to the maximum extent prudent, must then be completed not later than 2 years from the proposed listing of a species.

The petitioners recommended that "all waters and tributaries of the Middle Fork of the Willamette River from the base of Dexter Dam upstream to its confluence with the North Fork of the Middle Fork be designated as critical habitat." Since the petition was received, two additional populations of the Oregon chub have been located: One downstream of the Dexter Dam within Elijah Bristow State Park and another in a tributary of Lake Creek, Linn County. However, the suitability of Elijah Bristow State Park, Lake Creek and its tributaries, the sites of possible remnant populations on Finley National Wildlife Refuge and in the North Santiam River as habitats that might support the long-term survival of the species are not yet known. Surveys were conducted during the summer of 1992 by the ODFW and OSU, specifically for obtaining information on Oregon chub

distributions, or for general or research fisheries information on the Willamette River and its tributaries. The Service is currently evaluating the results of these studies. After a thorough analysis and review of this information, the Service will, to the maximum extent prudent, designate critical habitat for the Oregon chub.

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 encourages and results in conservation actions by Federal, State, and private agencies, groups, 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, 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)(2) of the Act 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 the Service. Road construction activity, timber sales, and alterations of current campgrounds on the Willamette National Forest and water management practices of the COE at Dexter and Lookout Point Reservoirs may require section 7 consultations with the Service.

The Act and implementing regulations found at 50 CFR 17.21 set forth a series of general prohibitions and exceptions that apply to all endangered wildlife. These prohibitions, in part, make it illegal for any person subject to the jurisdiction of the United States to take (including harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt any such conduct), import or export, transport in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any listed species. It also is illegal to

possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered wildlife species under certain circumstances. Regulations governing permits are 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 connection with otherwise lawful activities. Information on permits to take federally listed species may be obtained by writing to the Office of Management Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 432, Arlington, Virginia 22203-3507 (703/358-2104, FAX 703/358-2281).

National Environmental Policy Act

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

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Author

The primary author of this rule is Ronald Rhew, U.S. Fish and Wildlife Service, Portland Field Office (see ADDRESSES section) (telephone number 503/231-6179).

List of Subjects in 50 CFR Part 17

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

Regulation Promulgation

Accordingly, part 17, subchapter B of chapter I, title 50 of the Code of Federal

Regulations, is amended 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. Amend § 17.11(h) by adding the following, in alphabetical order under FISHES, to the List of Endangered and Threatened Wildlife as follows:

§ 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						
FISHES							
Chub, Oregon	<i>Oregonichthys crameri</i>	U.S.A. (OR)	Entire	E	520	NA	NA

Dated: September 24, 1993.
Richard N. Smith,
 Acting Director, U.S. Fish and Wildlife Service.
 [FR Doc. 93-25434 Filed 10-15-93; 8:45 am]
 BILLING CODE 4310-65-P

DEPARTMENT OF THE INTERIOR
Fish and Wildlife Service
50 CFR Part 17
RIN 1018-AB83

Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Plant *Astrophytum Asterias* (Star Cactus)

AGENCY: Fish and Wildlife Service, Interior.
 ACTION: Final rule.

SUMMARY: The Fish and Wildlife Service (Service) determines *Astrophytum asterias* (star cactus) to be 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 2,100 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 action will implement Federal protection provided by the Act for star cactus. Critical habitat is not being designated.
EFFECTIVE DATE: November 17, 1993.
ADDRESSES: The complete file for this rule is available for inspection by appointment, during normal business

hours at the Corpus Christi Ecological Services Field Office, U.S. Fish and Wildlife Service, c/o Corpus Christi State University, Campus Box 338, 6300 Ocean Drive, Corpus Christi, Texas 78412.

FOR FURTHER INFORMATION CONTACT: Angela Brooks, at the above address (Telephone 512/994-9005).

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, Pilbeam 1987, Minnich and Hutflasz 1991). In a greenhouse environment, plants grown from seed are consistently hardier and more disease resistant 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 thorn shrub. 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 of rocks growing on gravelly saline clays or loams overlaying the Tertiary Catahoula