

**U.S. FISH AND WILDLIFE SERVICE
SPECIES ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM**

SCIENTIFIC NAME: *Paronychia congesta*

COMMON NAME: Bushy whitlow-wort

LEAD REGION: 2

INFORMATION CURRENT AS OF: March 2006

STATUS/ACTION

Species assessment - determined species did not meet the definition of endangered or threatened under the Act and, therefore, was not elevated to Candidate status

New candidate

Continuing candidate

Non-petitioned

X Petitioned - Date petition received: January 9, 1975 was the date Congress received a report from the Smithsonian containing a list of plants which included the bushy whitlow-wort, *Paronychia congesta*. On July 1, 1975, the Service published the notice (40 FR 27823) accepting the Smithsonian report as a petition. On June 16, 1976 (41 FR 24523), the Service published a proposed rule to determine approximately 1,700 vascular plants as endangered. The 1978 amendments to the ESA required withdrawal of all proposals over two years old, so on December 10, 1979 (44 FR 70796), the Service published a notice withdrawing the June 1976 proposal. On December 15, 1980 (45 FR 82823), the Service published a list of plants under review for listing as threatened or endangered and included *P. congesta* as a Candidate Category 3 instead of a Category 1, a publication mistake. *Paronychia congesta* remained classified as C3 in the 1983 Notice of Review supplement (48 FR 229) resulting in a continuation of the original error in the species' candidate category. This error in classification was corrected in 1985 (50 FR 00040) when it became a Category 1 Candidate. All of the plants included in the Smithsonian report were treated as newly petitioned on October 13, 1982. From 1985 onward the Service found the petitioned action warranted but precluded for *P. congesta*. *Paronychia congesta* was repeticioned on May 11, 2004.

90-day positive - FR date:

X 12-month warranted but precluded - FR date: 50FR 00040 1985

Is the petition requesting a reclassification of a listed species?

FOR PETITIONED CANDIDATE SPECIES:

a. Is listing warranted (if yes, see summary of threats below)? No?

b. To date, has publication of a proposal to list been precluded by other higher priority listing actions?

c. If the answer to a. and b. is "yes", provide an explanation of why the action is precluded.

Listing priority change

Former LP:

New LP: ____

Date when the species first became a Candidate (as currently defined): 1985

Candidate removal: Former LP: 11

A - Taxon is more abundant or widespread than previously believed or not subject to the degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

F - Range is no longer a U.S. territory.

I - Insufficient information exists on biological vulnerability and threats to support listing.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act's definition of "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Flowering Plants
Family: Caryophyllaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Texas/U.S.A.

CURRENT STATES/ COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE:
Texas/Jim Hogg County/U.S.A.

LAND OWNERSHIP

This species occurs entirely on privately-owned land, although a pipeline company has a right-of-way through one population. Although a highway bisects one of the known populations, none of the individual plants have been found in the right-of-way, just on the other sides of the fenceline (J. Poole, Texas Parks & Wildlife Department, pers. comm., 2004)

LEAD REGION CONTACT: Susan Jacobsen, 505-248-6641

LEAD FIELD OFFICE CONTACT: Corpus Christi Ecological Services FO, Robyn Cobb, 361-994-9005

BIOLOGICAL INFORMATION

Species Description

Paronychia congesta is a densely pubescent perennial in the carnation family. It grows 0.5-2 dm (2-8 inches) tall from a woody base. The linear, pointed leaves are opposite, overlapping, usually appressed to the stem, and 5-6 mm (0.2 in.) long with membranous stipules that give the plant a desiccated appearance. The flowers are clustered at the tips of the branches, lack petals, and are characterized by spine-tipped yellow sepals. Each bladder-like fruit contains one seed. This species has been collected only a few times since it was first described. No biological studies have been conducted and little biological information on *P. congesta* is available in the literature (Damude and Poole 1990).

Taxonomy

Paronychia congesta was first collected in Jim Hogg County, Texas, by D. S. Correll in 1963.

In 1966, Correll described the species and named it *P. congesta*. Damude and Poole (1990) indicated that Correll's 1966 description used the following five distinctive characteristics of this species to separate it from other members of the genus *Paronychia* within Texas: 1) the dense covering of short hairs, 2) the numerous congested overlapping leaves, 3) the bracts at the base of the stems and primary branches, 4) the flowers exceeding the bracts and leaves, and 5) the short erect calyx-awn. Turner recognized this species in his treatment of Texas *Paronychia* (Turner, B. L. 1983a) and described the species as a distinct calcareous taxon not likely to be confused with other species of *Paronychia* in the region, all the rest of which occur in sandy soils. In his endeavor to determine the true number of species of *Paronychia* actually occurring in Texas, Turner (1983a) worked to ascertain the biological and nomenclatural status of 3 species, including *P. congesta*, and concluded that this plant is a "good" taxon, worthy of species status. I have reviewed the available taxonomic information and have reached the conclusion that this species is considered a valid taxon.

Habitat

The habitat description at the site where *Paronychia congesta* was first collected in 1963 was described as "rocky slopes of breaks" (Correll 1966). The species grows in shallow soils on xeric caliche or calcareous outcrops of the Bordas Escarpment along the Rio Grande Plains. The two known population sites occur on soils classified as Zapata soils, which are characterized as well-drained, calcareous, shallow soils with a low available water capacity forming over caliche (Sanders, et al. 1974). Turner (1983b) described *P. congesta* as growing under xeric conditions on shallow caliche or calcareous outcrops with no soil horizons, at elevations between 750 to 790 feet. The plant grows out of the shallow soils that collect in cracks and crevices atop the calcareous outcrops. A further description of the substrate on which the known populations occur indicates that it is more of a volcanic tuff than a true soil (J. Poole, pers. comm., 2004). This substrate has a high lime and low litter content. The species grows in full sun, receiving little to no protection from any surrounding vegetation (Damude and Poole 1990).

Historical Range/Distribution

Paronychia congesta is a rare plant of the South Texas brushland with a range that is restricted to a narrow line of broken uplands (Bordas Escarpment) that dissects the Hebbbronville plain in Jim Hogg County's northwestern corner (Damude and Poole (1990). The bushy whitlow-wort is endemic to Jim Hogg County, Texas (Damude and Poole 1990), known from two sites in this county. The two sites occur within two miles of each other, and are within the drainage of two tributaries of the Arroyo Grande. The species was historically known from only the type locality, having been collected in 1963 by Correll at this site. The species was not collected again until 1983 when B. L. Turner relocated four plants at the type locality while conducting a study of *Paronychia* species in Texas (Turner 1983). In 1987, Poole located 2,000 individuals at the type locality and discovered a second population of 100 individuals two miles north-northeast of the type locality (Damude and Poole 1990).

Current Range/Distribution

The data available suggests that the current range and distribution of *Paronychia congesta* has not changed from the historical range described above. Poole surveyed 5 other sites in this region, using the unusual qualities of the substrate to target searches, but was unsuccessful at uncovering any new populations (Damude and Poole 1990). The habitat type in which this plant

occurs appears to be very unique and limited in distribution (J. Poole, pers. comm.. 2004). Turner's 1983 status report for *P. congesta* suggests that this species is an extremely narrow endemic that may be a member of an edaphic climax community, persisting on these distinctive slopes.

Population Estimates/Status

Correll did not report information on population size when *P. congesta* was first collected in 1966 at the type locality. Turner found only 4 individuals when he rediscovered this population in 1983, however in 1987, Poole found approximately 2,000 individuals in this same general vicinity. Damude and Poole (1990) attributed this fluctuation in numbers of individual plants to a difference in observers, potentially at different populations in the same general area. Also in 1987, Poole found 100 individual plants at a second population site. These two populations occupy small areas, totaling approximately 5 and 15 acres. The type locality population was found to be dissected by a natural gas pipeline right-of-way, and the second, smaller population dissected by a highway right-of-way (Damude and Poole 1990). No seedlings or juveniles have been seen, although the plants have been seen in fruit and in flower. No quantitative data has been collected; thus it is unknown whether populations have been expanding or contracting. This information on population size is the only available data for this species.

THREATS

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

Threats believed to adversely affect the bushy whitlow-wort include destruction, modification and fragmentation of the habitat. Destruction of habitat for this species is anticipated when habitat is converted from rangeland to residential development. However, this part of southern Texas is not undergoing rapid residential or industrial development, thus the threat from this type of activity is considered low. Other activities that could modify the habitat of bushy whitlow-wort include conversion of native plant communities to improved monoculture pastures; increased petroleum and natural gas exploration, production and transportation; and highway and infrastructure improvements. Modification of habitat occurs when chemical or mechanical brush clearing is undertaken and non-native grasses, such as buffelgrass (*Pennisetum ciliare*) are planted into cleared areas. Habitat fragmentation results from blading, or disking and reseeding with erosion-control seed mixtures. The current potential threats to this species include displacement or destruction of individual plants by construction activities associated with highways, pipeline installation, oil and gas exploration, and well-pad construction. Right-of-way maintenance procedures could also potentially have a negative effect on these plants. Herbicides used on highway, utility, and pipeline rights-of-way are another potential impact that can contribute to the destruction of the species and its habitat. Highway and pipeline construction most likely destroyed plant individuals and current pipeline ROW maintenance procedures may negatively affect the plants. These types of activities would primarily affect those individual plants in the footprint of the proposed action, as opposed to the entire population at either site. At this time, we do not know the status of oil and gas exploration and production activities in this area. With regard to highway construction and maintenance, the closest highway is a Farm/Ranch road that has not been worked on since 1992 (Karen Clarey, Texas Department of Transportation, pers. comm., 2005). Fire suppression in this region has drastically changed the surrounding plant community. Sanders et al (1974) noted the suitability of soils in this area as a

source of caliche and noted that mining of caliche might pose a threat to *Paronychia congesta*'s habitat. However, the primary land use on Zapata soils is rangeland.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

There is no data to indicate that this species is collected for commercial, recreational, scientific or education purposes.

C. Disease or predation.

Although grazing or browsing predation has not been observed, the possibility exists that this species could be threatened by grazing since it is not thorny or spiny and does not appear to be aromatic (Damude and Poole, 1990). According to Turner (1983b), the type locality was intensively grazed by goats in the distant past and is currently grazed by cattle. This region of the state is known to have experienced habitat degradation due to heavy grazing pressures upon the very arid environment. The impacts of cattle grazing to *Paronychia congesta* are unknown.

D. The inadequacy of existing regulatory mechanisms.

This species occurs only on private land and is not protected by Federal and/or State regulations.

E. Other natural or manmade factors affecting its continued existence. In 1990, Poole noted that the number of individuals, and the apparent vigor of the plants in the second, smaller population, was reduced due to two consecutive years of drought and freezes (Damude and Poole 1990). Due to the small range, limited habitat, and low numbers of populations and individuals, this species could lose genetic variability or suffer from a variety of chance events (Ellstrand and Elam 1993; Fenster and Dudash 1994; Newman and Pilson 1997).

CONSERVATION MEASURES PLANNED OR IMPLEMENTED

In 2003, Gena Janssen, a consulting botanist working on a rare plant project funded through a Section 6 Candidate Conservation agreement grant, contacted the landowners of both Bushy whitlow-wort populations. These landowners indicated an interest in discussing a possible candidate conservation agreement. Although Janssen planned to revisit them in FY 04 to try to secure permission to conduct site visits and re-establish some level of monitoring of these populations, this visit did not occur. Janssen still plans to reconnect with these two landowners and to pursue candidate conservation agreements (G. Janssen, Janssen Biological, Inc., pers. comm., 2005).

SUMMARY OF THREATS INCLUDING REASONS FOR ADDITION TO OR REMOVAL FROM CANDIDACY

Bushy whitlow-wort is endemic to Jim Hogg County, Texas, known from only two populations that occur within the drainage of two tributaries of the Arroyo Grande. Historically, this species was documented only from the type locality with 2,000 individual plants counted until a second small population of 100 individuals was found two miles north-northeast of the type locality in 1987. The two known populations occur on small areas that cover approximately 5 and 15 acres. Little quantitative data has been collected for this species, therefore it is unknown whether populations have expanded or contracted. The sparse information that is available suggests that the current range and distribution of the species has not changed from the historical description. The types of threats believed to potentially adversely affect this species include destruction,

modification, and fragmentation of the habitat, as well as eradication of individual plants. Conversion of rangeland to residential development is not considered imminent or a threat of high magnitude since this part of southern Texas is not undergoing rapid residential or industrial development. The extent of alteration of the whitlow-wort's habitat via conversion of native brush to non-native forage grasses is unknown since all habitat is privately owned and not accessible. Other potential threats include displacement or destruction of individual plants by construction activities associated with highways, pipeline installation, oil and gas exploration, well-pad construction and right-of-way maintenance. At this time, we do not know the status of oil and gas exploration and production activities in this area, nor do we have information on right-of-way maintenance. No imminent threats have been identified for this species. We are removing this species from the candidate list because there is insufficient information on the species status throughout its range to determine whether this species warrants protection under the Act.

For species that are being removed from candidate status:

No Is the removal based in whole or in part on one or more individual conservation efforts that you determined met the standards in the Policy for Evaluation of Conservation Efforts When Making Listing Decisions (PECE)?

RECOMMENDED CONSERVATION MEASURES

Establishing a positive working relationship with the landowners of both *P. congesta* populations is a foremost conservation measure needed for this species. Increasing landowner awareness and levels of trust are the building blocks of conservation for bushy whitlow wort because the most immediate need regarding this plant's conservation is gaining access to the existing populations, as well as access to other properties in the general area, all of which are privately owned, in order to search for new populations. Damude and Poole (1990) suggested focusing additional surveys in areas with similar soils, general elevation and geology, and concentrating along ridges and cuerdas of the Goliad Formation at elevations between 600-900 feet. Development of a monitoring program is essential. Both populations should be monitored to determine trends in demography. Monitoring should include determination of the impact of macroclimate on population vigor and numbers. In order to develop monitoring protocols for *P. congesta*, in-depth characterization, including community composition, microclimate profile, and soils, is needed for both populations (Damude and Poole, 1990).

If access to the populations is obtained, a variety of studies should be undertaken on various aspects of the life history of this plant to fill data gaps. Such studies should include determinations of survivorship, flowering and fruiting regimes, levels of fecundity, modes of reproduction, seasonal patterns, mortality factors, age structure, extent of out-breeding, identification of pollinators, and methods of seed dispersal. In addition to these specific studies, a general assessment of vigor, trends and status of the species is needed, as well as management-related information from an assessment of the effects of grazing and other ongoing land use practices. Information generated from these activities should be used to discuss alternative range management practices with landowners, if indeed the current ones are undermining the continued existence of the species.

In additions to establishing working relationships with landowners, the oil and gas companies active in this geographic area should be approached to determine whether they are amenable to modifying any activities that may be detrimental. Coordination with the highway department is essential to protection of the population adjacent to the farm-to-market road.

Cultivation of this species in a recognized botanical garden is also among the recommendations included in the most recent status survey for this species (Damude and Poole 1990).

No (no new information has been received) Have you promptly reviewed all of the information received regarding the species for the purpose of determining whether emergency listing is needed?

Is Emergency Listing Warranted?

There is no data to indicate that the threats to this species are of high magnitude or imminent. Land use in the area where the two known populations occur does not appear to have changed or to be changing in the near future.

DESCRIPTION OF MONITORING:

Annually, we meet with other botanists during a rare plant conference and are in frequent contact with university and NGO botanists and biologists who work in this part of the state to gather any new information there might be on this species. We have also contacted botanists who work in this geographic area, including those who work for, or under contract to, Texas Parks and Wildlife Department and the Texas Department of Highways. However, due to denied access, no agency biologists have visited the population sites since the early 1990's. Other than Janssen's approach to the landowners, we have not been given any information that would indicate that other botanists/biologists, such as academics or conservation organization staff, have visited the sites.

COORDINATION WITH STATES

Indicate which State(s) (within the range of the species) provided information or comments on the species or latest species assessment: Texas Parks and Wildlife Department and the Texas Department of Transportation provided information for this assessment.

Indicate which State(s) did not provide any information or comments:

LITERATURE CITED:

Correll, D.S. 1966. *Brittonia* 18: 307.

Damude, N. and J. Poole. 1990. Revised Status Report on Paronychia congesta. Texas Parks and Wildlife Department. Texas Natural Heritage Program, Austin, Texas.

Ellstrand, N. C., and D. R. Elam. 1993. Population genetic consequences of small population size: implications for plant conservation. *Annual Review of Ecology and Systematics* 24:217-242.

Fenster, C. B., and M. R. Dudash. 1994. Genetic considerations for plant population restoration and conservation. Pages 34-61 in M. L. Bowles and C. Whelan, editors. Recovery and restoration of endangered species. Cambridge University Press, Oxford, United Kingdom.

Newman, D., and D. Pilson. 1997. Increased probability of extinction due to decreased genetic effective population size: experimental populations of *Clarkia pulchella*. *Evolution* 51:354-362.

Sanders, R. R., C. M. Thompson, D. Williams, and J. L. Jacobs. 1974. Soil survey of Jim Hogg County, Texas. U.S. Dept. of Agriculture.

Turner, B. L. 1983a. The Texas species of Paronychia (Caryophyllaceae). *Phytologia* 54:9-23.

Turner, B. L. 1983b. Status report on Paronychia congesta. U.S. Fish & Wildlife Service, Albuquerque, New Mexico.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes, including elevations or removals from candidate status and listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all resubmitted 12-month petition findings, additions or removal of species from candidate status, and listing priority changes.

Approve: /s/ Benjamin N. Tuggle 6/23/2006
Acting Regional Director, Fish and Wildlife Service Date



Concur: _____ August 23, 2006
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Date of annual review: March 2006
Conducted by: