

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Digitaria pauciflora Hitchcock

COMMON NAME: Florida pineland crabgrass

LEAD REGION: 4

INFORMATION CURRENT AS OF: February 2003

STATUS/ACTION (Check all that apply):

New candidate

Continuing candidate

Non-petitioned

Petitioned - Date petition received: ____

90-day positive - FR date: ____

12-month warranted but precluded - FR date: ____

Is the petition requesting a reclassification of a listed species?

Listing priority change

Former LP: ____

New LP: ____

Latest date species first became a Candidate: _____

Candidate removal: Former LP: ____ (Check only one reason)

A - Taxon more abundant or widespread than previously believed or not subject to a 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.

M - Taxon mistakenly included in past notice of review.

N - Taxon may not meet the Act=s definition of Aspecies.@

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Plant - Poaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Florida

CURRENT STATES/COUNTIES/TERRITORIES/COUNTRIES OF OCCURRENCE: Florida

LEAD REGION CONTACT (Name, phone number): Richard Gooch, 404/679-7124

LEAD FIELD OFFICE CONTACT (Office, name, phone number): South Florida Field Office, Paula Halupa, 772/562-3909 extension 257

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, # individuals/population), etc.):

Digitaria pauciflora is a herbaceous perennial grass 0.5-1 meter (1.5-3 feet) tall (Small 1933) that is easily recognized in the field by its dense covering of erect hairs, giving the plant a very fuzzy and glaucous look (Bradley and Gann 1999). Its historic distribution was from about South Miami to Long Pine Key, and a island of pineland in Everglades National Park about 42 miles from South Miami. Currently, it is only known from Long Pine Key, but in 1995 a single plant was discovered in a marl prairie in the Richmond Pine Rocklands in Miami-Dade County. This plant, on the grounds of the Luis Martinez U.S. Army Reserve Center in the Richmond Pineland Complex, has since disappeared. (The Nature Conservancy 1999, Herndon 1998; Bradley and Gann, pers. comm. 1999). This species was first collected in 1903, was named in 1928, and then was apparently not collected from 1936 until Charles E. Hilsenbeck rediscovered it in Everglades National Park in 1973 (Bradley and Gann 1999).

Plants occur most commonly along the ecotone between pine rockland and marl prairie, but do overlap somewhat into both of these ecosystems. The soil where it occurred at the Richmond Pine Rocklands has been classified as Biscayne marl, drained (USDA 1996). These habitats, particularly marl prairie, do flood for one to several months every year in the wet season. (Bradley and Gann 1999). Pine rocklands and their associated prairies are fire-maintained, with a natural fire frequency of 3 to 7 years for pine rocklands and perhaps slightly more frequently for marl prairies (Bradley and Gann 1999); in the absence of fire, tropical hardwoods quickly encroach. Bradley and Gann (1999) estimate the Long Pine Key occurrence of this species to have approximately 1,001 to 10,000 individuals. The range of Digitaria pauciflora on Long Pine Key covers about 8,000 hectares (ha) (31 square miles) (Avery 1983).

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change):

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

Most of Digitaria pauciflora's former habitat has been destroyed. Pine rocklands in Miami-Dade County (including patches of marl prairie) have been reduced to about 11 percent of their former extent (Kernan and Bradley 1996). Of the estimated historical extent of 74,000 ha (182,780 acres), only 8,140 ha (20,106 acres) of pine rocklands remained in 1996. Outside of the Everglades National Park, only about 1 percent of the Miami Rock Ridge pinelands have escaped clearing, and much of the remaining pinelands are in small remnant blocks isolated from other natural areas (Herndon 1998).

The regional water control efforts in the Everglades system may alter the hydrology of the Long Pine Key portion of the Everglades National Park, negatively affecting Digitaria pauciflora (Herndon 1998).

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

None are known.

C. Disease or predation.

None are known.

D. The inadequacy of existing regulatory mechanisms.

The Florida Department of Agriculture and Consumer Services has designated Digitaria pauciflora as endangered under Chapter 5B-40, Florida Administrative Code. This listing provides little or no habitat protection beyond the State's Development of Regional Impact process, which serves to disclose impacts from projects, but provides no regulatory protection for State-listed plants on private lands. Without local or county ordinances preventing the destruction of the plant, conservation is not likely to occur.

E. Other natural or manmade factors affecting its continued existence.

Apart from the potential destruction of suitable habitats outside Everglades National Park, fire suppression and exotic plant invasions are the greatest threats to Digitaria pauciflora. Fire is required to maintain the pine rockland community. Under natural conditions, lightning fires typically occurred at 3- to 7- year intervals, or more frequently in marl prairies. With fire suppression, hardwoods eventually invade pine rocklands and shade out understory species like Digitaria pauciflora. Fire suppression has reduced the size of the areas that do burn and habitat fragmentation has prevented fire from moving across the landscape in a natural way. Thus, many pine rockland communities have moved past their normal fire subclimax and are becoming tropical hardwood hammocks.

Exotic species have also altered the type of fire that occurs in pine rocklands. Historically, pine rocklands had an open low understory where natural fires remained patchy, with relatively low temperatures, thus sparing many native grasses such as Digitaria pauciflora. Dense exotic plant growth in Digitaria pauciflora's range can create much higher temperatures and longer burning periods. Pine rockland plants cannot tolerate these extreme conditions. As a result, the native plants may have to be conserved by removing exotics through methods other than burning. One such method, hand chopping followed by spot treatment, is labor intensive and very costly. This method may not be feasible for the Everglades National Park, given the acreage of land, and current staffing and budget constraints.

Invasive exotic plants have significantly affected pine rocklands. At least 277 exotic plants are now known to have invaded pine rocklands throughout South Florida (U.S. Fish and Wildlife Service 1999). The most serious threats to pine rocklands are Brazilian pepper (Schinus terebinthifolius) and Burmese reed (Neyraudia reynaudiana). Brazilian pepper is a threat to marl prairies (Bradley and Gann 1999).

Given the species' narrow range and the small number of individuals that exist, Digitaria pauciflora is vulnerable to natural catastrophic events such as hurricanes and tropical storms. Either one of these events could extirpate existing populations.

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? ____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ____
- c. Is a proposal to list the species as threatened or endangered in preparation? ____
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-private owners):

All but one plant of Digitaria pauciflora occurs within Everglades National Park. One plant was reported from the Captain Luis Martinez U.S. Army Reserve Center in the Richmond Pineland Complex in 1996. It has not been seen since then (Gann et al. 2002).

PRELISTING (Describe status of conservation agreements or other conservation activities):

No specific conservation activities for Digitaria pauciflora occur at the Everglades National Park. Although there is some exotic plant control, current efforts may be insufficient due to the overwhelming task and current staffing and budget constraints. No conservation efforts are being conducted at the U.S. Army Reserve Center, where the plant may no longer be present.

The Service has developed a multi-species recovery plan for the threatened and endangered species of South Florida. This plan is ecosystem-based and includes many recommendations for conservation of the communities where Digitaria pauciflora occurs (U.S. Fish and Wildlife Service 1999).

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

Avery, G.N. 1983. Digitaria pauciflora -a very particular grass. Fairchild Tropical Garden bulletin 38 (3):30-31.

Bradley, K. A. and G. D. Gann. 1999. Status summaries of 12 rockland plant taxa in southern Florida. Report submitted to U.S. Fish and Wildlife Service, Vero Beach, Fla. The Institute for Regional Conservation, 22601 S.W. 152 Ave., Miami, Florida 33170. 82 pp.

Folk, M.L. 1991. Habitat of the Key deer. Ph.D. dissertation. Southern Illinois University, Carbondale.

Gann, G.D., K.A. Bradley, and S.W. Woodmansee. 2002. Rare Plants of South Florida: Their History, Conservation, and Restoration. Institute for Regional Conservation, Miami. 1056 pages.

- Herndon, A. 1998. Life history studies of plants endemic to South Florida. Final report to the National Park Service under cooperation agreement number CA5280-5-9019. October 1, 1995 to April 30, 1998.
- Kernan, C. and K. Bradley. 1996. Conservation survey of Linum arenicola in Dade County. A report to the U.S. Fish and Wildlife Service. Fairchild Tropical Garden, Miami, Florida.
- Small, J. K. 1933. Manual of the southeastern flora. Univ. of North Carolina Press, Chapel Hill. 1554 pp. [Poaceae contributed by A.S. Hitchcock. Syntherisma pauciflorum, p. 51]
- The Nature Conservancy. 1999. BioSource; National Heritage database.
- U.S. Census Bureau. 1998. State and Metropolitan Area Data Book 1997-1998.
- U.S. Department of Agriculture (USDA) 1996. Soil survey of Dade County Area, Florida [cited in Bradley and Gann 1999].
- U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Atlanta, Georgia. 2172 pp.
- Webster, R.D. and S.L. Hatch. 1990. Taxonomy of Digitaria section Aequiglumae (Poaceae: Paniceae). Sida 14: 145-167 [cited in Bradley and Gann 1999].

LISTING PRIORITY (place * after number)

THREAT

Magnitude	Immediacy	Taxonomy	Priority
High	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	Non-imminent	Monotypic genus	4
		Species	5*
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

Rationale for listing priority number:

Magnitude: The only known extant locality is Long Pine Key within Everglades National Park. The number of plants may be no more than 10,000 on the 8,000-hectare Key. The small numbers and lack of multiple localities makes this plant vulnerable to extinction.

Imminence: Long Pine Key is appropriately managed for its fire-dependent native flora.

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Linda Kelsey March 14, 2003
Acting Regional Director, Fish and Wildlife Service Date

Concur: _____ Date _____
Director, Fish and Wildlife Service

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

Director's Remarks:

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Date of annual review: February 2003

Conducted by: David Martin - South Florida Ecological Services Office

Comments:

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