

CANDIDATE AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Linum carteri var. carteri Small

COMMON NAME: Carter's small-flowered flax

LEAD REGION: 4

INFORMATION CURRENT AS OF: January 5, 2001

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: ____

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 "species."

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Plant - Linaceae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Florida

CURRENT STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Florida

LEAD REGION CONTACT (Name, phone number): Lee Andrews, 404/679-7217

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Vero Beach, Florida Field Office, Dave Martin, 561/562-3909 ext. 230

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

“Linum carteri var. carteri is an erect, annual or short-lived perennial herb, often with several stems 23 to 36 centimeters (roughly 1 foot) tall. The stems are puberulent (with fine, short hairs). The leaves are slender, 1.8 to 2.6 centimeters long. Its flower petals are orange-yellow and 9 to 17 millimeters long. “In habit and flower the plant closely resembles pitted stripeseed (Piriqueta caroliniana).” (Bradley and Gann 1999). Its historic range was from Coconut Grove southward in Miami-Dade County in pine rocklands. The very similar L. carteri var. smallii, which has glabrous (hairless) stems, has a slightly larger range as an endemic, fire dependent, herbaceous annual plant that historically occurred throughout the pine rocklands of the Miami Rock Ridge on the southeast Florida mainland.

Linum carteri var. carteri can be found only on the Miami Rock Ridge in Miami-Dade County. K. Bradley and G. Gann (1999) estimate that fewer than 1,000 individuals exist at 9 occurrences, of which only 3 are on conservation lands. Recently, a known population of the species was extirpated from the Charles Deering Estate (K. Bradley and G. Gann, pers. comm. 1999).

Linum carteri var. carteri is unusual in that none of the known populations is from a completely undisturbed pine rockland. All known occurrences are within scarified pine rocklands, in disturbed areas adjacent to or within rocklands, or in completely disturbed areas. Linum carteri var. carteri may not be able to tolerate shading or litter accumulation, and therefore may have been excluded from much of its former habitat. Fire was suppressed in Miami pine rocklands for decades, and many native species may have been forced out of these pinelands by excessive shade. Scarified pine rocklands often support diverse assemblage of native pineland herbs and grasses (Bradley and Gann 1999).

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. Residential and commercial development, and agriculture have drastically reduced the habitat for Linum carteri var. carteri throughout pine rockland habitats in south Florida. Pine rockland habitat in Miami-Dade County has been reduced to about 11 percent of its natural extent (Kernan and Bradley 1996). Of the original 74,000 hectares (ha) (182,780 acres), 8,140 ha (20,106 acres) of pine rockland habitat remained in 1996. Less than 2 percent of the 65,000 ha (160,550 acres) of pine rockland habitat that existed outside Everglades National Park in 1900 remains today (Kernan and Bradley 1996). Given the number of people moving to Florida, pressures from development are not expected to diminish in the years to come, especially throughout South Florida. Florida has experienced a 15.3 percent increase in the human population from April 1, 1990, to July 1, 1998, and was ranked the fourth fastest growing State in the nation during 1998 (U.S. Census Bureau). Habitat loss by itself may drive Linum carteri var. carteri to extinction.

- 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 Linum carteri, which includes varieties carteri and smallii, 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 does not occur.
- E. Other natural or manmade factors affecting its continued existence. Fire is required to maintain the pine rockland community. Under natural conditions, lightning fires typically occurred at 3- to 7-year intervals. With fire suppression, hardwoods eventually invade pine rocklands and shade out understory species like Linum carteri var. carteri. Natural fires are unlikely to occur or will be suppressed in the remaining highly fragmented pine rockland habitat in Miami-Dade County.

Invasive exotic plants, especially Burmameed (Neyraudia reynaudiana) and Brazilian pepper (Schinus terebinthifolius) threaten pine rockland plants, including Linum carteri. "The control of exotic species in pine rockland is a very important part of habitat maintenance, although it can be very costly once exotics are established in an area.." (Bradley and Gann 1999). Brazilian pepper is the most widespread and one of the most invasive species. If left uncontrolled in a fire-suppressed pineland, it will form a dense single-specie canopy almost completely eliminating native vegetation. Earleaf acacia (Acacia auriculiformis), natal grass (Rhynchelytrum repens), shrub verbena (Lantana camara), and tongue tree (Albizia lebeck) are some of the other exotic pests in pine rocklands. All of these species affect the characteristics of a fire when it does occur, providing fuel for fires much hotter than when the main fuel was pine needle duff. For instance, a catastrophic fire may favor bracken fern at the expense of grasses.

Based on the low numbers of individuals within the species' narrow range, catastrophic events such as hurricanes or tropical storms may negatively impact the species by altering the vegetation composition or water levels, or simply by creating masses of urban debris that may be disposed of in remnant pinelands (as happened in 1992).

BRIEF SUMMARY OF REASONS FOR REMOVAL OR LISTING PRIORITY CHANGE:

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): Two Linum carteri var. carteri populations with fewer than 100 total individuals are located at two county preserves, Camp Owaissa Baer and R. Hardy Matheson, managed by Miami-Dade County. The other five known sites are located on private, non-protected lands and are subject to development.

PRELISTING (Describe status of conservation agreements or other conservation activities): In 1979, Miami-Dade County enacted the Environmentally Endangered Lands Covenant Program which gives private land owners of pine rockland habitat a tax break if they agree to not develop the property and manage it for a period of ten years (U.S. Fish and Wildlife Service 1999). Although there are no current conservation activities being conducted for Linum carteri var. carteri at the two Miami-Dade County preserves, a management plan has been proposed to manage for Linum carteri var. carteri.

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 Linum carteri var. carteri 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):

- 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.
- Kernan, C. and K. Bradley. 1996. Conservation survey of Linum arenicola in Dade County, Florida. A report to the U.S. Fish and Wildlife Service. Fairchild Tropical Garden, Miami.
- U.S. Census Bureau. 1998. State and metropolitan area data book. 1997-1998.
- U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Atlanta, Georgia. 2172 pp.

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

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, annual retentions of candidates, removal of candidates, and listing priority changes.

Approve: _____
Regional Director, Fish and Wildlife Service Date _____

Concur: _____
Director, Fish and Wildlife Service Date _____

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

Director's Remarks: _____

Date of annual review: November 13, 2000

Conducted by: Grant Webber - Vero Beach, Florida FO

Changes from October 25, 1999 CNOR(check one) Yes X No ___

Approval: _____ Dated _____
Regional Director

Comments: _____

(rev. 6/00)