

CANDIDATE AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Chamaesyce deltoidea (Engelm. ex Chapm.) Small ssp. pinetorum
(Small) A. Herndon

COMMON NAME: pineland sandmat

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 - Euphorbiaceae

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.):

Chamaesyce deltoidea ssp. pinetorum is a small erect or nearly-erect herbaceous perennial forming small tufts. The stems have rather long hairs, as to the leaves, whose blades range in shape from kidney-shaped to triangular to oval. The “flowers” are specialized structures called cyathia, characteristic of the genus Euphorbia and its closest relatives (see Small 1933 for a technical description). This is one of several Chamaesyce taxa in southern Florida. It is known only from the southern portion of the Miami Rock Ridge in southern Miami-Dade County, Florida (Small 1933, Long and Lakela 1971, Wunderlin 1998). The current and historic ranges are similar. This species occurs on the pine rocklands ecological community. It is shade intolerant and requires periodic burning to reduce competition from woody vegetation. The total number of plants has been estimated to be fewer than 10,000. Fewer than 9,000 plants occur at seven preserve sites: Everglades National Park, Florida City Pineland, Navy Wells Park, Palm Drive, Pine Ridge Sanctuary, Rock Pit #39, and Seminole Wayside Park. Fewer than 1,000 plants occur at fewer than 10 private unprotected sites (Bradley and Gann, pers. comm. 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. Much of the habitat of Chamaesyce deltoidea ssp. pinetorum has been negatively altered by human development. Pine rocklands in Miami-Dade County have been reduced to about 11 percent of their former extent (Kernan and Bradley 1996). Of the estimated historical extent of 74,000 hectares (ha) (182,800 acres), only 8,140 ha (20,110 acres) of pine rocklands remained in 1996. Outside the Everglades National Park, only about 1 percent of the Miami Rock Ridge pinelands have escaped clearing, and much of the remaining pinelands is in small remnant blocks isolated from other natural areas (Herndon 1998). Florida had a 15.3 percent increase in its human population from April 1, 1990, to July 1, 1998, and was ranked as the fourth fastest growing state in the nation during 1998 (U.S. Census Bureau 1998). This trend is expected to continue.

“Hydrologic manipulations to Taylor Slough and the Shark River Slough could affect the occurrence of this taxon in Everglades National Park. Excessive flooding in the pine rockland of Long Pine Key may be damaging to this population.” (Bradley and Gann 1999; Herndon 1998 states the same opinion).

- 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 Chamaesyce deltoidea, which includes ssp. pinetorum and two other subspecies, 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 discloses project impacts, 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 suppression and exotic plant invasions are the greatest threats to Chamaesyce deltoidea ssp. pinetorum. 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 understory species like Chamaesyce deltoidea ssp. pinetorum. Fire suppression has reduced the areas that do burn, and habitat fragmentation has prevented fire from crossing the landscape in a natural way. Thus, many pine rockland communities have moved past their normal "fire subclimax" toward tropical hardwood hammock communities.

Invasive 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 low temperature intensity, thus sparing many native plants such as Chamaesyce deltoidea ssp. pinetorum. The current density of exotic plant overgrowth may no longer allow the species to be conserved through prescribed burning. Dense vegetative growth can create very high fire temperatures and longer burning periods. Pine rockland plants cannot tolerate these extreme conditions. Given the current conditions, exotic plant control may require an alternate, more labor intensive methods such as hand chopping followed by spot treatment, which is very costly because of the hand labor. Given the acreage of land, staffing, and budget constraints, this method may not be feasible in Everglades National Park staff or Miami-Dade County preserves.

Exotic plant taxa seriously threaten pine rocklands. As a result of human activities, at least 277 taxa of 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 Chamaesyce deltoidea ssp. pinetorum and other pine rockland endemic plants are from Brazilian pepper (Schinus terebinthifolius) and Burmared (Neyraudia reynaudiana). Other, including melaleuca (Melaleuca quinquenervia) are also problems.

Based on the low number of individuals within its narrow range, catastrophic events such as hurricanes and tropical storms may negatively affect Chamaesyce deltoidea ssp. pinetorum. Either event could extirpate remaining populations.

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): Over 90 percent of the remaining habitat occurs on Everglades National Park; most of the remaining habitat occurs on preserves managed by Miami-Dade County. The 10 sites on private property make up only a small fraction of the available habitat.

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 1998).

The Service has developed a multi-species recovery for the threatened and endangered species of South Florida. This plan is ecosystem-based and includes many recommendations for conservation of the pine rockland community (U.S. Fish and Wildlife Service 1998).

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

Herndon, A. 1998. Life history studies of plants endemic to South Florida. Final report to the National Park Service under cooperative 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.

Long, R.W. and O. Lakela. 1971. A flora of tropical Florida: a manual of the seed plants and ferns of southern peninsular Florida. University of Miami Press, Coral Gables, Florida.

Small, J.K. 1933. Manual of the southeastern flora. University of North Carolina Press, Chapel Hill. 1,554 pp.

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.

Wunderlin, R.P. 1998. Guide to the vascular plants of Florida. University Press of Florida, Gainesville, Florida. 806 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: January 16, 2001

Conducted by: Dave Martin - Vero Beach, Florida FO

Changes from October 25, 1999 CNOR(check one) Yes X No___

Approval: _____ Dated _____
Regional Director

Comments: _____

(rev. 6/00)