

CANDIDATE ASSESSMENT AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME:

Indigofera mucronata Spreng. ex DC. var. keyensis (Small) Isley (subject to further review. See below)

COMMON NAME: Florida indigo or Keys indigo

LEAD REGION:

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 a species. @

X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Plant - Fabaceae

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.):

The systematics of this plant has changed in recent years. In designating this plant as a candidate, we followed the treatment by the late Duane Isely (1990), who was the expert on the legume family in the United States. The same treatment is followed by Wunderlin (1998). Since then, Wunderlin and Hansen (2003) have adopted an alternative view, under which this plant is *Indigofera trita* subsp. *scabra* (Roth) de Kort & G. Thijsse, published in *Blumea* 30(1): 140, 1984, according to the Missouri Botanical Garden's nomenclatural database (2003). The Missouri database's distributional information lists specimens of this subspecies from Mexico, Central America, Colombia, Ecuador, and Perú, plus one from Tanzania. Another name that is available (and used by the U.S. Department of Agriculture's PLANTS database) is *Indigofera trita* var. *keyensis* (Kartesz and Gandhi 1990, literature citation provided by Missouri Botanical Garden VAST 2003). We have not checked the recent literature to see whether the Keys plants might be distinct enough to be recognized as an infraspecific taxon (probably a variety within subspecies *scabra*). It is no longer clear that the Keys indigo is a Florida endemic; if not, the Keys plants represent the New World subspecies of what appears to be a species distributed throughout the tropics. If this is the case, because the Endangered Species Act requires plants to be listed throughout their ranges, the Keys indigo would not qualify for Federal listing.

*Indigofera mucronata* var. *keyensis* is a scrambling to erect annual or probably perennial herb up to 1 meter (3 feet) tall. The leafstalk is usually 1.5 to 2.5 centimeters long. Leaves usually have 5 leaflets in pairs. The flowers are typical of peas, with the corolla 6 to 7 millimeters long. The pod is 3 to 4.5 centimeters long. Contrary to some reports in the literature, this plant is not a vine. The reports are probably based on misidentified specimens of *Indigofera miniata* (Bradley and Gann 1999). Such misidentifications are probably also the source of reports in the literature (Austin 1980, Isely 1990) to the effect that this is a common, weedy species (Bradley and Gann 1999). Bradley and Gann also note that the nomenclature for this taxon needs further study.

*Indigofera mucronata* var. *keyensis* was historically distributed in the upper and middle Florida Keys from Key Largo to Knight Key. It has been collected or reported on 11 islands, including Crawl Key, Key Largo, Knight Key, Lignumvitae Key, Long Key, Long Point Key, Lower Matecumbe Key, Plantation Key, Upper Matecumbe Key, Vaca Key, and Windley Key. It is currently known only from Crawl Key, Key Largo, Long Key, Long Point Key, Plantation Key, and Windley Key. Gann et al. (2002) also note two historic collections from outside the Keys from Miami and what appears to be the heavily developed Marco Island in Collier County.

Gann et al. (2002) list only five present-day occurrences for *Indigofera mucronata* var. *keyensis*. It has been found on three State parks: John Pennecamp Coral Reef State Park, Long Key State Park, and Windley Key Fossil Reef State Geological Park. A population has been seen by Keith Bradley at Snake Creek Hammocks, Florida Keys Wildlife and Environmental Area (Gann et al. 2002). A population of 3 to 4 plants is on private, unprotected land at Long Point Key. This species was not found at one of these sites during a study conducted by Ross and Ruiz (1996), possibly due to lack of specific location information in the collection notes. The total number of plants was estimated at between 101 and 1,000 (Ross and Ruiz 1996; Bradley and Gann 1999). It is considered *critically imperiled* by both the Florida Natural Areas Inventory and the Miami-based Institute for Regional Conservation (Gann et al. 2002).

*Indigofera mucronata* var. *keyensis* is found at edges of rockland hammock (Small 1933), coastal berm, and rock barren communities in the upper Florida Keys (Bradley and Gann 1999).

Coastal rock barren is an open community with no tree canopy and a sparse subcanopy of understory hardwoods. Most of the area is composed of exposed Key Largo Limestone with diverse assemblage of herbaceous plant taxa, many of which are halophytes. The origin of this community is not understood. It seems possible that periodic storm events are responsible for maintaining coastal rock barrens (Bradley and Gann 1999).

The most complete available discussion of this plant's historic and present distribution and conservation needs is in Gann et al. (2002), pages 444-447.

**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.

This species appears to have been extirpated from the Lower and Upper Matecumbe Keys. Only about five occurrences of *Indigofera mucronata* var. *keyensis* are currently known and perhaps no more than 1,000 individuals exist. The coastal rock barrens where populations occur at Long Key State Recreation Area and Windley Key Fossil Reef State Geological Site are being invaded by native and exotic hardwoods. The exotic hardwoods on these sites should be controlled (Bradley and Gann 1999). There are probably similar threats at the Florida Keys Wildlife and Environmental Area.

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 *Indigofera keyensis* 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.

Exotic plant taxa negatively affect *Indigofera mucronata* var. *keyensis* throughout its range. At least 162 taxa of exotic plants are now known to invade *Indigofera mucronata* var. *keyensis* habitat (U.S. Fish and Wildlife Service 1998). On Long Point Key, encroaching Brazilian pepper (*Schinus terebinthifolius*) threatens to close over the opening where a small population of *Indigofera mucronata* var. *keyensis* occurs. It is unlikely this population will survive another decade under current conditions (Ross and Ruiz 1996). Latherleaf (*Colubrina asiatica*) could

also severely affect this species (Bradley and Gann 1999). Management of exotic plant invasion is crucial to the conservation of the species. Without proper control and eradication of these exotic plants, they become tall and dense creating a non-conducive environment for Indigofera mucronata var. keyensis.

Given the species= narrow range and the small number of individuals, Indigofera mucronata var. keyensis is vulnerable to natural events such as hurricanes and tropical storms. Either one of these events could extirpate existing populations or rehabilitate coastal barrens habitat.

**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):

Four of perhaps five occurrences of Indigofera mucronata var. keyensis are in State properties: John Pennecamp Coral Reef State Park, Long Key State Recreation Area, Windley Key Fossil Reef State Geological Park, and the Snake Creek Hammocks tract of Florida Keys Wildlife and Environmental Area. A fourth population is on private land at Long Point Key.

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

Although the Indigofera mucronata var. keyensis populations located on public lands are protected from development, they are still under threat from exotic vegetation. There are no specific conservation activities for Indigofera mucronata var. keyensis on public lands. There are no current conservation activities for the one Indigofera mucronata var. keyensis population on private land.

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 Indigofera mucronata var. keyensis 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):

Austin, D. 1980. Endangered and threatened plant species survey in southern Florida and the National Key Deer and Great White Heron National Wildlife Refuges, Monroe county, Florida. Report submitted to the U.S. Fish and Wildlife Service, Atlanta, Georgia.

- 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.
- Isley, D. 1990. Vascular flora of the southeastern United States. Leguminosae (Fabaceae). Vol. 3, part 2. University of North Carolina Press, Chapel Hill [cited in Bradley and Gann 1999].
- Kartesz, J. T. & K. N. Gandhi. 1990. Nomenclatural notes for the North American Flora. II. Phytologia 68(6): 421--427 (new combination of *Indigofera trita* var. *keyensis* made on page 423). Citation provided by Missouri Botanical Garden, TROPICOS # 50066531
- Missouri Botanical Garden. 2003. W3 TROPICOS database: Vascular TROPICOS nomenclature. Entries for *Indigofera mucronata*, including distribution for *I. mucronata* ssp. *scabra*. Checked February 27, 2003.
- Ross, M.S. and P.L. Ruiz. 1996. A study of the distribution of several South Florida endemic plants in the Florida Keys. A report to the U.S. Fish and Wildlife Service. Florida International University, Southeast Environmental Research Program, University Park, Miami.
- Small, J.K. 1933. Manual of the Southeastern flora. The University of North Carolina Press, Chapel Hill.
- The Nature Conservancy. 1999. BioSource; National Heritage database.
- U.S. Census Bureau. 1998. State and Metropolitan Area Data Book 1997-1998.
- U.S. Fish and Wildlife Service. 1998. Draft multi-species recovery plan for South Florida, volume II. Vero Beach, Florida.
- USDA, NRCS. 2002. The PLANTS Database, Version 3.5 (<http://plants.usda.gov>). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.
- Wunderlin, R. P. 1998. Guide to the Vascular Plants of Florida. University Press of Florida, Gainesville. 806 pages.
- Wunderlin, R. P. and B.F. Hansen. 2003. Atlas of Florida Vascular Plants. Online, <http://www.plantatlas.usf.edu/>. Entries for *Indigofera* consulted February 27, 2003.

LISTING PRIORITY (place \* after number)

THREAT
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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:* This species is known from only 5 State Parks in the middle and upper Florida Keys. There may be no more than about 1,000 individuals in the wild.

*Imminence:* This plant is known only from State Parks. While its management needs are not understood, Park management is oriented toward conserving the 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: March 2003

Conducted by: David Martin - South Florida Ecological Services Office

Comments:

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