

A SIGNIFICANT NEW POPULATION OF THE RARE SEMAPHORE PRICKLYPEAR CACTUS, *OPUNTIA* *CORALLICOLA* (CACTACEAE)

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ABSTRACT

A newly discovered population of *Opuntia corallicola* is reported. This new population is in Miami-Dade County, Florida, 145 km north of what was believed to be the last remaining population in the wild.

RESUMEN

Se informa de una población recientemente descubierta de *Opuntia corallicola*. Esta nueva población está en el Condado Miami-Dade, Florida, 145 km al norte de lo que se pensaba que era la última población que crecía silvestre en la naturaleza.

The semaphore pricklypear cactus, *Opuntia corallicola* (Small) Werderm. (Cactaceae) is considered one of the most threatened plants in the United States (Stiling et al. 2000). It is endemic to the Florida Keys, first discovered by John Kunkel Small in 1919 (Small 1930). Previously, Florida plants were thought to be conspecific with *O. spinosissima* P. Miller of Jamaica, but research has shown Florida plants to be distinct (Austin et al. 1998; Gordon & Kubisiak 1998). The Florida Keys are a chain of islands at the southern tip of Florida, extending in an arc approximately 320 km from the Dry Tortugas in Monroe County north to Soldier Key in Miami-Dade County.

Small's discovery of *O. corallicola* was made on Big Pine Key, an island in the lower Florida Keys. Plants were known from this island until the 1960s when the last plants were eliminated by poaching and road construction. Sometime during the 1960s a new population was discovered on Little Torch Key, an island immediately west of Big Pine Key. Subsequently, the station was acquired by The Nature Conservancy. Small (1930) also reported the species from Key Largo, an island in the upper Florida Keys just over 80 km north of Big Pine Key, although we have been unable to locate specimens or other reports from this island.

The population on Little Torch Key presently has only nine adult plants (C. Bergh, pers. comm.). Plants at this site are threatened, originally by poaching, and subsequently by both an exotic moth and its inability to sexually reproduce. The exotic moth, *Cactoblastis cactorum* Berg (Lepidoptera: Pyralidae),

was discovered in the Florida Keys in 1989 (Habeck & Bennett 1990). This pest infested two of the remaining wild plants, killing one of them (Stiling & Moon 2001). While vegetative reproduction results in numerous recruits (C. Bergh, pers. comm.), Negrón-Ortiz (1998) found that fruit set in the species is rare. Less than half of the seeds set were viable in laboratory culture, but no seedling recruitment was found under natural conditions. The few seeds produced are believed to result from agamospermy, asexual seed formation common in Cactaceae (Negrón-Ortiz 1998). Negrón-Ortiz (1998) proposed that the species is unable to reproduce sexually either because of meiotic problems resulting from polyploidy, or because the existing plants are self-incompatible.

The authors and George D. Gann have been conducting extensive field work in Biscayne National Park (BNP) in part to update the floristic inventory published by Stalter et al. (1999). The park is comprised of 42 islands of the upper Florida Keys in Miami-Dade County. On November 20, 2001, the authors discovered *O. corallicola* on Swan Key. This island is within the southern boundary of BNP and is approximately 140 km from Big Pine Key, the closest historically documented occurrence, and 145 km from Little Torch Key, the site of the other known population. On January 31, 2002 a subsequent survey was conducted and 570 plants with trunks were found. The population consisted of plants of diverse sizes and ages, including flowering individuals.

The new Swan Key population occupied approximately 0.5 km by 10 m along the edge of a rockland hammock. Plants were in partial sun to shade growing on Key Largo Limestone, sometimes in light leaf litter and duff. While plants were found primarily along the edges of the hammock, some small plants were found inside the shady interior of the hammock up to 50 m from the edge. Associated plant species include *Acanthocereus tetragonus*, *Agave decipiens*, *Borrichia arborescens*, *Bursera simaruba*, *Canella winterana*, *Capparis flexuosa*, *Coccoloba diversifolia*, *Conocarpus erectus*, *Eugenia foetida*, *Guapira discolor*, *Metopium toxiferum*, *Pithecellobium keyense*, and *Sideroxylon celastrinum*.

We believe that *O. corallicola* merits Federal Endangered Species status. Even with the discovery of this new population, only two populations of this species are known. Both populations are threatened by *Cactoblastis cactorum*. *Opuntia corallicola* is being considered by the U.S. Fish and Wildlife Service as a candidate for listing (Federal Register 1999; Bradley & Gann 1999). Endangered Species status would enable the National Park Service to focus on the management and protection of the species. We encourage the U.S. Fish and Wildlife Service to continue with the listing process and we support the establishment of an agreement with the National Park Service to focus on the management and protection of the species.

Voucher specimen: **FLORIDA. Miami-Dade Co.:** Biscayne National Park; Swan Key, between Old Rhodes Channel and Broad Creek, S of Old Rhodes Key, just N of the Monroe Co. line, common along the edge of rockland hammock, 31 Jan 2002, Bradley 2152 (FTG).

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REFERENCES

- AUSTIN, D.F., D.M. BINNINGER, and D.J. PINKAVA. 1998. Uniqueness of the endangered Florida semaphore cactus (*Opuntia corallicola*). *Sida* 18:527–534.
- BRADLEY, K.A. and G.D. GANN. 1999. Status summaries of 12 rockland plant taxa in southern Florida. Report submitted to the U.S. Fish and Wildlife Service, Vero Beach, Florida. Miami: The Institute for Regional Conservation.
- FEDERAL REGISTER. 1999. Candidate notice of review. Vol. 69(205):57533–57547.
- GORDON, D.R. and T.L. KUBISIAK. 1998. RAPD analysis of the last population of a likely Florida Keys endemic cactus. *Florida Sci.* 61:203–210.
- HABECK, D.H. and F.D. BENNETT. 1990. *Cactoblastis cactorum* Berg (Lepidoptera: Pyralidae), a phyticine new to Florida. Fla. Dep. Agric. Consum. Serv., Div. Plant Ind. Entom. Circ. 333.
- NEGRÓN-ORTIZ, V. 1998. Reproductive biology of a rare cactus, *Opuntia spinosissima* (Cactaceae), in the Florida Keys: why is seed set very low? *Sexual Pl. Reprod.* 11:208–212.
- SMALL, J.K. 1930. *Consolea corallicola*, Florida semaphore cactus. *Addisonia* 15:25–26, pl. 493.
- STALTER, R., J. TAMORY, P. LYNCH, and B. LOCKWOOD. 1999. The vascular flora of Biscayne National Park, Florida. *Sida* 18:1207–1226.
- STILING, P. and D.C. MOON. 2001. Protecting rare Florida cacti from attack by the exotic cactus moth, *Cactoblastis cactorum* (Lepidoptera: Pyralidae). *Florida Entomol.* 84:506–509.
- STILING, P., A. ROSSI, and D. GORDON. 2000. The difficulties of single factor thinking in restoration: replanting a rare cactus in the Florida Keys. *Biol. Conserv.* 94:327–333.



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