

Key Tree-Cactus Assessment Guide

July 29, 2013

The U.S. Fish and Wildlife Service's (Service) FEMA Biological Opinion (BO) dated April 30, 2010, and modified on December 14, 2010, identified 5,607 at-risk parcels, representing 2,322 acres, intersecting habitats that may support populations of endangered Key tree-cactus (*Pilosocereus robinii*) in Monroe County. There are 1,725 acres and 4,101 at-risk parcels in unincorporated Monroe County; 300 acres and 779 parcels in Islamorada; 5 acres and 5 parcels in Key Colony Beach; 43 acres and 102 parcels in Key West; less than 1 acre and 1 parcel in Layton; and 249 acres and 579 parcels in Marathon. The BO also identified an additional 436 acres of at-risk lands outside Monroe County's parcel layer not subject to the Rate of Growth Ordinance program.

The at-risk properties were determined by overlaying the County's property parcel layer onto the County's 2009 land cover boundary maps (Monroe County 2009). The County's land cover boundary maps included 13 land cover types. Developed land, undeveloped land, impervious surface, and exotic are considered non-native land cover types. Hammock, pineland, scrub mangrove, freshwater wetland, salt marsh, buttonwood, mangrove, and beach berm are considered native land cover types. The water classification is also considered a native cover type. The minimum mapping unit for land cover polygons was 0.35 acre for hammock and 0.5 acre for all other cover types.

The County's boundary map land cover types containing suitable habitat for the Key tree-cactus include hammock and beach berm. Beach berm cover types were included as this mapping unit could also include small inclusions of tropical hardwood hammock.

Species Profile: As of 2009, the known distribution of this species is restricted to seven populations on four islands of the Florida Keys including Big Pine Key, Long Key, Lower Matecumbe Key, and Upper Matecumbe Key (Adams and Lima 1994; Service 1999; Maschinski 2009; Florida Natural Areas Inventory 2008). Six of seven populations are located on lands protected through acquisition or agreements (Maschinski et al. 2009). One is located on private, developable property currently used for aquaculture.

Long distance dispersal and establishment of new tree-cactus populations are dependent upon the production of seed. However, reproduction within a single population (a clump) is mostly, if not entirely, vegetative (asexual). Seed dispersal by birds (*Cardinalis cardinalis*, for example) is indicated for this species (Austin 1980). Given the Key tree-cactus' preference for naturally disturbed patches of hammock and the fact that these patches are subject to change as a result of natural succession and disturbance events, predicting where a new population may be found is problematic.

The preferred habitat for the Key tree-cactus is naturally disturbed patches in hammock (Avery [no date], Small 1917, 1921). It grows only on lightly shaded, upland sites on a limerock substrate. This habitat is not common in the Florida Keys, and, furthermore, is transient in nature. The location and number of these patches changes with time as disturbed areas re-grow and new sites are disturbed (e.g., from tropical weather events). The primary cause for the cactus' rarity seems to be its rather restrictive habitat requirements.

Threats: In the Florida Keys, the primary threat to the Key tree-cactus is native habitat loss and fragmentation due to development, although much of the suitable protected habitat is currently unoccupied. Natural disasters such as hurricanes and drought can have a significant effect.

Assessment Guide: In order to provide assistance in assessing threats to the Key tree-cactus from a given project, the Service has developed the following guidance and recommendations that, if implemented, will minimize adverse effects to the species. If the use of this guide results in a determination of “no effect” for a particular project, the Service supports this determination. If the use of this guide results in a determination of “not likely to adversely affect” (NLAA) for the Key tree-cactus, the Service concurs with this determination and no additional correspondence is necessary. If the use of this guide results in a “may affect” determination, then additional coordination with the Service is necessary prior to permit issuance. For projects that result in a “*may affect*” determination, if, after reviewing the specific project and assessing its potential effects to federally listed species, the Service determines that the project will result in take, the Service will notify FEMA and the acreage of impacts will be subtracted from the take limits provided in the BO. This guide is subject to revision as necessary.

- A. Parcel is not in the species focus area and/or on the Real Estate (RE) parcel list.....***no effect***
 Parcel is in the species focus area or is on the RE parcel list.....***go to B***
- B. The applicant proposes no removal or modification of the Key tree-cactus’ native habitat (*i.e.*, hammock or beach berm).....***NLAA***
 The applicant proposes removal or modification of the Key tree-cactus’ native habitat (*i.e.*, hammock or beach berm). A vegetation survey is required to document plant species and size present prior to construction impact. A general description of the surrounding properties within 500 feet is also required.....***go to C***
- C. The Key tree-cactus is not present on the property.....***NLAA***
 The Key tree-cactus is present on the property..... ***may affect***

Habitat Compensation

The minimum recommended habitat compensation is replacement of lost vegetation through protection or restoration of habitat, and/or monetary contributions to accomplish the aforementioned activities, according to the participating community’s land development regulations. The Service has reviewed the following participating communities’ Codes of Ordinances governing habitat compensation and found them to meet minimum recommended habitat compensation: Monroe County, Part II, Chapter 18, Sections 118-2 and 118-8; City of Marathon, Article 2, Chapter 106; Village of Islamorada, Part II, Chapter 30, Article VII, Division 4, Section 30-1616; and Key West, Part II, Subpart B, Chapter 110, Article V, Section 110-223 and Section 110-225, and Article VI, Division 2, Section 110-287 and Division 3, Section 324 and 327. The cities of Key Colony Beach and Layton were determined to not have ordinances that meet the minimum recommended habitat compensation. If the participating

community proposes to modify the habitat compensation requirements of their ordinance, additional review by the Service will be necessary.

If habitat compensation is being provided in excess of the minimum recommended, the Service may consider the additional compensation as a credit to the not-to-exceed habitat acreage losses referenced in the BO. To be considered for credit, the compensation must be like for like habitat compensation and credit will be granted at half value. For example, if 4 acres of additional compensation are provided, the credit granted would be 2 acres. This partial credit is considered appropriate as existing vegetation currently provides benefit and the credit vegetation may not provide the same habitat benefit until later in time.

Monitoring and Reporting Effects

The “take” (removal) of plants on private property is not a violation of the Act (unless State law also prohibits take). Therefore, authorization to “take” plants on private property is not required under section 10(a)(1)(B) nor exempted under section 7. However, Federal agencies are required under section 7(a)(2) to make sure that their actions do not jeopardize the continued existence of listed plants. Therefore, to monitor the Key tree-cactus populations and avoid jeopardy to the species from FEMA’s actions, the Service, in coordination with FEMA, will monitor the amount of habitat impacted by proposed actions as a surrogate for avoiding jeopardy of the Key tree-cactus.

For the Service to monitor cumulative effects for the Key tree-cactus, it is important for FEMA and the NFIP participants to monitor the number of permits and provide information to the Service regarding the number of permits. In order to meet the reporting requirements in the BO, we request that FEMA and/or the NFIP participants send to the Service an annual database summary consisting of: project date, permit number, project acreage, native impact acreage, amount of acres and/or number of trees/plants replaced as habitat compensation, and project location in latitude and longitude in decimal degrees.

Literature Cited

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- Austin, D.F. 1980. *Cereus robinii* var. *robinii* and *Cereus robinii* var. *deeringii*. In: D.F. Austin, C.E. Naumann, and B.E. Tatje (eds.) *Endangered and threatened plant species survey in Southern Florida and the National Key Deer and Great White Heron National Wildlife Refuges*. U.S. DOI, Fish and Wildlife Service, Endangered Species Office; Atlanta, Georgia.
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