

**Recovery Plan for *Dicerandra immaculata* (Lakela's mint)**

<https://www.fws.gov/verobeach/MSRPPDFs/Lakela.PDF>

**Current Approved:** May 18, 1999

**Current Prepared by:** South Florida Ecological Services Staff

**DRAFT AMENDMENT 1**

We have identified best available information that indicates the need to develop recovery criteria for *Dicerandra immaculata* (Lakela's mint) since the recovery plan was completed. In this proposed modification, we synthesize the adequacy of the existing criteria, show amended recovery criteria, and provide the rationale supporting the proposed recovery plan modification. The proposed modification is shown as an addendum that supplements the South Florida Multi-Species Recovery Plan (MSRP; U.S. Fish and Wildlife Service [USFWS] 1999), superseding only page 4-995 of the recovery plan. Recovery plans are a non-regulatory document that provides guidance on how best to help recover the species.

**For  
U.S. Fish and Wildlife Service  
Region 4  
Atlanta, Georgia**

**March 2019**

**METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT**

The proposed amendments to the recovery criteria are based on the recovery plan (Service 1999), the current 5-year review (Service 2008), and recent studies with the species. These were discussed with the U.S. Fish and Wildlife Service (Service) biologists and managers in the South Florida Ecological Services Field Office in order to develop the delisting criteria for the Lakela's mint. The amendment to this recovery plan is based on the most recent information regarding the species and current threats to the species.

**ADEQUACY OF RECOVERY CRITERIA**

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list." Legal challenges to recovery plans (see *Fund for Animals v. Babbitt*, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) have also affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors (ESA 4(a)(1)).

**Recovery Criteria**

See previous version of criteria in the MSRP at page 4-995  
(<https://www.fws.gov/verobeach/MSRPPDFs/Lakela.PDF>).

No downlisting or recovery (i.e., delisting) criteria were identified in the MSRP for this species.

## Synthesis

The geographic range of Lakela's mint is a 0.8 kilometer (km) (0.5 mile[mi]) wide by 4.8 km (3 mi) long area in southern Indian River County and northern St. Lucie County, Florida. There are currently five naturally occurring populations of Lakela's mint and two introduced populations. These populations are distributed in sites across the species' range, with one introduced site in Hobe Sound National Wildlife Refuge existing just south of the species' historical range in Martin County, Florida. Nine sites were known when the species was listed as endangered in 1985 (50 FR 20212).

The latest information on population trends is based on surveys occurring intermittently at each site between 2006 and 2018. The majority of populations (natural and introduced) are currently declining. Of the five naturally occurring sites, two sites (Harbor Branch and Hallstrom) show a stable and slightly increasing trend in the number of individual adult plants. The ability for these populations to remain relatively stable is attributed to direct intervention by hand clearing and management (removal) of competing ground cover vegetation in areas where the plants occur. One of the natural sites (Hallstrom) has also been augmented through planting and has experienced new seedling recruitment. The three other naturally occurring sites and the two introduced sites are declining.

Two populations of the Lakela's mint variety, *Dicerandra immaculata* var. *savannarum* are extant. One natural population (Eden Creek) is very small, with approximately 18 individual plants. There are two introduced populations in Savannas Preserve State Park (SPSP) in St. Lucie County. The SPSP population has been augmented through seedling introductions, while the habitat where the plants occur is being maintained by hand clearing of non-native species. These genetically distinct populations of the mint provide additional genetic diversity (representation) for the species.

The documented extirpation of Lakela's mint populations since its listing and the predominant decreasing trend in population sizes of the extant populations emphasize the critical need to both maintain the existing populations, and establish new populations on conservation land. In order to prevent extinction and recover Lakela's mint, it is necessary to ensure a sufficient number of resilient populations persist and are distributed across the species' range (representation and redundancy).

The primary listing factor for Lakela's mint was the present or threatened destruction, modification, or the curtailment of its habitat or range (Factor A). The most recent 5-year status review reiterates that habitat loss and degradation remains the primary threat to survival and recovery of this species (Service 2008). More specifically, Lakela's mint continues to be affected across its range by the direct loss or modification of its natural coastal sand pine scrub habitat from development. Habitat loss, fragmentation, and changes in land use continue and the conversion of scrub habitat to urban use along the Atlantic coastal ridge, where the species is found, and is projected to continue over the next 50 years (Carr and Zwick 2016).

The suppression of fire and lack of habitat management of the existing coastal scrub habitat eliminates or reduces the quality and quantity of suitable habitat for Lakela's mint. Impacts are both direct and indirect for the species.

An invasive, parasitic plant, love vine (*Cassytha filiformis*) is an immediate threat to Lakela's mint, physically entangling, smothering, and displacing the plant (Factor E). Love vine overcomes a scrub area and makes it unsuitable habitat for Lakela's mint and other native ground dwelling species. It is pervasive in some sites (Harbor Branch). Hand removal of love vine is the most effective method of removing the invasive plant but this is a labor-intensive practice. Lakela's mint is a "gap specialist", meaning it requires open gaps in vegetation that allow sunlight for it to grow. The lack of management and fire suppression in scrub pine habitat causes these gaps to disappear over time producing unsuitable conditions (such as overgrowth and heavy ground cover) for the survival of Lakela's mint populations. The decline in population sizes is directly attributable to the loss of suitable habitat and the loss of suitable conditions such as open gaps required for Lakela's mint to reproduce and grow (Service 2008; Richardson et al. 2013).

The inadequacy of existing regulations (Factor D) is a factor identified in the listing of Lakela's mint. In addition to its Federal listing, the plant is also listed as endangered under State law. The existing State regulations provide protections through a permit process for the collection and transport of individual plants, however, the laws are inadequate in protecting Lakela's mint from destruction and loss caused by the destruction and modification of its habitat (FDACS 2018a, 2018b).

The current needs to prevent extinction and recover this species are to: 1) maintain existing populations, 2) establish additional populations, and 3) protect existing coastal sand pine scrub habitat in the species' range. The species is dependent upon active management of suitable habitat.

## **AMENDED RECOVERY CRITERIA**

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and Lakela's mint may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term "endangered species" means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made

“solely on the basis of the best scientific and commercial data available.” Thus, while recovery plans provide important guidance to the U.S. Fish and Wildlife Service (Service), States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species’ status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*.

We provide delisting criteria for the Lakela’s mint, which will supersede the criteria included in MSRP. The recovery criteria presented below represent our best assessment of the conditions that would most likely result in a determination that delisting of Lakela’s mint is warranted as the outcome of a formal five-factor analysis in a subsequent regulatory rulemaking. Achieving the prescribed recovery criteria is an indication that the species is no longer threatened or endangered, but this must be confirmed by a thorough analysis of the five factors.

### **Delisting Recovery Criteria**

The Lakela’s mint will be considered for delisting when:

1. At least 20 populations exhibit a stable or increasing trend, evidenced by natural recruitment and multiple age classes. (Factor A)
2. Populations (as defined in criterion 1) in coastal sand pine scrub habitat are distributed across the historical range of the species in order to maintain and enhance the species geographic patterns of genetic diversity. (Factor A)
3. Populations (as defined in criterion 1) must be protected via a conservation mechanism and managed such that enough suitable habitat is present for the species to remain viable for the foreseeable future. (Factors A, D, E)

### **Justification**

The recovery criteria provide standards to address the resilience (size) of existing populations, their distribution (representation) across the species’ historical range, and redundancy of the species in terms of a sufficient number of resilient populations to withstand stochastic events.

Twenty (20) resilient populations will provide sufficient redundancy to reduce the vulnerability of the species to range-wide effects from hurricanes and conserve and enhance the existing geographic pattern of genetic diversity in the species. In related species of *Dicerandra* with

similar habitat and life histories occurring in Florida interior scrub habitats, populations in the thousands of plants have historically been resilient, while populations in the tens or hundreds have proven more vulnerable to extirpation by stochastic events (Service 2008). The decline in the number of individual plants in a population can occur quickly, therefore these criteria are designed to more specifically track the stability and resilience of the species at the population (site-level). The establishment of multiple new populations within the species' historical range provides a necessary redundancy and distribution to support recovery for this narrow-ranging endemic species and the capacity for the species to persist in the face of stochastic events such as hurricanes and fires. Because Lakela's mint is a short-lived herb that must regenerate from the seedbank after disturbance, small populations are more vulnerable to extirpation or demographic crash after these events due to the smaller number of seeds banked in the soil.

Habitats that support Lakela's mint within the historical range of the species remain vulnerable to habitat loss and modification. When the habitat is lost (destroyed) or not managed effectively as a coastal sand pine scrub system (for example converted into manicured exotics and/or fire-suppressed and overgrown), native plant populations, including Lakela's mint, are reduced drastically in number or become extirpated (Service 2008). A key criterion in the recovery of Lakela's mint is the management and persistence of suitable coastal sand pine scrub habitat. This includes clearing of overgrowth - particularly reducing woody stem abundance - reducing understory vegetation height, the proportion of ground cover detritus, and degree of canopy cover (Service 2008; Richardson et al. 2013). Habitat management efforts at the occupied sites are currently performed manually (i.e., hand clearing) and are rotated approximately once every one to two years based on specific site needs.

Lakela's mint has been successfully propagated ex-situ and seedlings have been introduced into suitable habitat within its historical range. Seedlings have a relatively high survival rate, as long as they are planted in suitable habitat (Richardson et al. 2013, 2016). The recovery criteria support the establishment of additional populations to improve species redundancy and restore the species throughout its historical range (i.e., criterion 3 – a minimum of 20 resilient populations) (USFWS 1999). Seed dispersal is limited for Lakela's mint and is an additional reason that recovery criteria address the need to maintain suitable habitat. Seed and seedling introductions are a valuable tool to increase population numbers in suitable unoccupied habitat in order to increase the species' resiliency and redundancy (Richardson et al. 2013, 2016).

The recovery criteria address those factors necessary for the species' recovery. Threats under Factor A include the documented loss and impacts to the species' habitat from development and lack of management (including prescribed fire).

The existing Federal and State regulations designed to protect endangered and threatened plant species provide protections in collection and transport but inadequately protect listed plant species from the major threat of habitat loss. The threats to Lakela's mint under Factor D are addressed with the recovery criteria to develop and implement mechanisms (such as cooperative agreements) for protecting Lakela's mint habitat and extant populations on private lands and through the effective management of suitable habitat on already protected lands. These criteria address the need to assure long-term persistence and protection of Lakela's mint coastal sand pine scrub habitat.

The recovery criteria are measurable and continue to address the existing framework and strategy of the active recovery plan in enhancing populations and preventing further degradation of existing habitat.

### **Rationale for Amended Recovery Criteria**

The existing criteria for Lakela's mint in the MSRP (USFWS 1999) lacked delisting criteria and included only "stabilization" criteria for the species. With these proposed amendments, delisting has been clearly defined with measurable, objective criteria in keeping with the recovery strategy and goals outlined in the MSRP. These criteria address what is necessary to ensure resiliency, redundancy, and representation by addressing factors that threaten Lakela's mint. In achieving these criteria, we expect Lakela's mint to have a low probability of extinction for the foreseeable future and have robust, stable populations needed for long-term recovery. We will work together with our partners to strategically and efficiently implement the new criteria.

### **LITERATURE CITED**

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