Florida salt marsh vole (*Microtus pennsylvanicus dukecampbelli*) Recovery Plan
https://ecos.fws.gov/docs/recovery_plan/970930d.pdf

Original Approved: September 20, 1997
Original Prepared by: Southeast Region

DRAFT AMENDMENT 1

We have identified the need to amend recovery criteria for Florida salt marsh vole (*Microtus pennsylvanicus dukecampbelli*; FSMV) which was listed as endangered under the Endangered Species Act of 1973 as amended (Federal Register 1991, pp. 1457). In this proposed modification, we synthesize the adequacy of the existing recovery criteria; show amended recovery criteria, and provide the rationale supporting the modification. The proposed modification is an addendum that supplements the FSMV Recovery Plan (USFWS 1997) by adding delisting criteria which were not developed at the time of publication. The Recovery Objective and the Recovery Actions are described in the Recovery section parts A and B (page 5-6) of the FSMV Recovery Plan (USFWS 1997). 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

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METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

This proposed amendment to the recovery criteria was developed using the most recent and best available information for the species. This information was reviewed by the U.S. Fish and Wildlife Service (Service) biologists and managers in the North Florida Ecological Services Field Office in order to develop the delisting criteria for the FSMV.

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) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors.

Recovery Criteria

The FSMV Recovery Plan does not provide downlisting or delisting criteria (USFWS 1997, p. 5; **https://ecos.fws.gov/docs/recovery_plan/970930d.pdf**).

Synthesis

The assessment of threats, recovery actions, and life history information included in the FSMV Recovery Plan (1997) and 5-Year Review (2008) remain applicable. It continues to be at risk due to its limited range within Florida's central Gulf Coast salt marshes and from the threat of extreme high water events and oil spills. The long-term threat to the FSMV is from rising sea levels. In developing the delisting criteria, the Service also reviewed recent literature, survey and research reports, and a recent USFWS Director's Fellowship project (draft Species Status Assessment 2018) to inform this amendment to the Recovery Plan.

At the time of listing and publication of the Recovery Plan, this subspecies of the meadow vole was only known from one location and thus the immediate objective was to prevent extinction. To date, little information is known about its specific life history and ecological needs. FSMVs have proven to be hard to study due to the dynamic nature of the salt marsh, the remoteness of where the habitat is located, and that they have proven to be hard to capture. From 1979 to 2009, trapping surveys were conducted at 42 different locations. These surveys included 115 nights trapped and 11,123 trap nights and yielded 43 individuals from three locations within the salt marshes near Cedar Key. These surveys led to a described range of 8 km (5 mi.) (Hotaling 2010, pp. 797). Through targeted habitat surveying using an innovative camera trapping technique in 2012 (McCleery et al. 2014, pp. 1-4), the FSMV's known range was extended from 8 km (5 mi.) to 32 km (20 mi.) as they were documented along the section of salt marsh habitat between the Suwannee River and Withlacoochee River, Levy County, Florida (McCleery & Zweig 2016, pp. 2).

In summary, the FSMV continues to be at risk due to its small range, threat of hurricanes and severe storms that cause extreme high water events, and from the potential of oil spill events. The long-term threat to the FSMV is rising sea levels.

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 the FSMV 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 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*.

Herein, we provide delisting criteria for the FSMV as the Recovery Plan (USFWS 1997) did not include downlisting or delisting criteria.

Proposed Delisting Recovery Criteria

The Florida salt marsh vole will be considered for delisting when the following criteria are met:

1. The one (1) FSMV metapopulation exhibits a stable or increasing population trend for multiple generations, and natural recruitment (Factor A and E)

2. When, in addition to the above criteria, it can be demonstrated that despite sea level rise and other environmental influences, sufficient suitable habitat remains for FSMV to remain viable for the foreseeable future. (Factor A and E)

Justification

Criterion 1: Provides redundancy through multiple populations and sufficient habitat, additionally reaching demographic parameters allows for resiliency to stochastic events. For the Florida salt marsh vole it is believed that one meta population exhibiting these traits is necessary to ensure this subspecies of meadow vole will no longer require protection under the Act.

Criterion 2: The Florida salt marsh vole has a naturally narrow distribution; historically known from only one location and recently documented to occur along the section of salt marsh habitat between the Suwannee River and Withlacoochee River in Levy County Florida. Maintaining sufficient habitat, and habitat connectivity allows for redundancy and representation for long-term persistence and viability.

Rationale for Amended Recovery Criteria

The proposed delisting recovery criteria reflect the best available and most up-to-date information on the FSMV, while incorporating information relevant from the FSMV Recovery Plan (1997), the 5-Year Review (2008), recent survey and research reports, and Service Directors Fellows Project (2018 draft SSA to help inform 5-Year Review). Meeting the above delisting criteria ensure that the underlying causes that led to its listing being very narrow range and the

threat of losing this subspecies to a storm surge or other event causing a population decline, will be addressed.

Criterion 1 is a population metric that ensures confirmation of demographic parameters that allow for resilient and stable population. Since populations of many small mammals, including the FSMV, fluctuate cyclically, it is necessary to evaluate population demographics across multiple generations to assess true redundancy and resiliency.

Criterion 2 is a habitat parameter that provides redundancy and representation. Occupancy of a metapopulation across 35-mile (56 km) section of coastline, with sufficient suitable habitat, and habitat connectivity allow for long-term persistence and viability of the FSMV despite projected habitat changes due to sea level rise and other environmental factors. Habitat connectivity ensures maintenance of genetic variability and preserves variability thus representation and resiliency within this subspecies.

Together, these recovery criteria cover current threats related to habitat suitability and connectivity, genetic diversity, sea level rise, and habitat loss. In meeting these criteria, we expect the FSMV is unlikely to become threatened in the foreseeable future. We will work together with our partners to strategically and efficiently implement the new criteria.

LITERATURE CITED

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