Conserving Cape Sable Seaside Sparrows and Marl Prairies

November 19, 2013
Cape Sable Seaside Sparrow

*Ammodramus maritimus mirabilis*
Overview

- Seaside Sparrows nationwide
- Florida extinctions
- Biology of Cape Sable Seaside Sparrows
- Marl prairie
- How the ESA was intended to work
- Everglades Restoration, sparrows, and the way ahead
Nine Subspecies of Seaside Sparrows

- Cape Sable
- Dusky (Extinct)
- Scott’s
- Wakulla
- Texas
- Northern
- Louisiana
- No Images Available of the Extinct Smyrna
- MacGillivray’s
The nine subspecies of the seaside sparrow, *Ammodramus maritimus*
Breeding Bird Survey trends for all Seaside Sparrows 1966 - 2011
Florida Coastline Urbanization

Source: U.S. Census Bureau
Census 2010 Summary File 1
population by census tract
Extinction of Dusky Seaside Sparrow

- A non-migratory subspecies of the seaside sparrow found in marshes of Merritt Island and along the St. John's River in Southern Florida.
- Nesting grounds destroyed by flooding to reduce mosquito population around Kennedy Space Center.
- Pollution and pesticides along with highway construction further reduced population.
- Last female sighted in 1975; 6 remaining males moved to Discovery Island nature reserve in 1979. Last male died on 6-17-1987.
Dusky Seaside Sparrow News Reports from 1986 & 1987

The NY Times
April 29, 1986

The last dusky seaside sparrow still living in the United States, a species of bird that was once common along the eastern seaboard, has died. It was found dead in its cage at the Florida Keys National Wildlife Refuge on April 28.

The South Florida Sun-Sentinel, June 26, 1987

The last of the dusky seaside sparrows has died, leaving only five birds alive in the wild.

The Philadelphia Inquirer
August 4, 1987

The last dusky seaside sparrow died at the Philadelphia Zoo on August 4, leaving only five birds alive in the wild.

The newsmen covered the story of the last bird's death, emphasizing the gravity of the situation and the need for conservation efforts to prevent other species from facing extinction.

The story was published in various newspapers, including The New York Times, The South Florida Sun-Sentinel, and The Philadelphia Inquirer, highlighting the importance of these birds and the efforts to protect them.
Carolina Parakeet
Carolina Parakeet
Florida Grasshopper Sparrow
Threats to Cape Sable Seaside Sparrows

- Hydrologic impacts to habitat
- Fire-related impacts to habitat
- Small population size
- Limited distribution
- Agricultural and urban development
Biology

- *Cape Sable Seaside Sparrows are largely sedentary*
- *They occupy the prairie habitats year-round*
- *Completely dependent on the condition of the prairies*
- *Relatively low survival rates adults – 66%; juveniles – 34%*
- *Short life expectancy, 2-3 yr.*

Average clutch size = 3.2

Average nest height above ground = 6.6 inches (17 cm)

2 young per nest typically fledge
Territories

- Sparrows maintain territories within which all nesting and feeding activities occur.
- Territories are mutually exclusive such that no two males share a substantial proportion of their territorial space.
- Males establish territories of 5-6 acres beginning in late January and February.
- Outside of the breeding season, they enlarge territories to about 40 acres but remain sedentary.
Marl Prairie Habitat

- Many landscapes in Everglades ecosystem: hardwood hammocks, pine rocklands, mangrove swamps, sloughs, cypress swamps, etc.
- Important to maintain balance among these landscapes to promote wide-ranging bio-diversity
“Marl” Prairie
Marl Prairie Habitat

- Habitat characteristics
  - Treeless expansive prairies
  - Structurally diverse vegetation
  - Relatively short hydro-period (2-7 months)
  - Supports other wildlife in addition to sparrows

*No Additional Large Areas of Suitable Habitat Currently Unoccupied by Sparrows*
Grasses Found in Marl Prairie Beneficial to CSSS

**Muhly Grass (Muhlenbergia filipes)**

A sparrow “preferred “ grass for nesting in full bloom one year following a controlled burn.
Black – Topped Sedge (*Schoenus nigricans*)

A sparrow “preferred” grass for nesting showing typical clump characteristic

Grasses Found in Marl Prairie Beneficial to CSSS
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Sawgrass (*Cladium jamaicense*) “refugia” growing in depression, utilized by CSSS for food and cover from predators
The Endangered Species Act and
Conserving Ecosystems

2(b) PURPOSES.—The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved...
Cornerstone Environmental Laws

- Clean Air Act of 1963
- National Environmental Policy Act of 1969
- Clean Water Act of 1972
- Endangered Species Act of 1973
Rare/Imperiled animal species other than CSSS that also depend on marl prairie habitat.
Rare/Imperiled plant species that also depend on marl prairie habitat.

Meadow Joint-Vetch

Narrow-Leaved Carolina Scalystem
Location of Marl Prairies
Historic Cape Sable seaside sparrow Distribution

Big Cypress National Preserve

Water Conservation Area 3

S-12 Structures

Ochopee Area (former sparrow habitat)

Everglades National Park

(former sparrow population)

Homestead
2007 FWS Critical Habitat Revision

- Overall amount of habitat reduced but more intensely focused
- Primary Constituent Elements were identified
  - Calcitic marl soils characteristic of the short-hydroperiod freshwater marl prairies
  - Herbaceous Vegetation including Muhly, Florida little bluestem, black-topped sedge and cordgrass
  - Contiguous open habitat with few or sparse woody vegetation
  - Hydrologic Regime – Sufficient dry nesting days
CSSS total and subpopulation (A-F) estimates from range-wide surveys conducted in 1981 and 1992-2011

Extinction Vortex?
TENTATIVELY SELECTED PLAN

STORAGE AND TREATMENT
- Construct A-2 FEB and integrate with A-1 FEB operations
- Lake Okeechobee operation refinements within LORS

DISTRIBUTION/CONVEYANCE
- Diversion of L-6 flows, infrastructure and L-5 canal improvements
- Remove western ~2.9 miles of L-4 levee (west of S-8 3,000 cfs capacity)
- Divide structure at western terminus of L-4 levee removal
- Backfill Miami Canal and Spoil Mound Removal ~1.5 miles south of S-8 to L-75

DISTRIBUTION/CONVEYANCE
- Increase S-333 capacity to 2,500 cfs
- Two 500 cfs gated structures in L-67A, 0.5 mile spoil removal west of L-67A canal north and south of structures
- Construct ~8.5 mile levee in WCA 3B, connecting L-67A to L-29
- Remove ~8 miles of L-67C levee in Blue Shanty flowway (no canal backfill)
- One 500 cfs gated structure north of Blue Shanty levee and 6,000-ft gap in L-67C levee
- Remove ~4.3 miles of L-29 levee in Blue Shanty flowway, divide structure east of Blue Shanty levee at terminus of western bridge
- Tamiami Trail western 2.6 mile bridge and L-29 canal max stage at 9.7 ft (FUTURE WORK BY OTHERS)
- Remove entire 5.5 miles L-67 Extension levee, backfill L-67 Extension canal
- Remove ~6 mile Old Tamiami Trail road (from L-67 Ext to Tram Rd)

SEEPAGE MANAGEMENT
- Increase S-356 pump station to ~1,000 cfs
- Partial depth seepage barrier south of Tamiami Trail (along L-31N)
- G-211 operational refinements; use coastal canals to convey seepage

Note: System wide operational changes and adaptive management considerations will be included in project.
Conserving Cape Sable Seaside Sparrows present challenges within Everglades Restoration

• These are the right challenges
• Major part of “Getting the Water Right”
• Need better ways to monitor and estimate populations
• Need aggressive habitat improvement and possibly augmentation of subpopulations
• World class restoration should “keep all the pieces”
Questions?