

Restoring America's Everglades and Recovering Imperiled Species Management Options

Cape Sable seaside sparrow



Everglade snail kite



Endangered Species Act

Purpose

Provide a means whereby the ecosystems upon which listed species depend may be conserved

Endangered Species Act

- Ensure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any listed species
 - Use the best available information
 - Assess impacts of proposed actions on listed species
 - Avoid or minimize detrimental impacts

Best available information in Everglades Restoration

- Hydrology = SFWMM?
 - Standard method for hydrological evaluation
 - Used to evaluate flood protection, water supply
 - Used to plan multi-billion dollar projects
- Biology/Ecology
 - Regularly updated scientific information
 - Research and monitoring

Endangered Species and Everglades Restoration

Identifying Options

- Objective:
 - Short term - identify strategies that are compatible with Everglades restoration to mitigate risk to the sparrow and kite throughout restoration such that overall risk of extinction is minimal
 - Long term - identify strategies to ensure viability and promote recovery in the wild

Cape Sable seaside sparrow actions implemented

- Hydrologic management emphasizing providing suitable nesting conditions
- Fire management strategy (ENP)
 - Conduct prescribed burns to reduce wildfire risk
 - Implement wildfire control strategy to reduce risk of catastrophic fire (for sparrows)
- Exotic vegetation control
- Improve information to support management improvements
 - Sparrow and habitat monitoring
 - Understanding mechanisms affecting habitat
 - Sparrow demography

Sparrow Options



- Intensive habitat management
- Re-establish suitable habitat within historic range
- Managing sparrows and sparrow demography
- Emergency management through translocation and captive propagation
- Establish population(s) outside of current range

Intensive habitat management

- Hydrology
 - Local water management to attain favorable conditions in limited areas
 - Regional water management to maintain sparrow habitat areas
 - Local water management through construction of additional temporary/permanent features
 - Levees
 - Pumps

Intensive habitat management

- Fire Management
 - Conduct prescribed fires (buffer burns) to reduce risk of wildfires spreading into sparrow habitat
 - Increase wildfire suppression capability to improve ability to contain wildfires to limited amounts of sparrow habitat
 - Conduct prescribed fire to aid in restoring favorable vegetation conditions

Intensive habitat management

- Mechanical vegetation control
 - Reduce woody vegetation to expand potential suitable habitat
 - Cypress in area of subpopulation B?
 - Vegetation along remaining ditches?
 - Mangroves in transitional areas?
 - Identify additional opportunities for habitat improvement through intensive management

Re-establish suitable habitat within historic range

- Seek opportunities to restore formerly occupied habitat
 - Cape Sable
 - Ochopee Area
 - Coastal *Spartina* marshes
- Expand suitable habitat adjacent to current subpopulations

Managing sparrows and sparrow demography

- Nest predator management
 - Use of predator baffles/predator exclusion
 - Identification and control of predators
- Conspecific attraction
 - Aid in maintaining/expanding small populations



Emergency management translocation and captive propagation

- Translocation
 - Expedite recolonization of burned areas/restored areas
 - Reduce carrying capacity limitation on population growth
- Captive propagation
 - Expedite recolonization following restoration/recovery of habitat
 - Augment limited populations
 - Emergency/rescue



Establish population(s) outside of current range

- Establish populations within historic range
 - Restore habitat/reintroduce birds
 - Ochopee Area?
 - Cape Sable?
- Establish populations outside of historic range
 - Restore habitat and reintroduce birds into dusky seaside sparrow's former habitat

Snail Kite

actions implemented

- Work with partners to minimize incidental impacts to nests
 - Exotic plant control
 - Human disturbance – recreation/resource management
- Work with partners to improve habitat conditions
 - Hydrologic management
 - Adjust operations within operational flexibility
 - Avoid detrimental hydrologic conditions and patterns
 - Mechanical/Chemical vegetation management
- Conduct research and monitoring
 - High intensity kite/snail/habitat monitoring
 - Demography, feeding, etc.
 - Apple snail research



SNKI Options

- Work with partners to refine water management to improve kite nesting and foraging conditions
 - Temporal considerations
 - Spatial considerations
- Work with partners to limit activities that may result in incidental impacts
- Intensive local habitat management
- Measures to improve nest success
- Measures to improve prey availability

Improve water management

- Hydrologic management within kite habitats
 - Manage inundation depth and duration
 - Provide good snail conditions
 - Avoid
 - Implement periodic drawdowns
 - Conduct management to explicitly address spatial and temporal scales
- Ensure that future regulation schedules (Systemwide Operations Manual?) address kite/snail/habitat needs
- Improve water quality

Limit activities that may result in incidental impacts

- Share information on kite occurrence and activity with management agencies
 - Improve coordination on management
 - Improve efforts to avoid and minimize potential disturbance
- Reduce recreational disturbance
 - Conduct boater education
 - Limit access to critical areas (nests)



Intensive local habitat management

- Seek to provide optimal kite nesting conditions in local areas
 - Plant favorable vegetation for foraging habitat – emergents
 - Plant nest substrate species in areas of good foraging habitat
- Engineer favorable conditions for nesting
 - Focused management of “wildlife islands” on lakes to support kite nesting?

Measures to improve nest success

- Artificially support nests that are susceptible to collapse
 - Rodgers et al nest baskets
- Measures to reduce predation?
 - Predator excluders?
 - Manage nest site vegetation?

Measures to improve prey availability

- Eradicate small populations of non-native apple snails
- Develop effective controls for non-native apple snails
- Develop native apple snail “hatchery” to quickly jump-start apple snail populations following restoration or unfavorable conditions



OTHER OPTIONS

- There are other options we haven't considered
- There may be combinations of these options that will be particularly effective
- Adaptive management
 - How do we effectively limit risk?
 - Thresholds?
 - Can management options sufficiently reduce risk?

Uncertainties

- Genetics
- Can we define optimum habitat conditions?
- Can we manage to achieve optimum conditions
- Population targets
- Amount of habitat necessary
- Other threats
 - Sea level rise?
- Disease/parasites
- Future development
- ETC.....