Use of the Floodplain by the Endangered Snail Kite

Expectation: Significant increase in the number of Snail Kites using the Kissimmee River floodplain.

Author: Stefani L. Melvin, South Florida Water Management District

Date: March 8, 1999

Relevant Endpoints:
Sociopolitical - Numbers of Birds
Sociopolitical - Threatened and Endangered Species
Sociopolitical - Aesthetic Values
Restoration - Biological Integrity - Population Abundance
Restoration - System Functional Integrity - Habitat Quality
Restoration - System Functional Integrity - Habitat Use

Baseline Condition: In two years (1996-1998) of aerial surveys and boat surveys, a single Snail Kite was observed foraging on the Kissimmee floodplain. No Snail Kite nests were found, and no individuals were observed roosting.

Reference Condition: The historic range of Snail Kites included the freshwater marshes in the Kissimmee River floodplain (Stevenson and Anderson 1994). Snail kites were very common on the lakes in the Kissimmee Upper Basin and Lake Okeechobee, so it is likely that they used the Kissimmee River as a corridor between these two areas of population concentration.

Snail Kites forage by sight in large freshwater marshes. Open water with sparse vegetation and calm conditions are required for Snail Kites to locate prey (Sykes et al. 1995). Nesting occurs in freshwater wetlands (0.2-1.3 m depth) dominated by low profile (< 3m) marsh vegetation interspersed with open water and low trees and shrubs (Sykes et al. 1995). Long hydroperiod marshes in the Kissimmee system probably provided suitable foraging habitat and the floodplain may have been used by roosting snail kites, as they prefer willow clumps in standing water.

Mechanism for Achieving Expectation: Water depth and length of inundation will be the two most important factors driving the return of Snail Kites to the Kissimmee floodplain. Re-inundation of floodplain wetlands and the re-establishment of wetland vegetation will improve habitat for nesting, roosting, and foraging Snail Kites. This species feeds almost exclusively on snails from the genus *Pomacea*. Nearly continuous flooding of wetlands for $\geq$ 1 year is needed to sustain apple snail populations and their availability to foraging Snail Kites (Sykes 1979, Beissinger 1988).

Adjustments for External Constraints: Snail Kites are greatly influenced by drought conditions (Sykes et al. 1995). The magnitude of response by Snail Kites to the restoration project may be largely driven by drought conditions throughout other portions of the range. Alternatively, a slow response or fewer individuals may occur if good habitat conditions exist elsewhere.

Means of Evaluation: Monthly surveys of the river channels will be conducted by boat. In addition, Snail Kite use of floodplain habitats will be documented during monthly standardized aerial surveys. Both types of surveys will begin after Phase I backfilling is complete and a

normal wet season has commenced. A significant increase will be evaluated by comparing data from post-restoration surveys to baseline surveys.

Time Course: Apple snails will require at least 1 year of continuous inundation for populations to increase sufficiently to become available to foraging Snail Kites (Sykes et al. 1995). Snail kites should respond immediately to improved foraging habitat and the newly available prey source.

Revised 06/19/2001

References

Beissinger, S. R. 1988. Snail Kite. Pp. 148-165 *in* Handbook of North American birds vol. 4 (R. S. Palmer, ed.). Yale University Press, New Haven, Connecticut.

Stevenson, H. M., and B. H. Anderson. 1994. The Birdlife of Florida. University Press of Florida, Gainesville, Florida.

Sykes, P. W., Jr. 1978. Endangered Florida Everglade Kite. Pp 4-7*in* Rare and endangered biota of Florida, vol. 2 (H. W. Kale II, ed.). University Presses of Florida, Gainesville, Florida.

Sykes, P. W., Jr., J. A. Rodgers, Jr., and R. E. Bennetts. 1995. Snail Kite (*Rostrhamus sociabilis*). *In* The Birds of North American, No. 171 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, DC.