U.S. Fish and Wildlife Service

Draft Snail Kite Management Guidelines
February 21, 2006

These guidelines were developed to help resource managers and other interested parties avoid detrimental impacts to endangered Everglade snail kites and their habitat, and to provide information that will allow managers to improve conditions for snail kites. Everglade snail kites are listed as endangered under Federal and Florida State laws. Any disturbance to snail kites or their nests, including flushing perched birds, interrupting foraging, flushing adults from nest sites, interfering with feeding and protection of nestling kites, and impacting vegetation that supports kite nests is prohibited. Adherence to these guidelines will minimize the likelihood that actions result in prohibited impacts to snail kites. If you see snail kites, we always recommend that you simply avoid the immediate area where kites are present. If in doubt about whether an activity may affect kites, please contact a U.S. fish and Wildlife Service (Service) or Florida Fish and Wildlife Conservation Commission (FWC) office.

MINIMIZING IMPACTS TO KITE NESTING DURING BREEDING SEASON

During each nesting season (generally December 1 to July 31, but including all periods when active nests are known), locations of all known snail kite nests will be provided to the Service from researchers and resource managers, and then distributed to appropriate agency representatives. Maps and coordinates of nest sites, kite protection buffers, and priority kite management zones will be distributed to established points of contact for agencies and organizations that conduct management actions in kite habitat. These points of contact will be responsible for disseminating the information to personnel working on the ground.

Nest Protection Buffers

Two buffer zones will be established around every active snail kite nest. This includes all nests reported to the Service by researchers and any unreported nest that is encountered during other activities. These buffer zones will be in effect from when kites begin nest building through the time when breeding activity is no longer observed at the site. Because kites can renest, and often renest in the same area as previous attempts, buffer zones may remain in place past the time when fledglings leave the area if adult kites continue to show breeding activity, including courtship, in the general area. Kites do not exhibit fidelity to a specific nest site from year to year. Consequently, all restrictions within these buffer zones will be lifted once breeding activity has ceased.

1. No-entry Buffer Zones - A 500-foot (ft) (~150 meter) radius no-entry buffer zone will be established around all active nests that are discovered. The purpose of this buffer zone is to protect kites from direct disturbance that may affect the fate of nesting.

- Airboats, personnel, helicopters, and other equipment and activity must stay outside of these areas at all times when kite breeding activity is occurring.
- These buffers are slightly larger than the estimate of 430 ft (131 m) recommended in a study of disturbance to birds from airboats (Rodgers and Schwikert 2003). This larger buffer was selected because the disturbance tested in their study does not necessarily represent the types of activity that may occur during land management activities because they monitored the responses of perched birds and not nesting birds.

2. Limited Activity Buffer Zones - A 1,640 ft (500 meter) radius limited-activity buffer zone will be established around all active kite nests. This buffer zone is intended to maintain and protect foraging opportunities and habitat conditions around each nest to allow the nest to succeed. The goal is to maintain habitat conditions for the entire nesting period similar to those that were present when the birds selected the site.

- Airboats, personnel, helicopters, and other equipment and activity should stay outside of this buffer when possible, and activity within the buffer should be limited to the minimum time necessary to complete appropriate management activities.
- Only management activities that are expected to maintain or improve the existing kite foraging and nesting habitat within these areas should occur while there is evidence of kite breeding activity.
    - Exotic and invasive plant control efforts, including water hyacinth, water lettuce, and hydrilla, and similar invasive species that may rapidly encroach on native vegetation communities may be treated within limited-activity buffer zones during kite breeding, so long as treatments are not expected to result in impacts to vegetation species that contribute to snail kite and apple snail habitat. Treatments expected to result in changes > 10 percent in the cover or occurrence of native vegetation species including spike rushes, bulrushes, maidencane, and other emergent vegetation should be avoided.
    - Treatments of invasive and undesirable woody plants, cattails, tussocks, and other similar vegetation should not occur within these buffer zones during kite nesting. These treatments should be postponed until after kite breeding activity has ceased.
    - These buffer distances are intended to encompass the primary foraging area around a nest. The buffer distance is larger than the 820 ft (250 meter) radius recommended by Sykes (1987), and is a better representation of the area that kites use for foraging during nesting.

Priority Kite Management Areas

Snail kite nesting does not occur randomly within wetland systems. Instead, there are generally areas within wetlands, where kite nesting is concentrated. The density of kite nests, frequency of nesting within each area, and the sizes of these "priority kite nesting areas" are highly variable, but identifying these areas may help resource managers to focus management actions. In most years, the majority of kite nesting will occur within these areas, though new nesting areas may become active. At the end of each nesting season, primary kite nesting areas will be delineated based on the current year's nest locations and nesting in the previous 10 years.

- The polygons that delineate priority kite nesting areas, are 'kernels' that represent the 90 percent probability density function for kite nests over a 10-year period (1996-2005 in this case). These polygons were delineated under the assumption that the density of kite nests over the past 10 years indicates the likelihood of future kite nesting, and approximately 90 percent of the kite nesting, on average, will occur within these polygons if patterns of nest site selection continue as in the past.
- These areas will be provided to agency representatives soon after the end of the kite breeding season (July), and represent areas where resource management activities are likely to be limited due to kite nesting activity. Proposed management actions should incorporate pre-treatment kite surveys, or avoid these areas during the early part of the following breeding season (from January 1 to May 31) when kites are selecting nesting

sites. These also represent the areas where proactive management for snail kite foraging habitat may be most beneficial.

- This information will be provided (in most years) several months prior to the beginning of the kite breeding season to allow land managers to avoid impacts to kite nesting through early planning by timing proposed treatments in these areas to avoid critical periods for kites.
- The extent of these areas will generally not change dramatically from year-to-year.
- Management actions do not have to be excluded from these areas during the entire nesting season, but surveys for kite nesting activity should be conducted prior to working in these areas during the kite nesting season, and avoiding work in these areas during the breeding season is recommended whenever possible.
- There is good potential for kite nesting to occur outside of these areas, and resource managers should always look for evidence of snail kites and kite breeding activity prior to conducting management actions.

MANAGING FOR SNAIL KITE HABITAT

Active management of wetlands to benefit snail kites has not been regularly conducted. However, there are several actions and considerations that resource managers can adopt that may benefit snail kites.

- Foraging habitat – maintaining Florida apple snail populations, and the vegetation types that support healthy Florida apple snail populations is critically important to maintaining snail kite habitat. Not all areas where there are abundant apple snails support snail kite nesting, but most of these areas provide foraging habitat for snail kites at some time.
  - Shallow wetlands with emergent vegetation such as spike rush, bulrush, and other native emergent wetland plant species provide good snail kite foraging habitat as long as the vegetation is not so dense that kites would have difficulty locating apple snails. The specific conditions and vegetation species that provide good snail kite foraging habitat vary depending on the specific conditions of each wetland (lake or marsh, variability in water depths, soil characteristics, etc.).
  - Control of exotic and invasive plant species such as water hyacinth and water lettuce may be necessary to maintain the open character of vegetation within kite foraging habitat.
  - Non-native species of apple snails may provide forage for snail kites. However, initial evidence suggests that these species are not consistent with maintaining sustainable wetland communities. Maintaining a healthy population of Florida's native apple snail, and working to control non-native snail species is a more sustainable management strategy.
- Nesting habitat – kites are not particularly discriminating about their nest sites, and they may nest in a wide variety of substrates and situations. However, kite nests are generally most successful in low woody species such as willow, buttonbush, pond apple, and other wetland shrubs that remain inundated for the entire nesting period, and efforts to maintain or produce favorable nesting sites may help maintain kite nesting.
  - Planting woody wetland species in areas that support snail kite foraging habitat and do not dry out completely during the kite breeding season may facilitate snail kite nesting and nest success. Any planted woody vegetation should be managed for long-term persistence.

  - Nests that occur in dense cattails, bulrush, and other herbaceous species are more vulnerable to collapse than those in woody substrates.
  - Potential nesting areas that dry out during the nesting period are vulnerable to land-based predators such as raccoons.
  - Nesting areas are almost always located within areas of good foraging habitat.
  - Invasive and exotic woody vegetation may be used by snail kites as nesting substrate, but these species are not components of sustainable snail kite habitat. Controlling invasive and exotic woody vegetation outside of snail kite nesting season, and replanting with native wetland woody plant species where needed will be a more effective long-term strategy for managing snail kite nesting habitat.
- Managing hydroperiod – Changes in water regimes and depth and duration of inundation are important characteristics for wetland vegetation that supports snail kite nesting and foraging habitat, Florida apple snails, and all aspects of snail kite and apple snail life history.
  - Continuous inundation and stabilized water levels for long periods will probably result in unfavorable vegetation conditions.
  - Long periods of drying (> 1-2 months) will detrimentally affect Florida apple snail populations, and reduce the likelihood of use by snail kites. However, occasional drying for shorter periods may be beneficial.
  - Rapid changes and large changes in the depth of water within wetlands have the potential to detrimentally affect kite nesting and apple snail populations.
    - Rapid and/or large drops in water level increase the risk of snail kite nest predation by drying out the substrate beneath nests and allowing land-based predators to access nests.
    - Rapid and/or large increases in water depth may detrimentally affect desirable vegetation, and can flood out Florida apple snail eggs, leading to reductions in apple snail populations and reduced snail kite foraging.

COMMENTS, FEEDBACK, AND NEW INFORMATION

We always request feedback, new information, and recommendations for improving guidelines and snail kite management from resource managers and on-the-ground crews.

- We request that individuals report snail kite nesting activity outside of documented nesting areas.
- We welcome questions about managing snail kites, snail kite habitat, and apple snail populations.
- Additional information about snail kites and their habitat can be found at the Service's South Florida Ecological Services Office web site at: http://www.fws.gov/verobeach/index.htm
- Questions, comments, and inquiries can be directed to Tylan Dean by e-mailing: Tylan_Dean@fws.gov, or by calling (772) 562-3909, extension 284.

LITERATURE CITED

Rodgers, J.A. Jr. and S.T. Schwikert. 2003. Buffer zone distances to protect foraging and loafing waterbirds from disturbance by airboats in Florida. Waterbirds 26(4):437-443.

Sykes, P.W. Jr. 1987. The feeding habits of the snail kite in Florida, USA. Colonial Waterbirds 10(1):84-92.