The Wading Bird Protection Initiative: A Conservation Strategy

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Abstract: The Florida Game and Fresh Water Fish Commission's Nongame Wildlife Program developed a ranking system to identify and prioritize those taxa within the state most in need of research and conservation efforts in order to focus limited staff and financial resources where they are most needed and can be most effective. Wading birds were identified as a priority group of taxa in need of conservation attention. An innovative plan was developed for addressing the conservation needs of that group. Components of the plan include a statewide nesting colonial wading bird survey, colony selection for inclusion in the project, colony site surveys, prioritization of selected colonies, development of site-specific conservation plans, development of general protection and management guidelines, establishment of a volunteer network to conduct management and monitoring activities, and evaluation. The plan will serve as a prototype for future projects involving other taxa identified in the ranking system as having priority conservation needs.

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The Florida Game and Fresh Water Fish Commission's (Commission) Nongame Wildlife Program (NGWP) was established by the Florida Legislature in 1983 with the intent to develop an integrated approach to management and conservation of all wildlife in the state. Approximately 700 taxa (species and subspecies) of vertebrates inhabit Florida, of which >85% are considered nongame. Biology and population status for many of these taxa are poorly understood. Faced with responsibility for conserving this large fauna, the limited number of staff and financial resources with which the Commission has to work, and the relative urgency to conserve those wildlife taxa most vulnerable to extirpation, the need for a triaging

mechanism became apparent early in development of the program. In response to this need the NGWP initiated a long-term planning effort to identify and prioritize actions needed to conserve Florida's most imperiled and poorly understood species.

The foundation upon which planning was built was development of a ranking system. Commission staff and other wildlife experts completed a biological ranking of 668 vertebrate taxa in 1990 (Millsap et al. 1990). Millsap et al. (1990) used published information and local knowledge to rank taxa according to 2 parameters: a biological score which reflected aspects of the taxon's distribution, abundance, and life history; and an action score which reflected the current state of knowledge of the taxon's distribution, population trends, limiting factors, and the extent of conservation efforts directed toward that taxon.

Results indicated that 294 taxa are declining in Florida; 41 of these are declining for unknown reasons. Research, management, and survey and monitoring needs were identified and prioritized based on ranking scores.

Since many of Florida's wildlife taxa that are in need of conservation action occur together in relatively discrete biogeographical regions, they share similar information needs and could benefit from many of the same management strategies. To provide further resolution on how to best focus conservation resources, especially in the case of land acquisition and habitat protection efforts, regions that supported many highly ranked taxa were identified. Millsap et al. (1991) clearly indicated that Florida's diverse and extensive coastal communities support the largest number of highly ranked species and subspecies. Other important regions include the interior ridge scrub and sandhill communities, pine rocklands and tropical hammock communities, interior prairie communities, and north Florida aquatic communities.

With completion of the ranking system, groundwork was laid to transition from an information-gathering and evaluation stage to implementation of conservation programs focusing on protection and management. In 1991, 8 years after its inception, the NGWP began that transition with development of the Coastal Wildlife Conservation Plan (Coastal Plan) (Millsap et al. 1991). The Coastal Plan identifies conservation tasks needed to address the problems facing the 92 vulnerable or declining taxa inhabiting the coastal regions.

Wading birds, including birds in the orders Ciconiiformes and Pelecaniformes, were identified in the Coastal Plan as a target group most in need of conservation measures. The dramatic decline of wading bird populations in southern Florida has been well documented (Robertson and Kushlan 1974, Frederick and Collopy 1988, Frohring et al. 1988). While there is evidence of a shift in nesting populations to more northerly locations in Florida (Ogden 1991, Runde et al. 1991), there is also evidence of a statewide decline in numbers (Runde 1991). The Coastal Plan further recognized the disruption of wading bird colonies by humans and pets as an important limiting factor facing coastal wading bird populations in Florida. To address this issue adequately, however, would require a full-time staff much larger than that of the current NGWP. Since this is just 1 of many conservation needs identified by the Coastal Plan, the NGWP developed an innovative

approach to address the problem. The term "Wading Bird Protection Initiative" (WBPI) is used to describe this conservation approach.

Components of the Wading Bird Protection Initiative

The NGWP is housed within 3 branches of the Commission: the Nongame Wildlife Habitat Protection Section in the Office of Environmental Services, the Nongame Education Section in the Office of Informational Services, and the Bureau of Nongame Wildlife in the Division of Wildlife. Traditionally, those sections have operated independently and have prioritized their time according to needs identified by the branches in which they work. The WBPI represents the first opportunity for all sections of the NGWP to work as a team. It requires an interdisciplinary approach involving personnel from all 3 branches of the NGWP. In conjunction with the Commission's effort, Florida's Cooperative Urban Wildlife Program jointly funded by the University of Florida and the Nongame Wildlife Program, is also participating in the WBPI (Fig. 1).

Components of the WBPI are:

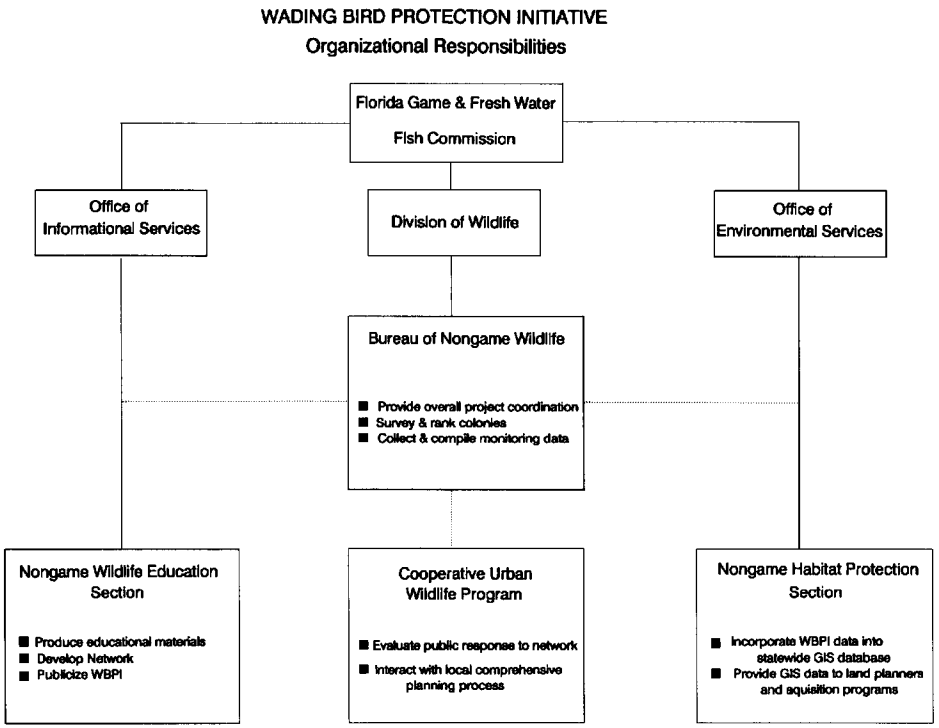

Figure 1. Organizational responsibilities within the Florida Game and Freshwater Fish Commission for the major components of the Wading Bird Protection Initiative.

Statewide Survey. A statewide systematic aerial survey of Florida's nesting populations of colonial nesting wading birds was conducted from 1986–1989 (Runde 1991). More than 30,000 km were overflown in approximately 480 hours of fixed-wing flight time. This information was supplemented by ground counts and visits made from helicopters during which 696 active colony sites were surveyed. Data collected during this survey were compared with results from a survey conducted from 1976–1978 (Nesbitt et al. 1982) to determine trends in population size and distribution for various species of wading birds (Runde 1991). Results indicated that there has been an overall decline in numbers of many species. These declines were particularly dramatic in populations of white ibis, snowy egrets, tricolored herons, and wood storks. Additionally, wading bird populations have fragmented, resulting in an abundance of small colonies while large, stable colonies have become quite scarce (Runde 1991).

Colony Site Selection. As a result of the 1986–1989 surveys, Runde (1991) suggested that a smaller subset of the population be identified for future monitoring and protection efforts. Runde (1991) ranked relative importance of colonies using a numerical scoring system. The ranking variables were colony size, species richness, relative vulnerability of the species present, and longevity of the colony. Colony size was ranked by the largest estimate of number of birds obtained during the 1986–89 surveys. The largest number of species identified at a colony was used as a measure of richness, regardless of survey method. Relative vulnerability of the colony was determined by averaging biological scores (Millsap et al. 1990) of species observed. Finally, colonies with a long history received more weight than colonies which had formed recently. The highest ranking 100 colonies, representing approximately 14% of the active colonies surveyed in 1986 through 1989, and their associated foraging areas were targeted for inclusion in the WBPI.

Colony Site Surveys. Collection of detailed information necessary to evaluate management and conservation needs of all active colonies would not be practical. Site visits to the top 100 colonies were conducted from the ground, when accessible, and by helicopter. Colonies were evaluated for presence or absence of a nesting colony, habitat type, habitat alterations, present management, and threats of disturbance or destruction. Land ownership and management authority was researched through county tax collector's offices. GIS technology (Kautz et al. 1993) was used to identify and delineate potential foraging habitat around each colony. Management and conservation considerations included not only the colony, but its associated foraging zone.

Prioritization. Based on the information gathered from the site surveys, the 100 colonies will be prioritized for action under the WBPI. The prioritization process is currently being developed and will include factors such as extent of threats facing the colony, attitude/policy of landowner(s), biological score, accessibility, and potential effectiveness of a volunteer program.

Conservation Plans. Site-specific conservation plans will be developed for each of the colony sites included in the WBPI. Plans will include land management needs such as signage, fencing, or predator control; people management

needs such as education of recreationists, exclusion, or development of local interest in the colony; monitoring plans; and a conservation goal for that site. Specific tasks and the personnel responsible for conducting those tasks will be identified.

Guidelines. A set of generalized protection and management guidelines will be developed similar to those published for gopher tortoises (Cox et al. 1987), scrub jays (Fitzpatrick et al. 1991), and southeastern American kestrels (Stys 1993). It will provide practical information on the methods used for colony protection, signage techniques, survey methods, and other activities that may be useful to NGWP staff, other agencies, private landowners, and volunteers who are involved in managing wading bird colony sites. Other contents of the guidelines will include sections on general ecology, threats to breeding colonies and foraging habitats, management recommendations for colony sites and foraging habitats, and colony monitoring.

Protection and Future Monitoring. Development of the WBPI was based on the premise that the effort needed to protect wading bird colonies is too great for the current NGWP staff to undertake alone but that there is a community of concerned citizens who are available and interested in assisting with wildlife conservation efforts. Success of the WBPI depends on establishment of a well organized volunteer network–the Wading Bird Protection Network (Network), to assist NGWP staff with annual monitoring, management activities, and educational efforts.

Establishment of the Network will begin with development of educational and information products. Slide programs, pamphlets, and posters depicting the WBPI, its general purpose, focus, and significance will be used to introduce the WBPI concept to target groups such as conservation organizations, educators, and other interested parties. Newspaper articles, wildlife and conservation magazines, television and radio public service announcements, and displays at public fairs and exhibits will target broader audiences.

Eventually, programs will be tailored to the specific problems and needs of a given site or group of sites. The programs will be used to educate a potential constituency for each site. This may include homeowner associations, local civic and conservation groups, professional associations, or student groups. In addition, site-specific programs may be directed toward groups who may pose a potential threat to those sites, such as recreationists who use the area, tourist organizations, or landowners.

Landowner contact will be a critical step in the development of the Network. Although some colonies are located on public lands, many are located on privately owned lands. Participation in the WBPI is strictly voluntary for landowners. Issues such as access and permission to exercise certain management techniques such as fencing or predator control, if needed, will have to be closely coordinated with landowners. Landowners with a negative attitude towards a colony will be targeted for education efforts. If permission to access a colony is denied, it will not be included in the Network but will continue to be monitored and targeted for potential acquisition.

The next step in organizing the Network will involve recruitment of volunteers. An individual will be selected as the primary contact (Contact) for each site. Success of the Network will depend on the ability to recruit capable and dependable Contacts. This individual will be responsible for organization and recruitment of a team of volunteers and will be directly accountable for management and monitoring of that colony. All Contacts and their volunteer teams will be required to attend a training workshop designed to familiarize volunteers with basic wading bird identification and ecology as well as particular skills needed to monitor and manage the colony to which they are assigned. Subjects covered will include survey, monitoring, and land management techniques; a review of the laws protecting wading birds and the limitations of those laws; and protocols for site visits and data collection. Contacts and their volunteers will operate as a local management team. They will be required to monitor a nesting colony at least 4 times during the nesting season. Monitoring data will be reported to NGWP staff for compilation and review.

Information gathered on the location and relative importance of wading bird colonies and associated foraging zones will be made available to local governments, regional planning councils, and other permitting agencies to be used as a planning and protection tool. This information will be presented in a map format using GIS technology.

Although the State of Florida has an aggressive land acquisition program, it is not feasible to permanently secure all wading bird colonies, especially because they tend to be somewhat mobile. However, there may be some situations and sites which require a more aggressive approach than a volunteer network can offer. Action will be initiated to secure colony sites and their associated foraging areas when it is determined that such actions are necessary and potentially effective. These actions may include purchase, conservation easements, lease agreements, or establishment as Critical Wildlife Areas (Critical Wildlife Area is a State designation that allows for the closure of an area to trespass with landowner permission for some portion of the year to protect wildlife from disturbance by humans.)

Implementation and Evaluation

The basis for this project stems from Runde's (1991) statewide survey and colony ranking. The WBPI was implemented in January 1993 with the survey of the top 100 colonies. Ten colonies were identified for inclusion in the pilot year of the project; conservation plans and the volunteer network are currently being developed for these sites. Management activities will start prior to the 1994 nesting season. Ten to 20 new sites are scheduled to be added to the WBPI each year. A 5–10 year implementation schedule is anticipated.

Prior to activation of the Network, urban wildlife specialists, using technical resources of Florida's university system, will evaluate the knowledge and awareness of the local human population in the vicinity of selected colonies. This pretreatment survey will provide a basis for measuring the effectiveness of the WBPI.

Success of the initiative will be evaluated using both biological and sociopolitical criteria. The biological effectiveness of the project will be evaluated based on changes in nesting effort and reproductive success at each colony. Polling and interview techniques will be used to evaluate the success of the project in educating and changing the attitudes of the public toward nesting wading birds.

The Network will also be reviewed for effectiveness. The Network was designed to increase overall productivity of the NGWP while maintaining or alleviating current staff workloads. A time cost-benefit analysis will be used to evaluate its success.

Discussion

The WBPI is being undertaken as a prototype for future conservation efforts. Because staffing and funding increases are not likely to keep pace with the ever-increasing demands placed on Florida's NGWP as well as most other conservation agencies and organizations, it is imperative to incorporate volunteer assistance to effectively manage resources. If successful, this approach may be of value to other agencies facing similar challenges. We believe the strengths of this initiative lie in the scientific and objective approach used to identify and address conservation needs.

Other benefits that may be realized through the implementation of the WBPI include development of a statewide constituency with a better understanding of who and what the NGWP is, a more cohesive agency developed through working on the project as an interdisciplinary team, and the ability to undertake additional conservation efforts previously considered unrealistic due to staff limitations.

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