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ANALYSIS OF THE WOOD DUCK NESTING BOX PROGRAM  
ON  
WAPANOCCA NATIONAL WILDLIFE REFUGE  
1977 - 1986

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Wood duck production has long been an objective for many national wildlife refuges along the Mississippi and Atlantic Flyways, as well as numerous state management areas and private land holdings. Efforts to maximize wood duck production on Wapanocca National Wildlife Refuge have been emphasized since the establishment of the refuge in 1961. Management programs focusing on wood duck recruitment includes optimizing available habitat conditions for nesting and brood rearing and, in particular, the use of artificial nesting structures to enhance the number of available naturally occurring nesting sites.

The nesting box program on Wapanocca National Wildlife Refuge has undergone transition and expansion throughout the years. These changes have occurred as a result of manpower availability, habitat restoration and management, and regional management guidance and directives. Additional wood duck boxes were constructed and placed in a manner which varied from year to year. The result was a mixture of box design, proximity and habitat factors. This study is an effort to analyze these factors and determine their variability in wood duck nesting success.

Production success was analyzed for the period 1977-1986. During this period, the number and location of boxes remained stable. The sample size included a total of 260 boxes. Differentiating factors which were analyzed included box type (wood or metal), location (inundated or dry), habitat (cypress swamp, bottomland hardwood, or upland) and proximity to other boxes (single or grouped closer than 30 m. together).

Nesting success for each box was checked and recorded at least twice annually during the 10 year period. A nesting attempt was considered successful if a minimum of one duckling was hatched and exited the box.

Wood ducks nesting in metal boxes were more successful in 8 years of the 10 year study period when compared with ducks utilizing wooden structures.

Nesting structures located in inundated habitat conditions produced more successful nests in 6 years of the study period.

Cypress swamp habitat resulted in greater nesting success in 6 years when compared to bottomland hardwood sites and 9 years when compared to upland sites. Bottomland hardwood boxes resulted in more successful attempts in 3 of the years when compared to upland sites.

Grouping boxes resulted in increased overall nesting success in 2 years of the 10 year study period. Analysis of the grouping factor also included a comparison of inundated vs. upland groups and inundated vs. upland single structures. Inundated groups of boxes were more successful than their upland counterparts in 2 years of the period. Likewise, inundated single structures were more successful than upland single structures in 5 years of the study.

Conclusions from the 10 year study of wood duck nesting success from artificial structures on Wapanocca National Wildlife Refuge indicate boxes made of materials which discourage predation and placed in wetland habitat normally inundated throughout the nesting season will result in maximized population recruitment. Grouping of boxes does not adversely affect production and, in some cases, may enhance it.

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**NORTH AMERICAN WOOD DUCK SYMPOSIUM**  
20-22 February, 1988  
Chase Park Plaza Hotel  
St. Louis, MO

August 25, 1987

Cameron Shaw  
U.S. Fish and Wildlife Service  
Refuge Manager  
Wapanocca National Wildlife Refuge  
Turrell, AR

Dear Cam:

The 8 members of the Program Committee for the North American Wood Duck Symposium met on 15-16 August to select papers for the program. Of the 55 submissions, 34 were chosen for oral presentation. Your paper "Analysis of the Wood Duck Nesting Box Program on Wapanocca National Wildlife Refuge, 1977-1986" was among a large group addressing box programs. Your paper has been accepted as a poster. The paper also appears to have potential as a valuable contribution, but the Committee had several questions/suggestions to better meet the goals of the Symposium. We would encourage you to develop a manuscript for inclusion in the proceedings. Papers should be developed with a Journal of Wildlife Management format. If you desire to develop the paper, please contact me, and I will forward the guidelines.

The Committee's comments included the following. The abstract indicates the information primarily documents what happened at Wapanocca. More detail is required to enhance the paper. Information on what was done - number of checks and timing, description of habitats - all in ditches or how and in what habitats were they placed, are boxes visible or hidden, what are the numbers of wooden vs. metal boxes, how have numbers changed over the study, what type of predator guards are used, and what were environmental conditions during the investigations. Precipitation and water levels in relation to populations have also proven to be of interest elsewhere. If I can be of further assistance, please feel

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free to contact me.

On behalf of the Committee, I wish to thank you for your interest in the Symposium, and for submitting the abstract.

Sincerely,



Leigh H. Fredrickson  
General Chairman

cc/Don Orr