

**State of Rhode Island
Department of Environmental Management
Division of Fish & Wildlife**

2020-2021 Wood Duck Box Program Summary



Acknowledgements

Prepared by the Rhode Island
Department of Environmental Management

Division of Fish & Wildlife
277 Great Neck Road
West Kingston, RI 02892
Phone: (401) 789-0281
Fax: (401)783-7490

Jennifer Kilburn, Principal Wildlife Biologist
March 2021



THIS PROJECT WAS SUPPORTED by Wildlife Restoration Grants administered by the U.S. Fish and Wildlife Service, Wildlife and Sport Fish Restoration Program: *Partnering to fund conservation and connect people with nature.*

Federal Aid Project funded by your purchase of hunting equipment.

It is the policy of the Rhode Island Department of Environmental Management to offer its services and accommodations to all orderly persons, and as required, to all properly licensed persons, without regard to race, religion, color, national origin, ancestry, sex, age, or handicap. If you believe that you have been discriminated against in any program, activity, facility, or if you desire further information, please write to the Office for Equal Opportunity, US Department of the Interior, Office of the Secretary, Washington, DC 20240.

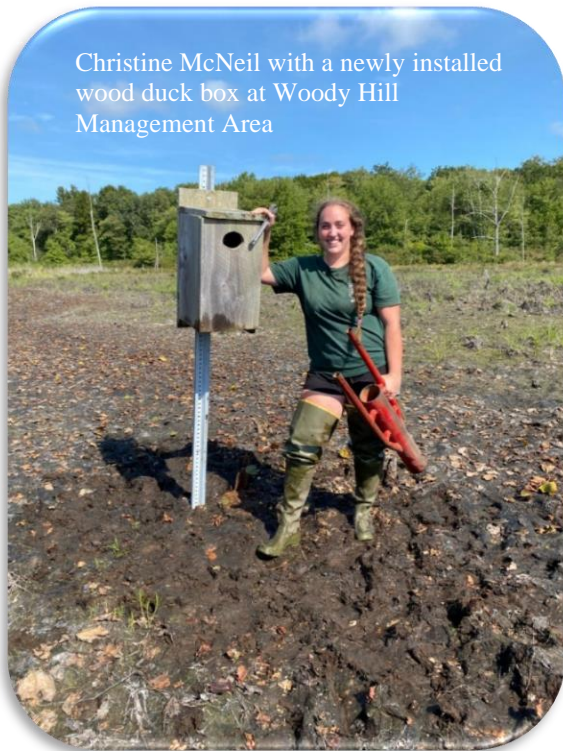
Table of Contents

Acknowledgements.....	2
Table of Contents.....	3
Introduction.....	4
Methods.....	5
Results.....	6
Conclusion.....	8
Appendix I.....	9

Introduction

The wood duck is a cavity nesting bird whose habitat includes the many wooded wetlands found throughout Rhode Island. However, like many abundant game species, the wood duck was driven to the brink of extinction by the early 20th century due to market hunting and the loss of habitat. The recovery of these birds can largely be attributed to the Migratory Bird Treaty Act of 1918. In addition, the use of artificial nesting structures or more commonly referred to as wood duck boxes, aided in population growth. The Rhode Island Department of Environmental Management (DEM) Division of Fish and Wildlife (DFW) wood duck box monitoring program dates to the 1950's. During the programs peak, wildlife staff and volunteers checked and maintained nearly 700 boxes. As suitable nesting habitat became available on the landscape the need to maintain such a large network of boxes no longer existed. However, DFW continues to maintain and check wood duck boxes throughout the state to provide suitable nesting habitat for Rhode Islands breeding population. This data provides information on productivity and occupancy.

In 2019, the Rhode Island Division of Fish and Wildlife conducted an extensive review of the wood duck box program. DFW established a goal to better document wood duck box use and productivity over time and to maintain consistent use from year to year. This document summarizes the program's findings.



Christine McNeil with a newly installed wood duck box at Woody Hill Management Area



Wood duck box located in Simmons Mill Management Area check by local volunteers. -John Sanna Jr.

Methods

During the fall and winter of 2020, DFW staff developed a list of sites and wood duck boxes to check. Volunteers also assisted in checking a small subset of boxes in the state.

Boxes checked this year were erected over water and affixed to metal posts, live trees or standing dead timber. All boxes are constructed of rough sawn pine and a small subset of boxes have predator guards.

Wood duck boxes were inspected, cleaned and new nesting material was added at each site. The presence of one or more membranes in a box indicated a successful nest. The number of membranes found in the box represents the number of ducklings hatched. It is not uncommon to find hooded merganser eggs in wood duck boxes. Staff used egg characteristics to differentiate between these two species. Wood ducks have a thinner shell that is off white in color. Hooded merganser shells are thicker and white in color. Whole eggs indicate an unsuccessful nesting attempt and cracked eggs are indicative of predation.



Results

Staff checked 162 previously established wood duck boxes and erected an additional 10 boxes during the 2020-2021 season. Boxes were distributed across ten towns with the largest number boxes in the towns of South Kingstown (n=30) and Richmond (n=29) (Table 1). Of the 162 boxes, staff replaced five that were in poor condition.

Table 1. The distribution of wood duck boxes in Rhode Island by town for the 2020-2021 season.

Town	Number of Wood Duck Boxes
Burrillville	11
Charlestown	12
Coventry	2
Exeter	18
Glocester	6
Hopkinton	4
Little Compton	15
North Kingstown	21
Richmond	29
South Kingstown	30
West Greenwich	18
Westerly	6
Total	172

Overall duck use was 46% (n=75). Of the 75 boxes with duck use, wood ducks accounted for 66.67% (n=50) while hooded mergansers accounted for 30.67% (n=23). Only two boxes were used by both hooded mergansers and wood ducks (2.67%). Other birds, squirrels and mice accounted for the remaining box use. Of the 162 boxes checked, 40% of the boxes showed no use (n = 65) (Figure 1).

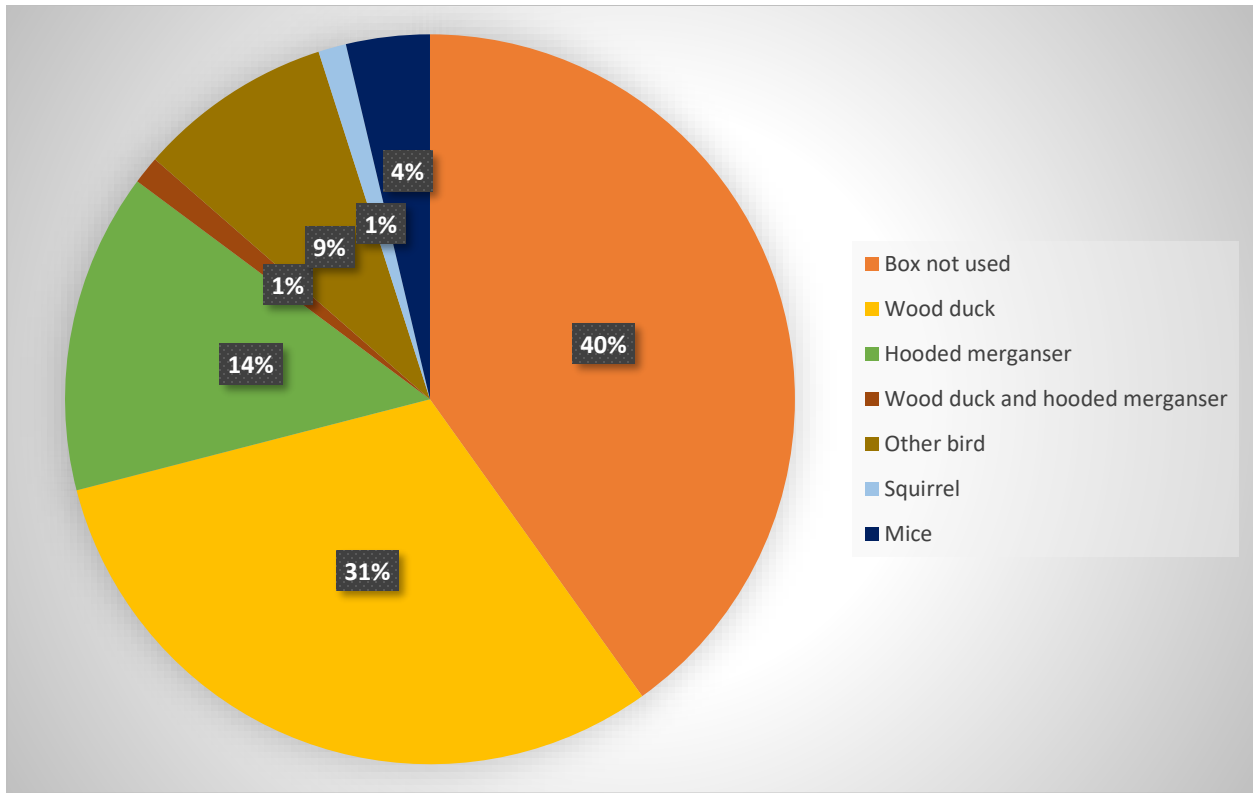


Figure 1. Wood duck nest box use during the 2020-2021 season in Rhode Island.

Average productivity for wood duck boxes containing membranes was 2.95 resulting from a total of 204 membranes. Productivity varied by species, however, hooded mergansers had higher productivity when compared to wood ducks in Rhode Island nest boxes (Table 2). A total of 201 whole eggs were found in boxes; 99 wood duck eggs and 97 hooded merganser eggs. Staff found 16 dead chicks in boxes across 7 different sites. Rhode Island wood duck boxes hatched an estimated 202 ducklings during the 2020-2021 season (Table 2).

Table 2. Rhode Island wood duck box productivity by species for 2020-2021.

Species	Mean productivity per box used	Boxes containing membranes	Mean productivity per box containing membranes	Ducklings hatched
Wood duck	1.61	50	2.26	113
Hooded merganser	2.26	23	3.60	83
Wood duck and hooded merganser	2.63	2	3.00	6

Conclusion

Rhode Island's wood duck boxes helped to produce just over 200 ducklings during the 2020-2021 season. In future years we hope to improve wood duck box use, productivity and the number of ducklings hatched. Additionally, years of consistent data will provide trends in box use and productivity over time. Future improvements to the program will include removal of boxes in poor habitat, the addition of new boxes in quality habitat and modifications to boxes currently on the landscape to increase the chance of use and decrease the chance of predation. Predator guards will be installed on the front of all boxes during the 2021-2022 season.

I encourage you to provide feedback about this report by emailing Jennifer.kilburn@dem.ri.gov

Appendix I

Rhode Island Wood Duck Box Locations

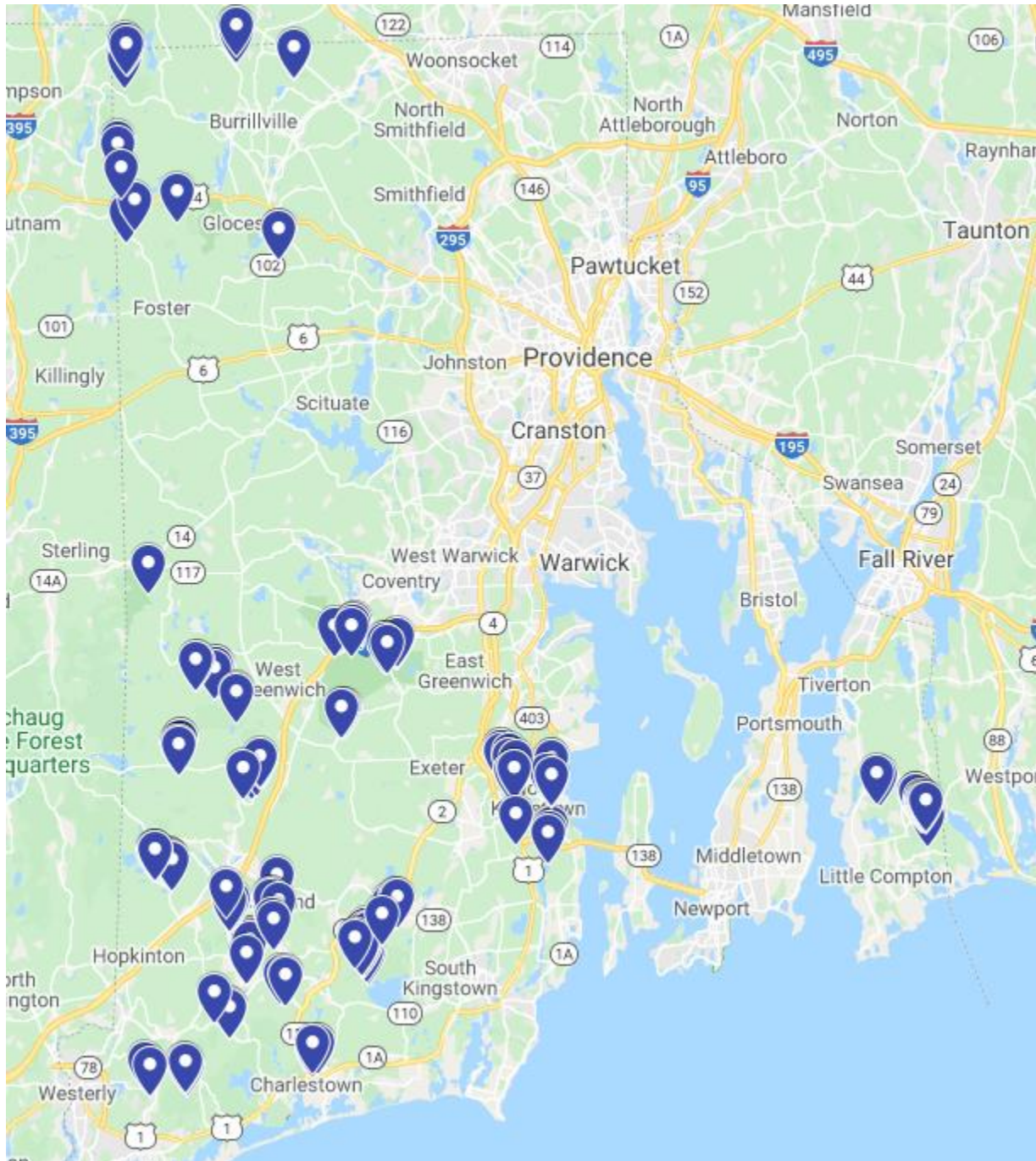


Figure 2. Wood duck nesting box locations in Rhode Island during the 2020-2021 season.