

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

2022 Wood Duck Box Program Summary



Acknowledgements

Prepared by the Rhode Island
Department of Environmental Management

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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 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 (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 diminished. However, DFW continues to maintain and check wood duck boxes throughout the state to provide suitable nesting habitat for Rhode Island's breeding population.

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.



Methods

During the fall of 2022, DFW staff conducted wood duck box checks and repairs across the state. Volunteers also assisted in checking a small subset of boxes.

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 sewn 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.



Results

Staff checked 187 previously established wood duck boxes and erected an additional 4 boxes during the 2022 season. Boxes were distributed across ten towns with the largest number of boxes in the towns of South Kingstown (n=43) and Richmond (n=27) (Figure 1, Table 1).

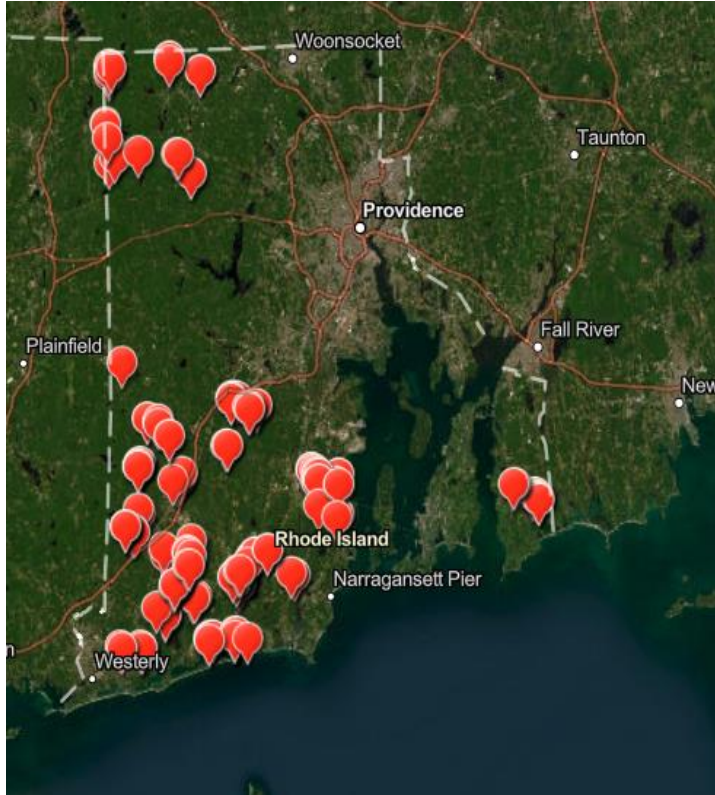


Table 1. 2022 Wood Duck Box by Town

Town	<i>n</i>
Burrillville	11
Charlestown	12
Coventry	2
Exeter	20
Glocester	9
Hopkinton	4
Little Compton	14
North Kingstown	22
Richmond	27
South Kingstown	43
West Greenwich	17
Westerly	6

Figure 1. Wood duck box locations in Rhode Island, 2022.

Overall duck use was 46.52% (n=87). Of the 87 boxes with duck use, wood ducks accounted for 83% (n=72) while hooded mergansers accounted for 17.24% (n=15). Other birds, squirrels and mice accounted for the remaining box use. Of the 187 boxes checked, 32.09% of the boxes showed no use (n = 60), this is 5 less boxes than in 2021 (Table 2).

Table 2. 2022 Wood Duck Box Use

Use	n	feq
Not Used	60	32.09
Wood Duck	72	38.50
Hooded Merganser	15	8.02
Other Bird	22	11.76
Squirrel	2	1.07
Mice	16	8.56

Average productivity for wood duck boxes containing membranes was 7.52 resulting from a total of 331 membranes. Comparatively, wood ducks produced more ducklings in 2022 than the previous two years (Figure 3). A total of 62 whole eggs were found in boxes: 47 wood duck eggs and 15 hooded merganser eggs. Staff found 13 dead chicks in boxes during the 2022 season. Rhode Island wood duck boxes hatched an estimated 331 ducklings during the 2022 season (Table 3). Productivity was the highest in 2022 when compared to the previous three years (Figure 3.) Hooded mergansers occupied 12 boxes during the 2022 season and hatched out 68 ducklings with an average productivity of 7.56 ducklings per box in boxes containing membranes (Table 3). Productivity was also highest in 2022 for hooded mergansers when compared to previous years, but only significantly from 2021 (Figure 4).

Table 3. Rhode Island wood duck box productivity by species for 2021-2022.

Species	Mean productivity per box used	Boxes containing membranes	Mean productivity per box containing membranes	Ducklings hatched
Wood duck	4.60	44	7.52	331
Hooded merganser	4.53	12	7.56	68

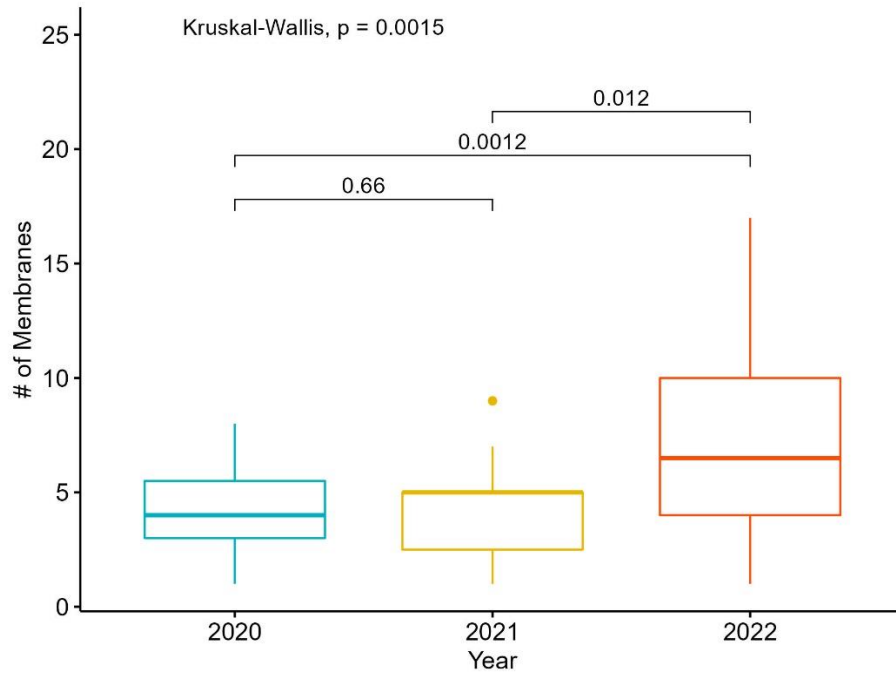


Figure 3. Wood duck box productivity from 2020 to 2022 in Rhode Island.

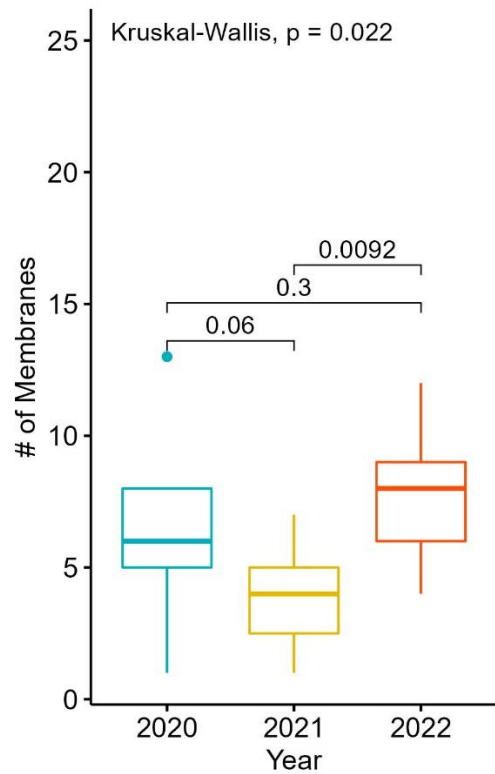


Figure 4. Hooded merganser box productivity from 2020 to 2022 in Rhode Island.

Conclusion

Rhode Island's wood duck boxes helped to produce just under 400 ducklings during the 2022 season. This represents an increase in success over the past three years and is likely a result of consistent box maintenance and improved box locations across the state. Improvements will continue to be made and predator guard installation will be a future goal of the program.

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