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PHILOPATRY IN MALE AND FEMALE AMERICAN BLACK DUCKS[1]

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Key words; American Black Ducks; Anas rubripes; *male/female philopatry; Nova Scotia.*

Breeding philopatry in waterfowl is female-biased (Greenwood 1980, Lessells 1985) and female philopatry in North American dabbling ducks (*Anas* spp.) has been documented for several species (Lincoln 1934, Lokemoen et al. 1990, Sowls 1955). Male philopatry is less common and low return rates have been reported by Dwyer et al. (1973), Titman (1983), Evrard (1990) for Mallards (*A. platyrhynchos*), by Sowls (1955) for Northern Pintails (*A. acuta*), by Poston (1974) for Northern Shovelers (*A. clypeata*), and by Blohm (1978) for Gadwalls (*A. strepera*). Homing by American Black Ducks (*A. rubripes*) to nest sites (Coulter and Miller 1968, Reed 1970) and to rearing areas (Reed 1970) has been documented and Ringelman et al. (1982) report fidelity to home range and use of the same wetlands by an adult female, but there are few reports of homing by juvenile and male Black Ducks. This note documents adult and juvenile male and female philopatry by Black Ducks.

From 1973 through 1989, 591 adult males and 393 adult females were banded and another 63 adult males and 47 adult females were individually marked with color-coded nasal discs (Bartonek and Dane 1964). In addition, 65 male and 50 female ducklings were captured on their natal wetlands in 1987–1989 and banded and marked with nasal-discs. The study area was a 750 km^2 drainage basin but most data were collected in a 1.5 km^2 *Spartina* marsh which has formed where the three main rivers of the basin enter a 10 × 2 km tidal estuary in northeastern Nova Scotia.

Some adult and juvenile (10–11 months old and captured as a duckling) males and females remain on the

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TABLE 1. Number and reproductive status of marked Black Ducks that returned to breed in their natal home range.

Age/sex	No. marked	No. returned		No. returned	
		Paired	Unpaired	a	b
Adult ♂	97	15	8	23.7	27.3
Juv. ♂[c]	82	2	5	8.5	10
Adult ♀	62	18	—	29	36
Juv. ♀	47	7	—	14.9	17.9

[a] % of birds in the marked sample that returned.
[b] % of birds still alive in the sample that returned.
[c] Juvenile = bird 10–11 months old, and captured as a duckling.

study area throughout the annual cycle. However, almost complete freezing of all the water in the study area usually occurs by early December and more than 80% of Black Ducks leave, usually from the estuary which is the last open water available. Some of these birds winter elsewhere in Nova Scotia, but band returns have come from as far as North Carolina. All female migrants are paired when they arrive in the spring, and those that do not migrate are paired well before the breeding season (Seymour, in prep).

Ringelman et al. (1982) provided the first evidence of fidelity to home range and waiting areas by black ducks. In this study, 18 adult females returned to their natal home range (Table 1) and 8 nested within 0.25 km of the wetland site where they had been raised. On nine occasions, females raised their broods, for at least part of the time, on the same sites where they had been raised themselves. Four females nested during more than one (4, 3, 3, 2 occasions) year in the same home range and one of these females used the same site for brood rearing on each (3) occasion. Three females were captured as ducklings and, although it is not known if they nested elsewhere in the study area their first year, they were not seen at their natal wetland until their second breeding season.

Poston (1974), Blohm (1978), Titman (1983), and Evrard (1990) reported that males that homed to previous breeding areas were unpaired. Evrard (1990) also reported philopatry in two paired male Mallards, but he did not know their status when they returned to the study area. Philopatry occurred in both adult and juvenile paired and unpaired male Black Ducks in this study (Table 1). Unpaired males returned to and generally remained on a part of the *Spartina* marsh where territories are never established and hostility between pairs is rare (see Seymour and Titman 1978, 1979). These males courted already paired females that foraged there with their mates (108 hr of observation). Nine males, two of them juveniles, were paired to females that had also been captured in the drainage basin and four of the adult males defended the same territory that they had defended the previous year.

Dwyer et al. (1973) report migrational homing in a pair of Mallards, but this has rarely been reported in ducks, and never in Black Ducks. Three pairs of Black Ducks that had nested in the study area returned the following year. One pair returned to the same home range, however the other two pairs nested elsewhere in the watershed but within 5 km of their former home range.

The ability of females to establish themselves and remain at sites where they had been raised may have been influenced by territorial behavior of the male of pairs already established there. During the first week of their arrival, two juvenile females marked the year before, returned to ponds (1.8 and 3.9 ha) at the periphery of the *Spartina* marsh where they had been raised the previous year. These ponds were the territories formerly defended by the males mated to their mothers. In each case, another pair was established at the site. One of these females was chased by the incumbent male and was not seen again, but the other female continued to return to the site after being chased at least eight times. However, this female left the site four days after first being chased and she eventually nested beside a small (<0.5 ha) pond 2.3 km from her natal site. She hatched eight ducklings and initially took them to the pond, before deserting this site eight days later. She then took her brood along a ditch that would have taken them within 100 m of the site where she had been raised. Almost certainly the ducklings never made it there, or to the marsh, where she was frequently seen without her ducklings within three days of leaving the pond where she had initially taken her ducklings.

Two juvenile females nested within 50 m of the edge of the *Spartina* marsh where they had been raised for the first two weeks of their lives, before being taken by their mothers elsewhere in the marsh. In each case, their mates defended the same water surfaces that the males mated to their mothers had defended the previous year. Ringelman et al. (1982) reported that two different males, mated to the same female Black Duck during successive years, used the same part of the marsh while waiting for the female. Both females in this study successfully raised broods, spending approximately 10 days at their initial sites before taking their ducklings to the same area where their mothers had taken them the previous year.

Adult female Mallards have a strong tendency to return to previously used nesting marshes (Bishop et al. 1978, Lokemoen et al. 1990), but Evrard (1990) and Titman (1983) found low (2.7% and 3.0% respectively) return rates for adult male Mallards. Blohm (1978) and Poston (1974) found low rates of return in juvenile male Gadwalls and Shovelers and Sowls (1955) and Evrard (1990) found no migrational homing in juvenile male Mallards. Both adult female and male Black Ducks returned to natal home ranges in this study (Table 1), and the percentage of males that returned, particularly unpaired males, was higher than reported for other ducks. Similarly, a relatively high percentage of both juvenile male and female Black Ducks returned to natal home ranges.

Females may make decisions about breeding site selection some time before the breeding season. Three apparently paired females were observed for 6, 9, 14 days during October and November on very specific wetlands (1.25–2.0 ha) beside which they nested the following spring. In each case their current mates defended these sites as territories the following spring.

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UNDESCRIBED BOWING DISPLAY IN THE COOPER'S HAWK[1]

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As part of a 10-year study of the nesting ecology of Cooper's Hawks (*Accipiter cooperii*) in Wisconsin, we obtained data on pre-incubation behavior of 47 mated pairs during 1986–89. Here we describe an unreportd *Bowing* display, seen 10 times among nine birds during the pre-laying period, and discuss its function.

All displays were seen in Waukesha County, southeastern Wisconsin (42°53'N, 88°29'W) (Rosenfield 1990). All observations save one occurred at dawn, when Cooper's Hawks typically begin daily nest building activities.

On nine occasions immediately following the appearance of a mated pair at the nest site at dawn, we saw a bowing display in eight marked males and one female. The display never exceeded 60 sec and in no case did both members of the pair exhibit the behavior simultaneously. Displaying birds assumed a horizontal standing position from which "bursts" of quick bowing movements (3–10) occurred; each bow was interrupted by very short (<1 sec) pauses with the forebody at the horizontal plane (Fig. 1). The legs did not bend noticeably during bows and thus only the upper body tipped downward. Wings and tail were not spread and the tail moved up only as the head and chest were lowered (Fig. 1). In at least one male, the tail undercoverts were spread. Two males were silent; six males gave several *kik* calls during this behavior. At other

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