Presence of a Harlequin Duck Drake During Brood Rearing in Northern Labrador

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Abstract.—Female Harlequin Ducks (*Histrionicus histrionicus*) incubate eggs and rear broods, while males normally depart the breeding grounds at the onset of incubation. On 27 July 2000, a male Harlequin Duck was observed in association with a female and brood of five ducklings on the Ikadlivik River in northern Labrador. The male maintained some distance (~100 m) from the female and brood; however, upon appearance of a researcher, the group amalgamated and the male appeared to influence the behavior of the female and brood. Possible explanations for early male departure and this exception are discussed.

Key words.—brood rearing, Harlequin Duck, *Histrionicus histronicus.*

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Previous research on the breeding chronology of Harlequin Ducks (*Histrionicus histrionicus)* has indicated that pair formation occurs during the winter (Kuchel 1977; Gowans *et al.* 1997; Robertson *et al.* 1998) and breeding birds are usually paired prior to arrival at the nesting area (Kuchel 1977; Dzinbal 1982; Wallen 1987). Harlequin Ducks arrive on breeding rivers between late April and early May (Robertson and Goudie 1999), and males depart upon the onset of female incubation in late June and early July (Iceland: Bengtson 1966; southwest Alberta: Smith 1996; Idaho: Cassirer and Groves 1994; E. North America: Brodeur *et al.* 1998, 1999). Therefore, males and females are separated for two to four months, with females being solely responsible for incubation and brood rearing. Broods hatch and are reared between July and September, upon which departure from the breeding grounds occurs and female molt begins at the coast (Robertson and Goudie 1999).

Several have suggested early male departure may decrease the chances of food depletion on breeding rivers (Bengtson 1972; Kuchel 1977), provided food availability is a limiting factor. For waterfowl in general, it has been suggested that lower gametic investment and lower confidence of paternity by males may have been important in the evolution of female care (Trivers 1972; Oring and Sayler 1992). Males of many waterfowl species abandon females prior to hatching, which may allow them to increase fitness either through copulation with other females, or through movement to safer or more productive areas for pre-migratory molting and nutrient acquisition (McKinney 1985; Afton and Paulus 1992). In dimorphic species, male investment during the breeding season may be primarily focused on pair bond formation and maintenance, for which their striking alternate plumage is likely important, but which might also attract predators (Afton and Paulus 1992). In contrast, in monomorphic tropical and sub-tropical species, cryptic males often provide care and may play a role in the detection and avoidance of predators (McKinney 1985; Afton and Paulus 1992).

OBSERVATION AND DISCUSSION

On 27 July 2000, during a habitat survey of the Ikadlivik River (56°21.7'N, 62°20.9'W; 26 km from the estuary) in northern Labrador, a male Harlequin Duck was observed sleeping on a gravel section of a midstream island, approximately 100 m downstream from a female Harlequin Duck with a brood of five young (~one week old).

The male was in definitive (alternate) plumage, indicating he had not yet molted, and the deep coloration of his flanks suggested he was not immature. Upon sighting the approaching researcher (wading upstream), the male entered the water and swam upstream towards the female and brood. Upon sighting the researcher, the female and brood initially attempted to swim upstream against the current, while remaining close to the river bank. During this time, the female remained partially submerged beneath the water, with only her head visible, while calling to and chasing the brood to encourage them to move upstream. After a seemingly futile attempt to swim against the current, the female regained buoyancy and moved into the current with the brood, letting it carry them quickly downstream (similar to previous reports of predator avoidance behavior, Bengtson 1966). Upon reaching the male, approximately 100 m downstream, the group amalgamated and floated downstream for approximately 400 m past the researcher, before entering a backwater eddy (~200 m downstream of another concealed researcher). Within the eddy, the female followed the male, being followed herself by the brood. They remained there for approximately one min, before being led by the male out into the river and continued to drift downstream an additional 500 m. They were subsequently spotted hauled out on an exposed gravel bank at a sharp turn in the river, the male being on the opposite side of the river than the female and brood. After five to seven min, they again entered the water and continued downstream and out of sight.

The interesting aspect of this observation was that the male was present on the breeding grounds this late in the summer, during brood rearing. Additionally, he appeared to influence the behavior of the female and brood after a predator (researcher) encounter. Perhaps most surprising was the female's tolerance of the male's presence in proximity to the brood and the fact that she followed him, although this was only observed after the female was aware she had been detected by the researcher. In both instances when the group was resting while hauled out of the water, the male maintained his distance from the female and brood. This distancing of the male may have served to prevent detection of the brood by potential predators, and/or the male may have been excluded by the female.

In the only other report of a male present during this period of the breeding season (Harrison 1967), damage to primary feathers was reported. We were unable to determine the flight capabilities of the male observed in this report, however no injuries were apparent and he appeared healthy. As Harrison (1967) points out, even if the male had lost flight capabilities, there is no reason he could not swim downstream to molt along the coast.

Although reasons for the male remaining this late in the season are unknown, he seemed to play a role in warning and assisting the female and brood in escaping. Conversely, the distinctiveness of the male may have allowed detection of the brood by the researcher in the first place, despite the fact that he was initially a considerable distance (100 m) downstream from them. Documentation of these types of rare occurrences may be important in providing insight into the evolution of early male departure strategies in mating systems of Harlequin Ducks and other waterfowl.

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