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NOTES

NORTHERN HARRIER HATCHES MALLARD NEST

The northern harrier (*Circus cyaneus*) is a widespread raptor commonly found nesting throughout the Northern Great Plains. Northern harriers forage primarily on small mammals and passerines with the males providing the majority of prey to nestlings until 14–28 days of age (Redpath et al. 2006, Vukovich and Ritchison 2006). Although the genus *Circus* is known to predate eggs from nests of many nesting birds (Hiraldo et al. 1975, Donazar et al. 1996, Opermanis et al. 2000), few have been recorded commandeering nests of different species (Laine 1928, Fleskes 1992). In June 2010, we observed a northern harrier that began sitting on an active mallard (*Anas platyrhynchos*) nest, hatched mallard ducklings, and then continued to incubate until her eggs hatched.

We located and monitored numerous nesting grassland bird species on our research plots including: sharp-tailed grouse (*Tympanuchus phasianellus*), ring-necked pheasant (*Phasianus colchicus*), mallard, gadwall (*A. strepera*), northern shoveler (*A. clypeata*), blue-winged teal (*A. discors*), northern pintail (*A. acuta*), American widgeon (*A. americana*), short-eared owl (*Asio flammeus*), and northern harrier as part of an ongoing project from 2006 to 2010. A primary objective of the study was to determine the effects of sustainable livestock systems on ring-necked pheasant and duck production on post-contract Conservation Reserve Program (CRP) lands in southwestern North Dakota (Geaumont et al. 2010). Our two research plots were located in Adams County, 5 km apart near the town of Hettinger, North Dakota.

We used chain dragging (Higgins et al. 1969) to locate nests of upland game birds and waterfowl. We searched study plots 4–5 times for nests on a bi-weekly basis between early May and mid-July. We placed a stake-wired flag 7 m to the north of each located nest and monitored nests every 3–5 days until nest fate was determined (Geaumont et al. 2010). If hens were observed sitting on their nests during monitoring efforts, we did not disturb nests. However, if hens were present on the second consecutive visit, we flushed them to examine eggs. We estimated nest initiation date following Weller (1956) and considered a nest successful if at least one host egg hatched. The Institutional Animal Care and Use Committee at North Dakota State University approved all research protocols (Approval Number A0857).

We initially found the nest of interest as a mallard nest on 21 May 2010 while chain dragging. Upon flushing the hen, we candled (Weller 1956) the eight mallard eggs and estimated they had been incubated for approximately six days. During a revisit on 28 May 2010, the mallard hen was absent from the nest. A northern harrier flushed from the immediate nest site; however, the mallard nest appeared to be unharmed with eight mallard eggs.

During the next chain dragging event 2 June 2010, we again flushed the northern harrier from the nest, but only four mallard eggs remained. On 8 June 2010, it was apparent that the northern harrier had taken over the mallard nest. The female northern harrier had laid one egg of her own next to the four remaining mallard eggs. On 18 June 2010, we flushed the northern harrier and found two northern harrier eggs, two mallard eggs, and two mallard ducklings at the nest bowl. On the side of the nest were the remains of a rodent that had evidently been placed there by the female northern harrier as an offering for the ducklings (Fig. 1). On 21 June 2010, we revisited the nest to assess the fate of the two hatched ducklings. There was no sign of the ducklings or their remains around the nest, but the two mallard eggs and two harrier eggs remained. In mid-July, we observed the nest during vegetation sampling and field technicians documented that there were two northern harrier chicks in the nest, but the status of the remaining eggs was unknown due to the distance at which the nest was observed. On 4 August 2010, we visited the nest for the final time. Observers recorded one northern harrier chick beginning to grow flight feathers and one mallard egg remaining in the nest bowl.

There are two other recorded occasions where a northern harrier hatched or incubated another species eggs. On one occasion, a redhead (*Aythya americana*) was observed laying two eggs in a northern harrier nest (Fleskes 1992). Due to flooding, the fate of the redhead eggs was unknown, but remaining eggs of the northern harrier nest were floating and any altricial northern harrier chicks would have likely drown (Fleskes 1992). The other recorded occasion of a northern harrier sitting on non-northern harrier eggs was similar to the nest we monitored. Laine (1928) monitored a prairie chicken (*Tympanuchus* sp.) nest (12 eggs) that was commandeered by a northern harrier. Later, the nest contained one hatched prairie chicken egg but the chick was missing from the nest the following day (Laine 1928). The fate of the ducklings in the nest we monitored was unknown.

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Figure 1. Two northern harrier (*Circus cyaneus*) eggs, two mallard (*Anas platyrhynchos*) duck eggs, and two mallard ducklings in harrier/mallard nest with dead rodent presented to ducklings by harrier hen in Adams County, North Dakota, 2010.

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