

Wilson Bull., 92(3), 1980, p. 415

Eggless Canada Goose raises foster broods.—It is generally recognized that birds complete their breeding cycle under the stimulation of photo-period and other environmental influences and under the control of the endocrine system. Abnormal cycles have rarely been reported for wild birds living in their normal environment. Heusmann and Pekkala (*Wilson Bull.* 88:148–149, 1976) recorded a Wood Duck (*Aix sponsa*) incubating for 3 consecutive breeding seasons on an empty nest in Massachusetts. In the third year she was given eggs which she successfully hatched. Fjetlund (*Wilson Bull.* 90:456–457, 1978) also recorded a Canada Goose (*Branta canadensis*) incubating on an empty nest at the Seney National Wildlife Refuge, Schoolcraft Co., Michigan.

On 23 November 1975, I caught and color banded (F13) a wild female Canada Goose on a small artificial pond at Aurora, Ontario. In the spring of 1976 this bird returned and was seen forming a pair bond with an unbanded wild male. On 7 April and 28 April the pair were seen copulating. On 12 April the female was discovered sitting on a nest on an island. On 19 April she moved to a small island nearby and was again seen sitting on a nest and defending the site with her mate. On 1 May she had moved back to the first nest-site and incubated without eggs until after 5 May. (When the male of this pair was flightless that June, I caught and color banded him F16.)

In 1977 the pair copulated on 19 March and the female was found on 11 April sitting on a new nest at her traditional site. She, like normal breeding females, had become very fat and continued to sit on the empty nest until 23 April when she was given 5 dummy eggs. On 25 May she was given 7 partially incubated goose eggs from a captive pair, 5 of which hatched on 3–4 June. She had been sitting on the nest for 53 days. By 12 June the pair had lost 1 gosling, but succeeded in raising the remaining 4 goslings to maturity.

In 1978, F13 again became exceedingly fat and was found sitting at her traditional site on an empty nest on 19 April when she was given dummy eggs. These were replaced with 6 fresh eggs from a captive pair on 22 April, at which time little down was in the nest, but by 28 April a large amount was present. Three goslings hatched on 28 May and were successfully raised.

The behavior of this pair of geese did not differ from that of a normal pair except for failure to lay eggs. It is possible to work out part of the female's cycle for 1978. Although given eggs on 22 April she probably did not start to incubate steadily until 1–2 May. There was therefore a period of 12 days from the time (19 April) she was first found sitting to the time she started to incubate. Assuming a 36 h laying cycle, she probably had enough time to lay a clutch of up to 8 eggs.

Since the goose completed her breeding cycle normally, except for production of eggs, it seems likely that endocrine deficiencies were not the cause of failure to lay. There are 2 possible physical causes for such failure. Huston and Nalbandov (*Endocrinol.* 52:149–156, 1953) have shown that a foreign body, even as small as a thread, lodged in the lumen of the magnum can inhibit ovulation. They suggested that a neural link exists between the oviduct and the pituitary gland. An egg or a foreign body in the lumen may inhibit the secretion of luteinizing hormone peaks which are probably necessary to trigger ovulation.

Sturkie (*Avian Physiology*, 2nd ed; Springer-Verlag, New York, New York, 1965:450) reported that failure of the infundibulum to engulf the ovum from the ruptured follicle results in its discharge into the body cavity where it is rapidly absorbed. The bird appears to be laying, but never actually does.

It is therefore possible that the Canada Goose in question may have an obstruction or tumor in the lumen which inhibits ovulation or it may possess a defective infundibulum. This is Ontario Ministry of Natural Resources, Wildlife Branch, Wildlife Research Section Contribution No. 79-3.—H. G. LUMSDEN, *Ontario Ministry of Natural Resources, P. O. Box 50, Maple, Ontario L0J 1E0. Accepted 30 July 1979.*