

WLF 419 - Waterfowl and Wetlands Ecology and Management
Lecture 8 – Postbreeding Ecology
Next Time – Annual Cycle of Waterfowl

Postbreeding Period

- ?? Molt and some non-breeding activities
- ?? Reproduction to Fall Migration
- ?? Molting
 - Anatidae
 - Simultaneous replacement of primaries and secondaries

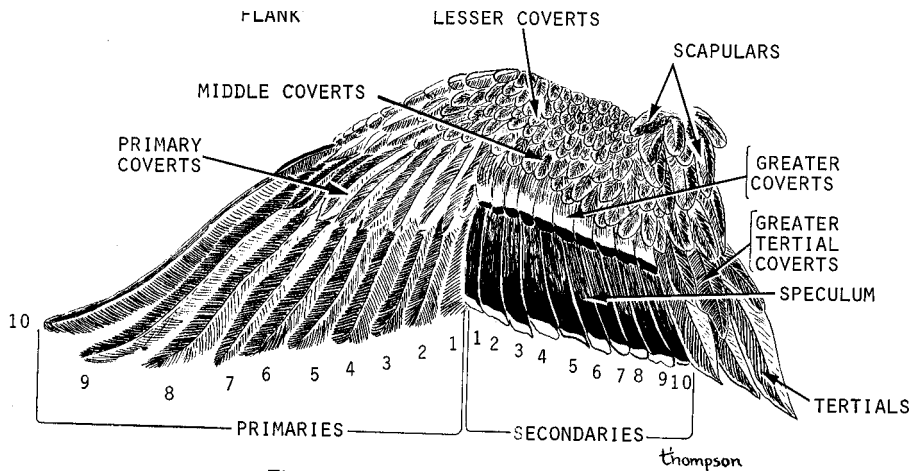


Figure 2-2. The topography of a duck

From Bellrose (1976)

~~Flightless period~~

Molting

- ?? Why Molt?
 - Wear
 - Breeding
 - ~~Attract Mate~~
 - ~~Cryptic – concealment during nesting~~
- ?? Why study molts and plumages?
 - ID
 - Sex and Age determination
 - Classification

~~Magpie Goose – Serial Wing Molt~~

?? Definitions

<p>Dwight (1900) Natal Down Postnatal Molt Juvenal Plumage Postjuvenal Molt First Winter Plumage First Prenuptial Molt First Nuptial Plumage First Postnuptial Molt Second Winter Plumage Second Prenuptial Molt Second Nuptial Plumage Second Postnuptial Molt Etc.</p>	<p>Humphrey and Parkes (1959) Natal Down Prejuvenal Molt Juvenal Plumage First Prebasic Molt First Basic Plumage First Prealternate Molt First Alternate Plumage Second Prebasic Molt Second Basic Plumage Second Prealternate Molt Second Alternate Plumage Third Prebasic Molt Etc.</p>
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?? Humphrey and Parkes (1959)

- Molt named based on incoming plumage
 - ~~4~~ molts (prejuvenal, 1st prebasic, prealternate, prebasic)
- Plumages
 - ~~5~~ Plumages (natal, juvenal, 1st prebasic [immature], basic [eclipse, nonbreeding], alternate [breeding, nuptial])
 - ~~Distinct?~~ – multiple feather generations

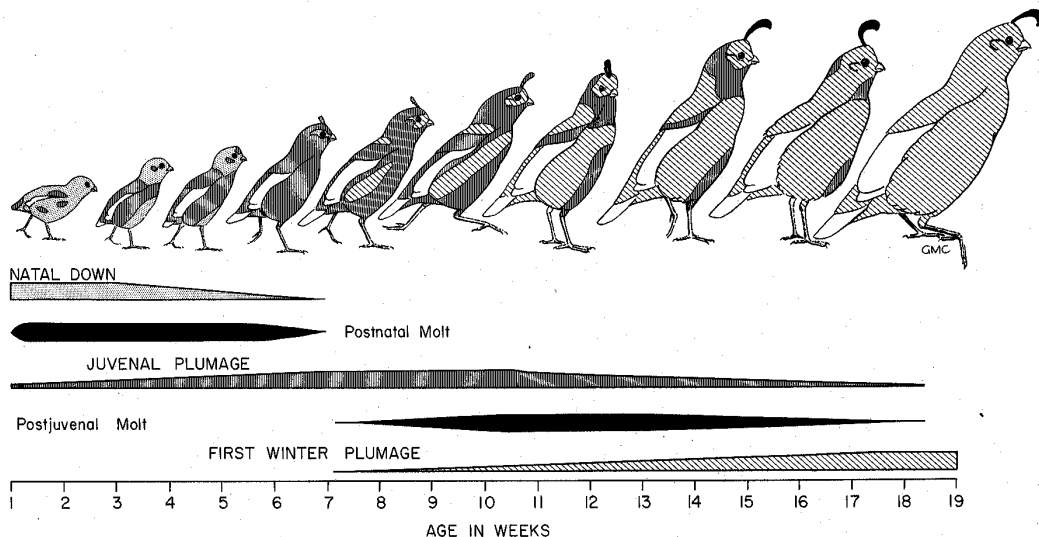


FIGURE 3-17. Succession of plumages in a young California Quail. The width of each horizontal tapering bar indicates the proportion of a given plumage worn by the bird at any given age. From Raitt, 1961.

From Welty (1982)

?? Chronology for normal duck

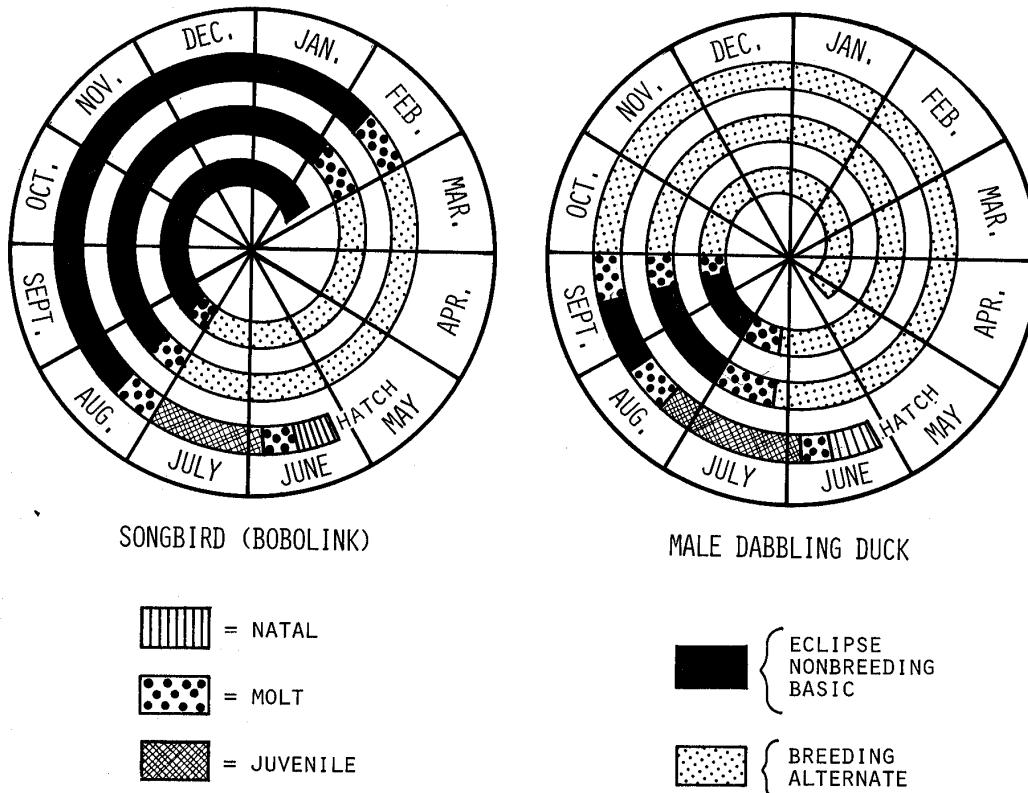


Figure 3-1. Chronology of molt in ducks compared with a typical songbird.

From Bellrose (1976)

- Why Alternate or Breeding Plumage by October?
- Natal Down
 - ☞ Retained 2 ½ to 16 weeks
 - ☞ Buoyant and warm

? Prejuvenile Molt

- Juvenile
 - ☞ Juvenile feathers replace down from same follicles
 - ?? Notched tail feather
 - ?? Order of molt
 - Tail, Wing Coverts
 - Chest, Belly, Rump Head
 - Lower Back
 - Flight Feathers

?? Oxyurini – prealternate molt in spring with wing replacement (flightless 2x year)

Nonbreeders molt sooner than breeders

?? Duration of flightlessness
 ○ Adults 20 – 50 days

ECOLOGY AND MANAGEMENT OF POSTBREEDING WATERFOWL

Table 5-1. Duration of the flightless period in anatids

Taxa	Bird status ^a	Age of young ^b	Flightless period	Percent remex growth ^c	References
Dendrocygnini					
Black-bellied Whistling Duck	C	NA	20	55	Cain (1968)
Cygnini					
Mute Swan	F	14-56	35-42	63	Mathiasson (1973a)
Tundra Swan	F	3-14	35-40	NA	Bellrose (1980), Palmer (1976)
Trumpeter Swan	F	7-21	30	NA	Hansen et al. (1971), Palmer (1976)
Anserini					
Greater White-fronted Goose	F	21	35	NA	Barry (1966)
	F	NA	28	NA	Mickelson (1973)
Barnacle Goose	F	21-28	25	65	Owen and Ogilvie (1979)
Lesser Snow Goose	F	17-18	24	NA	Cooch (1957), Barry (1966)
Greater Snow Goose	F	- ^d	22	NA	Lemieux (1959)
Ross' Goose	F	15-20	21-28	NA	Ryder (1967)
Emperor Goose	F	20-25	NA	NA	Headley (1967)
Brant	F	14	22-25	56	Boyd and Maltby (1980)
Canada Goose	C	NA	32	85	Hanson (1962)
	F	21	25-30	NA	Sterling and Dzubin (1967)
	F	7-21	21-28	NA	Mickelson (1973)
Tadornini					
Egyptian Goose	F	NA	30	NA	Shewell (1959)
Cape Shelduck	F	NA	28-29	74	Shewell (1959)
Cairinini					
Spur-winged Goose	F	PF	42-49	NA	Shewell (1959)
Wood Duck	F	PF	21	NA	Bellrose (1980)
Anatini					
Green-winged Teal	F	PF	21	76	Sjöberg (1986)
American Black Duck	F	PF	29	NA	Bowman (1987)
Mallard	F	PF	NA	70-75	Young and Boag (1981)
	F	PF	26	NA	Kirby and Cowardin (1986)
	NA	PF	28-35	NA	Heinroth (1911)
	C	PF	18	NA	Hochbaum (1944)
	F	PF	23-24	NA	Timmerman and Lebret (1951)
	C	PF	24-26	NA	Boyd (1961)
	F	PF	29-33	78-79	Owen and King (1979)
Yellow-billed Duck	F	PF	28-30	77	Shewell (1959)
Northern Pintail	F	PF	28	NA	Sowls (1955)
Red-billed Pintail	F	PF	24-28	77	Shewell (1959)
Blue-winged Teal	F	PF	26-36	NA	McHenry (1971)
Cape Shoveler	F	PF	30+	NA	Siegfried (1965)
Northern Shoveler	F	PF	35	NA	Sterling (1966)
Gadwall	F	PF	25-30	66	Oring (1968)
	F	PF	NA	66-83	Hay (1974)
American Wigeon	F	PF	35	NA	Bellrose (1980)
Aythiini					
Southern Pochard	F	PF	30	78	Middlemiss (1958), Shewell (1959)
Canvasback	F	PF	21-28	NA	Hochbaum (1944)
Redhead	C	PF	35-42	NA	Weller (1957)
	F	PF	21-28	NA	Bailey (1981a)
Ring-necked Duck	F	PF	21-28	NA	Mendall (1958)
Lesser Scaup	F	PF	14-21	NA	McKnight and Buss (1962)
Mergini					
Common Merganser	F	PF	28	NA	Erskine (1971)

^aBird status: C = captive; F = free-ranging.

^bAge of young when adults initiate wing molt: NA = not available; PF = postfledging.

^cPercentage remex growth completion when birds regain ability to fly.

^dWing molt initiated "soon after" hatch (Lemieux 1959).

- Young obtain flight in 35 – 70 days after hatch

Habitat selection of postbreeding waterfowl

?? Flightless

- Mortality Risk

?? Energetic Demands

?? Molt migration

- Seasonal movements from breeding grounds to molting sites
- Variation

~~??~~ Dendrocygninae?

~~??~~ Anserinae

?? Includes non, failed, and some successful breeders

?? Northward migration

- Thelon River, NWT, Teshekpuk Lake, Alaska, Akimiski Island, Nunavut

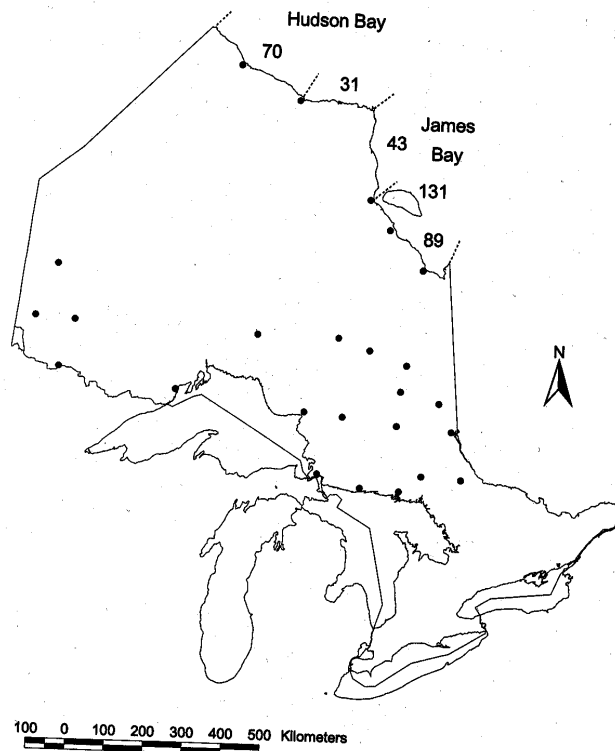


Fig. 1. Locations from which northward movements of Canada geese were reported in Ontario, 1985–89 (darkened circles), and number of foreign, summer-banded Canada geese captured 1976–95 in coastal segments (dashed lines).

Origins and Demographic Characteristics

We captured 364 Canada geese summer-banded in 26 states and 6 provinces.

Of these geese, 71% originated in the eastern Mississippi Flyway (Ohio: 124; Michigan: 68; Indiana: 25; Illinois: 22; Kentucky: 17; Tennessee: 2; Alabama: 1), 8.8% were from the western Mississippi Flyway (Wisconsin: 25; Arkansas: 3; Missouri: 2; Iowa: 2), 4.4% were from the Central Flyway (Oklahoma: 5; Kansas: 3; Nebraska: 2; Utah: 2; Colorado: 1; North Dakota: 1; South Dakota: 1; Wyoming: 1), 2.7% were from the Atlantic Flyway (West Virginia: 3; New York: 2; Georgia: 1; Massachusetts: 1; New Jersey: 1; North Carolina: 1; Pennsylvania: 1), and

12.9% were from Canada (southern Ontario: 19; Manitoba: 13; British Columbia: 5; Alberta: 4; Quebec: 4; Saskatchewan: 2). Sixty-nine percent ($n = 252$) were summer-banded flightless goslings, providing convincing evidence that the birds were from local breeding populations in the above states and provinces, including giant Canada goose and western Canada goose stocks.

From Abraham et al. (1999)

~~?~~Anatinae

?? Generally northward except some Mergini

?? Fidelity

- Adaptive significance
- Management of molt habitat

Literature Cited

Abraham, K.F., Leafloor, J.O. & Lumsden, H.G. (1999) Establishment and growth of the lesser snow goose, *Chen caerulescens caerulescens*, nesting colony on Akimiski Island, James Bay, Northwest Territories. *Canad. F. Natur.*, 113, 245-250.

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