

**WLF 419 - Waterfowl and Wetland Ecology and Management
Exam II**

SS# _____

Provide a clear and concise response to the following question. I will deduct points for extra material that is wrong.

1a. (9) You have been hired by the Alaska Department of Fish and Game to examine waterfowl harvested by hunters during the opening week of the waterfowl season (1-7 September). You are in charge of 3 assistants that have never examined waterfowl before and they are looking to you for advice about aging waterfowl. Name the molts and plumages (based on Humphreys and Parks) that a dabbling duck would experience between hatching (about 15 June) and the 1st week of September and the characteristics of the plumage(s) that would help you age those birds when they examined in the harvest.

Dabbling ducks in Alaska would most likely be in the juvenile and first basic plumage during the 1st week of September. Therefore, they would have experienced some or all of the following plumages and molts.

Natal Down

Prejuvinal Molt

Juvenal Plumage

First Prebasic Molt

First Basic Plumage

The main characteristics that would be useful for aging would be the condition of the tail and wing feathers. If the bird retains tail feathers from the juvenile plumage, these feathers will be notched. Wing feathers are not replaced in the first basic molt and some characteristics of a juvenile wing are useful for aging. Notably you should examine the development of the speculum and shape of the coverts.

1b. (6) One of the hunters explains that his dog caught an adult female Greater Scaup that he included in his bag. He is concerned that the dog caught the bird because it was sick and could not fly. You examine the bird and you do not detect any signs of disease or illness so you tell the hunter to eat the bird. Based on your knowledge of molts and plumages describe to the hunter why the dog caught the scaup. Provide a precise answer.

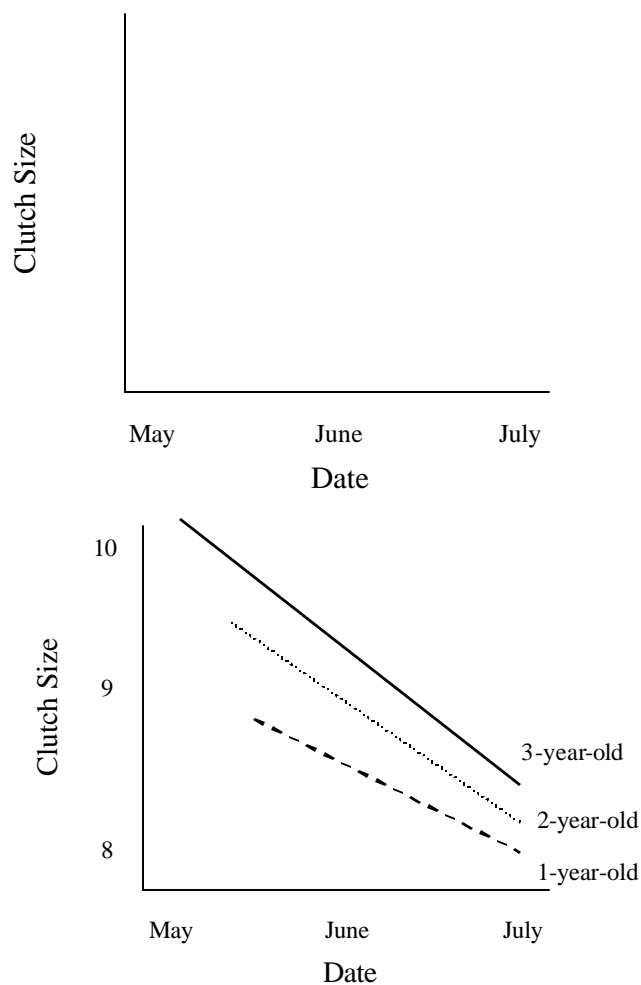
Scaup and most other waterfowl (Anseriformes) molt their flight feathers (primaries and secondaries) simultaneously once a year. The female that your dog captured was in a basic plumage and was completing the prealternate molt. During this molt, all waterfowl replace their flight feathers simultaneously and are flightless for 20-50 days.

1c. (6) Another hunter presents 2 Canada geese and you tell her that one is an adult male and one is an adult female. The hunter thinks you have made a mistake because the

plumage characteristics are identical in the 2 birds so they must be the same sex. Please tell the hunter why the plumages are the same for adult Anserinae and how you determined (in general) the sex of the birds.

Adult in the subfamily Anserinae complete only 1 body molt per year and are therefore in the basic plumage all year. Members of this tribe are monochromatic, but sex can be determined from cloacal characteristics.

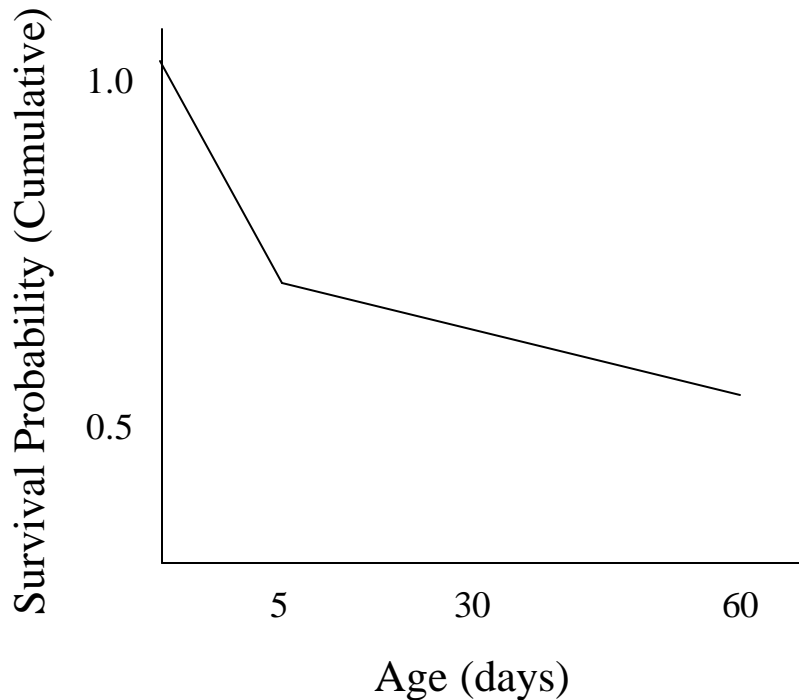
2. (12) Complete the following graph for 1-, 2-, and 3-year-old Canvasbacks nesting in Manitoba, Canada considering age-specific affects on clutch size and nest initiation dates. Be sure you add labels for the number of eggs laid on the y-axis.



3. (6) A biologist studying Blue-winged Teal found a sample of nests by dragging a chain through field and she visited these nests once a week to determine their fate. From this sample of nests, she estimated nest success for the population of Blue-winged Teal on her study site by dividing the number of nests that fail (i.e., do not hatch any eggs) by the total number of nests that she found. Why is this estimate of nest success biased and is the estimate biased high or low? Briefly explain your response about the direction of bias.

The estimate is biased because the sample of nests used to estimate nest success is not representative of the nests in the population. The sample does not include nests that failed prior to nest searches. Nest success will be over-estimated because the sampling procedure favors surviving and successful nests.

4. (9) Draw a graph showing the typical relationship between gosling survival probability (cumulative or daily) and age. Be sure that you label your x- and y-axis and that you provide scales for these axes (e.g., how old is a gosling when it fledges).



5. (8) You capture and mark (nasal saddle code **A3**) an American Wigeon female breeding at Creamer's field in June 2001. In June 2002, you return to Creamer's field and you observe female A3 breeding on the same pond where you marked her last year. In fact, the return rate for all the female wigeon you marked in 2001 is 60%. Return rates are the product of 4 parameters, what are these parameters.

True Survival x Permanent Emigration x Temporary Emigration x Capture Probability

6. (6) Given your knowledge of inter-tribal variation in nest attentiveness (i.e., difference in nest attentiveness for similar size Aythyini and Anatini), what predictions would make about intra-specific variation in nest attentiveness for Spectacled Eiders that nest on islands vs. those that nest in upland settings away from water.

Aythyini, particularly those that nest over water, take longer and more frequent incubation breaks than similar size Anatini. Predation risk at least from mammalian predators is reduced for over water nesting Aythyini. Therefore timing and duration of nest recesses may not be as critical to nest success. Based on this information we would predict that eiders nesting on islands take more frequent and longer incubation recesses than eiders nesting in upland habitats.

7. (6) The morphological and molecular tree do not agree on the placement of certain taxa and groups. Briefly describe some differences between the two trees.

Two phylogenetic trees for the waterfowl family are available. One is based on morphological data and the other on molecular. Although these trees agree on certain aspects, they disagree on the placement on certain taxa and groups. There is disagreement on the placement of the Tribe Oxyurini. Morphological data places this group as a recently evolved group within the family primarily due to its high specialization for diving while molecular tree shows the stiff-tails as an older lineage closely related to the geese and swans. More disagreement is found in the tribe Anatini. Morphology shows this Tribe as a paraphyletic group and splits the tribe into two genera, Anas and Mareca while the Tribe is under one genus, Anas, in the molecular tree. Within the tribe, group and species placement is in debate. The blue-winged duck group is more closely related to the mallards according to morphology but allied with the silver teals in the molecular data. The baikal teal has commonly been viewed as a relative of the green-winged teals due to morphology but molecular data shows it as a basal member of the tribe with no real close relatives but closest to the blue-winged ducks.

True or False. Answer true or false to the following question by putting a T or F, respectively, in the space provided to the left of the question. If you answer F please rewrite the statement so it is true. Questions are worth 3 points each with no partial credit.

1. F Ducks that are captured in a Weller trap are decoyed to the trap by a hen that is placed in the center compartment of the trap.

Ducks that are captured in a decoy trap are decoyed to the trap by a hen that is placed in the center compartment of the trap.

or

Ducks that are captured in a Weller trap are captured while on the nest.

2. F Rocket nets are most commonly used to capture waterfowl broods.

Rocket nets are most commonly used to capture waterfowl when they are concentrated or attracted to bait.

3. T Mid-continent Lesser Snow Geese have severely degraded coastal habitats on the west coast of Hudson Bay.

4. F Neckbands are used to mark Ruddy Ducks.

Neckbands are used to mark geese and swans.

5. F Annual monogamy with rearing is the most common mating system observed in Cygnini.

Perennial monogamy is the most common mating system observed in Cygnini.

6. T An ultimate explanation for the regulation of clutch size in waterfowl is the predation risk associated with laying additional eggs.

7. T Radio transmitter are attached to some waterfowl by suturing them on the backs of the birds.

8. T Annual survival of waterfowl is positively related to body mass.

9. F Adult male Cygnini typically regain flight faster than their mate after the annual prebasic molt.

Adult female Cygnini typically regain flight faster than their mate after the annual prebasic molt.

10. T Nest attentiveness is not related to stage of incubation for Spectacled Eiders nesting on the Yukon-Kuskokwim Delta.

11 (2 points). _____ The most beautiful duck is the male Green-winged teal.

Bonus (3 points)

F *Aythya collaris* is the only species of North American Aythyini that has a circumpolar breeding range. (Please answer by putting in the correct species if the statement is false.)

***Aythya marilla* is the only species of North American Aythyini that has a circumpolar breeding range.**