

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

SS# _____

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

1. (24) Describe the 4 different types of “habitats” used by North American waterfowl for nesting. For each habitat, give the common name of a species that uses that habitat for nesting.

Upland, over-water, cavity, and man made structures are the habitats used by waterfowl for nesting. Most dabbling ducks, sea ducks, and pochards use upland habitats. Canvasbacks, redheads, and a few dabbling ducks select over-water nest sites. Wood ducks, whistling ducks, goldeneyes, buffleheads, and hooded mergansers use cavities. A variety of species use man made nesting structures.

2. (6) Brood amalgamations occur in several species of North American waterfowl, but it is most common in Mergini and Anserini. Describe 2 reasons why this behavior is more common in these 2 tribes than the other tribes of North American waterfowl.

Three factors may influence the occurrence of brood amalgamations: opportunities for contact among broods, viability of young to survive in crèche, and behavior of female or parents. Opportunities for contact may occur in Mergini and Anserini because many of the species in these tribes nest in colonies or high densities, hatching of young is synchronized, and broods occur in common feeding areas. Amalgamations may be more viable in Anserini and Mergini than other tribes because the goslings and ducklings are mature, well insulated, and cold tolerant. Therefore, the young may have less need for brooding. Finally, “superbroody” females may attract young from other broods.

3. (15) Match the courtship display to the appropriate tribe.

Kinked Neck Call	Anatini
Triumph Display	Anserini
Ring-Rush	Aythini
Grunt-Whistle	Mergini
Head-Up-Tail-Up	Oxyurini

4. (9) Many waterfowl species start incubating their clutch prior to the completion of laying, however, most eggs still hatch synchronously. Describe 1 extrinsic and 2 intrinsic factors that may lead to synchronous hatching.

Extrinsic

- **Egg rolling and position in the nest**

Intrinsic

- **Decline in egg size with laying sequence**
- **Higher metabolic rates or hormone levels for eggs laid later rather than earlier in the clutch**
- **Inter-egg vocalization**

5. (12) Place the following species in order from the species with the longest period of brood care to the species with the shortest period of brood care.

Canada goose, Green-winged Teal, Ruddy Duck, Redhead

Describe 2 reasons why the length of brood care varies among tribes.

Canada goose – Redhead - Green-winged Teal – Ruddy Duck

Ultimately, the length of care provided by the parents or female is determined by life-history tradeoffs between investment in current reproductive effort and the future survival and reproduction of the adult(s). Length of care is influenced by the maturity of young at hatch, the timing of breeding, and the ability of the parents to protect the young. Large bodied waterfowl such as geese and swans can protect their young from predation and the family may benefit from maintenance of family structure through increased feeding efficiency. In tribes with only female care of young (e.g., Anatini and Aythyini), the females ability to protect the young from predation diminishes as the young mature and the female faces demands of molt and migration. Therefore, parents in these tribes provide intermediate length of care. Tribes with mature young at hatch (e.g., Mergini and Oxyurini) have reduced length of brood care and may have high rates of brood amalgamations. Generally, the length of care diminishes the later young hatch in the season because the young have a lower probably of recruitment and are therefore of lower values to the adults.

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. T Gizzard content provides a biased sample of food items because soft foods are digested prior to arrival in the gizzard.

2. F Tribes are a level of classification between the family and subfamily.

Tribes are a level of classification between the subfamily and genus.

3. F Ducklings mostly feed on invertebrates because this food source is rich in carbohydrates.

Ducklings mostly feed on invertebrates because this food source is rich in protein.

4. F The ovum is fertilized in the cloaca.

The ovum is fertilized in the infundibulum.

5. F Waterfowl lay relatively smaller eggs than other birds because waterfowl young are altricial.

Waterfowl lay relatively larger eggs than other species of birds because waterfowl young are precocial.

6. T Perennial monogamy is the most common mating system in Anserinae.

7. T Young waterfowl can be marked in their eggs before hatching with web tags.

8. F Intra-specific nest parasitism has been observed in every tribe of North American waterfowl and the subfamily Dendrocygninae.

Intra-specific nest parasitism has not be observed in Cygnini.

9. F Latitudinal variation in growth of waterfowl indicates that young waterfowl grow faster at lower than higher latitudes.

Latitudinal variation in growth of waterfowl indicates that young waterfowl grow slower at lower than higher latitudes.

10. T Redheads commonly parasitize the nests of Canvasbacks.

Bonus

11. F *Anas crecca carolinensis* and *Anas crecca nimia* are distinguished by the pattern of spotting on the breast and the pattern of coloration on the rump feathers.

***Anas crecca carolinensis* and *Anas crecca nimia* are distinguished by the presence or absence of a vertical white bar behind the breast and the presence or absence of a cream lining around the green eye stripe.**