



# 2009 Wisconsin Envirothon **KEY**

## Wildlife Exam

Answers that are correct but differ strongly from answer key must be initialized by Station Captain as an approved answer prior to delivery to score stewards.

1. The wood frog (*Rana sylvatica*) is a common woodland amphibian in Wisconsin. What are the four components of wood frog habitat and how do they use each one? (8pts; 1 pt for each component, 1 pt for the correct use)

<u>Component</u>	<u>Use</u>
a. Food	Adult wood frogs are carnivores that eat terrestrial invertebrates. Tadpoles generally eat algae, diatoms, and decaying plant material.
b. Water	Wood frogs breed in vernal ponds that are only temporarily full. This limits fish predation but also places eggs and tadpoles at risk of drying if the ponds dry up.
c. Shelter	Wood frogs hide and feed in leaf litter on the forest floor. They also hibernate for the winter under leaf litter, loose soil, or decaying logs. Wood frogs disappear when the forest canopy is removed.
d. Space	Wood frogs do better in habitat that is unfragmented by roads. Being hit and/or run over by cars is a major source of mortality as they move to spring breeding ponds.

2. One factor affecting species diversity in a given habitat is the number of ecological niches that are available. In order to fill a specific ecological niche, an animal needs the right physical tools to most efficiently utilize it. You will be shown five birds. Match the bird to the correct food source. (10 pts, 1 pt for each bird, 1 pt for correct food type)

Bird	Food Type
a. American woodcock	Grubs, worms, insects etc.
b. Belted kingfisher	Fish
c. Loggerhead Shrike	Small birds, small mammals, insects
d. White-winged crossbill	Insects, seeds
e. Chimney swift (.5 for swallow)	Flying insects

3. Look at the assorted birds. List those that naturally nest in tree cavities. (5 pts, 1 pt for each bird.)

Hooded merganser, Barred owl, Eastern Bluebird, White-breasted nuthatch and European starling.

4. What is the most common reason for an animal species to become extinct? (1 pts)

Habitat loss.

5. Aquatic organisms are useful to conservationists as “biological indicators.” Finding which of these five (5) species would best indicate a healthy trout stream? (4 pts, 2 pts each)

Stoneflies and caddis flies.

6. Looking at the mammal skins on display, which of these species regularly climb trees? (4 pts, 1 pt each)

Porcupine, fisher, gray squirrel, and gray fox.

7. As a group, what class of vertebrates has the greatest biomass per acre in a healthy mesic deciduous forest? (5 pts)

Amphibians.

8. The complexity of a given habitat has a major impact on its biodiversity. Why does *Phragmites australis* impact the wildlife in areas of Wisconsin where it is found? (10 pts, 2 pts for each reason)

Phragmites, as an exotic plant species, is relatively free of the herbivores, diseases, and other limitations of native species. This allows it to out compete and exclude the native plant species around it. Not many of our insect species eat Phragmites, which means there are fewer insects. Animals that eat insects then lose their food source, affecting their predators. Phragmites structure and stand density make it difficult for many animals to find nesting cover or even move through it.

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9. What is the difference between species biodiversity and genetic biodiversity? (8 pts, 4 pts for each definition)

Species biodiversity is the number and distribution of species in one location, or the measure of the number of different species within a given area. Genetic biodiversity is the level of biodiversity that refers to the total number of genetic characteristics in the genetic makeup of a species.

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10. Habitat fragmentation is a major factor affecting biodiversity and has allowed this mounted bird to negatively impact other native bird species. What is this bird and how does it affect other birds? (8 pts, 4 pts for identifying the bird, 4 pts for the way it affects other birds)

It is a Brown-headed cowbird, which is a brood parasite that lays its eggs in the nests of other bird species and relies on these hosts to incubate and raise their chicks

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11. Water temperature, pH, and turbidity can impact aquatic life. How can each of these criteria impact fish? (9 pts, 3 pts for water temperature impacts, 2 pts for pH impacts, 4 pts for turbidity impacts)

Higher temperatures lower the amount of dissolved oxygen water can hold. Also many fish species are adapted to live within a specific temperature range. Higher temps make aquatic life more susceptible to disease, parasites, and toxic waste. As PH starts to drop below 6.5 it harms many fish species, especially eggs and young. Low pH also releases toxic metals like aluminum. Turbidity is caused by small suspended particles of matter that can make it hard for fish to see prey, limit aquatic plant growth, clog gills, and bury eggs.

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12. Looking at the sample mammal skulls, which species best fits the categories of carnivore, herbivore and omnivore? (6 pts, 2 pts each)

Carnivore: Bobcat

Herbivore: Beaver

Omnivore: Raccoon

13. Listen to the song of one of the most common Neotropical migrant birds of Wisconsin forests. What bird is it, what is its gender, and why do so many birds sing during the breeding season? (6 pts, 2 pts for the correct bird, 2 pts for the correct gender, and 2 pts for each reason to sing.)

Correct answer is the male ovenbird. Typically only the male "sings" as a method of long-range territorial defense and to advertise to females.

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14. What are four ways clear-cutting a square mile of upland forest could impact biodiversity? (4 pts)

Correct answer are by disrupting the local water cycle, drying out the forest floor, habitat fragmentation, increased erosion, the forest becomes an even aged forest, and increased stream water temperatures.

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15. The area where we stand is a meeting place of two different forest types. What is the ecological term for this area between two adjacent ecological communities? Why is this area defined as one of these? Why is it important to wildlife? (9 pts, 3 pts for identifying the area, 3 points for explaining why the area is an Ecotone, 3 pts for the reason ecotones are important to wildlife)

This area is an Ecotone. It is an Ecotone due to the logging of the original forest and the planting of red pine. Ecotones are particularly significant for mobile animals, as they can exploit more than one set of habitats within a short distance. This can produce an edge effect along the boundary line, with the area displaying a greater than usual diversity of species.

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16. Many scientists point to the extinct passenger pigeon, once the most common bird in North America, as an example of ecosystem collapse. What were three factors causing the complete extinction of this species? (3 pts, 1 point each)

Loss of breeding habitat and food sources through deforestation. The commercial exploitation of pigeon meat on a massive scale. Newcastle disease. Their colonial way of life and communal breeding made them easy to find and destroy. Passenger pigeons needed to be in huge flocks to stimulate breeding (social facilitation) and minimize the impact of predation. The very adaptations they had as protection from animal predation increase their vulnerability to people.

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TIE BREAKER

What is the name of Wisconsin's only venomous mammal?

Short-tailed shrew.

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