ANSWER KEY

Exercise: 1

Instructions: The amphibian section provides information on the evolutionary relationships among families of the Digital Atlas of Idaho amphibians, how to identify amphibian species in Idaho, and how each species goes about the business of making a living in nature. This exercise will help you to become much more familiar with this unique class of animals. Use your knowledge to answer the following questions completely and accurately.

1. What are the characteristics that distinguish amphibians from other animals? Amphibians have moist, glandular skin that does not have scales. Most amphibians have complex life cycles that include eggs, larvae, and adults. Eggs lack shells as well as an amniotic membrane that surrounds the embryo.

2. What species are included in each of the two orders of amphibians found in Idaho? The two orders found in Idaho are Urodela (newts and salamanders) and Anura (frogs and toads).

3. What are the major differences between these two orders? The order Urodela is characterized by having a visible tail, lacks an external ear drum, and has legs adapted for walking. The order Anura is characterized by absence of a tail in adult form, lacks a long neck, and has limbs adapted for hopping and swimming. (Hind limbs are longer that front limbs)

4. Using the family tree page, indicate which family of salamander is the least related to the other families of salamanders. Which family of the order Anura is the least related to the others? Plethodontidae is the salamander family least related to the others, while Ascaphidae is the family of Anurans least related to the others.

5. Of the two families Ranidae and Pelobatidae, which one is more closely related to Bufonidae? Ranidae is more closely related to Bufonidae.

6. What do most amphibians eat? The diets of amphibians vary to a large degree depending on the species. Diets mainly consist of aquatic invertebrates and vertebrates, insects, and algae.

7. Describe the basic life cycle of a frog. Trace the path of a frog from an egg to an adult. A frog for starts off as an egg, the egg hatches and a tadpole is born which swims and has gills and is generally herbivorous. It grows, develops limbs and lungs, and takes its adult form as a frog that can spend some time out of the water.

Conservation:

Visit the web site of the North American Reporting Center for Amphibian Malformations at: http://www.npwrc.usgs.gov/narcam/

1. What types of malformations did you observe? Many types of malformations exist, including malformations of the limbs, eyes, jaw, skull, spine, and skin.

2. What are the possible causes of these malformations? Three major possible causes could include sunlight, toxic chemicals, and parasites.

3. Why do you think toxic chemicals influence frogs so easily? Frogs have moist permeable skin. This skin can easily absorb chemicals directly from their environment.

4. What might happen to the genetic diversity of amphibians if they continue to decline? If the number of frogs continues to decline, there will be less genetic diversity, which could have a harmful effect on the overall health of each frog population affected.