

## Blue Ribbon Niche

### Study Units

[Iowa's Waters; Aquatic Life; The World in a Pond; People, Land, and Water](#)

### Supplemental Information

Much damage has been done to Iowa's riparian areas by human land use practices. Intensive cropping, heavy fertilization, drainage programs, and uncontrolled access of livestock to streams and rivers have degraded these aquatic resources. Urban and suburban development also have destroyed riparian areas.

Riparian areas are crucial to the integrity of our aquatic resources. Vegetative filter strips (along streams) help reduce the levels of sediment, crop nutrients, pesticides, and other chemicals introduced into our surface waters (EPA 1988). A forested strip as narrow as 50 feet between stream and cropland can remove the majority of nitrogen and phosphorus from surface and subsurface runoff. Plants along streams provide food and cover for terrestrial animals. Shade from trees moderates water temperatures and exposed roots provide habitat for aquatic animals.

Dr. Richard Schultz, Iowa State University, has developed demonstration buffer strips in Story County. Studies have shown these areas of vegetation provide habitat for a variety of wildlife and greatly improve water quality. Stream tables (models of streams) also are available to demonstrate the effects of stream straightening (channelization) and removal of vegetation from stream banks. See the **Teacher Aids** section for links to an extension publication and how to locate a stream table model.

For more information about the ecosystem concept and the definition of a niche, see "The Ecosystem Concept and Project WILD" in the appendix of the *Aquatic WILD* guide.

### Teaching Suggestions

Do the activity, "Beautiful Basics" (*Project WILD*). Stress the importance of arrangement of food, water, shelter, and space. Animals need ready access to these four things in their habitat. Many animals that aren't "aquatic" must have water regularly; therefore, they are found in riparian areas. Point out different animals in the poster "Life in a Stream" to your class. Have each student choose a plant or animal in the poster and research its habitat requirements and its niche in the ecosystem. Have students construct replicas of their organism as suggested in the activity. Create a simulated habitat and have students place their replicas in the correct location of the habitat and describe its niche to the rest of the class. Have students complete the *Student Worksheet*.

### Evaluation

See the **student worksheet**.



## Student Materials

### Student Worksheet

*Answers for student worksheet:* 1) omnivore 2) consumer 3) predator / carnivore 4) habitat 5) herbivores 6) prey 7) food web 8) niche 9) producers 10) decomposers

### Teacher Aids

- Poster: Life in a Stream (Contact the [Iowa WILD office](#) if you do not have)
- Iowa State University Extension Publications: [Riparian Buffer Strips – Stewards of Our Streams](#)
- Pond & Stream Mats: Two four-color drawings depict areas of a pond and stream. Each set of mats includes several plastic fish that can be placed in different areas to show where they can be found. Dry erase markers can also be used to draw or write on the mats. Each measure approximately 3 x 6 feet so they are large enough for several students to gather round. You can also project the pond or stream image on a whiteboard or smart board. Check out this [Google Sheet of what is available](#) and contact your nearest local resource!

### Additional Materials

- **Demonstration Models** including Enviroscape, Stream Table, Groundwater Models, and Pond and Stream mats may be available in Iowa near you. Check out this [Google Sheet of what is available](#) and contact your nearest local resource!
- [Riparian Systems \(NRCS\)](#) (PDF)



## Blue Ribbon Niche: Student Worksheet

**Directions:** Use your science book or library sources to learn about the following words. Then use the words to correctly complete the sentences.

carnivore, consumer, decomposer, food web, habitat, herbivores, niche, omnivore, predator, prey, producers

1. An animal that eats both plants and animals is a(n) \_\_\_\_\_.
2. A(n) \_\_\_\_\_ cannot make its own food.
3. An animal that hunts and eats other animals is a(n) \_\_\_\_\_.  
Because such an animal eats only meat, it is also called a(n) \_\_\_\_\_.
4. An animal's \_\_\_\_\_ is its "address."
5. Animals that eat only plants are called \_\_\_\_\_.
6. Animals that are eaten by other animals are called \_\_\_\_\_.
7. The complex relationships between plants and animals in a habitat is called the \_\_\_\_\_.
8. An animal's \_\_\_\_\_ is its "occupation."
9. Green plants and algae are called \_\_\_\_\_ because they make their own food.
10. Bacteria and fungi are \_\_\_\_\_. They break down dead plants and animals so that the nutrients are released for re-use by plants.

