WILD Kids

4-6 Published by the Arizona Game & Fish Department - Education Branch and the Heritage Fund Number 6

Riparian Corridors

Riparian is a term used to describe habitat located around the boundaries of water. Riparian habitats may extend from the edge of the water for just a few feet or over a mile away. Vegetation making up a riparian habitat is different from that surrounding it. For example, in riparian habitats on the Mogollon Rim of Arizona you will find big tooth maple, Gambel oak, and thick mats of grasses. The surrounding vegetation is dominated by ponderosa pine, Douglas fir, white fir and a few little tuffs of grass here and there. A more dramatic example is seen in riparian habitats of the desert. Common desert riparian vegetation includes mesquite, cottonwood, willow and giant reed. The surrounding desert vegetation often includes various cacti, creosote, paloverde and agave.

Some Arizona animals are found only in riparian habitats. (Can you name a few?) At least 60% of the resident wildlife in Arizona depends on riparian habitat for food, water, shelter and/or space for survival. Many **migrating** birds use riparian areas as resting and feeding areas. Some migrating birds even winter in Arizona's riparian habitats.

Riparian habitats act as "highways" for many animals and even plants. These highways of riparian habitat are also referred to as **riparian corridors**. Some animals, such as beaver, cannot live very far from water. If an area of riparian habitat becomes concentrated with individuals, some move or disperse into other areas. Riparian habitats act as a highway for these dispersing animals to follow on their way to find new, less crowded areas to live in.

Many of Arizona's remaining riparian habitats are being invaded by introduced plants and animals. An introduced plant or animal that is not native to the area is called an **exotic**. Exotic plants and animals have been accidentally and intentionally introduced into Arizona and Arizona's riparian habitats. Once exotics have established themselves in a riparian habitat, dispersal is easy (and getting rid of them difficult). The exotic plants and animals can disperse to other riparian habitats by following the riparian "highway". In this manner some exotic plants and animals are spreading over large areas of Arizona.

Some introductions of exotic plants and animals can have negative effects on riparian habitat. Take salt cedar, also called tamarix, for example. There are two types of tamarix found in Arizona - African and Asian. The African variety of tamarix does not seem to reproduce in Arizona. The Asian variety of tamarix has no problem reproducing in Arizona. Asian tamarix can reproduce by seeds, cuttings, broken branches and by spreading roots. (Roots of tamarix will send up shoots that become new plants as they grow above ground.) Asian tamarix are rapidly moving throughout Arizona's riparian habitats, following riparian "highways." It is a fast growing tree in comparison to many of the native riparian trees. It can grow so fast that it overshadows newly sprouting native trees, killing them. Riparian areas that have been invaded by tamarix have fewer breeding birds and mammals than adjacent undisturbed riparian areas. Tamarix does not make good habitat for riparian animals.

Another example of an introduced exotic having a negative impact on riparian vegetation is the crayfish, also called crawdads. Crayfish belong to a group of animals called crustaceans. (Other Arizona crustaceans include the fairy shrimp, tadpole shrimp and sowbugs.) Crayfish are **omnivores**. This means that they eat both plant and animal material. Generally, they prefer aquatic vegetation. But once they have

eaten all the aquatic vegetation, they begin eating anything they can catch - small fish, fish eggs, frogs, frog eggs and tadpoles, snails and snail eggs, aquatic insects and even terrestrial plants. You can always tell a pond or stream that has crayfish in it. First, the water tends to be muddy. This is because all the aquatic vegetation that holds down silt has been eaten. Second, terrestrial vegetation is gone for a least a foot from the waters edge. If the pond or stream once held frogs or salamanders, they are gone too. Native fish populations are also low in streams with crayfish. Even a small exotic animal like the crayfish can have a negative impact on Arizona's riparian habitats.

Not all exotic plants and animals can survive and reproduce in Arizona without help from man. Many rivers, streams and creeks in Arizona are stocked every year with game fish. These game fish are not native to Arizona and some cannot reproduce on their own. But because many people like to fish, Arizona Game & Fish Department personnel restock these exotic fishes year after year.

So what can you do? First, when you go fishing and use live bait, do not dump the left over bait into the water. Most live bait sold in bait shops is not native to Arizona. In other words, the bait is exotic! Second, volunteer your time to organizations like the Nature Conservancy that is trying to get rid of exotics. Every year the Nature Conservancy at the Hassayampa River Nature Preserve holds "tammy whacking" workshops. As a volunteer, you go out along the Hassayampa River in the Preserve and remove tamarix trees. This "tammy whacking" is putting a big dent in the tamarix population on the Preserve. Cottonwood and willow are returning. One day it may be gone from the area. And thirdly, help educate others on the importance of riparian areas and why certain exotics can be harmful to one of Arizona's most irreplaceable habitats.

Activity I: Aquatic Roots (adopted from the Aquatic Project WILD activity of the same name)

Make up a list of introduced plants and animals that can be found in Arizona's waterways and riparian habitats. Some sources of information are: *Fishes of Arizona* by W. L. Minckley, *Mammals of Arizona* by D.E. Hoffmeister and *Arizona Weeds* by K. Parker. These books are college textbooks but you can easily skim the information for the word 'introduced'.

Next chose one plant and one animal from the class list and do some library research on them. Gather information about the origins of the plant and animals and its impacts riparian areas. Was the introduction of the plant and animal intentional, accidental or unknown? Make a two-column list of the benefits and liabilities (positive and negative effects) of the plant and animal. Report your findings to your class.

Finally, on a map of the world, stretch a strand of yarn from Arizona to the origin of your plant and animal. Place a tag on the yarn with the name of the plant and animal. From what continent did most of the introduced plants and animals come from? Why?

Activity II: Mapping Riparian Areas

Obtain a map of Arizona that shows all or most of the rivers, streams, creeks, springs and lakes. Trace the outline of the state and as many of the rivers, streams, creeks, springs and lakes as possible.

Next, identify the waterways as flowing from the north to the south, east to west, south to north or west to east (you could use different colors or line widths). In which direction does most of the water flow? What causes one waterway to flow in a certain direction and another in just the opposite (a topographic map may be helpful).

Identify the different **watersheds**. A watershed is a group of streams and creeks that all flow into a larger river. The river may then flow into an even larger river, forming a river system. Which watershed covers the most area? The least? Locate the major cities and towns of Arizona on your map. How do they correspond to the location of waterways?