

# INVASIVE WILDLIFE

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In a natural ecosystem, animals have predators, food limitations, diseases, and social behaviors that keep population sizes in balance. When animals get taken out of their native habitat and are introduced into another area, the absence of natural predators, diseases or competitors may allow them to become invasive. Invasive animals are those introduced to an area outside their original range that become problematic in their new home by interfering with native species. Sometimes these animals are introduced accidentally, in goods imported from overseas for instance, or are purposefully introduced as food sources or sport hunting. Almost any species potentially can become invasive, but animals generally have three things in common that allow them to be successful in a new environment:

- They are generalists. They do not need special food or places to reproduce.
- They are highly competitive for resources.
- They have lots of offspring at one time and short turnover time between pregnancies.

In Arizona, animals like crayfish, bullfrogs, quagga mussels, and red-eared sliders are changing entire ecosystems by outcompeting or eating native species, and by introducing diseases.

This fact sheet outlines some of the major invasive animals found in Arizona and ways you can help prevent their spread. It is important to note, however, that plants can also be invasive by pushing out native plants and changing ecosystems. For more information on invasive plants in Arizona, please see the *Invasive Plants of Arizona* publication from Arizona Cooperative Extension.

## Crayfish

Arizona has no native crayfish species. They were intentionally introduced to Arizona as live bait for sport fish and to control aquatic weeds over 30 years ago. Since then they have been accidentally and purposely moved by humans throughout

the state. They are found in still or slow-moving bodies of water within the Santa Cruz, Salt, Gila and Little Colorado Watersheds. Crayfish are voracious eaters of snails, tadpoles, native fish eggs (our local native fish appear to be especially vulnerable), frogs, and small turtles. In addition, they disturb stream bottoms, increasing the murkiness of water, inhibiting plant growth, and stripping streams of aquatic plants. Arizona state law makes it illegal to transport live crayfish in order to decrease chances of introducing them into new waters. You can help prevent the spread of crayfish by following these guidelines:

- Never dump or release any live crayfish (classroom or household pets or crayfish used as bait) into streams or lakes. Give leftover bait you do not want to another fisherman or throw it away. Give pets to another classroom or household.
- Never transport live crayfish from one body of water to another.
- Catch as many as you can. With a fishing license you can catch crayfish all year long and there is no bag limit. See the Arizona Game and Fish Department website for details on how to catch, cook and enjoy crayfish.

## Bullfrogs



DAVID KAHRS

Bullfrogs can quickly take over a pond.

Bullfrogs are native to the eastern U.S. but were introduced into the West for sport hunting and eating. Bullfrogs are insatiable predators of butterflies, dragonflies, native frogs, fish, turtles, birds and even small mammals and some reptiles. In fact, the Mexican garter snake and the Chiricahua leopard frog are in real danger of being eliminated in Arizona because of the bullfrog. Bullfrogs reproduce prolifically, laying up to 20,000 eggs in a single clutch. Native frogs lay only between 2,000 to 3,000 eggs, giving the bullfrog a huge advantage right from the start. In addition, bullfrog tadpoles are less palatable to Arizona's native and most non-native fish than native tadpoles. So there are more of them and they are eaten less often, making them very numerous. In addition to outcompeting native frogs, bullfrogs carry pathogens like the chytrid fungus that our native amphibians cannot fight off.

Bullfrogs do not need people to move them around. Because adult bullfrogs are cannibalistic, younger bullfrogs have a strong incentive to move far away from where they were born and find waters with fewer or no bullfrogs. Due to high reproduction rates, diverse appetite, and high mobility, bullfrogs are an immense threat to native wildlife in Arizona. Like crayfish, you should **NEVER** release bullfrogs into the wild. If you need to dispose of a household or classroom pet, give it to another person or humanely euthanize it (some people even like to eat bullfrogs). Also never move bullfrog adults or tadpoles from one water source to another.

## Red-eared Sliders



COURTESY OF THE USGS

Never release invasive species into the wild.

The Red-eared slider is a turtle native to the Mississippi, Tennessee, and Cumberland Valleys of the U.S. Starting in the 1940s the turtle spread west primarily through purposeful releases and pet escapes. Like other invasive animals, red-eared slider turtles are highly adaptable and aggressive eaters. Because they are omnivores, eating a wide variety of plant and animal foods throughout their entire life cycle, they have caused imbalances in their new habitats. They are especially known to target dragon flies and their larvae and nesting birds and their eggs. In addition, they can mate with native turtles, creating hybrids that damage the integrity of native species and bring in new pathogens to native animals.

Red-eared sliders are very popular pets for households and classrooms. Because they are an invasive species in Arizona, it is crucial that they not be released into the wild. If you have

a turtle that you can no longer take care of, give it to someone else who will not release it or return it to the pet store where you purchased it.

## Quagga Mussels



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The quagga mussel can do damage to both waterways and boats.

The quagga mussel, native to the Ukraine, was introduced into the Great Lakes in the mid-1980s most likely from the ballast water discharge of transoceanic ships. They have since spread across much of the Eastern U.S. and were found in Arizona in early 2007. Quagga mussels are prolific reproducers: a single mussel can produce 30,000 to 40,000 fertilized eggs in a single breeding cycle with one adult female potentially releasing up to a million eggs in a single year. Quagga mussels attach to hard surfaces like concrete and pipes, and can, therefore, affect canals, aqueducts, water intakes and dams. Their presence significantly increases maintenance costs for those facilities. They can also harm your boat by attaching themselves to motors and blocking the flow of cooling water through the engine. Although the negative impacts are primarily on man-made structures, there are potential ecological impacts to fisheries, because mussels could affect the food resources available to fish. Therefore, ceasing the spread of the quagga mussel is of crucial importance to federal and state agencies.

The larval form of the mussel will move with the current but adults can be moved from lake to lake on boats and recreational equipment. The Arizona Game and Fish Department recommends the following guidelines to help prevent the spread of quagga mussels:

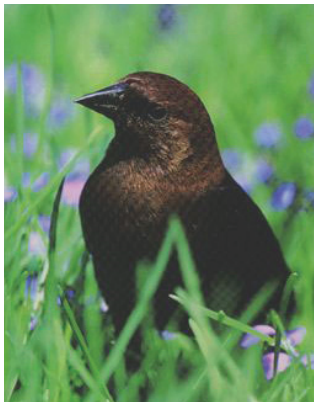
- Remove any mud or vegetation from your boat or trailer – mussels can hide and hitchhike with this material.
- Drain the water from your boat motor, livewell, and bilge on land before leaving the immediate area of the lake.
- Completely inspect your vessel and trailer, removing any visible mussels, but also feel for any rough or gritty spots on the hull. These may be young mussels that can



be hard to see. Wash the hull, equipment, bilge, and any other exposed surface with hot, soapy water.

- Clean and wash your trailer, truck or any other equipment that comes in contact with lake water. Mussels can live in small pockets anywhere water collects.
- Air-dry the boat and other equipment for at least five days before launching in any other waterway to kill hidden mussels.
- Do not reuse bait once it has been exposed to infested waters. **AND NEVER DUMP YOUR BAIT BUCKET.**

## Cowbirds and Starlings



(Left) Brown-headed cowbird. (Right) European starling.

Arizona is also home to some invasive bird species. The brown-headed cowbird is native to the Great Plains area but has moved west as agriculture expanded and offered new forage in the form of grain crops, feed lots, and grain silos. Cowbirds are a brood parasite, meaning that they lay their eggs in nests of other species. The host bird then incubates and raises the cowbird chick as its own. In this way, cowbirds are thought to have a hand in the decline of other native species, especially songbirds. European starlings were brought to North America around 1890 and released in Central Park as part of a plan to introduce all birds mentioned in the works of Shakespeare. Starlings are very aggressive birds that often destroy eggs and kill nestlings of many native species. Instead of making their own nests, starlings use cavities in trees or saguaros and will “throw out” nesting pairs of other species, like Gila woodpeckers, from their nests.

Some homeowners have found success in deterring these

invasive birds with the types of seed mixtures they use. Eliminating millet and cracked corn from the seed mix and using more safflower, which tends to be less palatable, may help discourage starlings and cowbirds over the long term. In addition, keeping open food sources, like bird and livestock feeders tidy is helpful in deterring invasive birds. Don't let feed spill over and accumulate on the ground. Cowbirds especially like thin strips of riparian vegetation. If you have swaths of riparian areas, keeping them wide and relatively untrimmed will discourage cowbirds from entering. Starlings particularly like open areas of Bermuda grass, which is a nonnative grass in Arizona, so keep these areas to a minimum on your property.

For more information on these and other invasive wildlife found in Arizona, please see the following resources:

USGS

[www.usgs.gov/invasive\\_species/plw/crayfish.html](http://www.usgs.gov/invasive_species/plw/crayfish.html)

AGFD Crayfish Brochure

[www.azgfd.gov/pdfs/i\\_e/Crayfish\\_Brochure.pdf](http://www.azgfd.gov/pdfs/i_e/Crayfish_Brochure.pdf)

National Invasive Species Information Center

[www.invasivespeciesinfo.gov/unitedstates/az.shtml](http://www.invasivespeciesinfo.gov/unitedstates/az.shtml)

Audubon Society Conservation Page

[www.tucsonaudubon.org/conservation/index.htm](http://www.tucsonaudubon.org/conservation/index.htm)

COURTESY OF THE WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

COURTESY OF THE USGS



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This information has been reviewed by university faculty.  
[cals.arizona.edu/pubs/natresources/az1481e.pdf](http://cals.arizona.edu/pubs/natresources/az1481e.pdf)

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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, James A. Christenson, Director, Cooperative Extension, College of Agriculture & Life Sciences, The University of Arizona.

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