Arundo (Giant Reed) Management:
"Do-It-Yourself" Options for Texas Landowners

Arundo biology

Arundo (*Arundo donax*, also known as giant reed or carrizo cane) is a perennial grass that is native to Asia, Africa, and Europe, but has invaded riparian (river and creekside) habitats across much of northern Mexico and the southern United States, including Texas.

Arundo has fleshy, creeping root stocks (rhizomes) that form shallow, compact masses. From these rhizomes, it extends long, straw-like roots into soil or sand, reaching as deep as 16 feet to find groundwater. Hollow, bamboo-like canes can grow up to 20 feet tall. Arundo canes have long, narrow leaves directly attached to the cane, about 1-2 inches wide and 12 inches long for first-year canes. Canes may be topped by a prominent stiff, upright, cream-colored, plume-like seedhead in late summer or early fall. After the first year, the canes will produce side shoots with smaller leaves.

Arundo is well adapted to surviving disturbance such as flooding. Arundo's seeds are not fertile; instead, the plant reproduces when canes or rhizomes encounter moist soil and grow roots from each node. Mowed or broken cane fragments can float for miles downstream or can be carried by mowing equipment or via contaminated fill dirt, allowing them to establish new infestations far from their source. Preventing the spread is crucial.

Importance of Arundo management

Arundo forms thick monocultures that crowd out native vegetation, resulting in a loss of plant, fish, and wildlife biodiversity. It also can harbor non-native feral hogs which cause soil disturbance, and cattle ticks which are a vector for the parasites that cause cattle fever in south Texas. Dense infestations also impede river access and recreation opportunities for people.

Arundo stands reduce water quality by choking riversides and stream channels, reducing and altering patterns of stream flow, and increasing streambank erosion.

Arundo also consumes more water than native vegetation due to its rapid growth rate (up to 4" per day), which reduces flow downstream of large infestations.

Arundo is extremely flammable, acting as a ladder fuel that carries flames high into any adjacent tree canopy. This impedes the ability of riparian areas to act as natural firebreaks across the landscape.

Can I manage Arundo on my property myself?

Yes, however, it's important to know how to manage it properly so you don't spread the problem or violate any laws or regulations.

Control techniques with Integrated Pest Management principles

Prevention – Arundo is listed by the Texas Department of Agriculture as a noxious weed, and should never be sold, transported, or intentionally planted. Accidental movement of Arundo can be prevented by inspecting earthmoving and mowing equipment to remove any fragments, collecting and drying any mown fragments, and ensuring that fill dirt is not contaminated with roots or cane fragments prior to its use.

Biological – There are several small insects that the U.S. Department of Agriculture has released in some areas as biocontrol agents against Arundo, however, there are mixed reports of their success. At best, any biocontrol agent will suppress invasive populations, rather than eliminating them completely.

While cattle, goats, and deer may occasionally graze on young shoots, Arundo has a high silica content and thus is not preferred as a food source by most herbivores when other more palatable forage is available.

Fire – Fire is not an effective control option because new sprouts will quickly emerge from the rhizomes. New canes grow rapidly and recolonize the disturbed area, outcompeting the native vegetation and worsening the problem. Burning, particularly in urbanized areas, presents an extreme fire hazard, due to Arundo's high flammability.

Mechanical – Once established, Arundo is difficult to manage using physical methods alone. Small plants may be removed with a rock pry bar or pickaxe, taking care to remove all of the rhizomes. Digging up patches larger than about a yard in diameter is extremely difficult, and any mechanical removal can be backbreaking work.

Cutting down stalks is labor and cost intensive, and greatly increases the risk of spreading infestations to new areas by producing fragments of cane or rhizome that may be transported downstream. Additionally, just cutting stalks alone does not kill the rhizomes, which will quickly resprout.

Complete removal of the rhizomes by digging is also labor and cost intensive and difficult to achieve because any fragments left behind can resprout even when buried at depths up to ten feet. The mechanical disturbance and soil compaction associated with digging with machinery is also not advised in fragile riparian areas because it may increase erosion, destabilize stream banks, and impede native plant recolonization.

If any Arundo canes or rhizomes are cut or dug, they should be allowed to dry completely in an area where they cannot establish new roots, away from the floodplain where they cannot be swept downstream during flooding. Once thoroughly dried, they can be moved to a pile to be burned, but be aware that flames will be high and hot. Dried cane may also be taken to a municipal landfill for disposal. We do not recommend shredding or composting, due to Arundo's tendency to resprout from even small fragments.

Chemical – Herbicide treatment using a foliar application (i.e., herbicide applied to leaves) is the recommended method of control. Several years of treatments will be required to achieve full control. Herbicides should only be applied when the plants are actively growing (typically April to October in temperate regions of the United States). Do not apply if plants are drought stressed, or treatment will be ineffective.

We recommend using pesticide applicators who are licensed by the Texas Department of Agriculture. If the plants are adjacent to water, the applicator should have an aquatic specialization.

However, there are several non-restricted herbicides (active ingredients of glyphosate, imazamox, or imazapyr) that you can purchase and apply yourself, as long as you ALWAYS apply herbicides according to the label instructions. The label is the law! The product should be specifically labeled for use on Arundo (may be called giant reed or carrizo cane). The herbicide label will have a treatment rate for Arundo on the label, and details about required surfactants to help the mixture stick to the leaves.

If you're spraying herbicides below mean high water mark or where drift or overspray may reach water, you must use ONLY herbicide formulations and surfactants that are specifically labeled for "AQUATIC USE" because other herbicides may be harmful to aquatic life — and it's the law! Store and dispose of leftover herbicide mixture according to the product label.

Treated canes should not be cut or otherwise disturbed until no green leaves or canes have been seen for at least one full year, as doing so may cause seemingly dead plants to resprout vigorously. Once the canes fall over or the rhizomes decay, they can be removed.

Combination of methods – If Arundo is cut or burned, the resulting resprouts can be treated with herbicide once they are at least 3-4 feet tall. This will ensure that there is adequate leaf surface to uptake enough herbicide to kill the rhizomes.

Do I need a permit?

For any treatment, you should coordinate with Texas Parks and Wildlife Department on a treatment proposal so we can provide guidance. Regulations require treatment proposals if the Arundo has the potential to significantly interfere with the use of a body of water, such as impeding access. This is especially important for herbicide treatment below mean high water mark or where overspray or drift onto the water may occur.

You should submit your treatment proposal to the local Texas Parks and Wildlife Department fisheries management biologist, preferably 30 days in advance. There is no fee involved, and we can help you complete the treatment proposal form.

When applying herbicide near water, at least 14 days in advance you must also send a public notice of your intent to apply herbicide over water (to include TPWD and the governing entity) and contact the operators of any potable water intake within two miles. Attaching the completed, approved treatment proposal, along with herbicide and surfactant labels (or links to the labels), will help you to communicate the required information in these notices.

If herbicide will be applied by someone without a pesticide applicator license, the governing entity (e.g., river authority) receiving the notice must provide advance written approval for the treatment to occur. Licensed applicators may conduct treatments following the notice if the governing entity has not disapproved the treatment by the day before it is scheduled.

Who can I contact for more information?

If you are planning to treat Arundo on your property yourself, email us at healthycreeks@tpwd.texas.gov. We can guide you through the treatment proposal and herbicide notification process, and you can choose to sign up to receive emails about Arundo management efforts in your area. You can also find more information on the treatment proposal at:

https://tpwd.texas.gov/landwater/water/environconcerns/nuisance_plants/