Arundo donax in the Virgin River Watershed

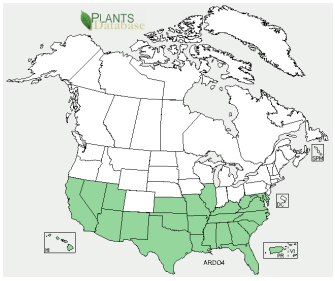
INTRODUCTION - *Arundo donax* also known as giant reed, giant cane, and arundo was introduced to the Los Angeles River in the early 1800s and has invaded the southern United States and Hawaii. Recently the Natural Resources Conservation Service (NRCS) identified that arundo had begun to populate the Virgin River in Washington County, Utah. Treating arundo infestations have cost millions of dollars and, if left untreated have shown to negatively affect wildlife habitat, flooding, and fires. Early detection and treatment of arundo in the Virgin River will economically and environmentally benefit the Virgin River Watershed and Washington County, alike.

PHYSICAL APPEARANCE – Arundo is a robust perennial grass growing from 8 to 30 feet tall. It grows in clumps of tough hollow stems (1.6 in. diameter) and closely resembles bamboo and phragmites[1]. The leaves attach alternatively and sometimes conspicuously opposite to the stem with a wide flared base and can get up to 2 feet long. In early fall it produces a large feathery plume that measures from 16 to 24 inches long. Arundo produces seeds however they are rarely fertile. Instead it establishes via rhizomes, which are easily spread by flooding. In the winter low temperatures cause arundo to go dormant as well as in the summer if there is drought.

Large arundo in the Virgin River floodplain

HABITAT - Arundo will grow in riparian areas and floodplains of medium to large streams. Even though it thrives along rivers it only tolerates moist soils to establish but becomes tolerant to semi-drought soils. Arundo favors low gradients of less than 2% grade but can be found along steep slopes. It grows best at an elevation between sea level and 4500 feet. Prolonged freezing temperatures below 20˚F can be detrimental to arundo.

ORIGIN - Arundo is often considered indigenous to the Mediterranean Basin but was likely an ancient introduction into that area from the Indian Subcontinent. Spanish settlers brought arundo to the United States for bank stabilization in the Los Angeles River and was harvested for roofing material and feed for livestock in the early 1800s. Other historical uses for Arundo include lining for underground grain storage bins, and wrapping for mummies in 4th century A.D. Egypt. The cane was also the source of the original Pan pipe, and remains the source of reeds for woodwind instruments.



Arundo Range Map, USDA Plants Database

INVADED AREA – Arundo is naturalized and invasive to most of the southern United States, Hawaii, and in many other places around the world. Due to its aggressive growth and rapid spread it has been declared as a noxious weed in California, Arizona, Nevada, and Texas. Recently, emerging populations in Utah have become a concern to wildlife and native plant habitat. Arundo is listed as an invasive species by Utah NRCS.

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[1]Arundo is commonly confused with *Phragmites australis* also known as common reed and phragmites, which is also a robust grass. Phragmites reaches heights between 15-20 feet, produces a large feathery purple plume and reproduces vegatatively. It is easily distinguish by the base of its leaf. Phragmites is attached by narrow sheaths and does not clasp to the stem whereas arundo does.

ENVIRONMENTAL EFFECTS – Arundo can form a thick dense stand that will replace native vegetation, and can reduce habitat for many terrestrial fauna (such as the endangered SW willow flycatcher.) Compared to native vegetation, arundo provides little shading and nutrient input to the in-stream habitat, which in turn decreases invertebrate diversity and increases water temperature, reducing habitat quality for aquatic wildlife. Potentially affected aquatic wildlife includes the Virgin River chub and woundfin, which are both Federally listed as endangered.

Southwestern willow flycatcher, U.S. Geological Survey photograph

In addition to fauna and flora, arundo can alter groundwater availability due to transpiring large amounts of water from semi-arid aquifers. It also affects channel morphology by holding sediment, constricting flows and reducing stream navigability. The dense growth of the stand causes increased fire hazard and burning subsequently promotes increased arundo dominance.

Even though settlers brought arundo to the United States to aid in bank stabilization it has actually been proven to make it worse due to shallow root system causing bank undercutting.

TREATMENT - There are multiple options for treatment to remove arundo. However, due to the recent introduction and low severity of the current Utah population, cut-stump and manual treatment are the most efficient and economic options. Cut-stump treatment involves making a fresh cut on each cane and immediately painting it with the appropriate herbicide. Cut-stump treatment usually requires multiple retreatments on resprouts. Herbicide treatments are most effective during growing season. Manual treatment usually requires an excavator and is difficult to do properly by hand. Removal could be done with shovels and digging tools if the soil is sandy and the plants are small. All rhizomes and canes should be disposed of in proper receptacles or higher ground (beyond the 100 year flood plain), since they readily sprout.

WHAT YOU CAN DO - RECOMMENDATIONS FOR LANDOWNERS – Educate others of the threat arundo causes economically and environmentally. Help eliminate arundo as a landscaping plant by choosing an alternative and informing others of landscaping alternatives. If you as a landowner decide to take action and remove populations yourself, treat arundo with the methods mentioned above and contact Casey Burns or I for advice or assistance.

FOR MORE INFORMATION, POTENTIAL FUNDING, ADVICE, AND VOLUNTEERING CONTACT:

Natural Resources Conservation Service	www.ut.nrcs.usda.gov
Casey Burns, State Biologist	casey.burns@ut.usda.gov
American Conservation Experience	www.usaconservation.org
Rick Anton, VRADE Project Leader	ranton@usaconservation.org

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