Giant Reed (*Arundo donax* L.)

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Wildland

Fig. 1. Shoots of giant reed can reach 20 ft. or higher. Photos by Gary Ervin.

Fig. 2. Giant reed leaves are longer (20 in.) and broader(1 in.) than other grass species.

Fig. 3. The underground rhizome of giant reed is massive, and stores large quantities of starch. This is one reason why giant reed is so difficult to control.

Introduction

Problems Created

Giant reed is thought to have been introduced into California during the early 1800s. It presently is planted throughout the southern half of the US as an ornamental, and is used in the arid Southwest for erosion control along ditches. Giant reed also is used in the manufacture of reeds for musical instruments, in basket making, for fishing rods, and as livestock fodder. Giant reed is known to infest riparian areas and stream channels, displace native plants, interfere with flood control, and negatively impact wildlife habitat.

Regulations

Giant reed is listed as a significant threat in SC, and is included in the invasive species lists of GA, VA, and TN (the only mid-southern state recognizing it as a potential threat).

Description

Vegetative Growth

Giant reed resembles the Asian bamboos, *Phyllostachys species, and c*ommon reed (*Phragmites australis* (Cav.) Trin. ex Steud.), which also produces large hairy seed heads when in fruit. But common reed occurs primarily in and along swamps, marshes, and other wetland habitats while giant reed typically grows in upland and inland habitats.

Giant reed stems also resemble maize (corn) to some degree, but a key distinguishing feature of the plant is that it tends to form distinct clumps to 20' tall, that may grow to a diameter of 60' or more over time. It usually produces grayish-green, hairless stems, with long lance-shaped leaf blades about 18'' to 30'' long by 1'' to 4'' wide near base. The leaves are arranged alternately along the stems and droop at the ends, as in maize. The dead and dried aboveground parts typically remain standing throughout winter and spring.

Giant reed stems are round in cross section to 1'' or more in diameter, with solid nodes at 1'' to 8'' intervals, separated by hollow internode segments. The grayish to light green stems are covered by overlapping, glabrous leaf sheaths.

Flowering

Giant reed flowers during later summer: August to September. It produces erect, terminal dense plumes of whorled stemmed flowers, with the clusters up to 39'' long. The flowers are hairy and greenish to whitish to purplish. The dense terminal "fruiting" plumes may remain from October to March, but fertile seeds are unknown from this species in the US.

Dispersal

Because it is not known to be fertile in the US, reproduction of giant reed is primarily through rhizomes (belowground stems) which root and sprout readily. Giant reed fragments can float miles downstream and then successfully take root and initiate new infestations. Rapid growth following vegetative dispersal permits this species to quickly invade new areas and form pure stands at the expense of native species.

Spread by

Giant reed may spread by movement of stem parts in cut or fill soil, or by road shoulder grading. Giant reed has been sold for ornamental purposes.

Habitat

Giant reed occurs largely in disturbed upland habitats, as scattered dense clumps along roadsides and forest margins, possibly migrating from old home plantings by displaced rhizome fragments. Giant reed grows in moist places such as ditches, streams, and riverbanks, but it tends to grow best in well drained soils where abundant moisture is available. It is broadly tolerant of soil conditions, including high salinity, and can grow well in soil from heavy clays to loose sands.

Distribution

Giant reed is distributed in the southern half of the continental US, from the Atlantic to Pacific coasts. It is a widespread invasive in California.

Control Methods

Biological Control

While several insects are under investigation by USDA-ARS as potential biological control agents for giant reed, no agents are currently operational. Grazing by goats has been used as a control technique in western locations, where either burning or herbicide use might raise concerns.

Table 1. Suggested chemical control methods for giant reed.

Herbicide	Spot rate	Broadcast rate	Surfactant	Notes
Glyphosate	3-5% solution	2.25 – 3.75 lbs ae/acre (4.5 - 7.5 pints/acre)	Nonionic surfactant at 0.25-0.5% v/v	Systemic with slow results
Imazapyr	3-5% solution	1 - 1.5 lbs ae/acre (4 - 6 pints/acre)	Nonionic surfactant at 0.25% v/v	Systemic with slow results

Chemical Control

Systemic herbicides, such as glyphosate, may be applied to clumps of giant reed, after flowering. Glyphosate and imazapyr have been used to successfully manage giant reed, but repeated treatments may be necessary for complete control. Glyphosate application made late in the season are more efficacious than those made early in the growing season. The Habitat (imazapyr) label recommends spring treatments while plants are actively growing, but no published accounts substantiate the rate or timing of application.

Physical Control

Prescribed burning either alone or in combination with herbicide treatments is feasible to reduce biomass and control.

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