

Help Protect Arizona

from Non-Native Invasive Plants

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Scotch thistle (*Onopordum acanthium*)

In the western United States the invasive plant problem has been described as, “a biological forest fire racing out of control because no one wants to be fire boss.” When small invasive weed infestations are left unchecked, they may grow exponentially and spread across the land much like a slow-moving biological wildfire. However, land consumed by fire usually recovers and is often more productive than before the fire occurred. On the other hand, land consumed by invasive weeds may be irreversibly changed and never again regain its potential to provide the economic and ecological benefits that society currently enjoys.

Some of our most problematic invasive weeds in the United States were introduced from Europe or Asia (Eurasia), Africa, and the Mediterranean region either purposely or by accident. Some invasive weeds were introduced into Arizona with the intention of solving an environmental problem such as excessive soil erosion during the 1930's, while others likely inadvertently hitched rides in ship ballasts, hay bales, or in agricultural seed. In Arizona, some infestations that were at one time just a few plants have increased to several thousand acres. If this trend continues, invasive weeds in Arizona have the potential to cause similar kinds of ecologic and economic damage as has occurred in neighboring states (e.g., Utah, Colorado, California).

It is very important to be concerned about the damage that non-native, invasive plants can cause, but it is also important to recognize that while most invasive plants are not native to Arizona, not all non-native plants are invasive or harmful. Of the thousands of plants that have been purposely introduced into North America, less than 10% have become problematic invaders. Although there are plenty of “horror stories” involving introduced plants, many non-native, domesticated plants have proven to be beneficial to society as crops (e.g., corn and wheat), for landscaping, and for revegetation efforts on degraded or weed-infested lands.

The reasons why some introduced plants become invasive while others do not are extremely complex but depend on the characteristics of the introduced species as well as the unique abiotic and biotic



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Leafy spurge (*Euphorbia esula*)

characteristics of the ecosystem into which the plant is introduced. Invasive plants often behave in unpredictable ways, sometimes lying “dormant” for decades, and then exploding exponentially. One striking example of this phenomenon is yellow starthistle in California (<http://wric.ucdavis.edu/yst/>). This Eurasian plant is believed to have been inadvertently introduced into California in the mid-1800’s and then subsequently expanded its range to 1 million acres by 1958. It increased by another 7 million acres in less than 30 years by 1985, and in the next 20 years it more than doubled its acreage to greater than 15 million acres.

Complex interactions determine whether or not a plant will ultimately become invasive. Characteristics of an introduced plant that increase its probability of becoming invasive include, but are not limited to 1) fast growth, 2) rapid reproduction, 3) high seed production and dispersal ability, 4) tolerance of a wide range of environmental conditions, 5) aggressive and prolific vegetative reproduction, and, commonly, 6) association with humans or human activities (land management practices).

You can help control invasive plants in Arizona in several ways. First, learn how to identify the invasive plants in your area and report occurrences to private and public land managers or owners. In Arizona, keeping weeds from becoming established should continue to be a very high priority. The proverbial axioms, “an ounce of prevention is worth a pound of cure” and “the easiest weed to control is the one you don’t have yet” certainly hold true here. It is critical to detect and, if possible, eradicate incipient infestations before they have a chance to spread onto uninfested land. Once a plant sets seed, takes root, and becomes

well established, the amount of effort to manage the plant greatly increases.

Second, you can control problem weeds on your own property so that your weeds do not become your neighbor’s problem. There is no “cookbook” or “silver bullet” approach to controlling invasive weed infestations. Management options will vary with each weed species, the scale of the problem, and the ecological conditions unique to the area (soil type, depth of water table, timing and amount of precipitation, topography, etc.). Annual and biennial weeds can sometimes be effectively managed during the early stages of infestation with pulling or cultivation, whereas well-established perennial weeds may require timely application of herbicides that are registered for the targeted weed. When weed infestations become well entrenched, integrated management will be necessary to combine the appropriate set of management tools for the targeted plant and ecological site. Possible tools for weed management include mechanical (e.g., hand pulling, grubbing), chemical (e.g., herbicides), and biological (e.g., insects, targeted grazing) methods. Keep in mind that many invasive plants have spines and/or toxic or irritating substances. When controlling weeds manually by hand-pulling, or by applying herbicides, be sure to take safety precautions by wearing the appropriate protective clothing (gloves, boots, safety glasses, etc.). Before using herbicides, always read the label and follow instructions.

Lastly, you can volunteer to help with inventories, mapping, and eradication of invasive plant species in your area. Contact your local county extension office for more information on how to control specific invasive weeds or to get more involved in weed management efforts.