FEATURE ARTICLE

Invasive Weed Issue Emerges

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Certain plant species are serious invasive threats to cropland, rangeland, and wildlands of the United States. **Invasive weed species have been defined as "an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health."** In cropland the threat is primarily a reduction in productivity and economic loss. Wildlands typically have a diversity of species within the plant community, with the threat from an invasive weed species being to invade, dominate, and crowd out the diversity of species in a given ecosystem.

A large number of extremely damaging invasive weed plants have been introduced and become established in the United States and other countries throughout the world. The means by which invasive weed introduction occurs may be as a contaminant in seedlots or with plant materials such as ornamental plant species. In other cases, it occurs by purposeful introduction, such as for a potential ornamental plant for gardens or for assessment as to the agricultural potential for use in crop production. Since 1950 the risk of introducing undesirable invasive plant species has greatly accelerated due to the expansion in global travel via air cargo, ship cargo, and private individuals traveling from country to country. A number of these species do not survive, but others may become established and emerge as a significant threat as an invasive species.

The obvious approach to addressing the invasive weedy plant issue is by preventive methods. The key dimensions in protecting ecosystems include (1) using procedures for predicting plant species that are likely to enter the United States and subsequently establishing methods to prevent introduction of those species, such as specific regulations, inspection, and quarantine, and destruction where needed; (2) initiating quarantine measures on key invasion sites in order to prevent spread to other regions; and (3) identifying and implementing management zones at sites where the invasive weed species have become established, with the management eventually involving the initiation of controls to prevent spread to other areas. **A government preventive program should be implemented that ensures accountability by all transportation systems involved in importation.** There should be a permitting system that aides in identifying potentially invasive plants. This permitting system should be uniform from state to state, with vigorous minimum standards. In addition, both wholesalers and retailers of materials that could contain suspected invasive plant species should be made fully aware of these import restrictions and the means to properly identify potentially invasive plants.

Recently there has been a proliferation of invasive plant species lists. There is a lack of commonality in the range of species listed as invasive plants. Unfortunately certain of these lists have been assembled irrationally by activists with questionable agendas and goals. Others have defined all species that were not originally native plant species as being invasive. **Certain of these lists contain most of the turfgrass species currently in use in the United States and many other countries around the world.** These turfgrass species have been no threat to dominate and crowd out the diversity of species normally found in an ecosystem. Many turfgrass species have been in North America for 400 to 500 years, and have become naturalized and a member of plant ecosystems without a loss of diversity of plant species within specific ecosystems. Because of the large number of different invasive plant species lists being circulated, it is appropriate to include herein a list of invasive plant species assembled by scientists with knowledge of this problem. The following list has been published by the Council for Agricultural Science and Technology (CAST) under the title Invasive Plant Species, Issue Paper No. 13, February 2000, of 18 pages in length.

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Partial List of Major Economically and Ecologically Important Invasive Weed Species in the United States.*

Habitat	Scientific Name	Common Name	Distribution
Aquatic or Wetlands	*Alternanthera philoxeroides*	alligatorweed	Widespread in southeastern U.S., some infestations in California
	Egeria densa	Brazilian elodea	West of the Mississippi River; some in California and southeastern U.S.
	Eichhornia crassipes	water hyacinth	Widespread throughout southeastern U.S. and California
	Hydrilla verticillata	hydrilla	Widespread in Southeast and mid-Atlantic coast to Connecticut, threatens western states
	Lythrum salicaria	purple loosestrife	Widespread in northern and central states, expanding range in West
	Melaleuca quinquenervia	melaleuca	Widespread in Florida
	Myriophyllum aquaticum	parrotfeather	Widespread throughout U.S.
	Myriophyllum spicatum	Eurasian watermillfoil	Widespread throughout U.S.
	Salvinia molesta	giant salvinia	Well established in Texas, new infestations in California and other western and southeastern states
	Spartina alterniflora	smooth cordgrass	Native in estuaries of eastern U.S., spreading along coast of Pacific Northwest
	Trapa natans	water chestnut	Expanding range in northeastern U.S.
Rangeland and Wildland	*Acacia auriculiformis*	earleaf acacia	Expanding range in Southeast
	Acroptilon repens	Russian knapweed	Widespread throughout U.S., particularly western states
	Aegilops spp.	goatgrasses	Widespread in western U.S.
	Ammophila arenaria	**European beachgrass**	Isolated infestations along sand dunes of California
	Andropogon virginianum	**broomsedge**	Hawaii (native to southeastern U.S.)
	Bromus madritensis ssp. rubens	red brome	Widespread in western states, especially Mojave and Sonoran deserts
	Bromus tectorum	**downy brome**	Widespread throughout U.S., particularly western states
	Cardaria draba	hoary cress	Widespread in western U.S.
	Carduus nutans	musk thistle	Widespread throughout U.S.
	Carpobrotus edulis	iceplant, sea fig	Spreading in coastal areas of West
	Centaurea calcitrapa	purple starthistle	Expanding range in California
	Centaurea diffusa	diffuse knapweed	Widespread in western U.S.
	Centaurea maculosa	spotted knapweed	Widespread throughout U.S., particularly western states
	Centaurea solstitialis	yellow starthistle	Western states, particularly California, Idaho, and Oregon
	Centaurea squarrosa	squarrose knapweed	Expanding range in western U.S.
	Chondrilla juncea	rush skeletonweed	Expanding range in western U.S.
	Cirsium arvense	**Canada thistle**	Widespread throughout U.S.
	Cirsium vulgare	**bull thistle**	Widespread throughout U.S.
	Conium maculatum	poison hemlock	Widespread throughout U.S.
	Convolvulus arvensis	**field bindweed**	Widespread throughout U.S.
	Cortaderia jubata	jubatagrass	Widespread along California and Oregon coasts
	Cortaderia selloana	pampasgrass	Widespread along California and Oregon coasts
	Crupina vulgaris	common crupina	Expanding range in California and northwestern states
	Cynara cardunculus	artichoke thistle	Expanding range in California
	Cynoglossum officinale	houndstongue	Expanding range in many regions of U.S.
	Cytisus scoparius	Scotch broom	Widespread throughout Pacific Coast states

Habitat	Scientific Name	Common Name	Distribution
	Ehrharta spp.	veldtgrass	Expanding range in coastal areas of California
	Euphorbia esula	**leafy spurge**	Widespread in northern states, particularly western U.S.
	Foeniculum vulgare	fennel	Widespread throughout Pacific Coast states, especially southern California
	Genista monspessulana	French broom	Widespread in western U.S.
	Hedychium gardnerianum	Kahili ginger	Hawaii
	Hieracium aurantiacum	**orange hawkweed**	Expanding range in Northwest
	Hieracium pratense	**meadow hawkweed**	Expanding range in Northwest
	Hyperricum perforatum	St. Johnswort	Widespread in western U.S.
	Imperata cylindrica	cogongrass	Expanding range in tropical and subtropical areas of U.S., southeastern U.S. to Texas and southern California
	Isatis tinctoria	Dyer's woad	Spreading in Utah, California, and other western states
	Lantana camara	lantana	Expanding range in Florida and Hawaii
	Lepidium latifolium	**perennial pepperweed**	Rapidly expanding range in West
	Leucanthemum vulgare	**oxeye daisy**	Widespread throughout U.S.
	Linaria dalmatica	Dalmatian toadflax	Expanding range in West
	Linaria vulgaris	yellow toadflax	Expanding range in West
	Lonicera japonica	Japanese honeysuckle	Eastern and central U.S. and Hawaii
	Melia azedarach	Chinaberry tree	Spreading in Southeast
	Miconia calvescens	Miconia	Hawaii
	Myrica faya	firebrush	Hawaii
	Onopordum acanthium	Scotch thistle	Widespread throughout West
	Passiflora mollissima	banana poka	Hawaii
	Polygonum perfoliatum	mile-a-minute	Expanding range in East
	Potentilla recta	sulfur cinquefoil	Widespread in northern states
	Psidium calleianum	strawberry guava	Hawaii
	Pueraria lobata	kudzu	Widespread in Southeast to Pennsylvania and Illinois
	Rubus argotus	Florida pickly blackberry	Hawaii (native to southeastern U.S.)
	Salsola tragus (=S. kali)	Russian thistle	Widespread in West
	Salvia aethiopis	Mediterranean sage	Expanding range in western U.S.
	Schinus terebinthifolius	Brazilian pepper	Expanding range in southwestern U.S.
	Senecia jacobaea	tansy ragwort	Widespread in Pacific Northwest
	Solanum viarum	tropical soda apple	Spreading in southeastern U.S.
	Spartium junceum	Spanish broom	Spreading in western states
	Taeniatherum caput-medusae	medusahead	Widespread in West
	Ulex europaeus	gorse	Isolated infestations in Pacific Coast
Cropland	*Abutilon theophrasti*	velvetleaf	Widespread throughout much of U.S.
	Amaranthus retroflexus	**redroot pigweed**	Widespread throughout U.S.
	Chenopodium album	**common lambsquarters**	Widespread throughout U.S.
	Cirsium arvense	**Canada thistle**	Widespread throughout U.S.
	Convolvulus arvensis	**field bindweed**	Widespread throughout U.S.
	Cyperus esculentus	**yellow nutsedge**	Widespread throughout U.S.
	Cyperus rotundus	**purple nutsedge**	Widespread throughout U.S.
	Echinochloa crus-galli	**barnyardgrass**	Widespread throughout U.S.
	Elytrigia repens	**quackgrass**	Widespread throughout U.S.
	Kochia scoparia	**kochia**	Primarily invasive in western U.S.
	***Setaria* spp.**	**foxtails**	Widespread throughout U.S.
	Sorghum halapense	**Johnsongrass**	Widespread throughout U.S.
	Striga asiatica	witchweed	Eradicated or close to eradication in North and South Carolina

* Species in bold face type occur as weeds in turfs.