Invasive Weed Issue Emerges

James B Beard

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 aids 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.

Continued on page 4
<table>
<thead>
<tr>
<th>Habitat</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic or</td>
<td>Alternanthera philoxeroides</td>
<td>alligatorweed</td>
<td>Widespread in southeastern U.S., some infestations in California</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Egeria densa</td>
<td>Brazilian elodea</td>
<td>West of the Mississippi River; some in California and southeastern U.S.</td>
</tr>
<tr>
<td></td>
<td>Eichhornia crassipes</td>
<td>water hyacinth</td>
<td>Widespread throughout southeastern U.S. and California</td>
</tr>
<tr>
<td></td>
<td>Hydrilla verticillata</td>
<td>hydrilla</td>
<td>Widespread in Southeast and mid-Atlantic coast to Connecticut, threatens western states</td>
</tr>
<tr>
<td></td>
<td>Lythrum salicaria</td>
<td>purple loosestrife</td>
<td>Widespread in northern and central states, expanding range in West</td>
</tr>
<tr>
<td></td>
<td>Melaleuca quinquenervia</td>
<td>melaleuca</td>
<td>Widespread in Florida</td>
</tr>
<tr>
<td></td>
<td>Myriophyllum aquaticum</td>
<td>parrotfeather</td>
<td>Widespread throughout U.S.</td>
</tr>
<tr>
<td></td>
<td>Myriophyllum spicatum</td>
<td>giant salvinia</td>
<td>Widespread in Florida</td>
</tr>
<tr>
<td></td>
<td>Salvinia molesta</td>
<td>smooth cordgrass</td>
<td>Native in estuaries of eastern U.S., spreading along coast of Pacific Northwest</td>
</tr>
<tr>
<td></td>
<td>Spartina alterniflora</td>
<td>water chestnut</td>
<td>Expanding range in northeastern U.S.</td>
</tr>
<tr>
<td></td>
<td>Trapa natans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rangeland and</td>
<td>Acacia auricilifornis</td>
<td>earleaf acacia</td>
<td>Expanding range in Southeast</td>
</tr>
<tr>
<td>Wildland</td>
<td>Acroptilon repens</td>
<td>Russian knapweed</td>
<td>Expanding range in western U.S., particularly western states</td>
</tr>
<tr>
<td></td>
<td>Aegilops spp.</td>
<td>goatgrasses</td>
<td>Widespread in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Ammophila arenaria</td>
<td>European beachgrass</td>
<td>Isolated infestations along sand dunes of California</td>
</tr>
<tr>
<td></td>
<td>Andropogon virginianum</td>
<td>broomedge</td>
<td>Hawaii (native to southeastern U.S.)</td>
</tr>
<tr>
<td></td>
<td>Bromus madritensis</td>
<td>red brome</td>
<td>Widespread in western states, especially Mojave and Sonoran deserts</td>
</tr>
<tr>
<td></td>
<td>ssp. rubens</td>
<td></td>
<td>Widespread throughout U.S., particularly western states</td>
</tr>
<tr>
<td></td>
<td>Bromus tectorum</td>
<td>downy brome</td>
<td>Widespread in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Cardaria draba</td>
<td>hoary cress</td>
<td>Widespread throughout U.S.</td>
</tr>
<tr>
<td></td>
<td>Carduus nutans</td>
<td>musk thistle</td>
<td>Spreading in coastal areas of West</td>
</tr>
<tr>
<td></td>
<td>Carpobrotus edulis</td>
<td>iceplant, sea fig</td>
<td>Expanding range in California</td>
</tr>
<tr>
<td></td>
<td>Centaurea calcitrata</td>
<td>purple starthistle</td>
<td>Widespread in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Centaurea diffusa</td>
<td>diffuse knapweed</td>
<td>Widespread throughout U.S., particularly western states</td>
</tr>
<tr>
<td></td>
<td>Centaurea maculosa</td>
<td>spotted knapweed</td>
<td>Widespread throughout U.S., particularly western states</td>
</tr>
<tr>
<td></td>
<td>Centaurea solstitialis</td>
<td>yellow starthistle</td>
<td>Western states, particularly California, Idaho, and Oregon</td>
</tr>
<tr>
<td></td>
<td>Centaurea squarrosa</td>
<td>squarrose knapweed</td>
<td>Expanding range in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Chondrilla juncea</td>
<td>rush skeletonweed</td>
<td>Expanding range in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Cirsium arvense</td>
<td>Canada thistle</td>
<td>Widespread throughout U.S.</td>
</tr>
<tr>
<td></td>
<td>Cirsium vulgare</td>
<td>bull thistle</td>
<td>Widespread throughout U.S.</td>
</tr>
<tr>
<td></td>
<td>Conium maculatum</td>
<td>poison hemlock</td>
<td>Widespread throughout U.S.</td>
</tr>
<tr>
<td></td>
<td>Convolvulus arvensis</td>
<td>field bindweed</td>
<td>Widespread along California and Oregon coasts</td>
</tr>
<tr>
<td></td>
<td>Cortaderia jubata</td>
<td>jubatagrass</td>
<td>Widespread along California and Oregon coasts</td>
</tr>
<tr>
<td></td>
<td>Cortaderia selloana</td>
<td>pampasgrass</td>
<td>Expanding range in California and northwestern states</td>
</tr>
<tr>
<td></td>
<td>Crupina vulgaris</td>
<td>common crupina</td>
<td>Expanding range in California</td>
</tr>
<tr>
<td></td>
<td>Cynara cardunculus</td>
<td>artichoke thistle</td>
<td>Expanding range in many regions of U.S.</td>
</tr>
<tr>
<td></td>
<td>Cynoglossum officinale</td>
<td>houndstongue</td>
<td>Widespread throughout Pacific Coast states</td>
</tr>
<tr>
<td></td>
<td>Cytisus scoparius</td>
<td>Scotch broom</td>
<td></td>
</tr>
<tr>
<td>Habitat</td>
<td>Scientific Name</td>
<td>Common Name</td>
<td>Distribution</td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------</td>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cropland</td>
<td>Ehrharta spp.</td>
<td>veldtgrass</td>
<td>Expanding range in coastal areas of California</td>
</tr>
<tr>
<td></td>
<td>Euphorbia esula</td>
<td>leafy spurge</td>
<td>Widespread in northern states, particularly western U.S.</td>
</tr>
<tr>
<td></td>
<td>Foeniculum vulgare</td>
<td>fennel</td>
<td>Widespread throughout Pacific Coast states, especially southern California</td>
</tr>
<tr>
<td></td>
<td>Genista monspessulana</td>
<td>French broom</td>
<td>Widespread in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Hedychium gardnerianum</td>
<td>Kahili ginger</td>
<td>Hawaii</td>
</tr>
<tr>
<td></td>
<td>Hieracium aurantiacum</td>
<td>orange hawkweed</td>
<td>Expanding range in Northwest</td>
</tr>
<tr>
<td></td>
<td>Hieracium pratense</td>
<td>meadow hawkweed</td>
<td>Expanding range in Northwest</td>
</tr>
<tr>
<td></td>
<td>Hyperticum perforatum</td>
<td>St. Johnswort</td>
<td>Widespread in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Imperata cylindrica</td>
<td>cogongrass</td>
<td>Expanding range in tropical and subtropical areas of U.S., southeastern U.S.</td>
</tr>
<tr>
<td></td>
<td>Isatis tinctoria</td>
<td>Dyer’s woad</td>
<td>Spreading in Utah, California, and other western states</td>
</tr>
<tr>
<td></td>
<td>Lantana camara</td>
<td>lantana</td>
<td>Expanding range in Florida and Hawaii</td>
</tr>
<tr>
<td></td>
<td>Lepidium latifolium</td>
<td>perennial pepperweed</td>
<td>Rapidly expanding range in West</td>
</tr>
<tr>
<td></td>
<td>Leucanthemum vulgare</td>
<td>oxeye daisy</td>
<td>Widespread throughout U.S.</td>
</tr>
<tr>
<td></td>
<td>Linaria dalmatica</td>
<td>Dalmatian toadflax</td>
<td>Expanding range in West</td>
</tr>
<tr>
<td></td>
<td>Linaria vulgaris</td>
<td>yellow toadflax</td>
<td>Expanding range in West</td>
</tr>
<tr>
<td></td>
<td>Lonicera japonica</td>
<td>Japanese honeysuckle</td>
<td>Eastern and central U.S. and Hawaii</td>
</tr>
<tr>
<td></td>
<td>Melia azedarach</td>
<td>Chinaberry tree</td>
<td>Spreading in Southeast</td>
</tr>
<tr>
<td></td>
<td>Miconia calvescens</td>
<td>Miconia</td>
<td>Hawaii</td>
</tr>
<tr>
<td></td>
<td>Myrica faya</td>
<td>firebrush</td>
<td>Hawaii</td>
</tr>
<tr>
<td></td>
<td>Onopordum acaanthium</td>
<td>Scotch thistle</td>
<td>Widespread throughout West</td>
</tr>
<tr>
<td></td>
<td>Passiflora mollissima</td>
<td>banana poka</td>
<td>Hawaii</td>
</tr>
<tr>
<td></td>
<td>Polygonum perfoliatum</td>
<td>mile-a-minute</td>
<td>Expanding range in East</td>
</tr>
<tr>
<td></td>
<td>Potentilla recta</td>
<td>sulfur cinquefoil</td>
<td>Widespread in northern states</td>
</tr>
<tr>
<td></td>
<td>Psidium calleianum</td>
<td>strawberry guava</td>
<td>Hawaii</td>
</tr>
<tr>
<td></td>
<td>Pueraria lobata</td>
<td>kudzu</td>
<td>Widespread in Southeast to Pennsylvania and Illinois</td>
</tr>
<tr>
<td></td>
<td>Rubus argotus</td>
<td>Florida pickly blackberry</td>
<td>Hawaii (native to southeastern U.S.)</td>
</tr>
<tr>
<td></td>
<td>Salsola tragus (=S. kali)</td>
<td>Russian thistle</td>
<td>Widespread in West</td>
</tr>
<tr>
<td></td>
<td>Salvia aethiopis</td>
<td>Mediterranean sage</td>
<td>Expanding range in western U.S.</td>
</tr>
<tr>
<td></td>
<td>Schinus terebinthifolius</td>
<td>Brazilian</td>
<td>Expanding range in southwestern U.S.</td>
</tr>
<tr>
<td></td>
<td>Senecia jacobaea</td>
<td>tansy ragwort</td>
<td>Widespread in Pacific Northwest</td>
</tr>
<tr>
<td></td>
<td>Solanum viarum</td>
<td>tropical soda apple</td>
<td>Spreading in southeastern U.S.</td>
</tr>
<tr>
<td></td>
<td>Spartium junceum</td>
<td>Spanish broom</td>
<td>Spreading in western states</td>
</tr>
<tr>
<td></td>
<td>Taeniatatherum caput-medusae</td>
<td>medusahead</td>
<td>Widespread in West</td>
</tr>
<tr>
<td></td>
<td>Ulex europaeus</td>
<td>gorse</td>
<td>Isolated infestations in Pacific Coast</td>
</tr>
</tbody>
</table>

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