INVASIVE ALIEN SPECIES

by Ken Glenn, Department of Plant Industry, Clemson University

My title may bring up thoughts about space ships and little green creatures from another world. I'll try to ease your mind a little bit, though this issue is cause for some alarm.

In recent years, scientists have been aware that non-native species may pose a threat not only to agriculture, but also to natural and managed ecosystems as well. Homogenizing the world's animals and plants is becoming a real issue in this day of efficient global communications, travel and trade. Hundreds of years ago the oceans acted as barriers to movement of most species beyond their native environments. On a large scale, these environments corresponded roughly with the continents. Each continent has plants and animals found nowhere else in the world in fairly unique ecosystems. Species that failed to adapt to climate changes were replaced by those that adapted more readily.

Species introduced into new environments may fail to adapt and survive, but sometimes they thrive and sometimes they become invasive. Invasive species are those which successfully establish and invade intact, pre-existing native ecosystems often forming large monocultures. Invasive species are usually moved about by humans. Such invasions often cause destruction of local native species and pose a serious threat to the integrity and productivity of our nation's landscape.

An estimated 4,000 exotic plants and 500 exotic animals are now established in the United States. Seven hundred of the exotic pests are known to cause harm to agriculture, with 90 being declared Federal Noxious Weeds. Some four hundred invasive plants are identified as a threat to our native flora and fauna as a result of their aggressive characteristics. Invasive plants are estimated to cover over 100 million acres and the area increases by 8 to 20 percent annually. Invasive species threaten croplands, rangelands, forests, parks, preserves, wilderness areas, wildlife refuges and urban spaces. Some invasive plants can harbor plant pathogens, and others may contain compounds harmful to animals. Aquatic invasive weeds form dense populations that obstruct navigable waterways, restrict water flow, clog water intakes, degrade water quality and interfere with recreation. Such invasive species have been termed "Biological Pollution."

The total economic impact of invasive plants on the U.S. economy is estimated to be about $123 billion annually. Invasive animal species wreak billions more in damage to crops and rangeland.

South Carolina has not escaped invasion by alien species. To deal with new pests, in 1901, the Clemson College Board of Trustees volunteered college services to undertake entomological inspections. The General Assembly created the State Board of Entomology. Today, the Department of Plant Industry at Clemson University deals with invasive species that become plant pest problems. Our challenge is to be aware of these pests, be observant and take action when necessary to prevent introduction or spread in SC. We have a duty to educate the public and our clientele. Early detection of new invasive pests is the best chance we have of stopping them. Once established, chances for eradication are diminished.

Introduction of new species is important to the plant industries and agriculture. Plants often prove to be sources of new medications, new germplasm for variety improvement and other benefits. However, there must be a careful balance between wholesale introduction of new species and consideration for potential escape and invasiveness.

On February 3, 1999 President Clinton signed an executive order to coordinate a national strategy to address the growing environmental and economic threat invasive species pose to US ecosystems. The National Strategy for Invasive Plant Management outlines an effort to stem the tide of invasive species. It establishes an Interagency Invasive Species Council. This effort is a road map for encouraging individual agencies to implement strategies that fit within their missions. It encourages partnerships, education and research. Each objective of the plan provides for partnerships and pooling of resources for effective action.

There are three main goals. Prevention, to stem the tide of invasive species; Eradication, to eradicate or control those already present; and Restoration, to restore degraded lands and ecosystems.

We plan to be a part of the invasive plant management effort by cooperating with other agencies in South Carolina. There is an effort underway to establish an invasive species interagency committee in South Carolina. South Carolina is a beautiful state with much natural diversity from the mountains to the sea. We all should take pride in our role to help it stay that way for future generations.