

Invading Exotics: New Jersey Under Siege

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One of the greatest challenges facing the U.S. Fish & Wildlife Service (Service) today is the nationwide proliferation of invasive species that increasingly jeopardizes the conservation of indigenous fish, wildlife, and plant populations. New Jersey, a portal of entry with a diverse natural landscape, is extremely vulnerable to invasive species. Approximately 3,500 plant species are known to occur in New Jersey; about 40 percent are exotic. Once an invasive plant finds a niche, a landscape change can occur rapidly. Drive on Route 80 through the central Glacial Lake Passaic basin wetlands and witness the displacement of broad-leaved cattail (*Typha latifolia*) and other indigenous plants by common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*).

Untutored in the biological sciences, the majority of the public will mistake the current landscape vegetation as being natural. For example, at an art and photography show some years ago, I was surprised and disappointed to see the invasive plant, purple loosestrife, depicted. In bloom the plant produces attractive lavender flowers and hence adds color to an otherwise monochromatic scene of early spring browns.



Selling a 2-quart container of purple loosestrife (*Lythrum salicaria*) for \$3.95

Randy Westbrook, USGS, www.invasive.org



Common carp (*Cyprinus carpio*)

Duane Raver / USFWS



Eurasian watermilfoil (*Myriophyllum spicatum*)

Robert L. Johnson, Cornell University, www.invasive.org



House Sparrow (*Passer domesticus*)

Bob Hines / USFWS

flathead catfish (*Pylodictis olivaris*), common reed (Haplotype M), purple loosestrife, Eurasian watermilfoil (*Myriophyllum spicatum*), Japanese knotweed (*Polygonum cuspidatum*), and a number of other plants native to Japan (Japan has a climate similar to New Jersey). On the next tier are native species that can become destructive due to an artificial environment that encourages overpopulation, such as resident Canada goose (*Branta canadensis*). Other invasives are less conspicuous. Consider the Asian tiger mosquito (*Aedes albopictus*) and Japanese rockpool mosquito (*Ochlerotatus japonicus*), both transmitters of the West Nile virus (*Flavivirus*).



Asian tiger mosquito (*Aedes albopictus*)

Mike Higgins / USFWS

Norway Rat
(*Rattus norvegicus*)
Photo USDA



Not every introduction of nonindigenous species has resulted in an ecological disaster. For example, the ring-necked pheasant (*Phasianus colchicus*), introduced from China in the mid 1800s, may have overlapped the niche of the extinct heath hen (*Tympanuchus cupido cupido*). Similarly, the brown trout (*Salmo trutta*), a species native to Europe, has become a popular game fish in the State.

Fortunately, New Jersey has been spared invasive species that require formidable control efforts once established, such as nutria (*Myocastor coypus*), although unconfirmed sightings have been reported in Salem County. Other invasives, such as zebra mussel (*Dreissena polymorpha*) and the Asian longhorned beetle (*Anoplophora glabripennis*), have only recently entered the State.



Asian longhorned beetle (*Anoplophora glabripennis*)

USDA APHIS

Leading culprits jeopardizing native plant communities especially in wetlands include: *Phragmites* Haplotype M forming wetland monocultures; purple loosestrife dominating freshwater wetlands; Eurasian watermilfoil choking many waterways; and multiflora rose (*Rosa multiflora*) overtaking abandoned fields. Apparently ignored by wildlife as a food source, Asian grasses have begun to appear in our forest understory, replacing indigenous plants. European starling and house sparrow are widespread bird pests that were introduced here in the last century and continue to disrupt our native bird populations, especially the nesting competition house sparrows give purple martin (*Progne subis*). Unfortunately, a major predator of native wild birds is

another exotic species—the domestic cat (*Felis silvestris*). As many as 100 million feral and pet cats range freely across America and can cause hundreds of millions of songbird mortalities a year!



Domestic cat (*Felis silvestris*)

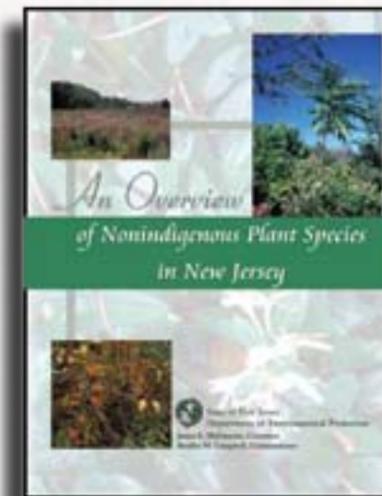
Vanessa Latford WildPro.org

Unchecked, unwanted species wreak havoc on native populations and biodiversity. Plant species diversity is diminished, and a loss of vegetative community structure will result in a decrease in wildlife reproductive cover and food production. Some invasives, especially *Phragmites*, can develop dense stands of highly-combustible material during the dormant season, which can increase fire hazard, conceal vistas and natural landscapes, retain pools of water that become mosquito-breeding areas, and result in hydrologic disturbance such as tidal restriction. Other invasives, such as purple loosestrife, can rapidly alter the vegetational community structure of freshwater wetlands found throughout New Jersey, and reduce habitat suitability for threatened or endangered species such as the bog turtle (*Clemmys muhlenbergii*).

Public education, blocking pathways for future introductions, on-the-ground control (biological, mechanical or chemical methods), and habitat restoration are crucial to stemming this invasion of alien species. The Service has several programs that offer habitat restoration, including the *Partners for Fish and Wildlife* program, *Bring Back the Natives*, and the *Coastal* program. Without management and control of alien species, native fish and wildlife resources will continue to be impaired.

Purple loosestrife (*Lythrum salicaria*) infestation

The first line of defense needed in New Jersey is the development of an Invasive Species Management Plan. The New Jersey Invasive Species Council, recently established under Governor McGreevey's Executive Order #97, has been directed to develop such a plan by June 2005. This plan will emphasize interagency collaboration and partnerships pursuant to federal Executive Order 13112, identify research needs, review and devise control methods, procure funding, implement two eradication/restoration projects by 2005, identify necessary legislative or regulatory actions, and educate the public.



Public concern drives public policy, and this issue of *Field Notes* will be effective if it inspires others to action to control and eradicate infestations, prevent future invasions, and reverse the deleterious effects that invasive species bring to our native wild populations. Remember, human activities are the primary cause of invasive species introductions; it is our responsibility to take appropriate actions to reverse these unwanted introductions.