

Article Summaries

I. THE PROBLEM OF INVASIVE SPECIES

Kram, Emily, "Outdoors: Let the Yearly Battle Begin," *The Daily Telegram*, May 12, 2007, online edition.

Each spring, a variety of attractive plants begin to grow and bloom. Even though they may be eye-catching, some of them may actually be invasive species. The term "invasive species" is frequently used as a synonym for exotic or non-native species. However, what many people fail to realize is that native species can also be invasive, whereas non-native species might not be.

Invasive plants like to take over the areas in which they grow. In order to beat them, individuals must spot them early and remove them, before they become well established. This can be done either chemically or manually when the plants first begin to sprout each spring. A major problem with invasive plants is that when left to their own devices they tend to spread and take over quickly.

Bhattacharya, Surya, "Exotic Fruit, Exotic Pests," *Toronto Star*, June 3, 2007, p. ID12.

Invasive species are continually making their way into Canada. Some of them ride in on the backs of fruits and vegetables. Others are transported in the packaging or wooden pallets of such food items. The ones that prosper and become problematic are those that are best able to stick around and adapt to their new environment.

Globalization has played a major role with regard to the ever-growing problem of invasive species. Invasive organisms that are traveling to new destinations need at least three things in order to survive the trip: oxygen, food, and water. They can get all three of these better from a fruit or a vegetable than by traveling in a box of electronics.



Bergquist, Lee, "Hitching a Ride into Wisconsin's Inland Waters," *The Milwaukee Journal Sentinel*, June 17, 2007, online edition.

The number of invasive species in the Great Lakes continues to grow. Such invaders pose a risk to billions of dollars' worth of resources because they are capable of clogging the water with non-native vegetation. They also regularly deplete the size of local fish populations.

The careless actions of just one boater are capable of introducing one or more new invasive species into the Great Lakes' waterways. As a result, it is difficult for scientists to predict with accuracy where the next invasive species might emerge or what type it will likely be. One of the most recent threats in this region has been viral hemorrhagic septicemia, which killed fish in Lake Huron. It is widely regarded as a serious pathogen that has been known to kill sizable quantities of rainbow trout in Europe since the 1930s. In recent years, it was discovered in the eastern Great Lakes, where it was responsible for thousands of dead fish. Because the virus has mutated over time, it is capable of infecting more species of fish today than in the past. It is now also able to survive in warmer temperatures than in the past.

Bauers, Sandy, "They Came, They Stayed, They Conquered," *The Philadelphia Inquirer*, July 16, 2007, online edition.

In recent years, the emerald ash borer, a half-inch-long green bug, has left 25 million dead ash, from Michigan to Pennsylvania, in its wake. Unable to control this invasive species, foresters and other experts have been watching its devastation in horror. In the past, botanists, aquatic scientists, and others believed that they could effectively wage war against the ash borers and defeat them. However, time and time again the invaders have thwarted their efforts. As a result, their current goal is simply to slow their spread as much as possible.

When it comes to wiping out native species, habitat destruction by humans is the greatest cause. Invasive plants, however, rank second in this regard. Legions of invasives bombarding specific areas are becoming increasingly common, and the damage they cause totals approximately \$100 billion a year in the United States alone.

Bonfatti, John, "Invasive Pests Claiming New Habitats in New York State," *The Buffalo News*, July 30, 2007, online edition.

Invasive species of various kinds are altering the ecosystems of New York State. The presence of such invaders is the result of today's world in which individuals and products move from one continent to the next at ever-increasing speeds. As a result, many of today's invasive species now have the potential to become global invaders.

Across New York State, invasive plants are already crowding out native ones in forests and lakes. Beetles are beginning to wipe out ash trees, as they have in surrounding areas. Although some invasive species spread very slowly initially, once they successfully get into a new area it is frequently hard to get rid of them. Sometimes, they are entirely impossible to eradicate.

-----, **“Dangerous Weeds,” *Irish Times*, August 21, 2007, online edition.**

Today, there is a greater need than ever before to establish up-to-date lists of noxious and invasive plants. There is also a greater need to determine new, adequately funded ways to control and, hopefully, to eradicate these plants. In Ireland, various organizations, including the Botanic Gardens, the Heritage Council, and the National Parks and Wildlife Service, have begun working intentionally to counteract the various threats posed by several invasive species. To date, however, their efforts have been piecemeal in nature and poorly funded.

Seely, Ron, “Beware of Aquatic Invaders. Really,” *The Wisconsin State Journal*, September 2, 2007, online edition.

Invasive species represent the natural world gone awry. The list of alien species that endanger U.S. waterways reads like something straight from the world of science fiction. It includes everything from rusty crayfish to spiny water fleas. Many of these aquatic invasives are spread readily from one waterway to the next by unwary boaters. Unfortunately, many people do not take the threat of invasive species seriously until something harmful shows up in their own area.

The threats posed by aquatic invaders are numerous. Some of these invaders dramatically alter food chains, producing negative effects on fish. Others come in the form of floating weeds or zebra mussels, both of which make it difficult to walk along beaches and lakes. Although their individual effects may not appear to be especially significant, aquatic invasives rank at the top of today’s list of threats to the natural world, alongside climate change and land-use changes caused by humans. In addition, aquatic invasives are regarded as a human problem because it is humans themselves that most readily enable them to move from lake to lake or from country to country.



LeBrun, Fred, “Foreign Invaders Threaten Us,” *Times Union*, September 27, 2007, online edition.

Invasive species endanger the future health of the great outdoors. They also endanger the sustenance that humans derive from nature. U.S. geography is today being invaded by malignant invasives at ever-increasing rates. They are moving to new areas by air, land, and both fresh and salt water. Unknowing citizens transport them with their cargo. Increased international travel and commerce further fuel their ready spread.

Many people have heard of one or more invasive species that have become major news stories, such as zebra mussels or purple loosestrife. Most fail to realize, however, that the number of invasive species today ranks in the thousands, and that number continues to grow. In New York alone, a new invader emerges approximately every 28 weeks. In the South, the woolly adelgid is destroying hemlocks at impressive rates. Throughout Brooklyn, parts of Long Island, and New Jersey, the Asian long-horned beetle has been destroying red and sugar maples. Elsewhere in the United States, sirenix wood wasps are continually wreaking havoc with red, white, and Austrian pines.

Clodfelter, Tim, "Report: 25% of U.S. Bird Species Face Peril," *Winston-Salem Journal*, December 7, 2007, online edition.

According to a new report from the National Audubon Society and the American Bird Conservancy, approximately one-fourth of the various bird species found in the United States are in danger and in desperate need of immediate conservation help. This includes 178 bird species found in the continental United States as well as 39 bird species in Hawaii.

Invasive species, global warming, and habitat loss are some of the biggest environmental challenges that these birds now regularly face, which are causing dramatic declines in their populations. Among the species that have declined in population most substantially in recent decades is the rusty blackbird, which has declined by 98 percent over the past 40 years.



Tarter, Steve, "Alien Plants and Animals Pose a Threat," *Journal Star*, January 1, 2008, online edition.

Alien invaders are just about everywhere in 2008. Invasive plants and animals pose increasing threats to our world's environment and to ecosystem biodiversity. The findings of a recent Cornell University study suggest that invasive plants and animals negatively affect the U.S. economy to the tune of \$130 billion annually. In addition, approximately half of the living species that have been identified as threatened or endangered in the United States have achieved that status as the direct result of invasive species of various kinds. It is important to keep in mind that, contrary to popular belief, not all invasive species emerge from foreign lands. In addition, not all invasive species are visible to the human eye.

-----, "Native Species Under Climate Change Threat," *The Australian*, March 25, 2008, p. 6.

Climate change poses substantial threats to native species. It also offers positive conditions for the ever-growing spread of invasive species. While climate change is expected to produce more frequent and hotter wildfires in the coming years, it is also predicted to produce altered conditions that are favorable to the expansion of various invasive species, including cane toads. A wide variety of invasive species are expected to benefit from climate change, which will better enable them to colonize new habitats more rapidly than in the past.

Myers, John, "Study: Great Lakes Invaders Cost Millions," *Duluth News-Tribune*, July 17, 2008, online edition.

It is quite common today for invasive species to be transported in the ballast of oceangoing ships and introduced into the Great Lakes. The findings of a new study from the University of Notre Dame Center for Aquatic Conservation estimate that such species cost the Great Lakes region more than \$200 million annually in increased expenses and lost revenue. Many of these economic losses are the result of declining sport angling in the region, as well as reductions in other forms of water recreation. In addition, the invading species have reduced the annual fish harvests in the region by thousands of tons of fish each year.



Mitchell, Liz, "S.C. Waters Home to a Growing Number of Invasive Species," *The Island Packet*, December 9, 2008, online edition.

A growing number of invasive species now call the waters of South Carolina their home. Invasive jellyfish and water hyacinth have been identified as living in the state's waters for many years. Now, new forms of invasive species, including Asian tiger shrimp and parasites that reside in the bladder of the American eel, are being identified.

The parasites that live in the American eel's bladder, which are native to China and Japan, can be especially problematic. This is because they feed on the eel's blood and reproduce readily within the eel. Once the eels excrete the parasite, it can then spread quickly to be picked up by additional hosts including fish, snails, and copepods.

II. VARIOUS TYPES OF INVASIVE SPECIES

Hanna, Bill, "Prickly Pear's Worst Enemy," *Fort Worth Star-Telegram*, January 5, 2007, online edition.

The cactus moth, an invasive species from South America, is making its way toward Texas. The unwanted intruder is expected to arrive in that state by 2008. If it does, it could potentially wipe out the prickly pear, which deer, cattle, and other animals rely on as a source of food during periods of drought.

Experts are having a difficult time convincing Texas ranchers that they need to be concerned about protecting the prickly pear in order to benefit their cattle. As a result, the U.S. Department of Agriculture has launched an experimental project that will introduce sterile males into the cactus moth's population in order to stop the insect from reproducing — or at the very least to slow its travel time to Texas if that doesn't happen.



-----, "Non-Native Species that Have Turned Up in Great Lakes," *Toronto Star*, January 20, 2007, online edition.

Since the late 1800s, approximately 185 invasive species have been discovered in the Great Lakes. The most recently discovered invasive species is the bloody red mysid in Lake Ontario, an inch-long shrimp from Eurasia that poses a threat to the lake's food chain.

Various other of these invasive species have included alewife (discovered in 1873), western mosquitofish (1923), margined madtom (1928), Oriental weatherfish (1939), shortnose gar (1962), ghost shiner (1979), fourspine stickleback (1986), round goby (1990), and freshwater tubenose goby (also 1990). In addition, the zebra mussel, which comes from Russia, was identified in Lake St. Clair in 1988. By 1998, it had already spread to all five of the Great Lakes.

Von Sternberg, Bob, "A Killer May be Lurking in a Pond Near You," *Star Tribune*, April 7, 2007, online edition.

In Minnesota, "killer bullfrogs" are spreading at an unprecedented rate. This is because bullfrogs will eat almost anything they can fit in their mouths. As such, they can be lethal to other sorts of animals, including more than a dozen other frog and toad species in that state. Minnesota's Department of Natural Resources fears that bullfrogs may become the state's next big invasive species, endangering the well-being of native species. In the past, bullfrogs have typically been found in two Minnesota counties, both located near the backwaters of the Mississippi River. Just recently, however, they have been found in 18 additional counties in the state.

Stannard, Matthew, "California: Experts Urge Extermination of Invasive Moth Species," *San Francisco Chronicle*, May 19, 2007, p. B2.

The light brown apple moth is invading Northern California. These pests, which are known to feed on more than 250 different plant species, are now on the verge of spreading out of control. In recent months, they have been detected in the counties of Alameda, Contra Costa, Marin, Monterey, Napa, San Francisco, San Mateo, Santa Clara, and Santa Cruz. The largest concentration of the moths to date has been identified in Santa Cruz County.

Until now, the light brown apple moth has never been detected in North America. In the past, it was known to exist primarily in Australia, Hawaii, and New Zealand. To eradicate this invasive species, the state of California requires the use of a highly toxic insecticide in areas where the moths are found. The downside of this requirement is that the insecticide pose harm to plants and also threatens the well-being of humans and the environment alike.

Bergquist, Lee, "Nightmare of Squirring Vermin," *The Milwaukee Journal Sentinel*, June 19, 2007, online edition.

As a result of a major gypsy moth outbreak, Wisconsin's Department of Natural Resources closed Rocky Arbor State Park for an entire day. This was the first time that a state park was closed as a result of an invasive species outbreak. Hundreds of thousands of gypsy moths, all of which were in their caterpillar stage, were found covering trees, paths, and picnic tables as well as falling from overhead leaves. In addition, the invaders caused most of the trees in the park to lose their leaves. The severe outbreak of these one-and-a-half-inch moths occurred on the western border of areas in the state that are infected with this invasive species. As a result, officials fear that such a heavy infestation may now enable the gypsy moth to spread into new areas within the state.

Ames, Ann Marie, "Strangling Vine Could Choke Local Plant Life," *The Janesville Gazette*, August 20, 2007, online edition.

Although it will not strangle your dog, a new invasive species, the dog strangling vine, can strangle various native plants, including the goldenrod. It represents the most recent addition to the list of invasive species that are making their presence known in Wisconsin. The vine, a member of the milkweed family, is identifiable by its oval leaves containing pointed tips that grow in pairs along the vine, as well as by its blackish purple flowers that grow in bunches. The vine was originally cultivated intentionally to serve as an ornamental plant, but it escaped from cultivation and is now becoming increasingly problematic as it spreads into new areas.

Lydersen, Kari, "Taking Measures to Control an Invasive Species," *The Washington Post*, September 24, 2007, p. A7.

Sea lampreys, which are regarded as one of the most primitive vertebrate still alive today, are what nightmares are made of. They have muscular, slimy, snakelike bodies, sharp probing tongues, suction-cup mouths containing rings of teeth — and they love to suck blood. Typically, they clamp onto fish and suck out their blood until the fish are almost dead. Experts say that sea lampreys are essentially living fossils that look much like vertebrates did hundreds of millions of years ago. The U.S. government currently spends \$14 million a year trying to control this invasive species, with more money needed to do so each year.

Egan, Dan, "At Yellowstone, Invasive Lake Trout Devastating a Complex Ecosystem," *The Milwaukee Journal Sentinel*, October 13, 2007, online edition.

Yellowstone was the world's first national park. In order to protect the park's delicate ecology, the federal government has begun pummeling lake trout over the head and then throwing their remains back into the water. This is happening to tens of thousands of fish. In Yellowstone Lake, the invasive trout, which are capable of weighing 50 pounds each or more, have become highly problematic. An explosion in the reproduction of the trout is to blame. The lake trout are known to eat other kinds of trout that grizzly bears, bald eagles, cougars, and other animals depend on for sustenance.

Mead, Andy, "Invasive Trees Removed at Henry Clay Estate to Protect Rare Clover," *Lexington Herald-Leader*, January 23, 2008, online edition.

The Tree-of-Heaven has a pleasant sounding name. In contrast, it is actually a nasty invasive tree species that is capable of growing almost anywhere. Recently, several Trees-of-Heaven have been endangering running buffalo clover, an endangered species of clover. As a result, four Trees-of-Heaven, up to 60 feet tall each, were cut down and removed by a crane to protect the well-being of the clover.

The Tree-of-Heaven is one of the worst trees on the list of invasive species found in the state of Kentucky. This is because it is able to start growing without the need for anyone to dig a hole and officially plant it. This tree species arrived in the United States, from China, in 1784. In addition to crowding out other plants, it releases a toxin that stops surrounding species from growing, and its roots frequently damage sewer lines and the foundations of homes.

Smith, Lewis, "Spot the Difference: One Ladybird is at Risk, the Other is a Cannibal," *The Times*, February 7, 2008, p. 34.

The harlequin ladybird now has the distinction of being the most invasive species in Britain. It threatens the well-being of nearly 50 native ladybird species there as well as aphids, which serve as its staple diet. Over the past four years, the harlequin ladybird has successfully spread across England and is now making its way into Scotland and Wales. In contrast, it took the grey squirrel nearly an entire century to spread across the same geographic area. Experts maintain that the harlequin ladybird now poses substantial threats to biodiversity.

-----, **“Invasion of Alien Snails,” *The Sun News*, June 20, 2008, online edition.**

A new invasive species, the island apple snail, has arrived in the ponds of South Carolina. Experts are working to eradicate the snails before they spread to surrounding rivers, which would make containing their spread much more difficult. If possible, they wish to wipe the snails out completely without causing environmental damage. This is because the snails are capable of eating virtually all plants in any pond. They also regularly displace, or even feast upon, native snail populations. The island apple snails also are common carriers of a parasite, capable of causing fatal meningitis, that can readily be transferred to humans.

Vergano, Dan, “‘Invasive’ Humans Threaten U.S. Coral Reefs,” *USA Today*, July 7, 2008, p. 4D.

With regard to the well-being of U.S. coral reefs, humans frequently represent a harmful invasive species. Today, approximately half of such coral reefs, which cover approximately one percent of the world’s surface and serve as nurseries for young fish, are in fair or poor condition. Much of the blame for their declining states is being placed on human activities. Reefs that are located closest to more populated areas tend to be in the worst shape, as they have experienced continual damage caused by humans in the forms of over-fishing, pollution, and trash. According to Timothy Keeney, co-chair of the National Oceanic and Atmospheric Administration’s U.S. Coral Reef Task Force, when it comes to coral reefs, “Humans are the most invasive species of all.”



Hillier, Amanda, “Canada Thistle Surpasses Leafy Spurge as North Dakota’s Top Noxious Weed,” *Agweek*, July 15, 2008, online edition.

Canada thistle, a member of the sunflower family, is appealing and eye-catching, especially given its bright yellow and purple flowers. Nevertheless, the plant is an invasive species that arrived in North America from Eurasia during the early years of the 20th century. In recent years, it has emerged as the most noxious weed in all of North Dakota. Today, it infests more than a million acres throughout the state. Like other invasive species, this plant, which can grow to a height of four feet, is readily able to colonize and crowd out surrounding native species. Because it contains prickly leaves and stems, livestock tend to avoid it, allowing it to spread uncontrollably throughout pasture land.



III. COMBATING INVASIVE SPECIES: EDUCATIONAL APPROACHES

Horner, Sarah, "Young Biologists Take on Invaders," *Duluth News-Tribune*, June 6, 2007, online edition.

Nearly two dozen fourth-graders from a local elementary school assumed the role of "mini-marine biologists" for a few hours on a Lake Superior research vessel. They used microscopes to examine plankton and aquatic insects and Secchi discs to determine the clarity of the lake's water. The goal of their excursion was to learn about Lake Superior's habitat and the invasive species that now reside in it.

Prior to this adventure, the students had been devoting an hour a week since the start of the current school year to learning about Lake Superior and invaders such as zebra mussels, buckthorn, and sea lamprey which, like other invasive species, can result in a reduction in biodiversity. The goal of this approach is for students to cultivate an environmental focus early in their lives and to begin thinking up new ways to conquer invading species, which are becoming increasingly common today.

Younger, Jamar, "Re-creating Nature at School," *Arizona Daily Star*, January 31, 2008, online edition.

Students at a Tucson, Arizona, high school, who are enrolled in three landscaping classes, are carrying out a project intended to provide insights into ways to protect endangered wildlife from the harm caused by invasive species. To do so, they are replicating the ecosystem of a local creek in a pond located at their school. The primary goal of their experiment is to discover how various aspects of nature work together.

Their project will continue until the end of May 2008. It teaches them about how animals, bacteria, invasive species, and the rest of nature's entities attempt to co-exist, survive, and thrive. The project is being funded in part by a \$14,000 grant provided by the U.S. Fish and Wildlife Service Partners for Fish and Wildlife program. The students will introduce three endangered species into the pond: the gila topminnow, the desert pupfish, and the chiricahua leopard frog. They will learn if those endangered species will be able to hold their own against invasive species in the area, such as bullfrogs and crawfish.

Pickels, Mary, "Project Weed Whack Takes Back Parks' Habitat," *Tribune-Review*, March 14, 2008, online edition.

The National Park Service will be teaching individuals, families, and service groups to identify and remove non-native invasive species found in parks near where they live. National Park Service representatives will also be teaching these people about the various sorts of damage that invasive species can cause in public areas as well as in their own backyards. For example, Project Weed Whack, as it is being called, will stage eight such events at three parks located in Fayette County, Pennsylvania. Individuals attending those events will help to remove bush honeysuckle, which is destroying the natural habitat of the woodcock.

Pelton, Tom, "On Tour, to Weed Out Invasive Species," *The Baltimore Sun*, July 13, 2008, online edition.

A group of amateur naturalists has been roaming Patapsco Valley State Park, which is located south of Baltimore. They are on a search-and-destroy mission, stalking invasive plants that are endangering and killing native life in the state of Maryland. A local high school teacher is helping to educate these volunteers about invasive species in their area and helping them to locate and eradicate them. Such invasive plants regularly "outcompete" native plants, stealing all of their sunlight and smothering them. Because many of these invasive plants are not part of the regular diets of local animals and insects, they tend to thrive in the areas where they are transplanted, having no natural predators to prevent their spread.

Aho, Jill, "Oregon Organizations Help Get Word Out on Weeds," *The Register Guard*, July 20, 2008, online edition.

This past weekend, a special workshop was held at the Wetlands Project Office in Eugene, Oregon. During this event, experts trained local volunteers how to detect invasive species that appear to be heading toward local habitats. Known as WEEDIN (which stands for West Eugene Early Detection of Invasives Network), this endeavor represents just one of a growing number of such workshops and programs that are designed to combat invasive species through educational endeavors.

WEEDIN participants are trained to identify and seek out specific kinds of invasive species that are devastating to native plants, animals, and natural habitats. When such invasives are not adequately controlled or eradicated, they forever change the ability of local habitats to support wildlife, resulting in serious environmental and economic problems. WEEDIN volunteers are frequently shocked to learn of the number of invasive species that have already established themselves in their geographic area. They are trained to know which kinds of plants actually belong in their area and which ones must be dealt with.

Pelton, Tom, "Scientists Face Bay Invaders," *The Baltimore Sun*, July 22, 2008, online edition.

A new research center that tests approaches to killing invasive species in the Chesapeake Bay region has been established. The facility, called the Maritime Environmental Resource Center at the University of Maryland Center for Environmental Science, will receive approximately \$5 million in funding from the federal and state governments in order to support its research efforts.

Already today, more than 150 invasive species, many of which originated in Asia and Europe, exist in Chesapeake Bay, including the oyster-killing parasite MSX, which is one of the most aggressive. Researchers at this university center will explore just how effective approaches including chemicals, filters, and ultraviolet light can be in destroying various kinds of invasive species that are commonly transported in the ballast tanks of ships. Their ultimate goal is to free Chesapeake Bay and other waterways of such harmful invaders.

Myers, John, "Conference Looks at Invasive Species from Land and Water," *Duluth News-Tribune*, October 27, 2008, online edition.

Individuals who wish to learn more about invasive species are invited to attend the first annual Minnesota Invasive Species Conference. This three-day event is focusing particular attention on aquatic invasive species as well as the latest methods for containing invasives of all kinds. To date, educational efforts such as this one have been shown to reduce the spread of certain invaders, such as the spread of zebra mussels to inland lakes. Attendees, however, will likely be saddened to learn that the number of new species entering Minnesota hasn't yet begun to slow at all.

IV. COMBATING INVASIVE SPECIES: LEGISLATIVE APPROACHES

Egan, Dan, "Ban Ocean Vessels in Lakes? Some are Floating the Idea," *The Milwaukee Journal Sentinel*, April 22, 2007, online edition.



Invasive species that are dumped from ocean freighters cause all sorts of harm, including ravaging native fisheries and reducing the appeal and aquatic well-being of prized beaches. Industries that depend on water end up spending billions of dollars each year. To halt the onslaught of such problematic invaders, Great Lakes United, a local conservation group, is working to convince local lawmakers to institute an overseas-freighter ban. The idea is slowly gaining the support of Democrats and Republicans alike.

The idea for such a ban seemed too radical just a few years ago. Today, however, as the problem of invasive species continues to worsen and intensify, the idea appears to be a much more realistic option. The costs of biological pollution caused by invasive species from the ballast tanks of ships continue to soar. As a result, a growing number of politicians and citizens believe the time may finally have come to pass a new federal law to ban ocean freighters from certain waterways that are in need of the most extensive attention.

Lam, Tina, "Groups Target Foreign Ships: Invasive Species are the Concern," *Detroit Free Press*, June 22, 2007, online edition.

Eight environmental groups in the US are taking legal action against foreign shippers that are blamed for introducing a range of harmful invasive species into the Great Lakes over the past few years. Such invaders include zebra mussels and a new virus that kills fish. The groups, which include the National Wildlife Federation, took the first step that is required in order to pursue legislative action under the Clean Water Act: they sent letters to nine shippers which identified their various water violations occurring during the period from 2003 to 2006. After waiting 60 days, the groups can then proceed to sue the various companies in federal court.

Smith, Jennifer, "Law Weeds Out Unwanted Weeds," *Newsday*, June 27, 2007, online edition.

In New York, the Suffolk County legislature has banned the sale of 63 invasive plants that endanger the ecology of Long Island. The bill, which passed by a vote of 17-1, is the first of its kind in the state. Its goal is to prevent aggressive species from elsewhere in the United States and across the globe from crowding out native plants to Long Island, including sandplain gerardia, which is already an endangered species.

Downing, Bob, "The Great Lakes are Under Foreign Attack," *Akron Beacon Journal*, July 24, 2007, online edition.

State and federal politicians in Ohio are concerned about the need to stop the spread of exotic invasive species in Lake Erie and its surrounding waterways. Democratic State Representative Michael Skindell is preparing to introduce legislation that would legally allow the state of Ohio to regulate ballast water from the overseas freighters that pass through Lake Erie. If such efforts are successful, the U.S. Congress is likely to propose similar legislation at the federal level. To date, however, Congress has not moved forward on dealing with the problem of invasive species as a result of limited funding, much of which is being used to fund the war in Iraq and the costs associated with homeland security.

Smith, Jennifer, "Panel to Coordinate Fight Against Invasive Species," *Newsday*, September 13, 2007, online edition.

New York State officials are creating a new state council to combat invasive species and safeguard native animals and plants. Approximately one-third of the animals and plants currently found in New York are non-native, and approximately 15 percent of them are so harmful that they are regarded as invasive. The costs of dealing with such invasives exceed \$120 billion per year in the United States.

The new invasive-species council will include representatives from New York's departments of Environmental Conservation, Agriculture and Markets, Transportation and Parks, Recreation, and Historic Preservation. Its advisory committee will be composed of experts in the fields of biodiversity, conservation, and forestry. The council will provide advice and feedback to various state agencies about the best ways to combat invasive species and the types of legislation they may wish to consider implementing to achieve that goal.

Derbyshire, David, "The Creeping Menaces," *Daily Mail*, November 8, 2007, p. 28.

In England, the Department for Environment Food and Rural Affairs has identified invasive species from abroad as one of the greatest threats to British wildlife, one that is even greater than climate change. As a result, a new law is being proposed to ban the sale of 14 plants and 13 animals that endanger biodiversity. The banned species will include water hyacinths, water ferns, American bullfrogs, and ruddy ducks. Once the law goes into effect, it will be the first time that the sale of non-native species has been legally banned in that country.

Nelson, Shelley, "Shippers Can Fund Invasion Cleanup," *The Daily Telegram*, June 20, 2008, online edition.

Douglas County, Wisconsin is concerned with the ever-growing need to combat the invasive species that are taking over local lakes. Some officials have suggested that the county's taxpayers should provide the funds necessary to do so. Others, however, would prefer to see the shippers who introduce deleterious invaders into the region's waterways end up footing the bill.

Douglas County officials have adopted a resolution that asks their state to set up a new fund that will collect shipping fees from vessels operating in the area's lakes. The fees that are collected will then be used to address the problem of invasive species in those bodies of water. The officials have pointed out that the costs required to effectively eradicate invasive species are far greater than the funds currently being generated by foreign shipping. They would like to see the individuals responsible for creating the invasive-species problem be the ones ultimately responsible for funding the resulting cleanup efforts.

V. COMBATING INVASIVE SPECIES: ADDITIONAL APPROACHES

Gilbert, Kathy, "Tips for Controlling Common Invasive Species," *Chattanooga Times/Free Press*, March 10, 2007, online edition.

Different types of invasive species must be dealt with in different ways. Weeding, either by hand or using tools, is the ultimate weapon when it comes to the majority of invasive plants. Herbaceous species can be combated using herbicides, which represent chemical solutions to the problem. Basal bark treatment, which involves spraying advanced chemicals around their entire trunks, can be used to combat invasive trees.



Robinson, Erik, "Local Angle: Willapa Bay Eradication Efforts Effective," *The Columbian*, June 7, 2007, online edition.

A decade ago, in the southwest corner of Washington state, spartina rendered one-third of Willapa Bay's mud flats nearly useless, diminishing them from their former ecologically rich status which attracted as many as 100,000 shorebirds each year. Since then, more than \$12 million has been devoted to eradicating the invasive grass. The techniques utilized have included killing the spartina with the herbicide imazapyr, having volunteers pull out the spartina by hand, and turning loose a select bunch of spartina-devouring insects.

This year, those efforts appear to be paying off. More shorebirds and waterfowl have been using the mud flats recently than at any other point over the past decade. Experts believe that it will still be challenging to keep the spartina at bay. Nevertheless, they also believe that their efforts to safeguard the local shorebird habitat, as well as the area's profitable oyster industry, are well worth the work.

Chapman, Cheryl, "Stubborn Invasives Might Hitch Ride on Nursery Plants," *Anchorage Daily News*, August 2, 2007, online edition.

Many of the plants that are sold by nurseries travel thousands of miles before they reach their buyer's home. Freeloaders in the form of invasive species can hop aboard them at virtually any point along that entire distance. When this occurs, invasive species must be dealt with head-on and swiftly. Accordingly, nursery personnel should inspect every incoming plant thoroughly. In addition, they should uproot and remove anything they find in a pot that is not the actual plant itself, all the while remaining on the lookout for any stray sprouts or invading seeds that must be removed from the surrounding soil.

Caylor, Bob, "Plant Attack Group Seeks Help Ridding Invasive Species," *The News-Sentinel*, August 6, 2007, online edition.

The Izaak Walton League of America was established to seek out invasive species — especially invasive plants — and then slash, spray, or burn them. This is essential to protecting biodiversity and the habitats of all living beings. For example, if an invasive species chokes a wetland, the frogs that used to thrive there may disappear. Without the frogs to feast upon, many snakes will find themselves without adequate food and very likely perish. Without enough snakes, hawks and other creatures that feed on them may also vanish. The downward spiral will continue from there. In recent years, the League's volunteers have found that it costs between \$500 and \$4,000 per acre of Indiana prairie to effectively control invasive species over a period of between three and five years.

Zamith, Rodrigo, "Buckthorn Battle Rages On," *Saint Paul Pioneer Press*, October 12, 2007, online edition.

Buckthorn is an invasive species that crowds out native plants and prevents new native plants from growing successfully. The invasive shrub was transported from Europe to Minnesota in the mid 1800s and in the 1930s it was actually sold by Minnesota nurseries. Over the past two decades, efforts have intensified to eradicate this invasive species. The task of doing so, however, has proven to be quite daunting.

As fears of this shrub spreading uncontrollably continue to intensify, Minnesota's White Bear Lake public works department is exploring the use of powerful chemicals to kill it. The department is also considering bringing in five different insect species such as caterpillars and moths to combat the buckthorn's spread. To date, the primary problem with the buckthorn is that it tends to rebound quickly after volunteers falsely believe that they have wiped it out.

Hood, Joel, "Scientists Hope Good Bug Crushes Bad Bug in National Refuge West of Boynton Beach," *Sun-Sentinel*, October 13, 2007, online edition.

A silent, nearly invisible insect from Mexico called the bromeliad weevil, is rapidly devouring native plants in the forests and wetlands of South Florida. It feeds off a range of tropical plants that are essential to the well-being of the Everglades' ecosystem. In order to combat this invasive species, scientists hope to use a special kind of fly that they have raised in a lab. This specially bred fly is capable of telling the difference between invasive bugs that need to be devoured and native ones that need to be left alone. However, the scientists admit that, beyond what they have observed in the lab, they do not really know exactly how this type of fly will behave once it is released into the wild. It may be years before they know whether or not this plan will ultimately be successful.

-----, "Treat Invasive Species — Through Prayer," *Christian Science Monitor*, November 2, 2007, p. 18.

Invasive species are a growing environmental concern the world over. Despite the various efforts that are already underway to control and eradicate them, much more work remains to be done, and international cooperation is becoming increasingly necessary. While such efforts are often slowed by the need for testing as well as various social and political processes and pressures, there is one effort that can readily be undertaken today: prayer. It holds the potential to inspire new forms of effective solutions and provide new ideas for inspiration and action.

Lam, Tina, "War of the Species: Scientists Try Natural Enemies in Fight Against Harmful Pests," *Detroit Free Press*, November 15, 2007, online edition.

To attack various invasive species, scientists are now using weevils, beetles, wasps, and fungi in a modern-day David-and-Goliath battle. They are releasing these natural enemies into the wild to eradicate the invasives that regularly kill native trees and plants and cost the U.S. government billions of dollars each year.

Because they come from foreign lands, invasive species typically do not have any native enemies once they establish themselves in their new environments. As a result, scientists are increasingly visiting the invasive species' home countries in order to locate and bring back the natural enemies they have there. This method is widely regarded as being far superior to the use of harmful and expensive chemicals or the process of machine harvesting.

-----, "Unwelcome Additions," *Irish Times*, March 11, 2008, online edition.

When it comes to certain types of invasive species, it is frequently clear what needs to be done to combat the problem at hand, yet there is often some reluctance to do it. Take, for example, the case of the grey squirrel. The most effective way to combat the spread of grey squirrels is trapping and killing them, but officials often hold off on actually doing this for fear of public outcry. Another promising approach involves penalizing landowners who allow invasive weeds to grow on their properties. However, officials are typically unwilling to pursue this option because doing so would be unpopular with the voters who elect and keep them in political office.

Ford, Robert, "Grant to Help Minnewaska Rid Itself of Invasive Species," *Ulster County Press*, March 27, 2008, online edition.

New York's Department of Environmental Conservation is providing a \$100,000 grant to help combat invasive species that now call Minnewaska State Park their home. The funds will support ongoing efforts to rid the park of invaders including the common reed, Japanese barberry, Japanese knotweed, leafy spurge, and spotted knapweed, which have been causing harm to ecosystems, food supplies, and landscaping. Funds such as these are becoming increasingly needed in all parts of the United States, as well as around the world, to more effectively deal with the threats posed regularly by invasive species of all kinds.

Breckenridge, Mary Beth, "Time to Ditch Invasive Species for Native Plants," *Akron Beacon Journal*, June 23, 2008, online edition.

Many plants that have long been welcome in people's gardens are now being identified as invasive species. As a result, plant enthusiasts recommend replacing such invasive plants with native ones that look much like them. For example, in the state of Ohio, the invasive species wintercreeper can be replaced with the Christmas fern or ginger. Common periwinkle can be replaced with waterleaf or dwarf Solomon's seal. Burning bush can be replaced with sweetspire or red chokeberry. Asian bittersweet can be replaced with American bittersweet.

