

# ALIEN SPECIES

BY JIM CORNISH

**W**e're being invaded by aliens! No, not little green men from outer space, but organisms living on our own planet! According to ecologists, the invasion began in Neolithic times, when modern humans emerged and began migrating, trading, and eventually exploring and colonizing the planet. Wherever humans went, so it seems, plants and animals stowed or hitched a ride, and traveled to places well beyond their established natural ranges.

Among many other things, the Scouting Movement is about enjoying and caring for the natural world. Many badges require Scouts and Cubs to develop an understanding and appreciation of nature and to display the caring behaviours and attitudes towards its preservation. In today's global society, stewardship of the environment has been extended to include a concern for changes in the planet's ecology, including those caused by alien species. Let's examine and present some suggestions to slow down and stop what some consider a crisis that is already having huge economic and ecological consequences worldwide.

## Alien and Invasive Species

Alien species include any plants, mammals, birds, reptiles, amphibians, insects and microbes that live in places they don't belong. Most of these organisms are harmless and may even become welcome additions to an ecosystem. But, a growing number of aliens are doing a disproportionate amount of ecological and economic damage and are considered "invasive". Lacking predators and competitors, these aliens easily adapt, quickly grow, rapidly reproduce and then widely disperse, out-competing indigenous species for food, water and space.

## Invasion of the New World

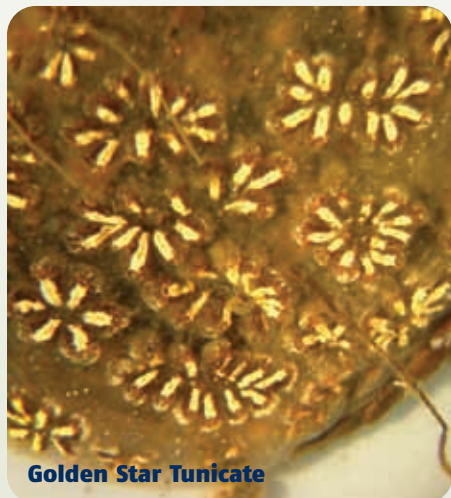
The alien invasion of North America in historic times began with the arrival of European colonists. Being farmers, they brought seeds to cultivate food crops (wheat, chickpeas, melons, onions, radishes, and salad greens) and medicine (mints, mullein, mustards, aromatics, poppies and foxgloves). They also brought pets and livestock and as their settlements prospered, they planted ornamental gardens filled with exotic plants imported from Europe. As further reminders of home, they brought wild animals such as the gray partridge and brown trout for game and familiar birds like pigeons, mute swans, and starlings. While the domesticated plants and animals largely stayed put, many of the ornamental plants escaped their gardens and quickly spread as common weeds. Today, most of the flowers we see growing along our roadways, trails and reclaimed land are escaped alien plants. While the brown trout have caused very few problems, the birds have become a mixed blessing. Gathering by the thousands, aggressive starlings have taken over the nesting sites and feeding areas of many native birds. Mute swans, whose population has exploded in some areas, have destroyed the habitats of a variety of native aquatic plants and animals through over-grazing.



## Incidental Invasion of the New World

Some alien invasions linked to the colonists were incidentals. Seeds of the dandelion, plantain, couch grass, crab grass, sow-thistle, wormwood, daisy, chickweed, blood-wort, mallow, may-weed, and stinging nettle all hitch-hiked their way here, often hidden among the European colonists' belongings or mixed within the gravel they used as ballast to stabilize their ships.

The first alien animal accidentally introduced in the New World was probably the brown rat, a stowaway that often



Golden Star Tunicate



Hawkweed (Hieracium)



Zebra Mussel shells litter shoreline

Centre: Snakehead Fish

Photos: Courtesy of Environment Canada.

## Web Sites About Invasive Aliens

### Alien Invaders

[www.sciencenewsforkids.org/articles/20040204/SciFiZone.asp](http://www.sciencenewsforkids.org/articles/20040204/SciFiZone.asp)

### CIPM Invasive Plant Education Activities for K-12

[www.weedcenter.org/education/educationmatrix.htm](http://www.weedcenter.org/education/educationmatrix.htm)

[www.sciencenewsforkids.org/articles/20040512/Feature1.asp](http://www.sciencenewsforkids.org/articles/20040512/Feature1.asp)

<http://massbay.mit.edu/resources/pdf/factsheet.pdf>

**Be Aware** – [www.beaware.gc.ca/english/toce.shtml](http://www.beaware.gc.ca/english/toce.shtml)

**Invasive Alien Species in Canada** – [www.ec.gc.ca/eee-ias/](http://www.ec.gc.ca/eee-ias/)

[www.hww.ca/hww2.asp?id=220](http://www.hww.ca/hww2.asp?id=220)

infested the wooden ships sailing from Europe in the mid-1700s. Native to northern China, this rat has now spread to every continent except Antarctica and is the dominant rat species in Europe and North America. It carries a plethora of disease-causing microbes and causes billions of dollars in damage to crops and food stores each year.

### Modern Invasions

Since colonial times, alien invasions have escalated, mainly due to international shipping. Today, ships carry 80% of the entire world's trade. To improve maneuverability and stability on the open ocean, the ships' ballast tanks are filled with harbour water often laden with the larvae of a myriad of aquatic organisms. After carrying their alien-infested cargo halfway around the globe, the ballast water is dumped into the harbour of the destination port. Lacking predators, the surviving larvae quickly spread and soon wreak havoc on the local ecosystems. Scientists estimate that as many as 3,000 alien species spread by ballast dumping each day. An infamous example is the zebra mussel. Introduced by Russia ships into the Great Lakes in the mid-1980s, this thumbnail-sized Caspian Sea Mollusk has spread throughout the waterways of the eastern United States and Canada and is now threatening the waterways in the heart of the continent.

The horticultural industry is to blame for most modern-day alien plant invasions. In an effort to beautify private and public gardens, horticulturalists import exotic plants, along with the alien insect pests and plant diseases associated with them, from around the world.

The pet trade is another contributor to the introduction of alien species. In some countries, there are no controls on the industry and no accountability for the animals imported as pets. The problem escalates when pet owners tire of their alien pets and then dump them, along with any associated seeds/weeds/diseases, in the surrounding countryside.

The movement of goods and travelers around the globe has also contributed to the transport of alien species. Passengers returning home bring seeds, insects and microbes with them. Food imported from other countries invariably contains an alien spider or two.

Plants and animals are also considered alien even when they are relocated within a country. The snowshoe hare and moose native to many parts of Canada were introduced onto the island of Newfoundland as sources of food. The robust bullfrog, native to eastern Canada, was imported into British Columbia in the 1930s to meet the demand for gourmet frogs'

legs. Some frogs escaped their pens and the species have since established themselves on the lower mainland and southeast Vancouver Island.

### Costs of Invasive Species

The spread of alien species is now recognized as one of the greatest threats to the ecological well-being of the planet. According to the World Conservation Union, they are, after habitat loss, the second most significant threat to biodiversity. Scientists fear the aggressive behaviours of aliens will stimulate a new wave of evolution – a crossbreeding with native species resulting in the creation of a somewhat homogenized world flora. This happened with some of the plants brought by the colonists and is now happening in the insect world. A cross between alien bees (the European Honeybees and African Honeybees) has produced the hybridizing Killer Bees of South America.

Invasive species have economic costs too. Globally, virulent plant and animal diseases caused by aliens are incalculable. In agriculture, the principal pests of temperate crops are aliens, and the combined expenses of pest control and crop losses continue to increase the costs of food, fiber, and forage. Zebra mussels clog water systems for cities and intake pipes of factories and power plants, foul boat hulls and maritime structures, sink navigational buoys, and infest recreational beaches with sharp-edged shells and rotting mussel flesh. Eliminating this threat is proving to be impossible. In the battle between us and alien species, the aliens are winning.

### How Can the Scouting Movement Help?

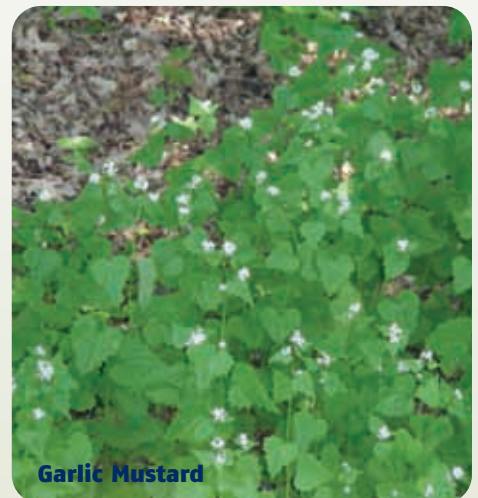
Concern for and making efforts to conserve the natural environment is a big part of the Scouting Movement. Whether at home or on camping or canoeing trips, there are many things you can do to help fight against the spread of alien



**Flowering Rush**



**Pacific Tree Frog**



**Garlic Mustard**

species, especially those considered invasive. Here are some suggestions.

### 1. Be Informed

- ✦ Learn to identify invasive species in your area.
- ✦ Educate yourself and others about exotic species.
- ✦ Know where consumer products come from (especially food, pets, and biological pest-control products). Buy from local sources where possible, and be particularly cautious about purchasing from Internet-based companies.
- ✦ Know that native grass or wildflower seeds sold through seed catalogues sometimes include seeds from alien species.

### 2. Be Pro-active

- ✦ Get help controlling invasive species on your property.
- ✦ Inspect all boat surfaces which have been in contact with water. Wash your boat, motor and trailer with hot water when moving from one watershed to another.
- ✦ Use plants native to your region instead of alien ornamentals for landscaping.
- ✦ Learn which plant species are invasive, and remove them from your garden.

- ✦ Avoid planting alien species next to, or within, natural areas, roadsides, or forested fence rows.
- ✦ Do not bring fruit, vegetables, plants, or animals with you across international borders. Be cautious about what you carry across inter-provincial borders too.
- ✦ Do not release alien plants or animals (including pets, worms and live bait) into the wild.

### 3. Be Involved

- ✦ Join volunteer efforts to remove invasive species from your area.
- ✦ Volunteer with federal, provincial and municipal environmental organizations that work to maintain and/or restore healthy ecosystems.
- ✦ Report signs of new plant or animal infestations.
- ✦ If you are unsure about a new species, plant it where you can easily control its spread, and remove it if necessary.

Alien invasions may not be “men from Mars”, but they are affecting our world, changing it forever. ✕  
*– Jim Cornish is a regular contributor to Scouting Life Magazine. A fifth grade science teacher, he enjoys photography and nature.*



**Chinese Mitten Crab**

Photo: Courtesy of Environment Canada.

## Invasive Species By the Numbers

- ✦ The first recorded case of a species invasion dates to 1245, when Norse voyagers brought a soft-shelled clam to the shores of the North Sea on the sides of their wooden ships.
- ✦ An estimated 7,000 larger than macroscopic alien species have invaded North America and new ones arrive every year.
- ✦ Today, 98% of the continent's food supply, including wheat, rice, domestic cattle, and poultry, comes from introduced plants and animals.
- ✦ One invasive purple loosestrife plant can produce up to 2.7 million seeds per plant. An adult female zebra mussel, one of the most reproductive organisms in the world, produces as many as 40,000 eggs per year.
- ✦ Shipping moves over 90% of the world's commodities and transfers approximately 3 to 5 billion tonnes of ballast water internationally each year.
- ✦ The Great Lakes is now home to more than 160 alien species including sea lamprey and zebra mussels. Estimated cost of removing the zebra mussel – \$5 billion.

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