



nature & adventure tours • nature store
Bar Harbor, Acadia National Park, Downeast Maine

This article was published in the February 10, 2012, edition of *The Bar Harbor Times*. In this week's column, Rich explores the concept of non-native and invasive species, focusing on several examples from Mount Desert Island, Maine.

The Nature of Things....

By Rich MacDonald

While the subject of non-native species seems to be cyclic in the news, it is a constant threat to the natural world. Currently, we seem to be in that part of the cycle with increasing coverage of non-native species. As we begin to think about spring, gardening, and vacations, this is a good thing.

In our global society, it is all-too-easy to unintentionally transport any number of species, from microscopic pests to magnificent shade trees, across ecological borders. Maine has done an increasingly good job in recent years educating about the threats of non-native and invasive species through campaigns telling visitors to leave firewood at home and purchase it locally in order to reduce the risk of introducing exotic insects and diseases to our forests or the need to rinse motorboat props after a day on a lake so as to minimize the risk of spreading such aggressive plants as Eurasian Watermilfoil.

In their native range, many species evolve a complex set of checks and balances with other species.

Phragmites, the Common Reed, is a plant of both tropical and temperate regions of the world and certainly one of the poster plants of non-native, invasive species.

The Eurasian subspecies is an important part of wetland communities in its native range. In North America, it has long been a popular cultivar in yards and estates, adding a showy flourish to the managed landscape. The problem is the ease with which it escapes into the wild, quickly crowding native wetland plants such as cattails. In Maine, this is particularly evident in drainage ditches along the Interstate and in the extensive estuarine wetlands in the southern part of the state.

P.O. Box 6 • 6 FIREFLY LANE • BAR HARBOR • MAINE • 04609 • 207/801-2617

WWW.THENATURALHISTORYCENTER.COM

Phragmites doesn't just crowd out plants, it changes the entire natural community. Looking just at the macro scale, we see nesting densities (the number of nests per acre) decrease for birds such as Marsh Wren, Swamp Sparrow, and Red-winged Blackbird. When you consider the environmental services offered by these birds—such as distributing seeds and eating insects—then we see a butterfly effect of unintended consequences. For instance, reducing populations of some species of birds means the removal of nuisance insect predators. With more biting bugs, we rely more heavily on chemical control, which can further impact the ability of birds to breed (and we are not even touching the role of man-made chemicals in affecting our health).

The take-home message may best be expressed by Sir Isaac Newton's Third Law: for every action, there is an equal and opposite reaction. Of course, Newton's laws were intended for the science of physics; when applied to the natural world, their consequences are more difficult to predict.

Locally, perhaps the most immediate non-native and invasive threat is the Hemlock Woolly Adelgid, so-named for the white and "wooly" appearance of its egg sacs, it is also known as HWA. The Eastern Hemlock is a stately tree with mature stands found around Mount Desert Island in places ranging from Sieur de Monts Spring to Pretty Marsh. An East Asian insect, HWA literally sucks the sap from the phloem (the inner layer of bark which carries throughout a tree nutrients made during photosynthesis) while injecting toxins. This toxin causes the hemlock to lose its needles. Needles are merely specialized leaves. As we all know, leaves are necessary for photosynthesis, which not only produced food for plants, but it also produces the oxygen we breath. Hemlock infested with HWA typically die in 4-10 years. Hemlocks tend to live near wetlands, areas covered by stringent water quality protections, so effective control measures are limited.

There is an often overlooked discrepancy between the terms "non-native" and "non-native, invasive." Both refer to a species not native to a particular area. Most garden plants and ornamental trees found in commercial nurseries are non-native. An interesting example of this is the magnolia once planted by George B. Dorr, the father of Acadia National Park, at his former Compass Harbor estate, on the south edge of Bar Harbor. They can still be found today but have not much spread. So what is the difference between "non-native" and "non-native, invasive"? The latter encompasses those species that will readily spread beyond their original confines. Today, our local garden centers are careful to not stock invasive plants.

Even so, there can be unintended consequences. European Starlings and House Finches, both species from the Europe, were intentionally introduced in the 1800s as reminders of the Old World. Both birds are cavity nesters, occupying holes wherever they find them. When nesting in the tiniest of crevices in our homes and businesses, they can be a noisy nuisance. However, both are also aggressive, readily taking over natural cavities or erected bird boxes, readily displacing such species as Tree Swallows and Eastern Bluebirds. Today, Downeast Audubon maintains carefully monitored “trails” of nesting boxes to give a wing up to the insect-eating swallows and bluebirds.

The European Fire Ant is another non-native and invasive species we find locally. It was likely unintentionally introduced as hitch-hikers in the root ball of an ornamental plant. Anyone who has ever been stung by this non-native species has not been quick to forget it. In extreme cases, itchy welts form that can last weeks and leave permanent scars. I have Otter Creek friends whose children don't like to play in their yard for fear of being stung. European Fire Ants are aggressive and seem to effectively out-compete our native ants. As these ants spread around MDI, I dread the day when they reach my Town Hill yard.

The list of non-native and invasive species is long. Wherever you look, there they are. I have heard arguments this was a form of evolution, although that misses the point. Species such as the aforementioned milfoil, starling, and finch, or the Zebra Mussels found throughout the Great Lakes, as well as countless others, would likely never have made it to our continent on their own.

Non-native, invasive species have real, measureable economic impacts. It costly to fight them, but in so many cases, the cost of doing nothing is far higher. Eurasian Watermilfoil can clog our freshwater lakes, a deterrent to tourism. The Asian Shore Crab, which recently made it as far north as the Schoodic Peninsula, preys on the Soft-shelled Clam. The Hemlock Woolly Adelgid has a direct impact on the forest products industry. These are just a few examples.

We are not powerless in the war against non-native and invasive species. As you think about your garden this year, go about walking in the woods, or plan your vacation to one of our innumerable lakes or islands or campgrounds, think about what you can do to preserve the integrity of our natural world (as well as to avoid painful fire ant stings).

Rich MacDonald runs The Natural History Center in Bar Harbor. If you would like to share your observations of the natural world that is Mount Desert Island, contact him at rich@thenaturalhistorycenter.com.