# *Conservation Matters*

A monthly column focused on conservation education, as the result of collaboration among area conservation commissions and organizations. If you would like to contribute articles, please contact Jessica Tabolt Halm jess_tabolt@hotmail.com

**Title:** Are Humans an Invasive Species?

**Written by**: Larry T. Spencer, Chair, Holderness Conservation Commission

Conservation commissions in New Hampshire often deal with the management and control of invasive species, such as purple loosestrife and Japanese knotweed. NH Public Television recently aired a three-part NOVA series, hosted by Kirk Johnson, Director of the Museum of Natural History in Washington, DC, entitled ***The Making of North America***. Part one explored the geology of North America, part two focused on the various creatures that have lived on the North American continent, and part three was about humans and their impact on the landscape. After watching this series back in November, I have given lots of thought to the similarities between my own species and the invasive species that myself and other conservationists work to combat.

There are various hypotheses as to when and how the "peopling" of North America took place; one hypothesis supposes that early settlers may have come by boat from Siberia along the west coast. Carbon dating on remains found near Santa Barbara, CA suggests that the two femur bones were deposited 13,000 years before present. This date represents one of the earliest dates for humans in the New World. In the NOVA video series, Kirk mentioned that the population of North America is now greater than ½ billion. This got me thinking, ***"from none to ½ billion in 13,000 years"***. That's quite an increase! Perhaps we can explain this explosion by positing that humans in North America were an invasive species.

What are the attributes of an invasive species? I list them below:

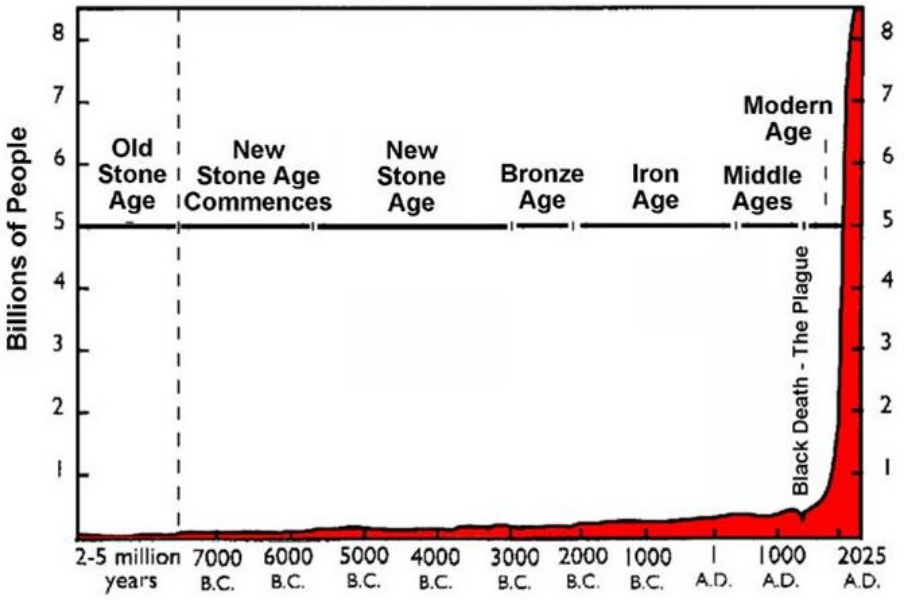
1. **Invasive species invade spaces that are disturbed.** About ten thousand years ago, glaciers began to retreat from most of northern North America, leaving behind bare rock and outwash plains as they retreated northward.
2. **Invasive species increase their numbers rapidly.** The accompanying figure is a visual representation of how humans have increased our numbers from a half billion to over 7 billion inhabitants in the Modern Age. (At the time this article is being sent to press, the current world population estimate is 7.4 billion.)
3. **Invasive species typically have no predators in the invaded environment.** Prior to the invasion of North America by humans, there were a number of large predators such as saber-toothed tigers, dire wolves and cave bears, any of which could have done in the invading humans, but evidence shows that most of those creatures had disappeared by 10,000 years before present. The cause of loss of these large creatures is still being debated, but in any case humans then and now live in a predator-free environment.
4. **Invasive species are generalist rather than specialists.** Specialists like the Rufus Hummingbird have a long bill to gather nectar from bell shaped flowers. No bell-shaped

flowers, no hummingbirds. Generalists are like our local black bears; berries and roots with a few grasshoppers or mice thrown in for good measure. No berries, no problem, because there will always be something else to chow down on. One can tell the diet of a mammal by examining the teeth. Sharp canines and molars with ridges indicate a carnivore, chisel shaped incisors, and flat molars with grind-stone like surfaces indicate an herbivore. What kind of teeth do humans have? Two pairs of medium sized incisors, one pair of slightly pointed canines, and a number of pairs of pre-molars and molars that are slightly flat, but with some points that match hollows in the teeth above or below. We fit the category of omnivore; eating mostly fruits and vegetables with some meat thrown in for good measure.

Thus, the evidence above points to the original human inhabitants of North America as being an invasive species. Some believe that the paleo-inhabitants slowly moved from the invasive species category to being a species in "harmony" with their environment, but the European invasion was facilitated by the destruction of the paleo-inhabitants by disease and/or combat. These settlers fall clearly into the invasive species definition – disturbed environments, high rates of reproduction, no predators, and generalists.

So what is the take home message? Common invasive species in the New Hampshire environment today are: purple loose strife, Japanese knotweed, variable milfoil, emerald ash borer, and earth worms. Most of these are nuisances, others such as the emerald ash borer, might cause the loss of all our ash trees. All of the invasive species will sooner or later go extinct. Extinction is forever, as the old saying goes. If the human species is an invasive species, then it is highly likely that we too will go extinct. The question is whether this will be sooner or later? If we don't find greater harmony with our environment, it might be sooner than later.

# World Population Growth Through History

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