

Few now question the impact of global warming, but less clear are acceptable methods of preserving endangered species in that changing climate. Assisted migration is a radical solution with potentially dangerous side effects, raising more questions than it hopes to answer.

Assisted migration was proposed in a 2007 dissertation by Brian Keel at Antioch University. Since some species can't migrate quickly enough to escape the effects of global warming, or are endangered by human expansion, Keel argued humans should intervene and move them to safer environments.

This sentiment is echoed by the International Union for Conservation of Nature and Natural Resources, who in their annually published “Red List of Threatened Species” stated in 2009, “Some species are much more susceptible to climate change impacts due to inherent biological traits related to their life history, ecology, behavior, physiology, and genetics.”

Why can't these same studies of species susceptibility be used for preemptive and less drastic methods of conservation? Proponents of assisted migration would stress urgency, disregarding several harmful factors while touting the success of two particular migrations.

In 2000, climate models were used to move endangered butterflies in England. More recently, the Torreya Guardians have been attempting to relocate species of pine tree, *torreya taxifolia*. This latter effort was carried out not only by professional, but amateur biologists.

Can we afford to have amateur naturalists playing gods, moving species to places they deem more suitable? The world is not a zoo to be populated as humans see fit.

Ecosystems maintain a fragile balance. Plants and animals are kept in check not only by what they eat, but what eats them. Is it safe to disrupt that equilibrium? The threat of invasive species suggests it is not.

Ever since we started traveling continent to continent, we have unwittingly brought species from one environment to another. This frequently had catastrophic effects

for the new host habitat. Executive Order 13112 defines invasive species as, “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.”

Is it worth risking human health in order to attempt to save an endangered species?

According to the Environmental Protection Agency, damages from invasive species that can be expressed in dollars alone amount to \$138 billion per year. This includes effects to agriculture, range land, forests, homes and yards, human and animal health, food supplies, fishing and boating, and outdoor recreation, to name a few.

While more recent coverage has focused on stories such as the invasive mollusks in the Great Lakes region, the most salient example of invasive species remains the Kudzu vine. First introduced as decorative foliage in the 19<sup>th</sup> century, the plant was later used by the Soil Erosion Service to prevent erosion.

This led to the proliferation of a vine that is now classified as a noxious weed by the United States Department of Agriculture – a plant that causes an estimated \$436 million damages per year, as of 2000.

This damage affects not only agriculture, but national parks, thereby adding a burden to the tourist trade. Can we ignore the dangers when a species that once was considered useful can later become so harmful?

There are more conservative methods of preservation. The United States Geological Survey National Ecological Assessment Team prefers treating ecosystems as a unit. In their report titled “Strategic Habitat Conservation,” they outline an approach that uses a 'focal species' to assist in the preservation of similar species. This allows for better management of variables.

There are quite a few variables to consider. David M. Richardson and a team of scientists that support assisted migration outlined 37 factors to weigh in their report “Multidimensional Evaluation of Managed Relocation.” This is particularly frightening when we consider that in science, it is usually prudent to isolate and test for one variable at a time. Russian roulette, anyone?

The facts of global warming are staggering. We hear about the effects to glacier masses, and now we are beginning to learn more about the effects to plants and animal species. But is moving them the answer?

If we don't stop the effects of global warming, won't the new target environment for a relocated species itself become uninhabitable, eventually? Why all this focus on moving species? Could it in fact be pride?

In these discussions of conservation, there seems to be a disconnect between what is *human* and what is *nature*. But humans are in fact part of nature. Are we trying to correct human mistakes that have impacted the environment, or are we trying to exert control upon nature under the guise of saving it?

More conservative methods for protecting endangered species may, in fact, not operate fast enough to outpace the rapidly changing climate. But willful interference with the balance of nature may only lead to more deleterious consequences.

Sometimes, it seems, it's best to do nothing at all.

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