Exotic plant species are more widespread than native on Boston Harbor Islands

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The exotic plant, purple loosestrife (Lythrum salicaria), grows on the Boston Harbor Islands. Image: Northeastern University

(PhysOrg.com) -- The recent findings by a team of Northeastern University ecologists studying plant life on the Boston Harbor Islands may advance societal efforts to stem the damage caused by invading exotic species.

When these non-native species of plants gain a toehold and start colonizing, they can cause tremendous economic and environmental harm. In 2005, damages resulting from these exotic colonies cost an estimated $120 billion. For that reason, scientists continue to try to identify what factors influence the establishment of exotic species in

order to help prevent them from colonizing.

The Northeastern study, published in the journal Ecology, found that, contrary to prior research, exotic plant species are more capable of colonizing islands further away from the mainland than their native counterparts.

“Our study shows how the predictions of island biogeography can provide insight into the broad-scale factors driving the colonization and establishment of exotic species on islands,” said Associate Professor of Biology Geoffrey C. Trussell, one of the lead researchers, and director of Northeastern’s Marine Science Center.

Funded by the Andrew W. Mellon Foundation and the National Science Foundation, this study is unique because it overcame issues that have limited the conclusions of previous studies on the distribution and abundance of exotic and native species on islands. Trussell, Marine Science Center postdoctoral research associate Jeremy Long, and Ted Elliman of the New England Wild Flower Society, focused their study on a group of islands that were ideal in terms of their location and the number of exotic and native species colonizing on them.

Trussell noted that, according to classical island biogeography theory, larger islands should have more species than smaller islands and islands located closer to the mainland should have more species than islands further away from the mainland.

The Northeastern study found that, consistent with theory, the larger harbor islands closer to the mainland have more native and exotic species than the smaller islands further away from the mainland.

However, the greater relative abundance of exotic species on the islands further away from the mainland suggests that native and exotic species

are responding differently to island isolation and potentially other factors.

“We hope that similar approaches by future researchers will provide a better understanding of exotic and native plant communities and the mechanisms driving their dynamics,” added Trussell.

Provided by Northeastern University (news : web)