Study finds a new pathway for invasive species—science teachers

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A survey of teachers from the United States and Canada found that one out of four educators who used live animals as part of their science curriculum released the organisms into the wild after they were done using them in the classroom.

Yet only 10 percent of those teachers participated in a planned release program, increasing the likelihood that the well-intentioned practice of using live organisms as a teaching tool may be contributing to invasive species problems.

The study was presented today (Aug. 7) in Portland at the national meeting of the Ecological Society of America.

"Live organisms are a critical element for learning and we don't want to imply that they should not be used in the classroom," said Sam Chan, an Oregon State University invasive species expert and a principal investigator on the study. "But some of our schools – and the biological supply houses that provide their organisms – are creating a potential new pathway for non-native species to become invasive.

"We need to work through the whole chain and educate both the teachers and suppliers about the potential damages – both environmental and economic – that invasive species may trigger," added Chan, a Sea Grant Extension specialist and former chair of the Oregon Invasive Species Council.

The study surveyed nearly 2,000 teachers in Florida, New York, Indiana, Illinois, Oregon, Washington, California, Connecticut, British Columbia and Ontario. Conducted primarily by Sea Grant researchers, it also included focus groups and interviews with teachers, curriculum specialists and biological supply house owners and managers.

The researchers found as many as 1,000 different organisms utilized by the teachers, and many frequently listed species were known or potential aquatic invasive species including elodea, crayfishes, amphibians, mosquito fish, red-eared slider turtles and other aquatic plants and snails.

Crayfish, Chan said, provide an interesting case study.

"Oregon teachers who have ordered crayfish that originate in the Pacific Northwest have found that their mortality is extremely high, so many have taken to ordering crayfish from distributors who get their supply from Louisiana," Chan said. "The problem is that we have no idea whether those crayfish may carry diseases or parasites that may be problematic if those animals are released into the wild here."

Funded by the National Oceanic and Atmospheric Administration, the study also pointed to the dilemma that teachers face over what to do with the animals after the curriculum section has been completed.

"Teachers are evenly split over the idea of euthanasia," Chan said. "In some cases, it may be the only option. We don't recommend what teachers would do, but suggest they consult a local veterinarian. Our goal as researchers is to make the teachers and biological supply houses aware that releasing organisms into the wild may cause problems and to think about using native species in lessons whenever possible."

One problem, Chan acknowledged, is that biological supply house managers don't see this as their issue. About 50 percent of the animals

used by teachers came from pet stores or aquariums; the others from supply houses.

"More than one of them told us 'it isn't our job to educate the teachers,'" Chan said. "On the flip side, there were some who said they would be willing to work with us to try to provide more local organisms."

Chan and his colleagues say the project provides a rare opportunity to study an invasive species pathway along the entire chain, from the wholesaler to the release of organisms into the wild. Educating the teachers and the suppliers about invasive species issues is the first step toward changing behavior, the OSU researcher points out.

"Many of the teachers were mortified when we pointed out they may be exacerbating the invasive species problem," Chan said. "They want to be part of the solution, not part of the problem. But it is a complex issue. We don't want to discourage the use of live organisms in teaching because they can provide focus, enhance student interest, and foster responsibility and care.

"But there are consequences to using them and both teachers and suppliers should consider what will become of these organisms when the classroom lessons are over," he added.

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