

Research reveals globe-trotting history of sika deer

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On first glance, Yakushima Island in Japan and Dorchester County, Maryland, wouldn't appear to have a lot in common, but a closer ecological look reveals one stark similarity: both are home to populations of sika deer.

A new paper by the University of Delaware's Jake Bowman and David

Kalb of the Virginia Department of Game and Inland Fisheries looks at the history behind the rise of sika deer populations in Dorchester County over the past 100 years.

The paper was published in the journal *Biological Invasions* and also examines impacts sika deer have had on the native [white-tailed deer](#) populations in an attempt to provide information that could lead to better management of the species.

Bowman, chair of the Department of Entomology and Wildlife Ecology in UD's College of Agriculture and Natural Resources, said that the paper was part of a bigger project looking at whether there was a competitive exclusion between white-tailed deer and sika deer.

"There's large sections of Dorchester County that have almost no white-tails but very high sika deer numbers, and it seems like the sika deer are spreading, so the question becomes, are they going to outcompete white-tails, which is our native deer," said Bowman.

Sika history

Sika deer first came to the United States in 1916 and the initial population of four or five individuals has grown to an estimated 12,000 today.

Bowman said that there has been some genetic work that suggests the sika deer originated on Yakushima Island in Japan though the deer that eventually made their way to the United States did so after a brief stopover in the United Kingdom. The deer were brought to the UK by the eleventh Duke of Bedford.

The sika deer were introduced to Maryland in the early 1900s when Clement Henry released five or six deer on James Island.

While the deer originated in Japan, they are now more populous in Maryland.

"There's more sika deer here than on Yakushima Island and they're a protected species in Japan so they can't be harvested at all," said Bowman.

The sika deer eventually escaped James Island and the population grew over time.

"They were expanding their population at a time when there were very little white-tails in that area. It was during the time when there was over-exploitation of white-tails and their numbers were really low. One theory is that the sika deer established themselves before the white-tail populations rebounded and prevented them from re-occupying some areas," said Bowman.

In addition to possibly competing with other herbivores and pushing white-tailed deer out of their natural habitats, sika deer can also cause crop damage.

"There are complaints in Dorchester County about crop damage from them but the bigger concern from my perspective is ecologically. They're not supposed to be here and if they are competing with white-tails, that's a problem," said Bowman. "What I saw when we did some population estimation work several years back before this project, the white-tail numbers were high in some areas and so were the sika deer numbers. So you compounded [crop damage](#). You almost doubled the amount of deer on the landscape."

The differences between white-tailed deer and sika deer are mostly digestive, as sika are more grazers—able to eat a wider array of food than the white-tailed deer, who have a narrower range of things they can

eat, which Bowman said makes them ripe for competition.

This ability to eat a wider array of foods is apparent in the sika deer's range of habitats. In Maryland, they are primarily found in wetland areas, while on Yakushima Island, they are found in the mountains.

"I think it could be because they can exploit some of those salt water plants that the white-tails can't eat. That might be why they're using those habitats more, whereas white-tails only use those habitats for bedding areas, they don't use them for foraging. The sika may have expanded into some of those and that might be why they have such a stronghold in the area," said Bowman.

The population in Maryland is the only free range [population](#) of sika deer in the United States that people are allowed to hunt and because of this, Bowman said that the Maryland Department of Natural Resources wants to maintain the populations of the [deer](#) but limit their spread.

"This is a perfect example of a biological invasion where we're not going to get rid of the species because of people—there's an industry out there that protects them and doesn't want them to go away, and you see it in a lot of species. Catfish in the [Chesapeake] bay, for instance.

They're not supposed to be there but there's a fishing industry for them now so we're not going to try to get rid of them. We're just going to try to reduce their numbers," said Bowman.

In addition to the help from Maryland Department of Natural Resources, Bowman said that they would not be able to do their research without the help and support from the private land owners.

Provided by University of Delaware

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