



# Sea Grant

## University of Guam

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When considering the impact of an invasive species, scientists use the triple bottom line approach. An easy way of remembering it is by understanding the three P's -- people, profit, and planet. Scientists analyze a species' effect on the people in a community, how it affects the economy and, of course, how it affects the ecosystem.

Not only is our island a popular destination for unwanted pests that piggy-back on ships, planes and passengers, but Pacific islands in general are particularly vulnerable to invasive species, which usually come from more bio-diverse landscapes with a more

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balanced food chain.

"Our native flora and fauna do very poorly against invasive organisms because invasive organisms have had to compete with various ecological threats on a larger land mass. Those organisms have had to compete with many organisms. So when they come here and there is no competition they just run amok," said Roland Quitugua, operations chief for the Guam Coconut Rhinoceros Beetle Eradication Program.

"Back home where these things (invasive organisms) come from, they usually have natural predators, like diseases or other organisms which keep them in check," said Aubrey Moore. "When the organism comes here, it escapes those natural enemies and there is nothing to control it and so we have a huge population explosion."

### Prevention is key

We all hear the saying "an ounce of prevention is worth more than a pound of cure!" With invasive species, this too holds true. Preventing invasive species from setting foothold on Guam is cheaper than attempting to eradicate them entirely.

Take, for instance, the rhino beetle, which has pretty much spread around our island. If Guam were equipped with the proper biosecurity resources, the rhino beetle could have been detected earlier and eradicated in a timely manner.

Now, thousands of dollars in government money are being spent tracking down this pest, experimenting and eradicating it. On another note, the little fire ant was detected over a year ago and to date no resources have been identified to combat it.

Invasive species also affect tourism, our island's leading industry.

Guam's tourism industry is in a period of rapid growth, with expanding markets in Russia, China and Korea. When visitors come to Guam they expect to see lush tropical vegetation touching warm sands. Invasive species can alter our landscape dramatically.

For example, consider the fact that Guam has already lost most of its native plant species due to the lack of native birds, which would spread seeds around the island, because of the introduction of the brown tree snake.

### Effect on ecosystem

The effects of invasive species on our ecosystem are numerous. The fadang, or *Cycas micronesica*, was once the most prominent plant in Guam's jungles. The second most abundant was the coconut palm. Now, more than 90 percent of the fadang population is gone due to the introduction of the cycad aulacaspis scale in 2003. Now at stake is the coconut palm, which is being threatened by the rhino beetle

In Palau, the beetle is responsible for wiping out half of the wild coconut palm population and scientists believe that the effect of the beetle could be even worse in Guam since there are few native birds.

### Impact on people

The impacts of invasive species on the environment and economy all, in turn, affect the people of Guam. Because we rely heavily on the tourism industry, a critical blow to our most profitable industry would directly affect the jobs and lives of hundreds of Guamanians who work in the hotel and tourism industry.

Also, the lack of native plants and animals affects Guam's culture. Already, our jungles are dead silent, where once there were birds singing. Will our children pass off stories of the monitor lizard and koko bird as myths?

Some farmers are forced to use pesticides to keep their crops free of bugs, most of which are invasive species. Pesticides weren't needed to grow local crops before World War II.

### Steps we can take

There are steps we can take to keep invasive species from setting footholds on our island. Residents should grow plants locally. Invasive weeds are known to have been found in bags of soil and ornamental plants imported to Guam.

We should actively seek education about invasive plants, animals and fish and how they impact not only our environment, but our livelihood. Consider, for example, the coral vine, also known as the chain of love. It was brought to Guam as a decorative plant -- now it strangles entire areas.

The Department of Agriculture's BioSecurity Division works to ensure invasive species never leave Guam's ports. However, they are critically understaffed and have neither the manpower or resources in place to effectively handle all points of entry.

We need to ask ourselves, are our daily actions contributing to the protection or perpetuation of our native flora and fauna?

Manuel L. Cruz is a communicator for the University of Guam Sea Grant Program. The column is the product of a partnership between UOG Sea Grant and Guam Soil and Water Conservation District.