**Invasive ungulates play key roles in shaping novel ecosytems in the Mariana Islands**

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**Abstract**

Guam’s forests provide examples of systems that have been severely ecologically altered, notably by the loss of native birds due to the invasive brown treesnake (*Boiga irregularis*). Philippine deer (*Rusa mariannae*) and feral pigs (*Sus scrofa*) were introduced to the Mariana Islands centuries ago, but their ecological roles remain poorly understood. We determined that these ungulates play unique roles in seedling herbivory, seed dispersal, and plant community structure in the limestone karst forests in Guam and the nearby island of Rota, which has forests that are similar to Guam but with less disturbance history. Although ungulates are present on both islands, results differed between Guam, which has lost its avifauna, and Rota, which is relatively more pristine and still retains its avifauna. Our results from seedlings plots and vegetation transects show that deer, even at low densities, strongly affect plant community composition in Guam. These correlations were not detected in Rota. Plant community characteristics were not significantly correlated to pig abundance on either island. Germination from pig scats, however, indicated that pigs play a role in seed-dispersal, selectively dispersing native over exotic seedlings in Guam. We show that even in systems altered by multiple species, ungulates play major roles in determining community composition. In addition, the roles of pigs and deer differ, and an understanding of their roles and the changing communities that they inhabit are required to effectively manage them.