

Origins of an Invasive: Geospatial analysis of plant distribution and wind patterns to identify possible origins of *Scaevola taccada* in Puerto Rico

Scaevola plumieri and *S. taccada* (Goodeniaceae) are two widespread dune-dwelling shrubs found in the Caribbean. We are interested in comparing their patterns of occurrence on the islands of Vieques, Culebra, and Culebrita (Puerto Rico). In particular, we are interested in the potential origins of *S. taccada* which is a non-native species known to be invasive in many locations in the Caribbean where it threatens native species, including *Scaevola plumieri*.

Coordinate locations were recorded from previous fieldwork to sample plants in these island habitats. The locality coordinates were loaded into ArcGIS, in combination with digital elevation maps from the United States Geological Survey which were used to determine the aspect of direction for each collection locality. Next, we collected and parsed wind and current data from selected NOAA weather buoys near Puerto Rico to determine prevailing wind and current directions. Combined with the locality aspects, we used the wind and current data to identify possible dispersal routes of the invasive species *Scaevola taccada*. Results from preliminary data analysis suggest *S.taccada* may have dispersed to Puerto Rico from the United States Virgin Islands and St. Croix. The utilization of geospatial analysis has provided us the

ability to postulate a source for the invasive species *Scaevola taccada* so that sample collection and genetic analysis can be used to confirm our hypothesis.