Food preferences and food acceptance in juvenile brown treesnakes (*Boiga irregularis*)

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On the Pacific island of Guam, control of the invasive brown treesnake (*Boiga irregularis*) relies largely on methods using mice as bait. While stomach content analyses have shown that juvenile snakes feed primarily on lizards and their eggs, little is known about prey preference. We conducted an experiment to investigate the preferences for, and also the acceptance rate of, euthanized geckos, skinks, and neonatal mice, in juvenile snakes ranging from 290 mm to ca 700 mm snout-vent length (at which size they start appearing in mouse-baited traps). Snakes of the entire size range showed a preference for geckos over skinks and neonatal mice; a gecko was the first prey chosen in 87% of 224 initial trials (56 snakes subjected to four trials each; 33% would be expected from a random choice). This preference was most pronounced in the smallest snakes tested. While many of the snakes accepted neonatal mice and/or skinks, some snakes across the entire size range were reluctant to feed on anything but geckos – especially when not starved. Our data indicate that between 15 and 40% of a small snake population exhibiting a demographic pattern similar to our test snakes may be refractory to capture with rodent bait. The design of the experiment also allowed us to test whether repeated experience of a certain prey type makes a snake increase its preference for that particular prey; data on which will be presented at the meeting. Our results suggest that control methods relying solely on rodent bait may be inefficient for targeting snakes <700 mm SVL and that individual heterogeneity may cause a significant part of this juvenile cohort to be completely refractory to capture with rodent bait – even if the bait is dead, thus not posing any threat to the snake, and small enough to be readily swallowed.

Funnel trap traits, and how (not) to improve capture rates of small brown treesnakes

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Much of the brown treesnake interdiction around Guam's airports, seaport, and cargo facilities rely on funnel traps that use live, adult mice as a lure. Unfortunately, these traps are almost totally ineffective for snakes smaller than 700 mm SVL. Using 64 snakes <700 mm SVL in 16 laboratory trials each, we conducted a study that asked several questions regarding how particular trap design features may affect the chances that a small snake can, and will, enter a trap. Snakes were housed in experimental units consisting of a cage compartment and a 'trap' compartment, separated by a wall incorporating a funnel ending in a flap. Three key variables were tested: flap design,