

Brown Treesnake (*Boiga irregularis*) Fact Sheet for Pacific Island Residents and Travelers

An Invasive Pest Species

The brown treesnake is an introduced species on Guam that has become a serious pest. The snakes probably arrived on Guam hidden in ship cargo from the New Guinea area, about 1100 miles to the south. The first sightings were inland from the seaport in the early 1950s. Snakes became conspicuous throughout central Guam by the 1960s, and by 1968, they had probably dispersed throughout the island.

In the absence of natural population controls and with vulnerable prey on Guam, the snakes have now become an exceptionally common pest, causing major ecological and economic damage on the island.

Extinction of Birds

The brown treesnake has virtually wiped out the native forest birds of Guam. Ten species of birds, some found nowhere else, have disappeared from the island, and several others persist in precariously low numbers close to extinction. Some introduced, non-native bird species better adapted to resist snake predation are still currently found on Guam, but these introduced species have not filled the ecological niches made vacant when the native bird species disappeared.

Other Damages

Snakes crawling on electrical lines frequently cause power outages and damage electrical lines maintained by the Guam Power Authority and Naval Public Works. Since 1978, more than 1200 power outages have been caused by snakes, and the resulting damage to electrical equipment is a significant economic burden to nearly all civilian and military activities on Guam. The power interruptions cause a multitude of problems ranging from food spoilage to computer failures. These problems have caused enormous productivity and economic losses.

The snakes feed on a wide variety of animals including lizards, birds, and small mammals as well as bird and reptile eggs. Snakes frequently invade poultry houses, homes, and yards to consume domestic poultry, eggs, pet birds, and small mammals associated with residential areas.



This snake died by electrocution as it crawled from the power pole across the insulator to the nest of a bird (drongo) situated on an active power line. A snake crossing an insulator can cause a power outage.

Abundance

Scientists estimate that up to 13,000 snakes per square mile occur

in some forested areas of Guam. Many snakes are killed by automobile traffic and island residents, others are electrocuted while climbing on electrical lines. Despite this mortality, snake abundance remains high in nearly all forested and urban habitats throughout Guam. Pigs and monitor lizards eat snakes, but these predators are ineffective in lowering the snake population in most areas of the island.

Danger to Humans

The brown treesnake is aggressive when threatened. It will often raise the head and neck region in a striking position, flatten the head and neck to appear larger, and attempt to bite as it lunges forward. Adults can reach lengths of 8 feet or more and weigh up to 5 pounds.

The brown treesnake is a mildly venomous species that will also constrict resisting prey. The venom flows down teeth located in the back of the snake's mouth. Brown treesnakes are not known to be fatal to humans, but special precautions should be taken to keep snakes away from infants and small children. Bites should be carefully cleaned. Anyone bitten should be monitored closely, and if any unusual symptoms appear, the victim should seek medical attention.

The snake is relatively strong and holds its prey by wrapping its body around the animal. Snakes can be easily removed by unwrapping them starting at the head or tail. The brown treesnake poses no danger of strangulation or injury from constriction to adult humans, but with infants and small children, the possibility of suffocation or envenomation exists.

Danger to Other Islands

Snakes are frequently accidental stowaways in cargo and flights leaving Guam, and unless discovered they may establish populations on other islands. Economic and ecological problems like those currently present on Guam would be likely to develop if the brown treesnake were to reach other Pacific Islands.

In addition to Guam, brown treesnakes have been sighted on Saipan, Tinian, Rota, Kwajalein, Wake, Oahu, Pohnpei, Okinawa, Diego Garcia and the mainland U.S. (Texas and Oklahoma). To date, this snake is not known to be established on any of the islands except Guam, but frequent reports of snake sightings on Saipan indicate that the brown treesnake possibly has become established there. The Governments of Hawaii, Guam, Palau, Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, and the Republic of the Marshall Islands have taken steps to help prevent the spread of the snakes to other islands.



What Can Be Done?

Travelers, cargo handlers, and Pacific Island residents alike share in the responsibility to protect island environments from this pest species. Careful inspection of materials, cargo, and baggage shipped from or throughout Guam is necessary to prevent the dispersal of snakes to other islands.

With increased awareness and careful inspection of cargo arriving from Guam, it may be possible to prevent the spread of the brown treesnake to other islands. The cooperation of U.S. civilian and military federal agencies, other Pacific Island governments, and a wide range of Guam's government agencies is needed to address this important problem.

The USGS Brown Treesnake Rapid Response Team is headquartered on Guam and can respond to brown treesnake sightings throughout the Pacific region. The response team has approximately 35 trained members in the Marianas and Hawaiian Island chains. Team members at the USGS lab on Guam are prepared to respond to snake sightings within 24 hours of notification, and can be deployed for extended time periods.

Origins of the Snake

The brown treesnake is native to eastern Indonesia, the Solomon Islands, and New Guinea, as well as the northern and eastern coasts of Australia. The brown treesnake does not occur in the Philippines or farther west than Sulawesi, Indonesia. Thus, it is incorrect to refer to the snakes on Guam as Philippine rat snakes.

Habits and Hiding Spots

The snake is an able climber and is most at home in trees and shrubs, where it forages at night to find lizards, birds, and mammals using its keen sense of smell and sensitive night vision. It frequently invades homes, commercial buildings, and other urban habitats in search of food and hiding spots. Any site that provides protection from bright light and high temperatures is a potential daytime retreat. Snakes can coil their flexible bodies in extremely confined spaces when hiding.



Reproduction

The brown treesnake reproduces by depositing up to 12 leathery-shelled eggs, perhaps as often as twice a year. The eggs are abandoned by the female in caves, hollow trees, or in other places where they hatch if adequately protected from drying and overheating.

The young snakes are about 18 inches in length when they hatch about 90 days later, but they may reach lengths of 3 feet in about one year. Snakes are about 4 to 5 feet long and about 3 years old when they first reproduce.

Other Snakes on Pacific Islands

Not all snakes are bad; Palau has four native snakes that do not cause major problems. In Palau, native snakes should not be indiscriminately killed or confused with the brown treesnake. Prior to the arrival of the brown treesnake, Guam had only one

other snake, a tiny blind snake, *Ramphotyphlops braminus*, shown at right, which is harmless to man, lives in the soil, and feeds on the eggs and young of termites and ants. The blind snake is dark grey or black in color, and is the only snake occurring on many islands in the central Pacific region.



Report Snake Sightings!



PACIFIC ISLANDS

BTS Hotline: (24/7): 671-777-HISS (4477)

Landline: 671-355-4015 or 671-637-7834

James Stanford, Coordinator

USGS Brown Treesnake Rapid Response Team

P.O. Box 8255, MOU-3, Dededo, Guam 96912

James_stanford @ usgs.gov Fax 671-355-4016

Any sightings on islands thought to lack snakes should be reported immediately to the BTS Hotline.

NOTE: The Hotline is a Guam cell phone number. Cell phone service can be sporadic in the islands. If you reach the Hotline's voice mail recording, please leave a message, then use one of the two landline numbers.

MAINLAND U.S.

Landline: 970-226-9242 (Colorado)

Teri Kman

USGS Fort Collins Science Center

2150 Centre Av. Bldg. C, Fort Collins, CO 80526

Teri_Kman@usgs.gov Fax 970-226-9230

Because of the great time zone difference in Guam, please leave a message with the Hotline number if necessary, then call the Mainland (970) number. This will help ensure a timely response. We also are available to answer questions or assist you with concerns regarding snake sightings during normal business hours.

Sightings should also be reported to local government officials, such as the state department of agriculture or state fish and game agency. Snake sightings on Hawaii should be reported to the U.S. Fish and Wildlife Service, Brown Treesnake Coordinator, P.O. Box 50167, Honolulu, HI 96850, Tel. 808-792-9414.

When possible, the snake should be captured, killed and preserved for positive identification. Specimens can be preserved in 70% ethanol or 50% isopropyl alcohol, available in any drugstore. If a dead snake is found, it should be placed in a plastic bag and frozen until it can be transferred to a local biologist or government agency. Please include a label documenting the date, where the snake was found, who discovered it, your contact information, and circumstances surrounding its discovery.

Send preserved specimens, photographs, or information to:

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For more information on brown treesnakes, visit

http://fort.usgs.gov/resources/education/bts/bts_home.asp