



# NORTH AMERICA BROWN TREE SNAKE CONTROL TEAM



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CKWRI / TAMUK; and Bob Pitman, USFWS

# Why be concerned about Brown Tree Snakes?



Guam Flycatcher

**Ecological** ~ Poses a threat to native wildlife due to biology and generalist diet.

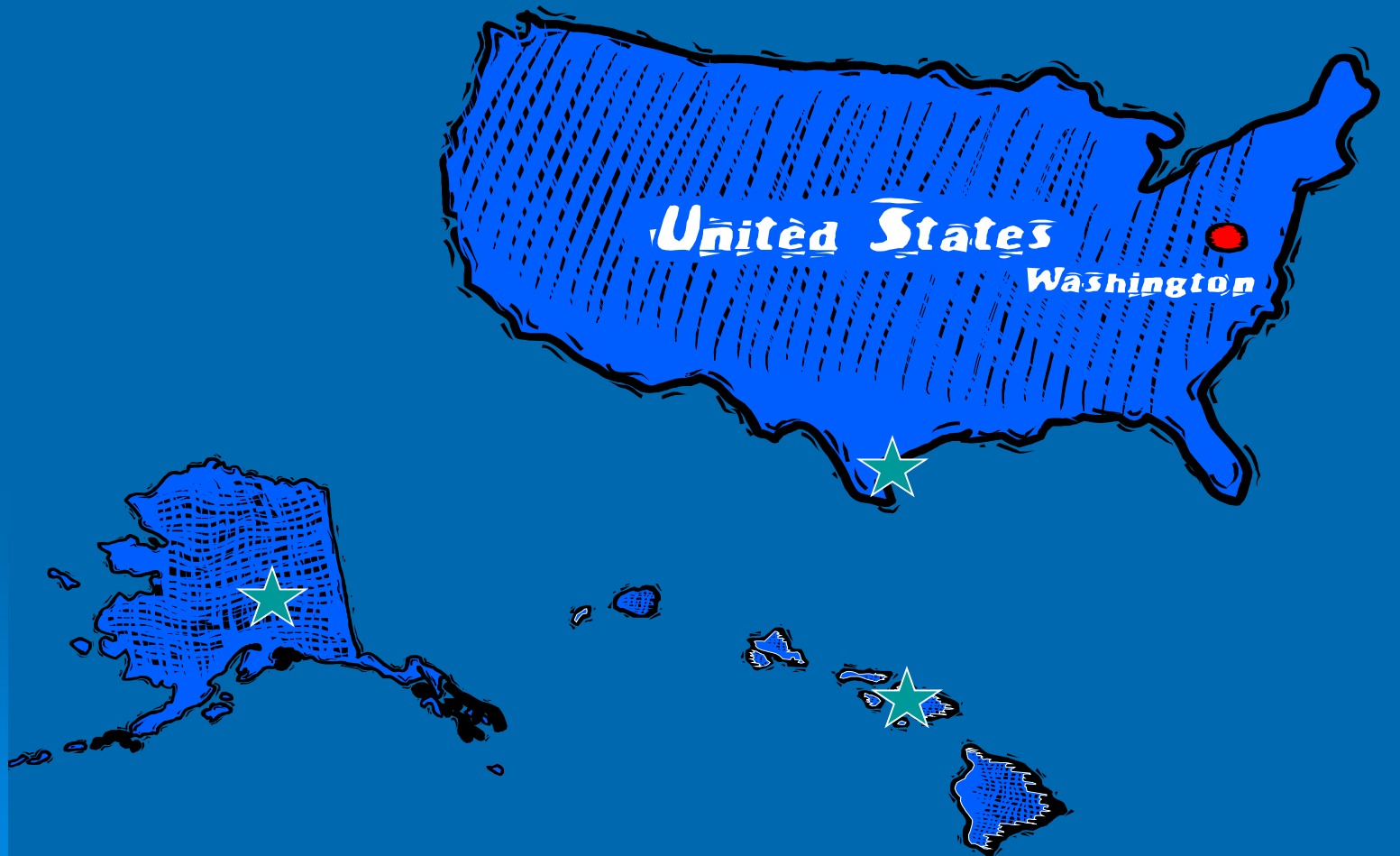


**Economic** ~ On Guam causes power outages, but the costs associated with control run into millions.



**Human Health** ~ Limited to allergic reactions from bites, but certain individuals could have greater reactions.

# BROWN TREE SNAKE OCCURRENCES



# Injurious Wildlife List

- Within the Lacey Act Amendments of 1981
  - Illegal to acquire, receive, transport, or possess brown tree snakes in United States





# NABTSCT FORMED (2002)

- Compliment group of Aquatic Nuisance Species Task Force
- Formed to inspire and facilitate communication, cooperation, and understanding within and between agencies and organizations and to provide coordination of efforts between agencies concerning brown tree snake issues.



# MISSION

“To prevent the invasion of brown tree snakes into continental North America through education and awareness and through rapid response assessments of potential sightings via a partnership of stakeholders”



# MEMBERSHIP

- Concerned individuals from numerous agencies
- Not official representatives of respective agencies



# NABTSCT COMPOSITION

## ➤ MILITARY

- Army – 4
- Navy – 4
- Air Force – 1
- Marines – 1
- Defense Dept. – 2
- Army Corps of Engineers - 1

## • STATE AGENCIES

Texas PWD – 2  
Florida WC – 1  
Mississippi – 1  
Alabama – 1  
Louisiana - 1

## ➤ US GOVERNMENT

- USFWS – 8
- USFWS Law – 4
- EPA – 2
- USDA – 4
- USGS – 3
- Dept. Insular Affairs – 1

## • PRIVATE

- Universities – 37
- Pet Industry Advisory Council – 1
- Gulf States Marine Commission - 1

TOTAL: 80

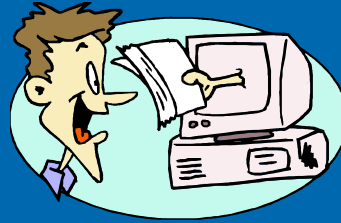


# MEMBERSHIP NEEDED

- GULF COAST REGIONAL PANEL – ANS TASK FORCE
- WESTERN REGIONAL PANEL – ANS TASK FORCE
- ZOOS
- HERPETOLOGICAL ORGANIZATIONS
- NGO's; EX: THE NATURE CONSERVANCY
- WILDLIFE CONTROL ORGANIZATIONS
- PROFESSIONAL SOCIETIES; EX: THE WILDLIFE SOCIETY
- COMMERCIAL AIRLINES
  - CONTINENTAL
  - NORTHWEST



# What Does NABTSCT Do?



- Maintains a coordinating website
- Develops educational material that can be downloaded from website
- Conducts rapid response to investigate potential brown tree snake sightings
- Represents NABTSCT at scientific meetings
- Provide a forum to share information between agencies, cooperators, and organizations

# HOW TO BECOME A NABTSCT MEMBER

➤ Website:

[www.NABTSCT.org](http://www.NABTSCT.org)

Business cards



# NORTH AMERICA BROWN TREE SNAKE CONTROL



## LATEST NEWS

**Facts >**  
**Maps >**  
**FAQs >**  
**Links >**  
**Publications >**  
**NABTSC Mission >**

To keep up with developments  
within the NABTSCT:

[www.nabtsct.org](http://www.nabtsct.org)

or contact Dr.S.E. Henke

[scott.henke@tamuk.edu](mailto:scott.henke@tamuk.edu)

# FACTS

- **IDENTIFICATION:** Distinguishing characteristics for the brown tree snake include: a bulging eye with a vertical pupil, rear fangs, a large head in relation to the body, and brownish or greenish coloring, with cross-band markings. The bands may be prominent or obscure and will vary throughout the snake's range. Juveniles at hatching are approximately 0.5m and can reach about 1m in their first year. When fully grown a mature snake can obtain lengths of 1.5m but can reach 2m. The brown tree snake is aggressive when threatened. It will often raise its anterior body into a striking position, flatten the head and neck to appear larger and attempt to bite as it lunges forward. It is mildly venomous but not fatal, its bite can nevertheless cause severe sickness in young children, the elderly, or people with a weakened immune system.
- **NATIVE RANGE**
- **EXPANDED RANGE**
- **HABITAT**
- **COMMON PREY**
- **REPRODUCTION**



# MAPS

## ➤ **BTS ESTABLISHMENT MAPS**

- Climate

## ➤ **POTENTIAL PATHWAYS**

- Commercial Air Traffic
- Military Bases (Cargo and Personnel deployments)
- Pet Trade Industry
- Commercial Cargo (Ports)



# POSSIBLE ZONES OF COLONIZATION IN THE UNITED STATES BY THE BROWN TREE SNAKE



ZONE D  
Temperature 91-53 °F  
Humidity 50-90%  
Rainfall 32-128"



Military Bases



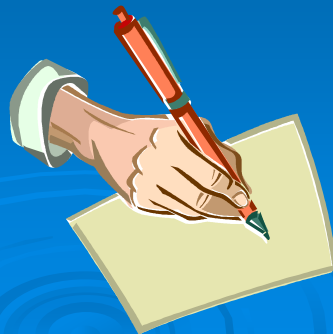
Ports

# FAQ's

1. Who is the North American Brown Tree Snake Control Team (NABTSCT)?
2. What does the NABTSCT do?
3. Where is the NABTSCT located?
4. How is the NABTSCT funded?
5. How can I become a member of the NABTSCT?
6. If I join what will be my responsibilities as a member?
7. What is the purpose of the website?
8. Who do I contact if I think I see a brown tree snake?
9. Where can I get more information on the brown tree snake?
10. How do I let people know about the brown tree snake?

# PUBLICATIONS

- BTS Literature Review (Marc Hall's Thesis)
- Annotated Bibliography
- BTS Alerts
- Not Wanted Poster
- Prefabricated Presentations (Oral and Poster)
- Build Your Own Presentation



# ANNOTATED BIBLIOGRAPHY

- Benefit to researchers, legislators, etc.
- BTS information at your fingertips

## Example

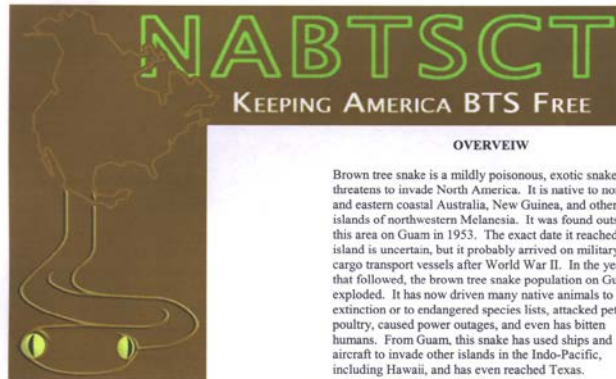
Category: Diet

Savidge, J.A. 1988. Food habits of *Boiga irregularis*, an introduced predator on Guam. J. Herpetology 22:275-282.

**Abstract:** Introduced brown tree snake (*Boiga irregularis*) from a variety of habitats on Guam were examined for prey remains to determine how *B. irregularis* has maintained its population . . .



# BTS FLIERS



## OVERVIEW

Brown tree snake is a mildly poisonous, exotic snake that threatens to invade North America. It is native to northern and eastern coastal Australia, New Guinea, and other islands of northwestern Melanesia. It was found outside this area on Guam in 1953. The exact date it reached the island is uncertain, but it probably arrived on military cargo transport vessels after World War II. In the years that followed, the brown tree snake population on Guam exploded. It has now driven many native animals to extinction or to endangered species lists, attacked pets and poultry, caused power outages, and even has bitten humans. From Guam, this snake has used ships and aircraft to invade other islands in the Indo-Pacific, including Hawaii, and has even reached Texas.

## ECOLOGICAL IMPACT ON GUAM

Guam had only one native snake, a small blind snake (*Ramphotyphlops braminus*), which is a little bigger than an earthworm. As a result, native animals did not recognize snakes as dangerous predators. By 1968, brown tree snakes invaded the entire island. Now, due to snake predation, Guam has lost all breeding populations of native seabirds, 10 of 13 native forest birds, 2 of 3 native mammals, and 6 of the 10-12 native lizards. Those that have survived are considered uncommon to rare. Some introduced birds have been better able to resist depredation. Brown tree snakes have virtually eliminated the poultry industry

## HUMAN IMPACTS ON GUAM

Snakes climbing on power lines have caused extensive power outages (one every three days from 1978 through 1997). New procedures and techniques have helped reduce electrical problems. Still, economic impacts have

**INVASION THREAT AND DISPERSAL EVENTS:** Many have expressed concerns that Brown tree snake may reach the continental U.S. and cause ecological problems here. Brown tree snake behavior makes it a prime candidate to invade new areas. It is active at night, lives in close proximity to man, readily hides among man-made items, and can survive for long periods of time without food. Once in a new environment, it readily accepts a wide array of food items. Guam experiences a large amount of both military and civilian traffic by which the snakes have escaped the island. Brown tree snakes from Guam have already reached Cocos Island off Guam, Diego Garcia (Indian Ocean), Kawaiaelein (Marshall Islands),



[add photo credit]

touched virtually every industry on the island including delays in shipping and transport as well as agricultural damage and losses. Humans have been hospitalized due to brown tree snake bites.

## BROWN TREE SNAKE: DESCRIPTION DETAILS

**General shape:** Brown tree snakes are long and slender, with broad heads, very narrow necks, and large protruding eyes with elliptical cat-like pupils.

**Shape and length:** Most brown tree snakes are 3-6 feet in length, but they can reach up to 11 feet. Specimens from Guam are often larger than others within their original native range.

**Coloration:** Coloration and scale patterns vary throughout its range and color can vary within a population. Most on Guam are primarily camouflaged in brown and olive green with a faint banding pattern. Others in Australia may be brown to reddish brown with irregular darker bands; red and white in tropical Australia; and pale scales may be black edged. The belly is cream to salmon color. Many display a distinct bar through the eye and along the side of the head. The snakes now on Guam are most similar to those on the Admiralty Islands. Snakes entering the U.S. in cargo will likely be the Guam form. However, others imported via the pet trade could originate elsewhere and be different in appearance.

**Scale counts:** Brown tree snakes have 10-23 scale rows along the midbody, 225-265 ventral scutes (belly scales), a divided anal plate, and 85-130 postanal or subcaudal scutes (ventral tail scales) that are divided.



Long and slender



Divided Anal Plate



Broad head



Narrow neck



Large eyes with elliptical pupils



Bulging eyes

# POSTERS / PRESENTATIONS

## Posters

**NORTH AMERICA BROWN TREE SNAKE CONTROL TEAM: HALTING THE ACCIDENTAL EXPANSION OF BROWN TREE SNAKES INTO THE UNITED STATES**

MARC A. HALL, SCOTTE HEINKE, AND BURT PITMAN  
"CAESAR KLEBERG WILDLIFE RESEARCH INSTITUTE, TEXAS A&M UNIVERSITY-KINGSVILLE, KINGSVILLE, TX 78363  
"US FISH AND WILDLIFE SERVICE, ALBUQUERQUE, NEW MEXICO"

**Why Be Concerned About the Brown Tree Snake?**  
Burmese pythons, the most invasive snake species introduced to the United States, have caused significant damage to native wildlife, agriculture, and infrastructure. The brown tree snake, introduced to Guam in 1955, has caused similar damage to native wildlife, agriculture, and infrastructure. The brown tree snake is a highly venomous snake and is a major threat to the environment.

**Key Brown Tree Snake Characteristics**

- Venous Pigment**
- Head Wider Than Neck**
- Large Bulging Eyes**

**Some of our members**

- Forest Service (Department of Defense)
- State Wildlife Services
- Various Universities

**POTENTIAL IMPACTS**

The brown tree snake's behavior is highly unusual for a snake and has caused significant damage to native wildlife, agriculture, and infrastructure. The brown tree snake is a highly venomous snake and is a major threat to the environment.

**WHAT DOES NABTCT DO?**

NABTCT is a non-profit organization that provides technical assistance and training to state and local wildlife agencies. NABTCT also provides information on the brown tree snake and its impact on the environment.

**FUTURE GOALS**

- Improve Monitoring
- Improve Public Awareness
- Develop Regional Response Networks

**ITS OCCURRENCE IN U.S.**

- Hawaii**  
One confirmed sighting - 2009  
One suspected sighting - 1997
- Florida**  
Several confirmed sightings - 1997-1998
- Texas**  
One confirmed sighting - 1997  
One suspected sighting - 1997

**Our Website**

**JOIN TODAY**

**www.nabtct.org**

**RAPID RESPONSE PLAN**

- Potential Sighting
- Call 1-877-STOP AND (number)
- Interview (credibility)
- Call To Regional Head
- Response Team Sent

## PowerPoint

- Feasibility of Controlling the Brown Tree Snake in Small Plots
- Venom Delivery by the Brown Tree Snake

# BUILD YOUR OWN PRESENTATION

- Archive of slides and text concerning biology, ecology, habitat, associated problems, etc.





# SNAKE IDENTIFICATION

- BTS pictures –  
USGS, Marc Hall



- Native snake  
look-alikes



# SNAKE ID SEARCH ENGINE

## ➤ Categorical Data Input

- State                      50 states
- Length                  Ex: < 3'; 3' -6'; >6'
- Body shape Ex: Fat and round; long slender
- Head shape Ex: Larger than neck, same as neck
- Pupil shape Ex: Elliptical; round
- Color                      Ex: Brown, green, red
- Color pattern Ex: Banded; striped; checkered
- Sheen                      Ex: Yes; No

<SUBMIT>



# SNAKE ID SEARCH ENGINE

- Search completed  
Brown tree snake



Green rat snake



Sonoran whipsnake



# SNAKE ID SEARCH ENGINE

## ➤ Sonoran Whipsnake

### ➤ Description:

- Length: 3' < 6'
- Body shape: Slender and Round
- Head shape: Pointed
- Pupil shape: Round
- **Color:** Combination: Blue to gray and yellow to white
- Color pattern: Solid or Striped
- Sheen (iridescent): Yes

- **Distribution:** These snakes are found in isolated areas in Arizona and the southwest corner of New Mexico.

- **Habitat:** Desert, Shrubland, and Mountainous

- **Food Habits:** These snakes eat lizards, small birds, and frogs.

- **Other:** At a quick glance, these snakes may appear to be a solid bluish, gray color, but they have two or three small pale yellow or white stripes along each side of it's body.



# RAPID RESPONSE PLAN

Potential Sighting



Call 1-877-STOP ANS

(Monitor)



Interview (Credibility)



Regional Head



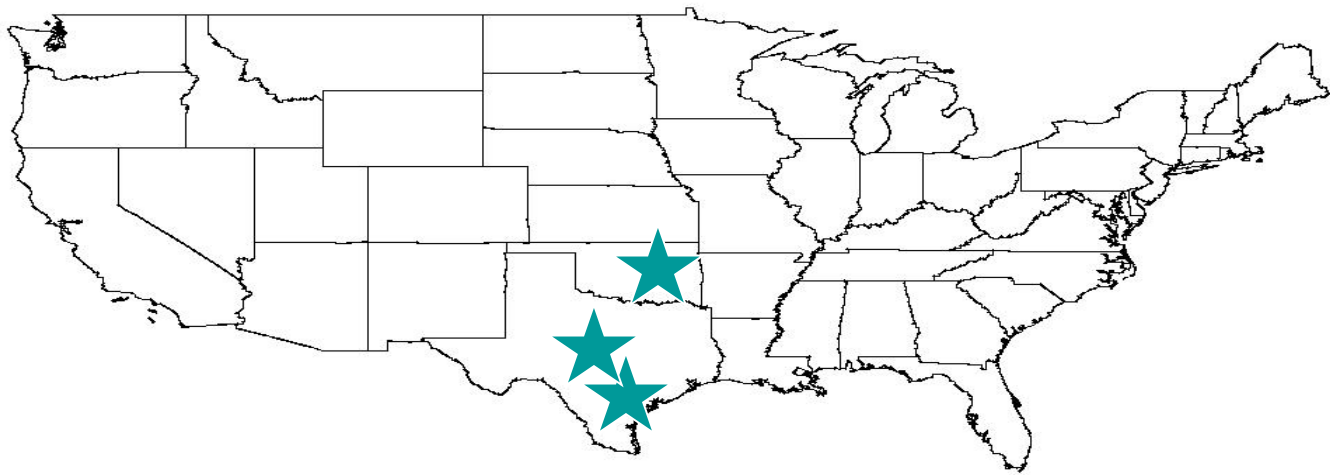
Response Team



# Response Teams



# PUBLIC CALLS OF POTENTIAL SIGHTINGS





# NABTSCT

➤ **HELP**

➤ **JOIN**

➤ **NOW**

**[www.NABTSCT.org](http://www.NABTSCT.org)**

# THANK YOU

- Dr. Gordon Rodda and USGS - Photos
- Marc Hall – Photos
- USFWS – Funding
- CKWRI – Tech support