

Hot Science Cool Talks

UT Environmental Science Institute

39

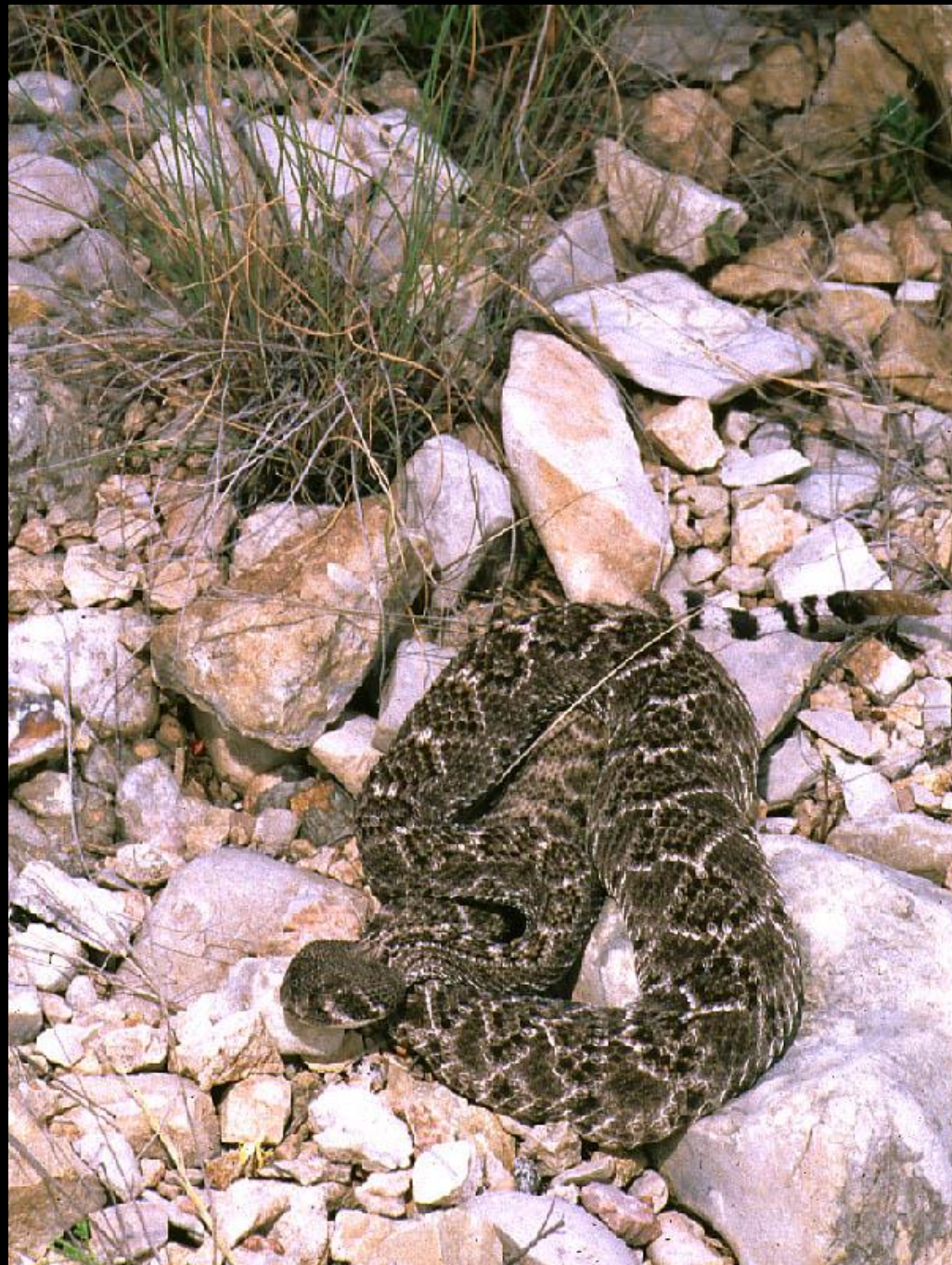
The Striking Behavior of Rattlesnakes

Dr. Travis LaDuc
November 18, 2005

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The Striking Behavior of Rattlesnakes

Dr. Travis J. LaDuc
Texas Memorial
Museum







Coral Snake



Copperhead



Rattlesnake



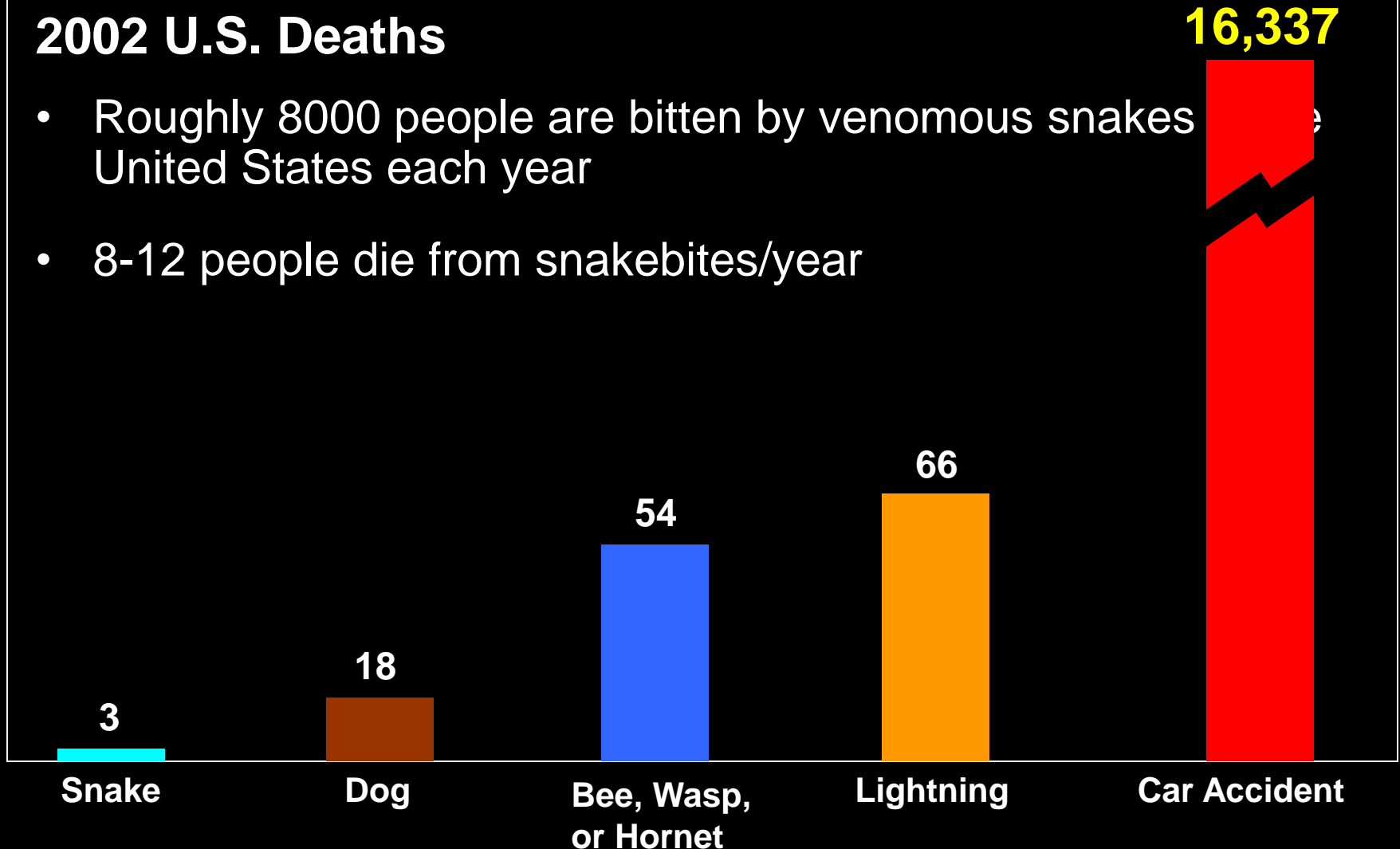
Cottonmouth



What are your chances of dying from a snakebite?

2002 U.S. Deaths

- Roughly 8000 people are bitten by venomous snakes in the United States each year
- 8-12 people die from snakebites/year



Anatomy of a Human Snakebite

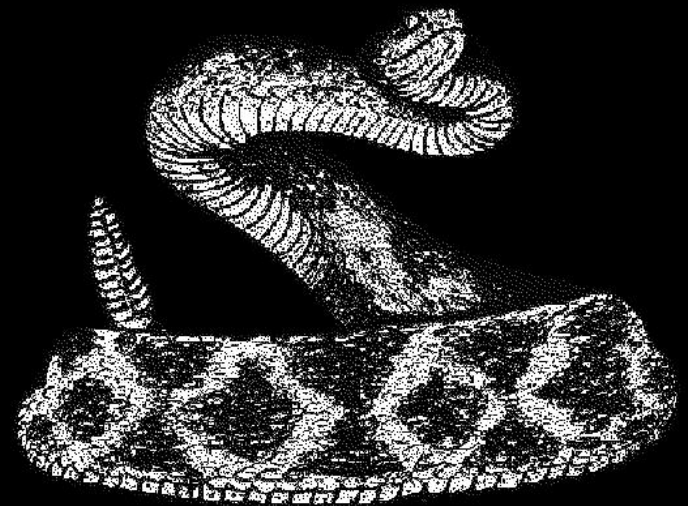
- 75% of people aged 19-30 yrs
- 1-2% are women
- 40% are people playing with snake
- 40% are people with blood alcohol of 0.1
- 65% bites are to hands or fingers
- 24% bites are to feet or ankles
- Average person bit by rattlesnake: drunk, unemployed male in 20's free-handling pet snake at night!



THE CULPEPER MINUTE MEN

LIBERTY OR DEATH

DONT TREAD ON ME





How did I get involved with reptiles/rattlesnakes?



Travis at 3 yrs
old with Desert
Tortoises



Travis at 7 yrs old
with non-venomous
Gopher Snake

TEXAS NATURAL HISTORY GUIDES™

TEXAS SNAKES

A FIELD GUIDE

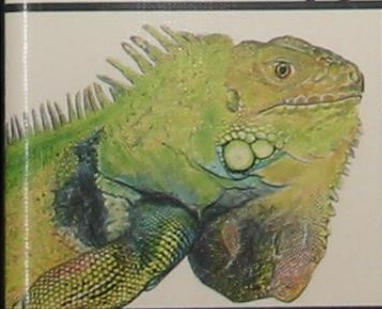
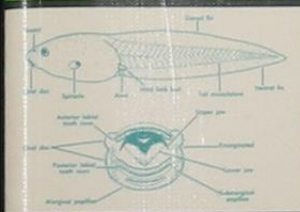
JAMES R. DIXON AND JOHN E. WERLER

Drawings by Regina Levoy

PETERSON FIELD GUIDES®

Reptiles and Amphibians

Eastern/Central North America



Roger Conant/Joseph T. Collins

Laurence M. Klauber

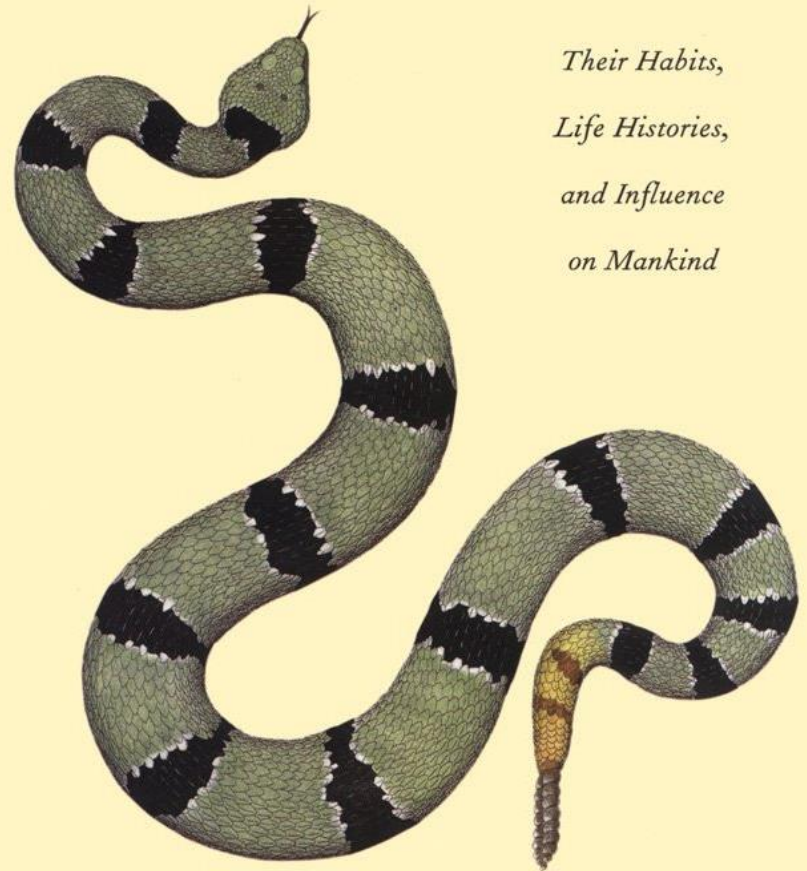


LAURENCE M. KLAUBER
With a New Foreword by Harry W. Greene

VOLUME II

RATTLESNAKES

*Their Habits,
Life Histories,
and Influence
on Mankind*



Second Edition







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STATUS

MODE

PLAYBACK

FRAME 8

-00074

TIME OF FRAME

-000074 MS

EVENT NUMBER

36

SETUP

F/SEC RECORD

1000S

SHUTTER SPEED

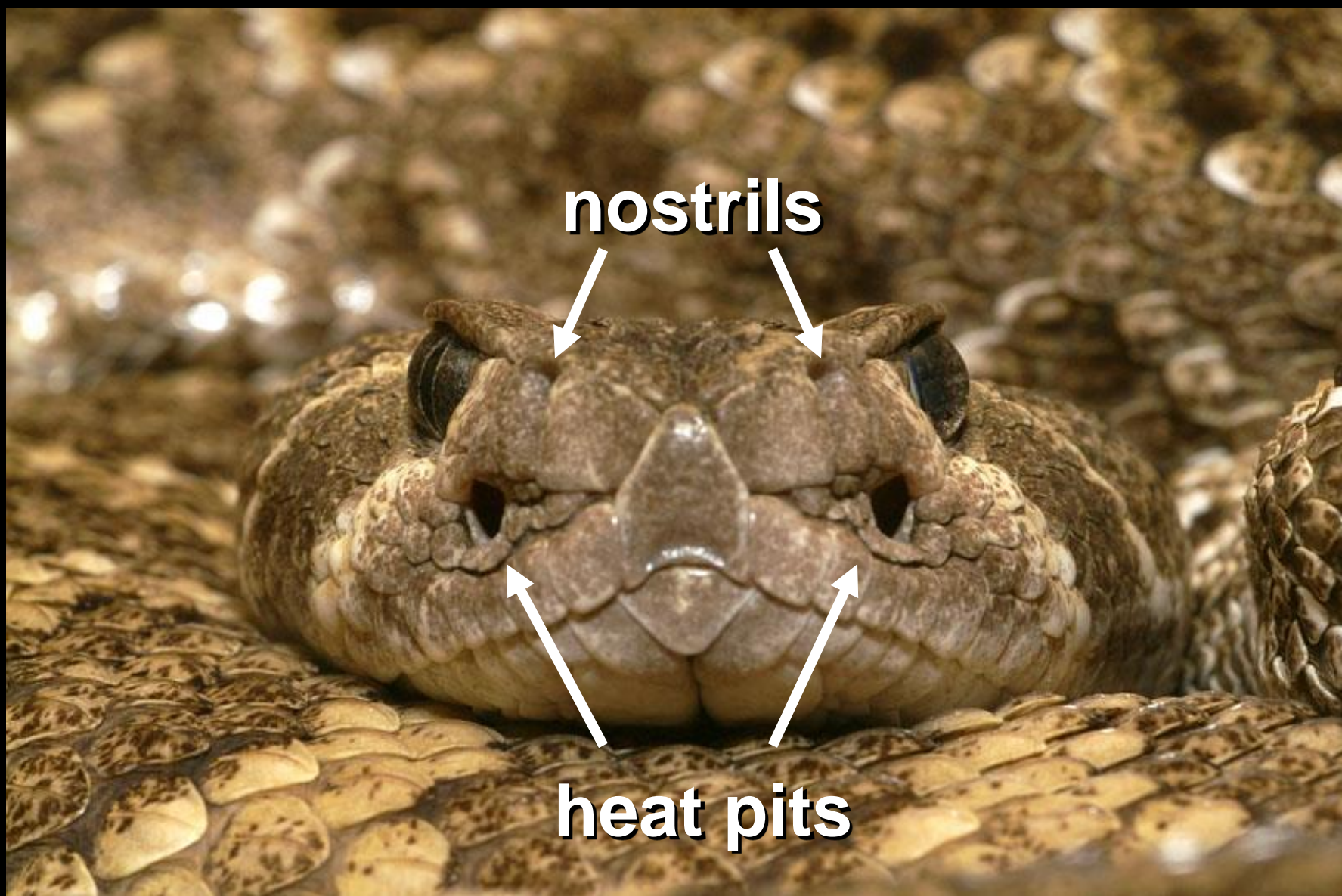
1X

TRIGGER POINT

300V V

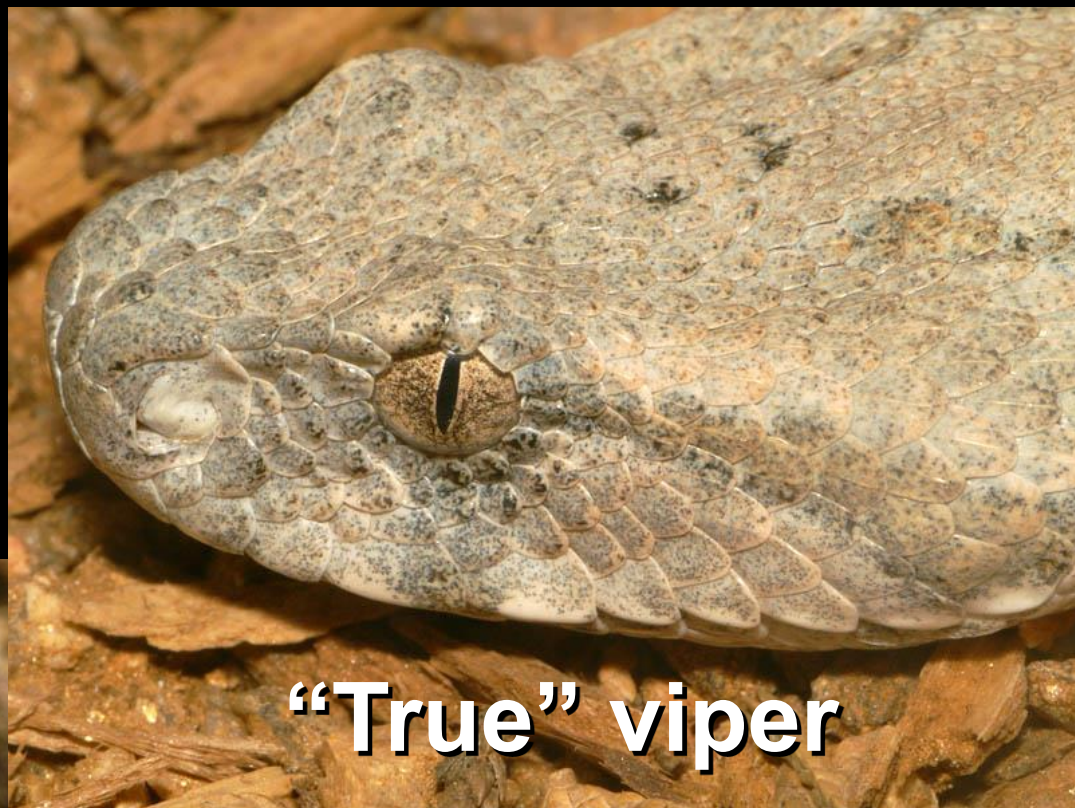
F/SEC PLAY

50



nostrils

heat pits

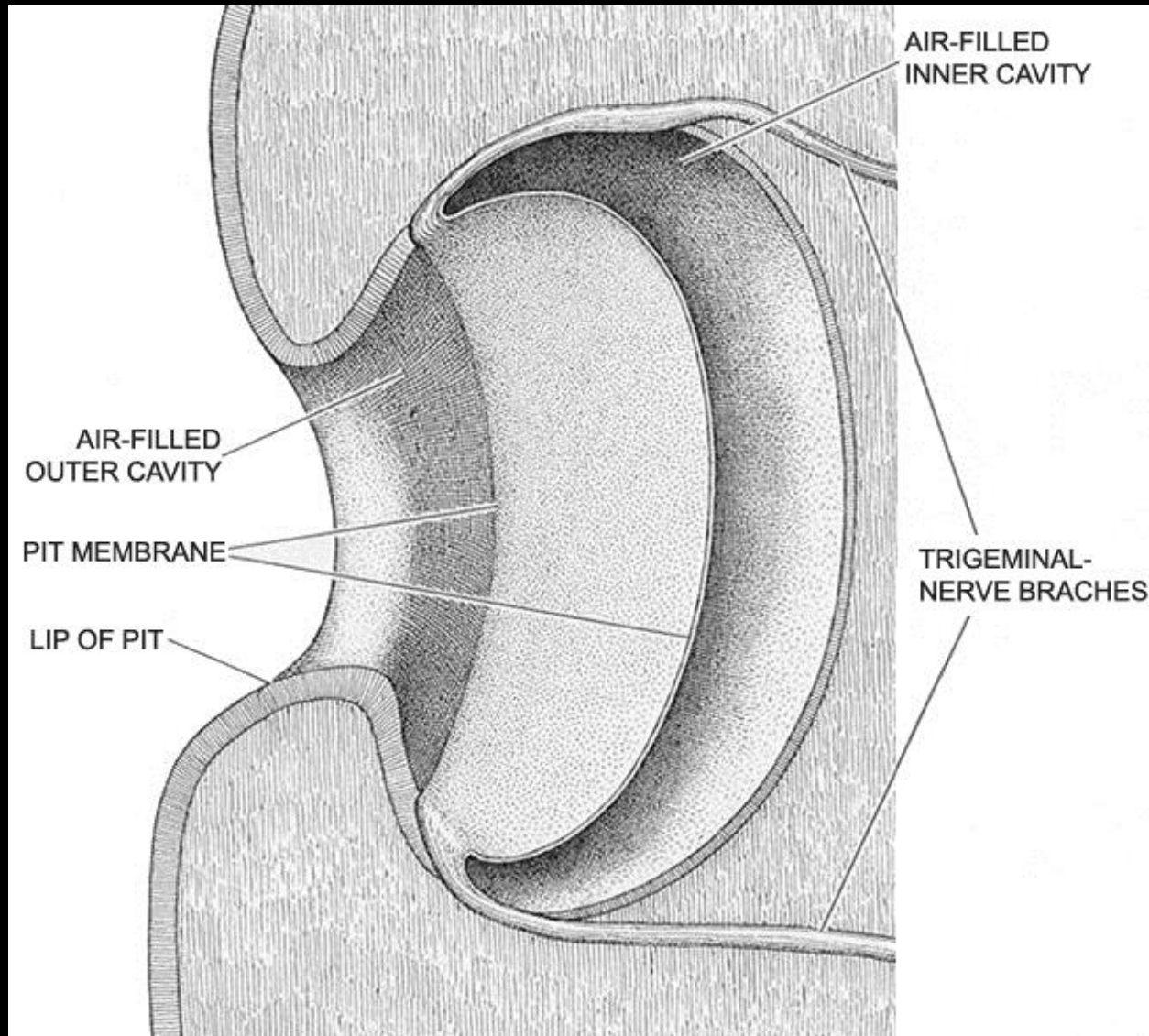


"True" viper



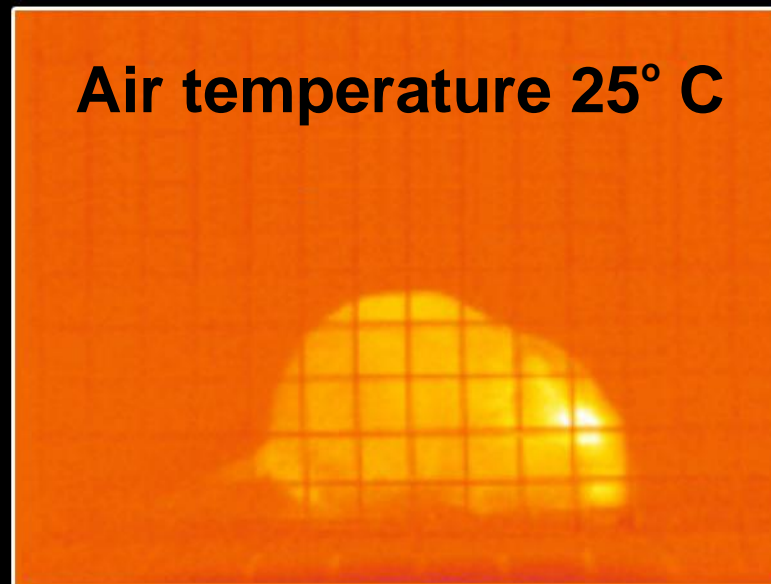
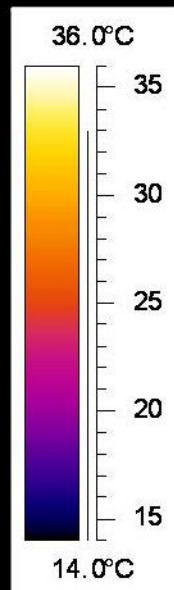
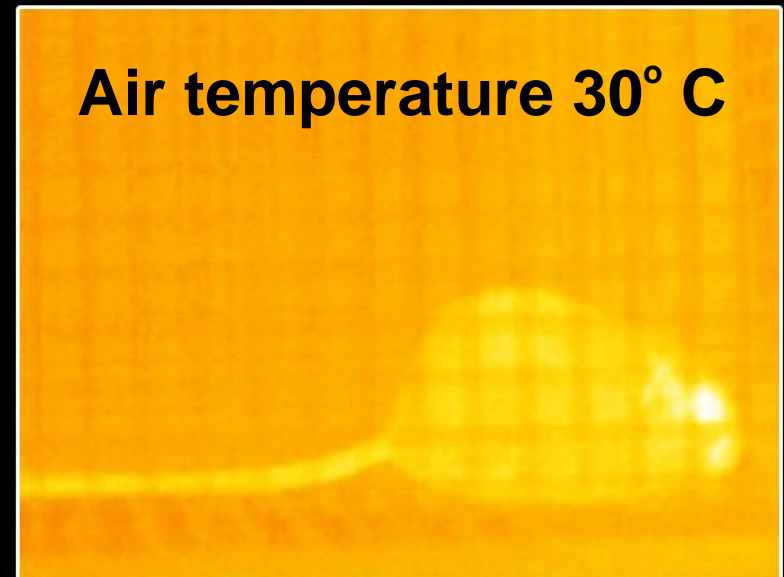
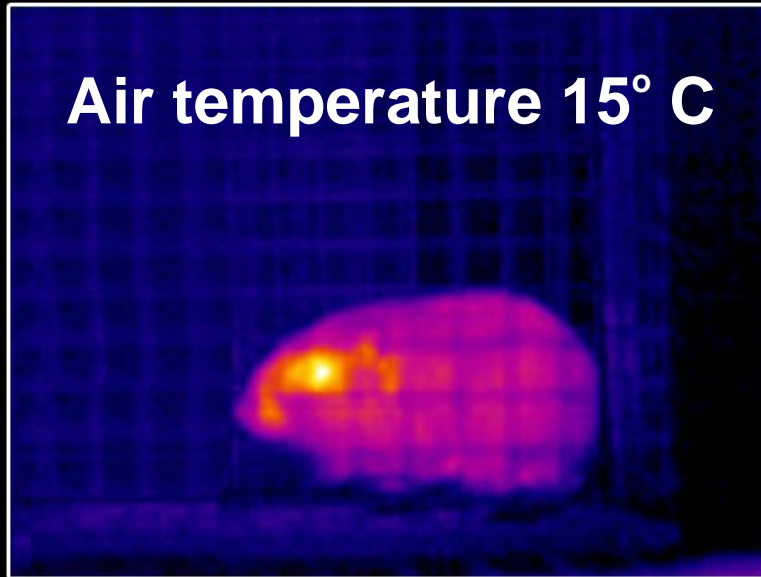
Pit viper

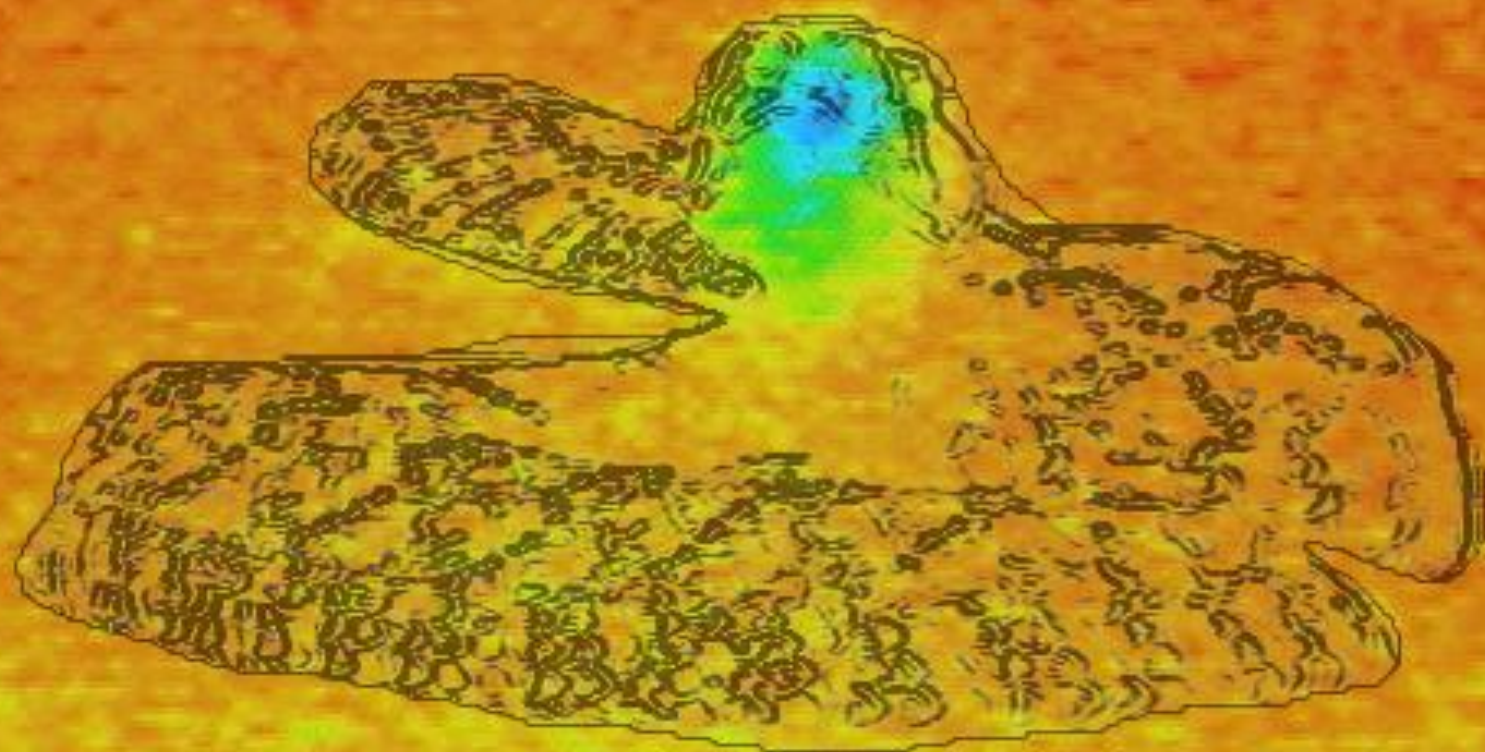
Diagram of a Heat Pit



Newman and Hartline (1982)

Thermal Perception of Prey





Stimulus Present



Stimulus Absent

21.9 C

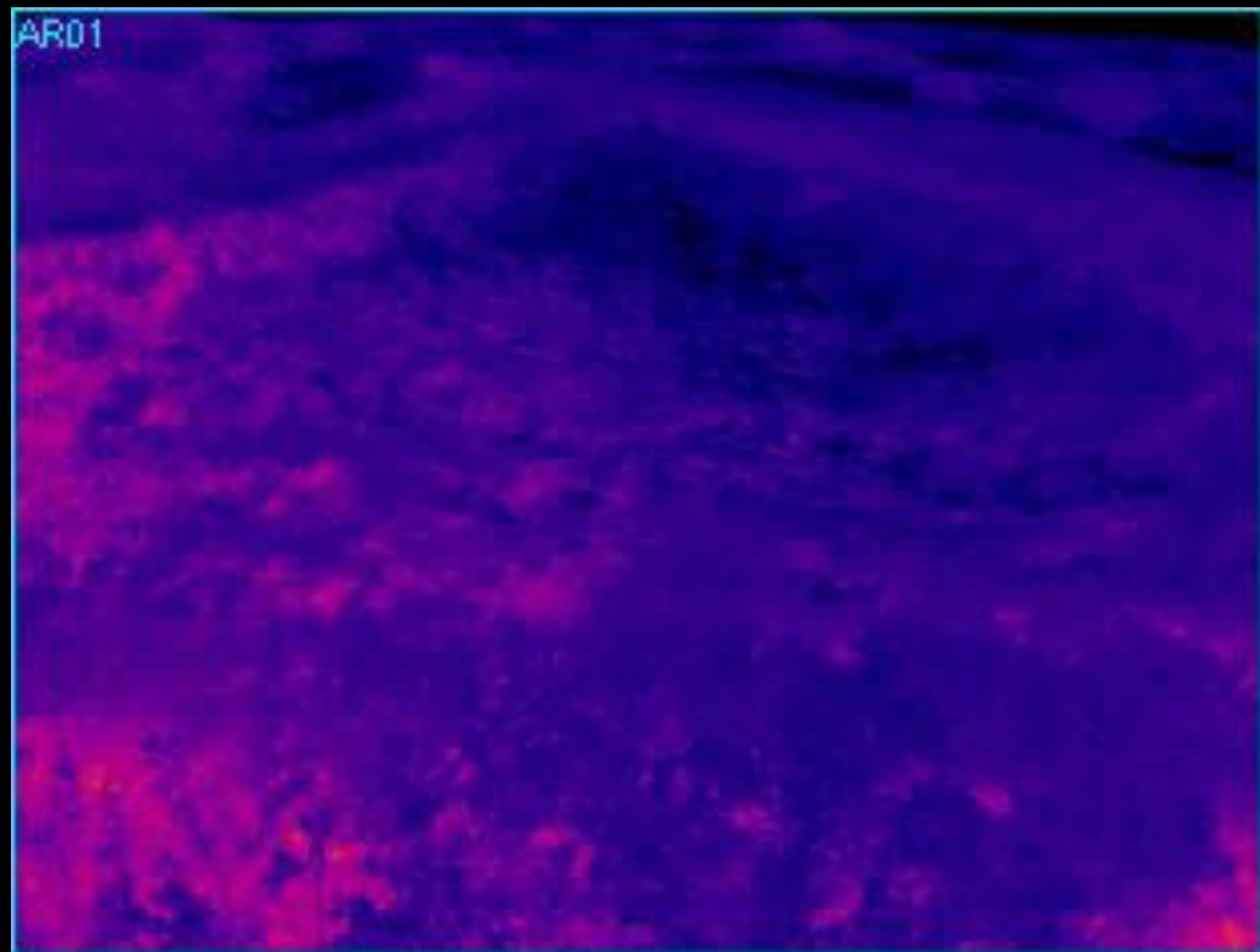
A thermal image showing a snake in a grid environment. A bright blue spot on the snake's head is indicated by an arrow and labeled '21.9 C'. The rest of the snake and the background are in shades of green and yellow.

23.4 C

A thermal image showing the same snake in the same grid environment. A bright blue spot on the snake's head is indicated by an arrow and labeled '23.4 C'. The background is predominantly green and yellow.



AR01



80.0°C

80

60

40

20

20.0°C

Thermal Perception Experiment



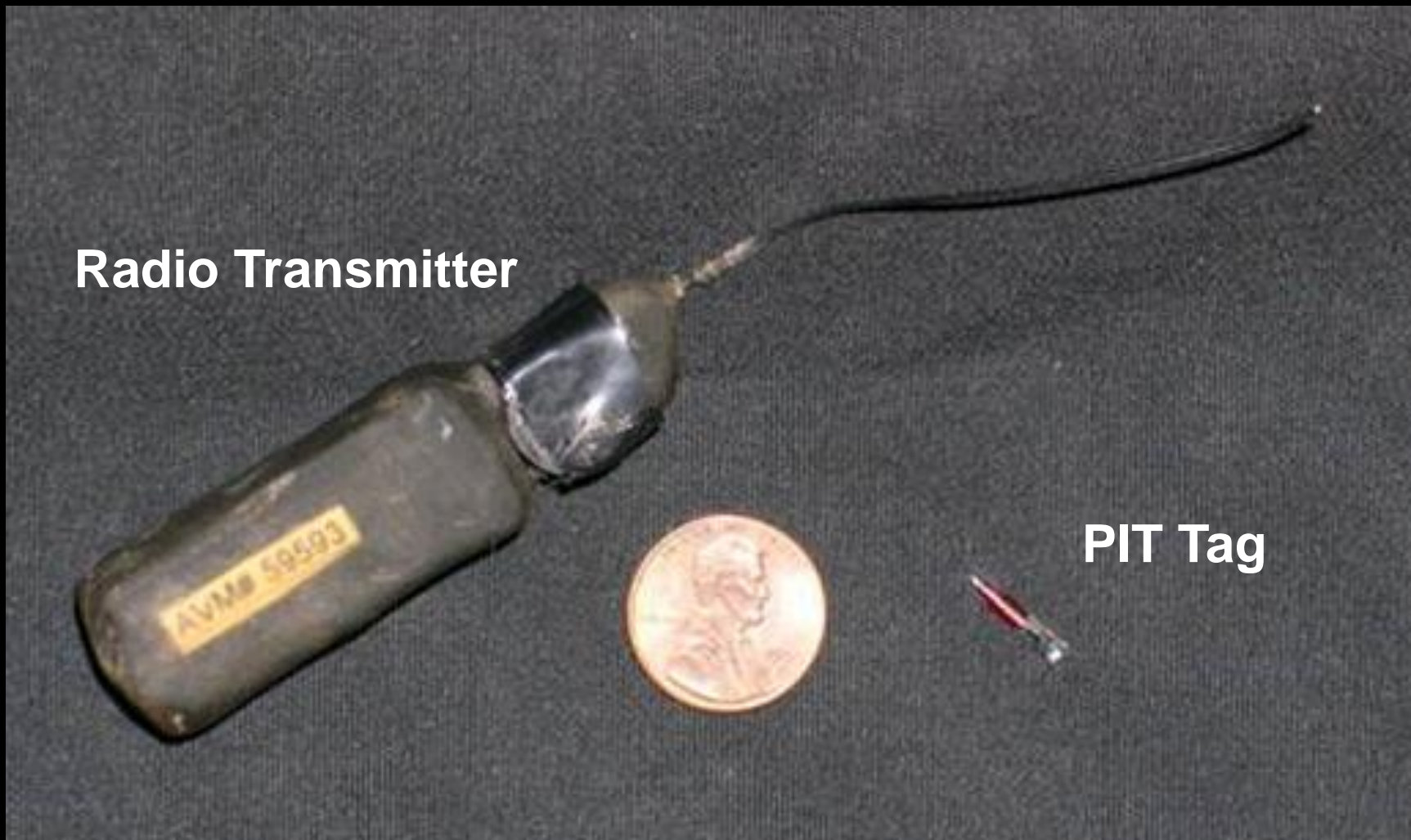




Texas Size Rattle Snake!
Found Near Erath County.



Radio Transmitter



PIT Tag















Variation in Snake Size



Acceleration vs. Velocity

Acceleration: the rate at which an object changes its velocity.



Velocity: the rate at which an object changes its position.

Would smaller or larger snakes strike with faster accelerations?





STATUS

MODE

PLAYBACK

FRAME #

-00044

TIME OF FRAME

-000044 MS

EVENT NUMBER

251

SETUP

F/SEC RECORD

1000S

SHUTTER SPEED

1/8

TRIGGER POINT

00002 ▼

F/SEC PLAY

30







STATUS

MODE

PLAYBACK

FRAME #

-00275

TIME OF FRAME

-00275 MS

EVENT NUMBER

342

SETUP

F/SEC RECORD

1000S

SHUTTER SPEED

1X

TRIGGER POINT

100% V

F/SEC PLAY

30

Venom

- Types of venom: neurotoxic & proteolytic/hemotoxic
- Venom is for:
 - immobilizing and killing prey
 - in vipers: pre-ingestion digestion
- Medical advances with venom



Steps to prevent being bitten by a snake!

- Always watch where you put your hands/feet
- Snakes around homes for two reasons: food and shelter
 - Keep snake food away from house
 - Mice: clear brush and mouse food
 - Birds: remove bird feeders?
 - Reduce openings to garage/attic
 - Remove excess brush

Rattlesnake Conservation



Rattlesnake Roundup





Myths to bust!

- Do other snakes make rattling sounds?
- Can venomous snakes breed with non-venomous ones?
- Do snakes travel in groups or in pairs?
- Can snakes bite underwater?
- Is the venom of young snakes more dangerous than that of adult snakes?
- Do snakes chase people?

**TEXAS HERPETOLOGICAL SOCIETY
2005 FALL SYMPOSIUM**

**"BUILDING PARTNERSHIPS BETWEEN
ACADEMICS AND ENTHUSIASTS"**

Keynote Address by Travis LaDuc, PhD



**18-19 November 2005
University of Texas at Austin
TexasHerpSociety@austin.rr.com**

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Jason Jones

Jay Kelso

Aaron R. Krochmal

Sandra Y. LaDuc

Tom Sinclair

Bob Tipton



Dr. Travis J. LaDuc
Assistant Curator of Herpetology
Texas Natural History Collections
Texas Memorial Museum

Dr. Travis J. LaDuc is a herpetologist at the University of Texas at Austin. His job at the University includes curation of the natural history collections as well as conducting outreach programs to a wide variety of educational and civic organizations throughout Texas. His research interests focus on the biodiversity and natural history of Texas reptiles and amphibians. Travis is also interested in all aspects of pit viper biology, including variation in venoms, population ecology, and systematics.