

Snake Safety in Idaho: Living, Recreating, and Working Safely in Rattlesnake Country

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Modified after previous presentations
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Herpetology Laboratory

Outline

- Idaho Snake Identification
- Rattlesnake Natural History
- What is the risk of snake bite?
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- What should you do if bitten?
- Live snake demonstration
- Questions?



Snakes of Idaho



Boidae

Northern Rubber Boa

Colubridae

Racer

Striped Whipsnake

Ringnecked Snake

Desert Nightsnake

Gophersnake

Long-nosed Snake

Ground Snake

Terrestrial Garter Snake

Common Garter Snake

Viperidae

Prairie Rattlesnake

Western Rattlesnake

Snake Identifying Characteristics

- Length
- Body shape
- Head
- Eyes
- Tail
- Color Pattern
- Scallation
- Behavior



Racer (*Coluber constrictor*)

- Medium size
Total length:
20-48 inches / 51 – 122 cm
- **Uniform dorsal color** of tan, olive, or grayish brown (adults)
- **Blotched juveniles**
- **Large eyes** with round pupils
- Smooth scales
- **Pointed tail**



Gopher Snake (*Pituophis catenifer*)

- Large, up to 170 cm (67") in Idaho.
- light colored dorsally (white to beige), with contrasting dark saddles and blotches.
- **dark line** that extends across the snout and on past each eye.
- eyes with round pupils
- keeled scales
- **pointed tail**



Western Rattlesnake (*Crotalus oreganus*)

- Relatively large size
Total length:
15 - 48 inches / 38 - 120 cm
Stout body
- Light ground color, dark blotches, rings on tail
- Triangular head, narrow neck
- Vertical pupils
- Loreal pits
- Keeled dorsal scales
- Rattle



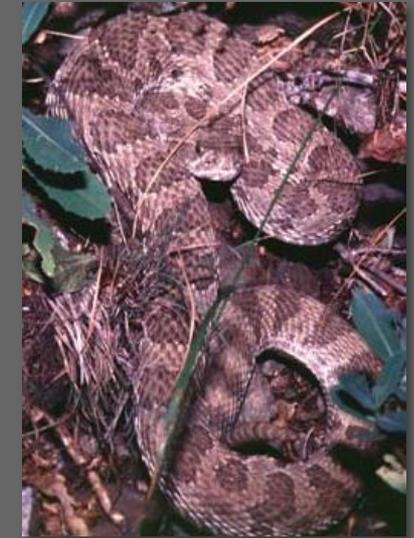
Idaho Rattlesnake Distribution



Crotalus o. oregonus



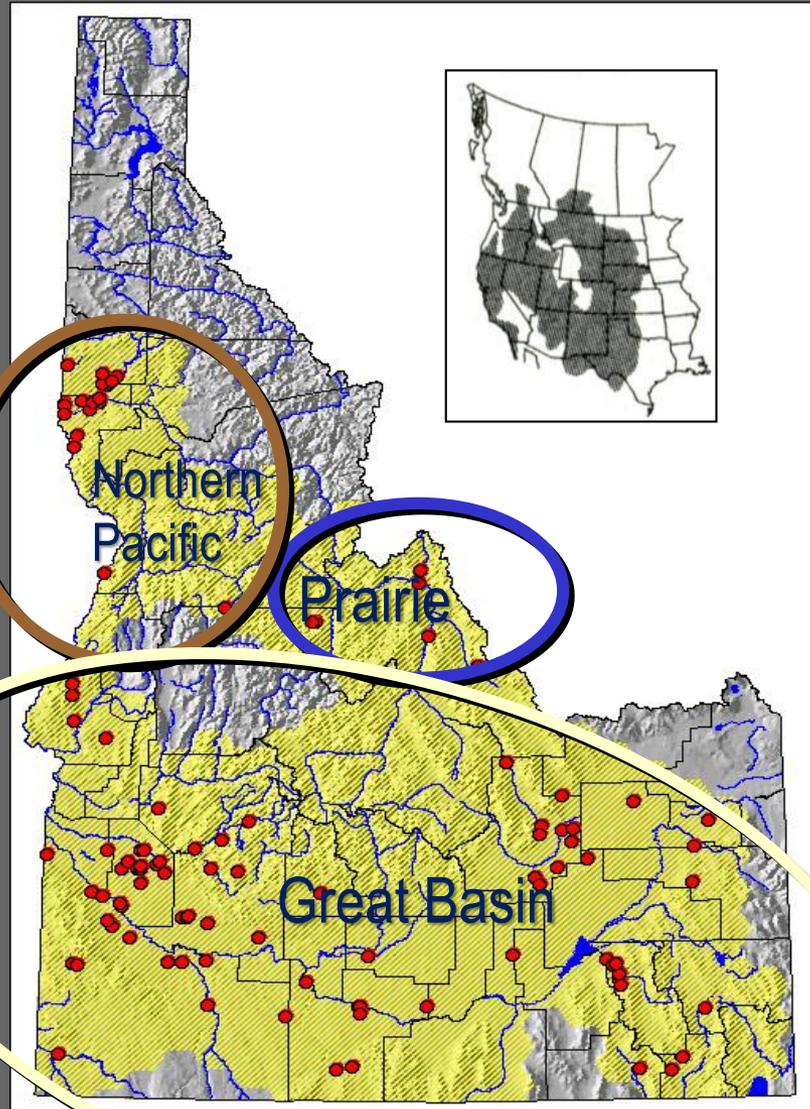
Crotalus o. lutosus



Crotalus viridis



Crotalus o. lutosus



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Great Basin Rattlesnake Natural History

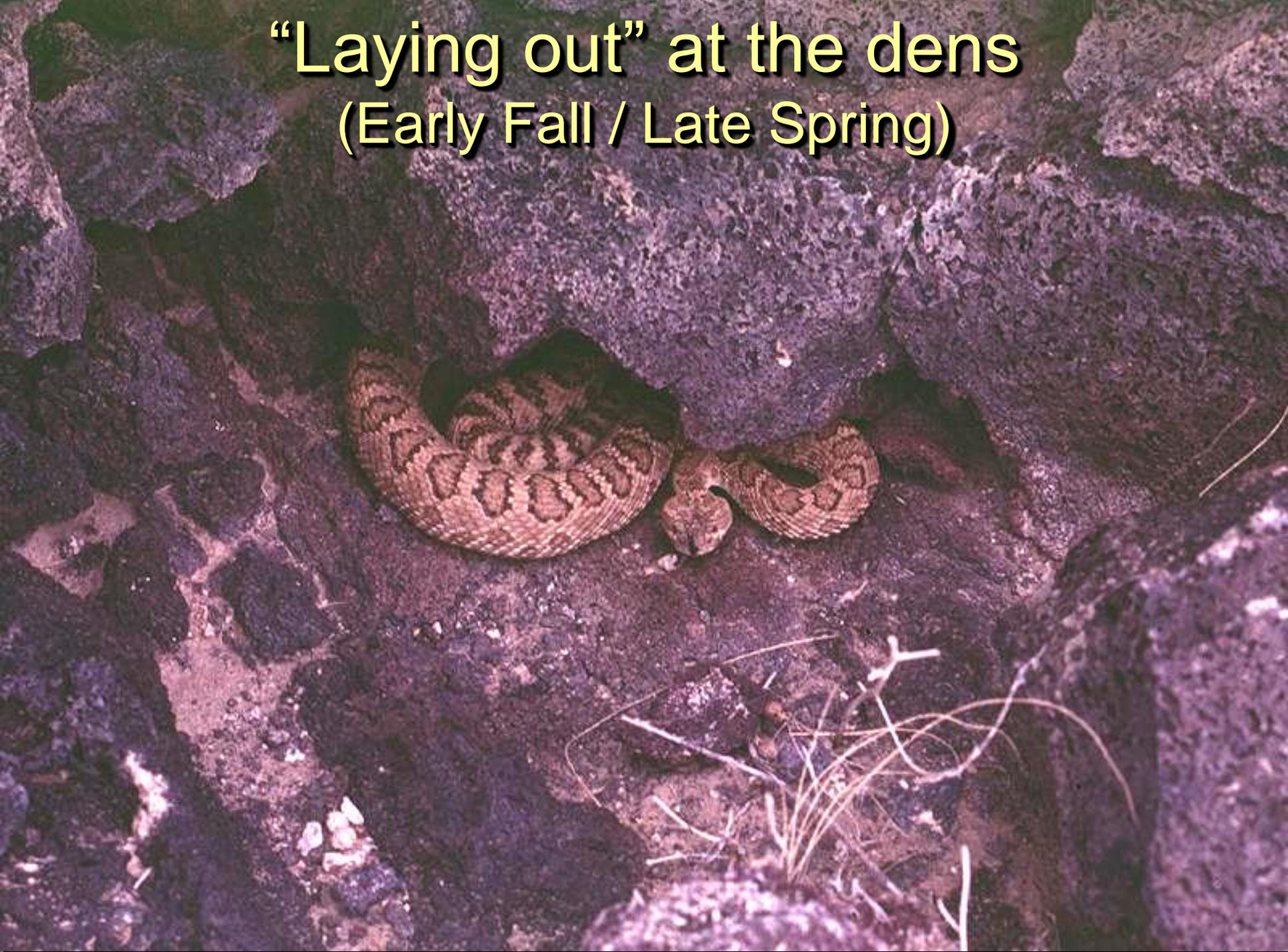
- Medium size
- Long lived >17 years
- Viviparous
- Low reproduction
 - first reproduction 3 – 5 years
 - reproduce every 2 – 5 years
 - 4 – 14 young per litter
- Parental care
- Communal denning
- Seasonal migrations



Activity Patterns

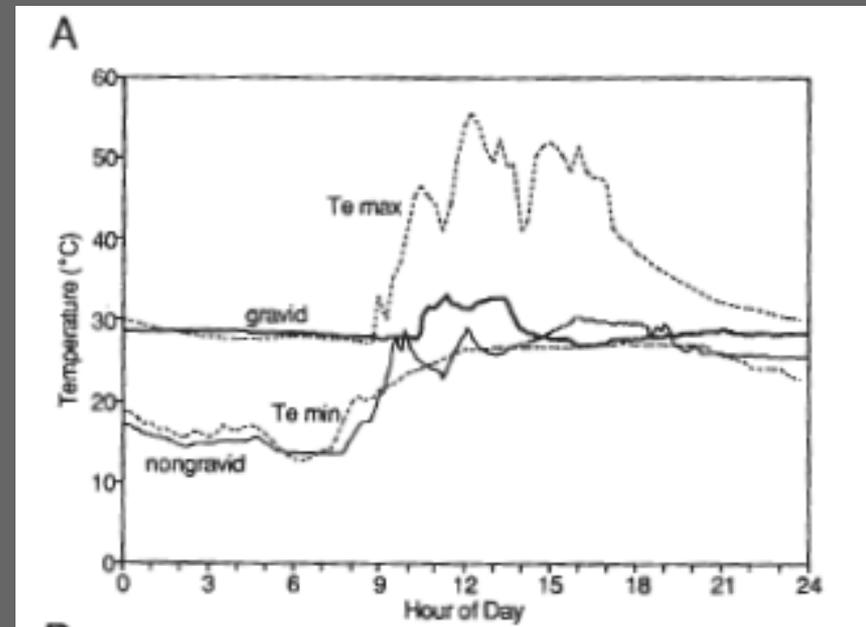
- Hibernation: September – May
- Activity
 - emergence May – September
 - migration from den May
 - Gestation mid May – mid June
 - Foraging June – August
 - Breeding June - August
 - Birth late July – August
 - Migration to den August
 - Retreat September
 - Retreat late September

“Laying out” at the dens
(Early Fall / Late Spring)

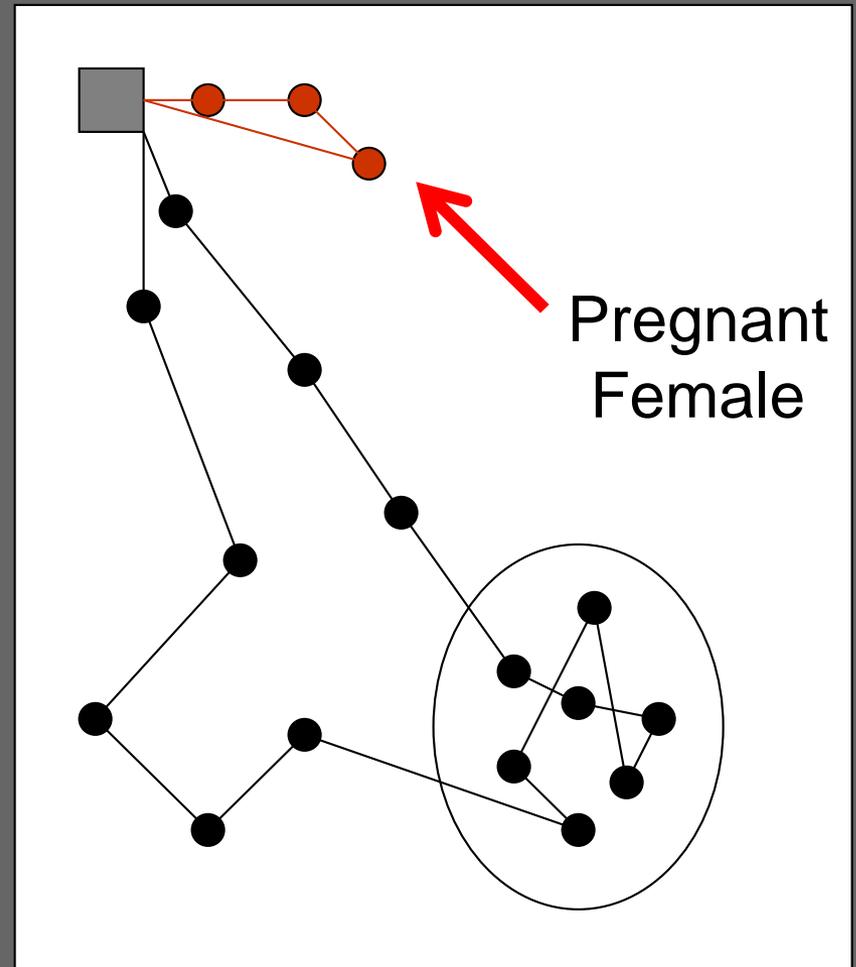
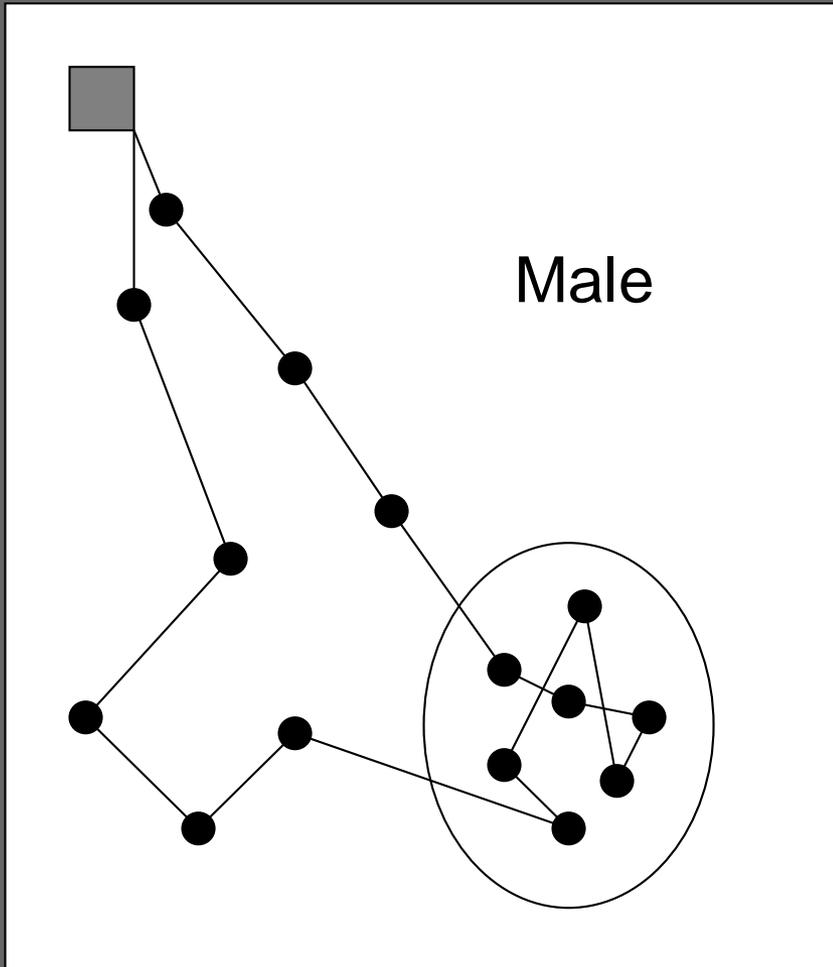


Why are the snakes migrating?

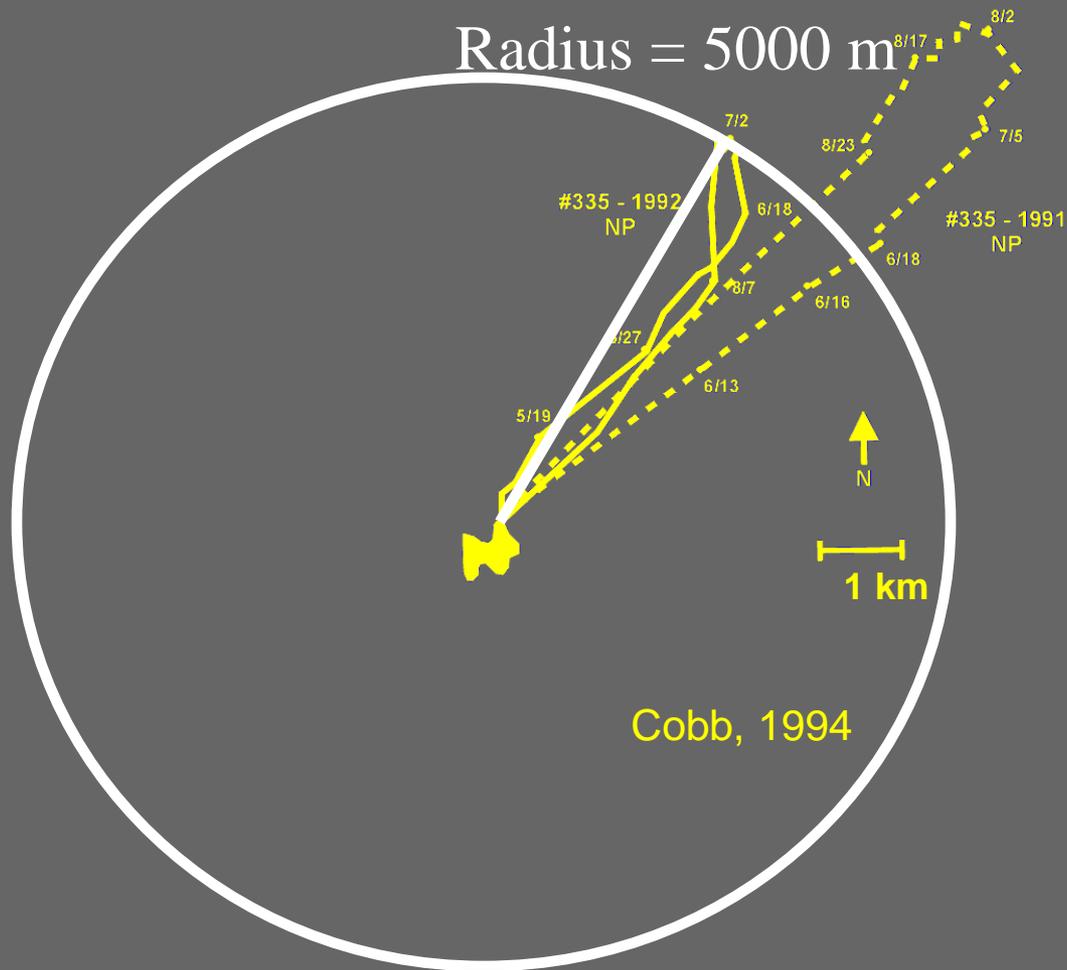
- Away from dens
 - Foraging
 - Breeding
 - Gestation
- To den
 - Thermally appropriate overwintering sites



What are the spatial migratory patterns?



Why rattlesnakes are seldom seen during the summer.

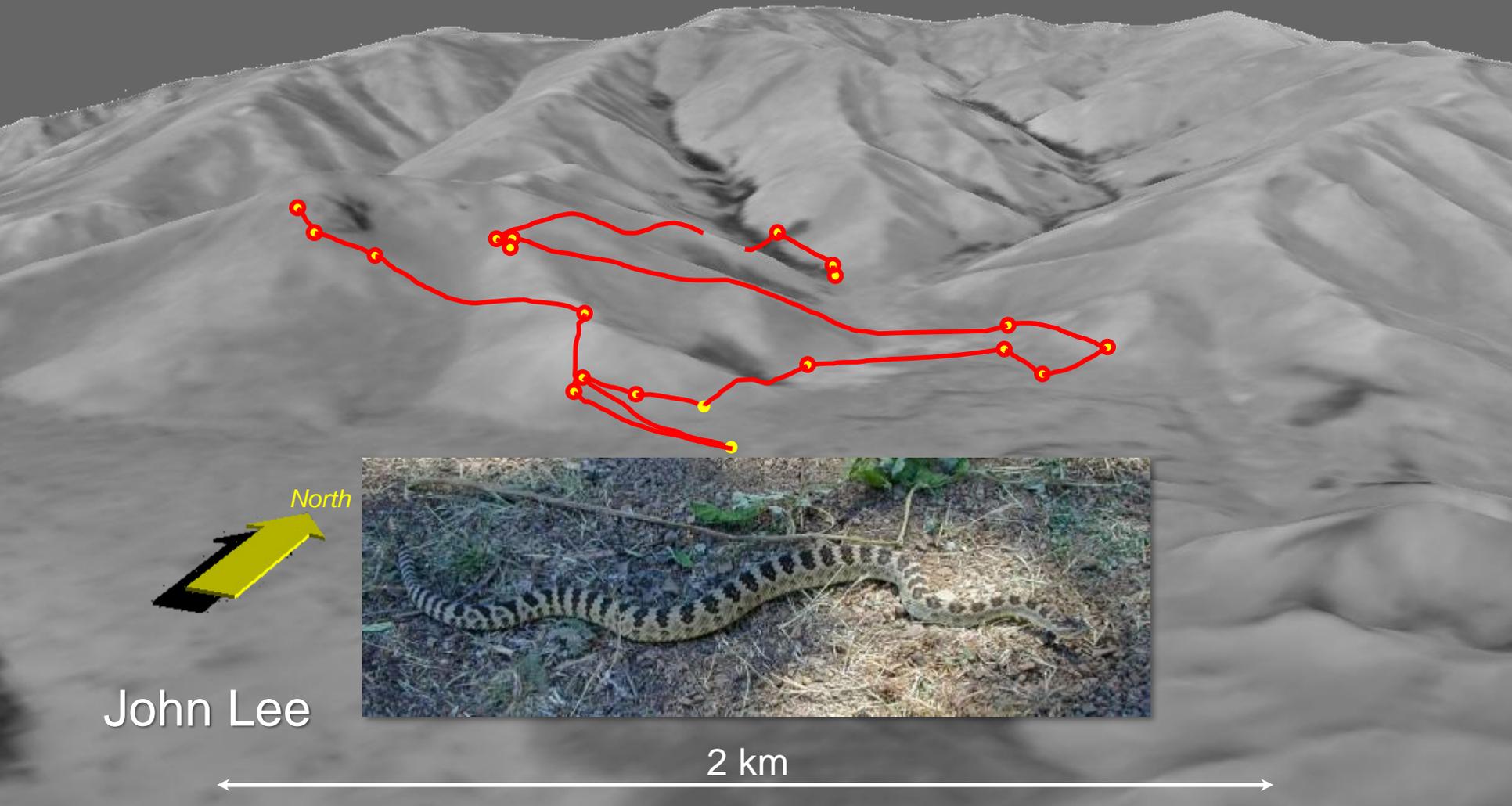


Area = 7854 ha

Population = 800 rattlesnakes

= 9.8 ha/snake

Visualizing movements and habitat use



Feeding Behavior

In Idaho, rattlesnakes mostly eat:

- ground squirrels
- voles
- cottontail rabbits
- deer mice

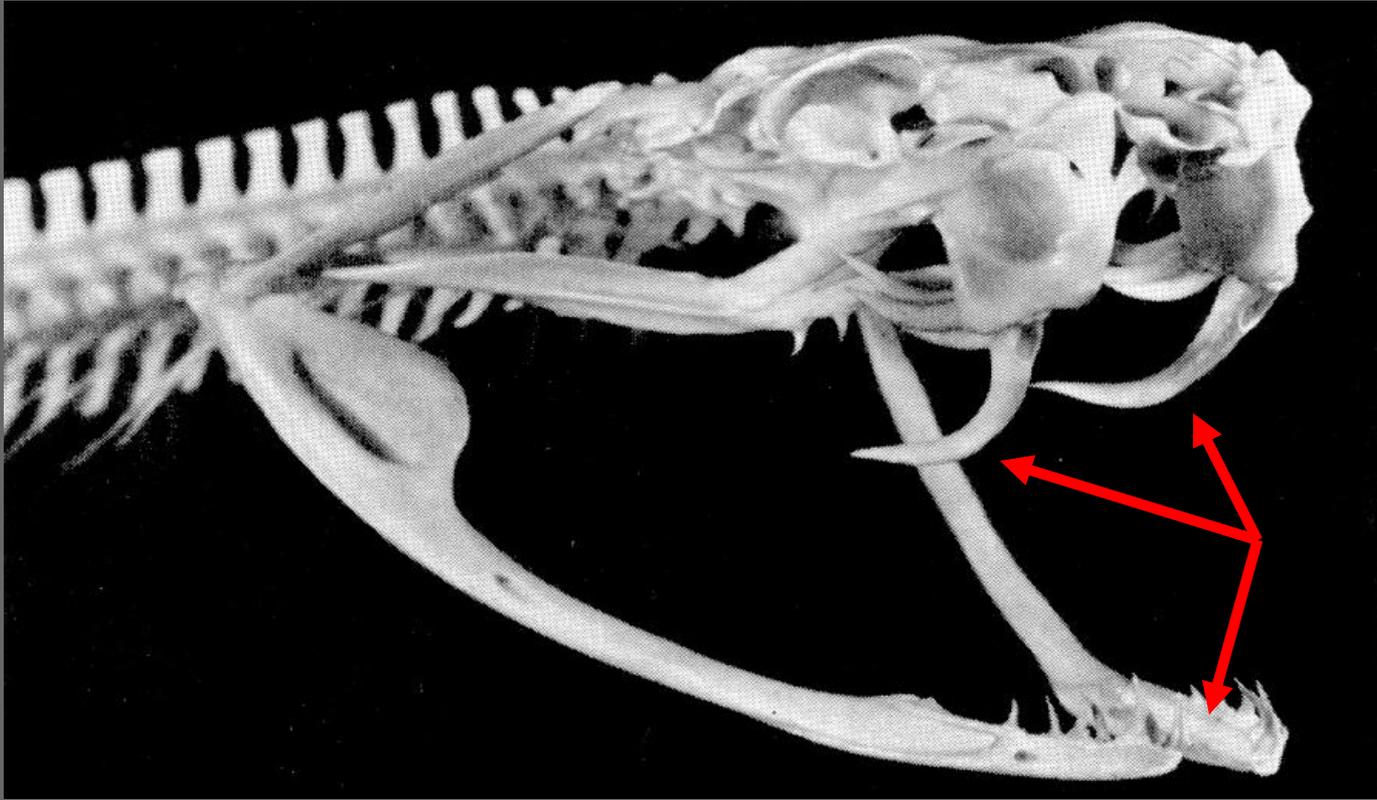


The main use of rattlesnake venom:

- Kill prey
- Start digestion
- Contains digestive enzymes and spreading factors
- Also used for defense.



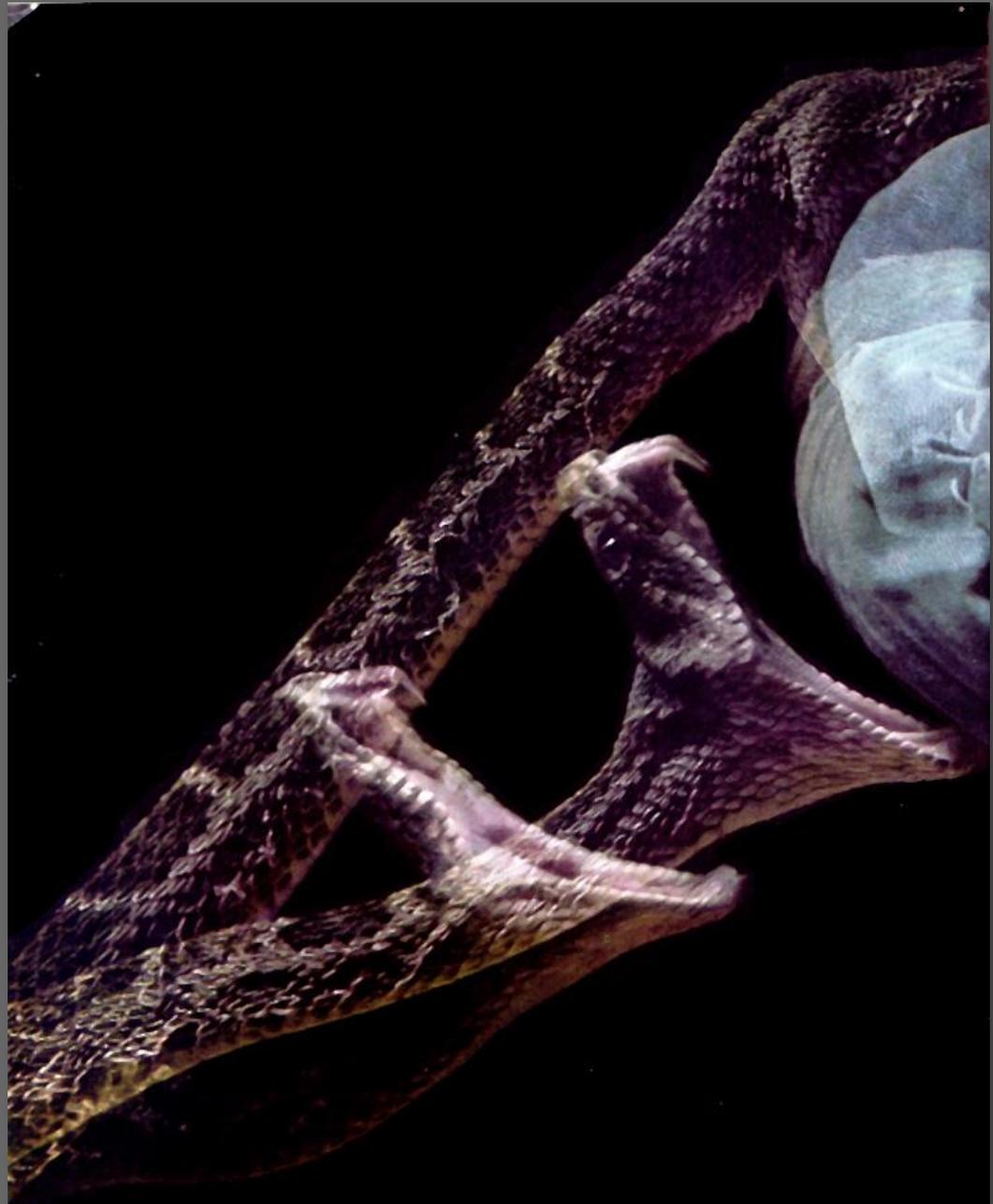
Feeding Adaptations: Rattlesnake Skull



- Lower jaw bones loosely connected for swallowing large prey
- Hollow fangs to deliver venom for:
 - immobilizing prey
 - speeding digestion of food
 - defending against enemies

The strike:

Range: $\frac{1}{3}$ to $\frac{1}{2}$ of
the snake's body length
(usually)



Defense: How may rattlesnakes react to you?

- Stay hidden
- Rattle and escape
- Strike



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Risk of Snake Bite in the U.S.

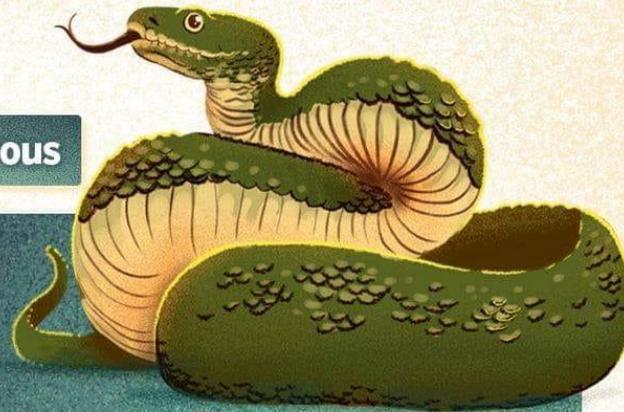
(1997 Emergency room admissions)

<u>Cause</u>	<u>Annual Injuries</u>	<u>Annual Deaths</u>
Dog Bite	1,500,000	15
Insect Stings	500,000	75
Horses	71,500	220
Snake Bite	7,000	15

- Only 3000 are estimated to be “accidental”.
- Up to 50% are “dry” bites.

IF YOU SEE A SNAKE

HOW TO TELL IF A SNAKE IS DANGEROUS



How can you avoid being bitten?

- Minimize potential contact with snakes
 - Dress appropriately for field work – e.g., long pants and boots
 - Avoid denning areas in the fall and spring
 - Simply go around snakes in your way
 - Step on rocks (not next to or over them)
 - Lift objects by grasping the far edge and pulling up
 - **Do not handle live or recently killed snakes**
- Maximize your chances of detecting snakes
 - Listen for rattling snakes
 - Look where you step or reach
 - Stay on trails
 - Check potential hand holds when climbing

What are the consequences of a rattlesnake bite?

- Highly variable.
- No effects from dry bites (< 50%)
- Death (very rare) – no adult deaths in Idaho from snakebite?
- Tissue damage and necrosis is common.
- Medical treatment may be very expensive.

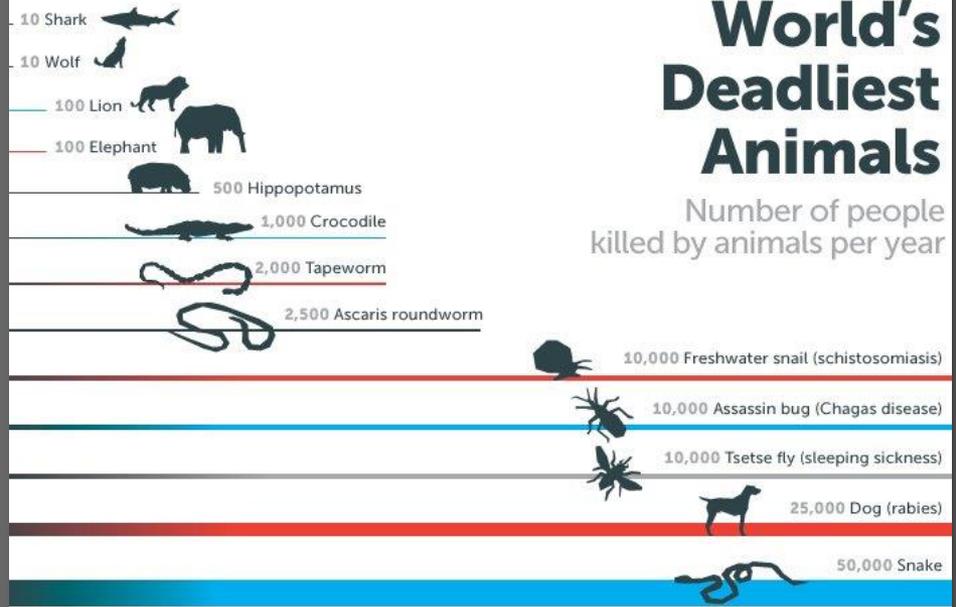


Victim of a bite from a
Prairie Rattlesnake

Number of deaths | Killer

World's Deadliest Animals

Number of people killed by animals per year



475,000
Human



725,000
Mosquito

SOURCES: WHO; crocodile-attack.info; Kasturiratne et al. (doi.org/10.1371/journal.pmed.0050218); FAO (webcitation.org/6Ogp58SVO); Linnell et al. (webcitation.org/6ORL7DBUO); Packer et al. (doi.org/10.1038%2F436927a); Alessandro De Maddalena. All calculations have wide error margins.

Many factors influence snakebite severity

- Species and size of the snake
- Amount of venom injected
- Number of times victim was bitten
- Constituents in the venom
- Site of the injection
- Body mass of the victim
- General health of the victim
- Time delay prior to medical treatment

What to do if someone is bitten:

- Get away from the snake
- Check for the presence of other snakes



What NOT to do:

- Old fashioned cures (whiskey, etc.)
- Cutting and sucking
- Applying a tourniquet
- Applying ice or a cold pack
- Applying electricity

Recommended treatments change over time.

What to do if someone is bitten:

- Slow (but don't stop) spread of the venom
 - Remain calm
 - Minimize physical activity
 - Keep the bite site still and just below heart level
 - Remove rings, watches or other tight items



- Obtain proper medical treatment

- Inform emergency facility of incoming victim
- Arrive at emergency facility as soon as possible
- DO NOT attempt to take the snake in for identification



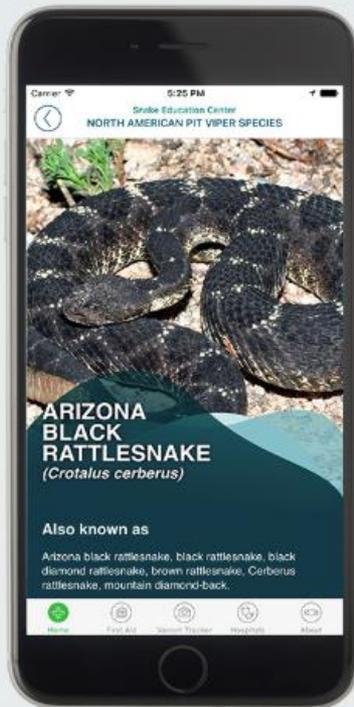
- Car keys
- Cell phone

SnakeBite911 App

SnakeBite911

for the General Public

The essential complement to your patients' outdoor First Aid Kit



FEATURES

- **Emergency Support** for snakebites
- **Quick Dial 911**
- Checklist of **Actions to Avoid**
- Time-stamped **Venom Tracker Tool**
- **Hospital Locator**
- **North American Pit Viper Species Information**
- How to **Stay Snake Safe**
- **Snake Sightings Map** to show and add snake sightings



Poison Control Centers

Need help now? Call the Poison Help line at [1-800-222-1222](tel:1-800-222-1222) or visit PoisonHelp.org



American Association of Poison Control Centers



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Poison Control Centers

There are 55 poison control centers in the United States. Each provides free, 24-hour professional advice to anyone in the 50 states, Puerto Rico, the Federated States of Micronesia, American Samoa, the U.S. Virgin Islands and Guam. On occasion, some have even helped American soldiers serving overseas.

Poison centers provide poison expertise and treatment advice by phone. All poison centers can be reached by calling the same telephone number, **1-800-222-1222**. Poison centers are staffed by pharmacists, physicians, nurses and poison information providers who are toxicology specialists.

1-800-222-1222

Antivenin

CroFab

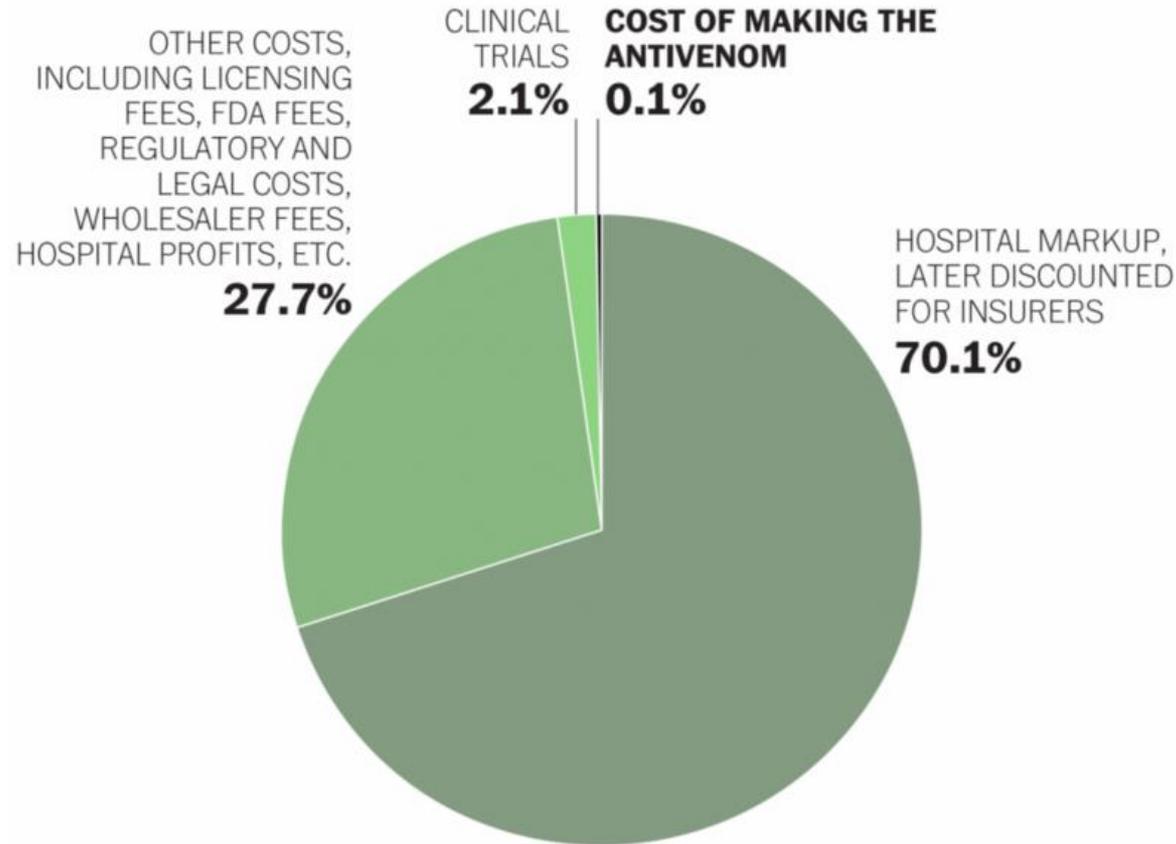


Dr. Robert Norris
Stanford Emergency Medical Center

Economics of Snake Bite Treatment

Price components of a vial of antivenom

Percentage of antivenom sticker price, by category



What to watch for after you leave the hospital:

- Unusual bleeding
- Signs of infection around the bite wound
- Signs of allergy to antivenin
- In the event of any of these symptoms, you should consult a physician.

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