

RATTLESNAKES *of* **ARIZONA**



BRYAN D. HUGHES
RATTLESNAKE SOLUTIONS

WHO THE #^\$ IS THIS GUY AND WHY SHOULD WE CARE?

**RATTLESNAKE SOLUTIONS RELOCATES OVER 1,100
SNAKES PER YEAR IN PHOENIX AND TUCSON**

pays for:

- **INTENSIVE, ONGOING FIELD STUDY OF WILD SNAKES**
- **RESEARCHING URBAN RATTLESNAKE CONSERVATION**
- **10-40 HOURS FIELD TIME EACH WEEK**
- **>1,000 OF UNIQUE ENCOUNTERS YEARLY AS WELL AS**
- **CAPTIVE CARE AND RESIDENTIAL CAPTURE/RELEASE**



15 Species
(17 Inc. Subspecies)

6 Species in
Phoenix City Limits

More Than
Any Other State.





Largest rattlesnake species in Arizona, adult size ~ 4'+.

Though they may get bigger elsewhere, in Arizona, 5' is an incredibly rare size.

Brown, tan, or grey, and even pink in some parts of their range.

WESTERN DIAMONDBACK RATTLESNAKE

Crotalus atrox



Defensive posture
is the famous
“S” strike position
made famous in
desert truck stops
and bad taxidermy
shops everywhere.

WESTERN DIAMONDBACK RATTLESNAKE

Crotalus atrox



Very commonly found in regional parks and near homes that border the desert.

WESTERN DIAMONDBACK RATTLESNAKE

Crotalus atrox



Medium-sized
rattlesnake, adult
sizes from 2-3'.

Specialist ...
the most variable
coloration of any
rattlesnake.

SOUTHWESTERN SPECKLED RATTLESNAKE

Crotalus pyrrhus



Color matches
rock color in each
mountain system
where they live.

SOUTHWESTERN SPECKLED RATTLESNAKE *Crotalus pyrrhus*



In context, their
camouflage is
nearly perfect ...

SOUTHWESTERN SPECKLED RATTLESNAKE

Crotalus pyrrhus



In context, their
camouflage is
nearly perfect ...

... an invisible
rattlesnake.

SOUTHWESTERN SPECKLED RATTLESNAKE

Crotalus pyrrhus



Large-sized
rattlesnake, adult
sizes from 3-4'+.

NORTHERN BLACKTAILED RATTLESNAKE

Crotalus molossus molossus



Large-sized
rattlesnake, adult
sizes from 3-4'+.

Green, yellow,
tan, brown, and
black.

NORTHERN BLACKTAILED RATTLESNAKE

Crotalus molossus molossus



Large-sized
rattlesnake, adult
sizes from 3-4'+.

Green, yellow,
tan, brown, and
black.

Most likely to be
mistaken for the
“Mojave Green”
rattlesnake.

NORTHERN BLACKTAILED RATTLESNAKE

Crotalus molossus molossus



Small-sized
rattlesnake, adult
sizes from 2-3'.

Grey, blueish, pink,
with tiny head,
oversized rattle,
and bands.

TIGER RATTLESNAKE

Crotalus tigris



Small-sized
rattlesnake, adult
sizes from 2-3'.

Grey, blueish, pink,
with tiny head,
oversized rattle,
and bands.

TIGER RATTLESNAKE

Crotalus tigris



Very common in most city and regional parks, near trails, but rarely seen by most people.

TIGER RATTLESNAKE

Crotalus tigris



Small-sized
rattlesnake, adult
sizes usually <2'.

“Horn” over each eye,
heavy-bodied, moves
with side-winding
motion at times.

SONORAN SIDEWINDER

Crotalus cerastes cercobombus



Small-sized
rattlesnake, adult
sizes usually <2'.

“Horn” over each eye,
heavy-bodied, moves
with side-winding
motion at times.

SONORAN SIDEWINDER

Crotalus cerastes cercobombus



Small-sized
rattlesnake, adult
sizes usually <2'.

“Horn” over each eye,
heavy-bodied, moves
with side-winding
motion at times.

SONORAN SIDEWINDER

Crotalus cerastes cercobombus



Large-sized
rattlesnake, adult
size about 3'.

Brown, tan, or green
in color.

NORTHERN MOJAVE RATTLESNAKE

Crotalus scutulatus scutulatus



Center of many
rattlesnake myths

No such thing as a
"Mojave Green"

NORTHERN MOJAVE RATTLESNAKE *Crotalus scutulatus scutulatus*



Can be very defensive,
but not aggressive.

Does not jump, chase,
strike great distances,
bite through tires,
run down cars or
horses, leap into
open windows, eat
children, etc., etc. ...

NORTHERN MOJAVE RATTLESNAKE

Crotalus scutulatus scutulatus



Often misidentified
due to notoriety

Prefers sandy, low
desert; avoids rocky,
mountainous areas.

NORTHERN MOJAVE RATTLESNAKE

Crotalus scutulatus scutulatus



Large-sized
rattlesnake, adult
size about 3.5'.

Brown, black, with
white bands.

ARIZONA BLACK RATTLESNAKE *Crotalus cerberus*



Woodland, forest
and chaparral areas,
some very near
Phoenix.

ARIZONA BLACK RATTLESNAKE *Crotalus cerberus*



Often referred to by locals as a Timber Rattlesnake, but is very different.

ARIZONA BLACK RATTLESNAKE

Crotalus cerberus



Only species of
venomous lizard
in the United States.

Protected in AZ.

GILA MONSTER *Heloderma suspectum*



Only species of
venomous lizard
in the United States.

Protected in AZ.

Venomous, but
not dangerous ...

GILA MONSTER *Heloderma suspectum*



Only species of
venomous lizard
in the United States.

Protected in AZ.

Venomous, but
not dangerous . . .

. . . unless you're
doing dumb stuff.

GILA MONSTER *Heloderma suspectum*



Only species of
venomous lizard
in the United States.

Protected in AZ.

Venomous, but
not dangerous ...

... unless you're
doing dumb stuff.

GILA MONSTER *Heloderma suspectum*



Only non-viper
venomous snake
species in AZ.

Small, rarely seen.

SONORAN CORALSNAKE *Micruroides euryxanthus*



Only non-viper
venomous snake
species in AZ.

Small, rarely seen.

Rhymes don't work.

SONORAN CORALSNAKE

Micruroides euryxanthus



Only non-viper
venomous snake
species in AZ.

Small, rarely seen.

Rhymes don't work.

If you're bitten by
one, it's your fault.

SONORAN CORALSNAKE

Micruroides euryxanthus

RATTLESNAKES

FACT & FICTION





*Lots of people
+
Lots of snakes:
=
Lots of snake
stories.*

WHY ALL THE DRAMA?

WHERE DO WE GET THIS STUFF?

WHERE DO WE GET THIS STUFF?



MOVIES & TV

WHERE DO WE GET THIS STUFF?

Drought may be causing higher rates of snakebites in Southern California



Four-Year-Old Girl Survives Rattlesnake Attack

November 17, 2014 9:27 PM

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THE MEDIA

WHERE DO WE GET THIS STUFF?



**UNCLES, COWORKERS,
AND "MY FRIEND'S COUSIN"**

A photograph of a snake with iridescent scales, likely a copperhead, coiled on a light-colored rock. The background is a blurred landscape at sunset, with warm orange and yellow light filtering through trees. A dark grey rectangular box is overlaid on the right side of the image, containing the text 'TOP 10 MYTHS' in white, italicized, sans-serif font.

*TOP
10
MYTHS*



1

MYTH
"Rattlesnake Attack"



1

MYTH
"Rattlesnake Attack"

REALITY
"Defensive" is a more accurate word.



2

MYTH

"It showed its fangs and was ready to lunge."

2

MYTH

"It showed its fangs and was ready to lunge."

REALITY

Rattlesnakes don't open mouth as defensive display, and don't jump or perform magical stunts.

Sonoran Gophersnake Defensive Behavior

www.phoenixsnakeremoval.com | www.facebook.com/snakeremoval



3

MYTH
"Babies are more dangerous than adults."

3



MYTH

"Babies are more dangerous than adults."

REALITY

Babies venom may be slightly more toxic, but the amount of venom matters.

Pp. 191-220 in W. K. Hayes, K. R. Beaman, M. D. Cardwell, and S. P. Bush (eds.),
The Biology of Rattlesnakes. Loma Linda University Press, Loma Linda, California.

The Snake Venom-Metering Controversy: Levels of Analysis, Assumptions, and Evidence

WILLIAM K. HAYES^{1,2}

¹*Department of Earth and Biological Sciences, Loma Linda University, Loma Linda, CA 92350 USA*

ABSTRACT.—The amount of venom that a snake injects into a target varies with snake size, bite context (predatory or defensive), target identity (species and size), and a host of other factors. A number of studies have provided evidence that snakes possess the cognitive (decision-making) capacity to control, or meter, venom expenditure during both predatory and defensive contexts. However, several recent papers dismissed the evidence for venom metering and presented an alternative explanation, the pressure-balance hypothesis, which attributes differences in venom expenditure to variation in strike kinematics and/or target surface features. As for many conflicts in science, this controversy has arisen largely because the authors of the recent papers pitted two hypotheses against each other (the venom-metering and pressure-balance hypotheses) that represent fundamentally different levels of analysis (cognitive and physiological, respectively) and, therefore, are not mutually exclusive. Partly because of this, the authors relied on faulty assumptions and succumbed to logical errors when examining evidence for the venom-metering hypothesis. Properly understood, the venom-metering hypothesis rests on two assumptions: 1) that the snake can accurately assess the target (which is well-supported by previous studies), and 2) that it has cognitive control over the venom delivery system (which remains less clear). Analyses of the duration and kinematics of venom flow based on videos of venom extractions provide new evidence that crotaline snakes possess cognitive control of venom delivery. This control probably derives from numerous mechanisms, including

MYTH

“Babies are more dangerous than adults.”

REALITY

Babies venom may be slightly more toxic, but the amount of venom matters.

Babies have as much control over venom as adults do.



4

MYTH
"Rattlesnakes avoid snake-repellants, mothballs, rope, etc..."





4

MYTH

"Rattlesnakes avoid snake-repellants, mothballs, rope, etc..."

REALITY

They don't care, save your money and focus on habitat reduction and snake fencing.



4

MYTH

“Rattlesnakes avoid snake-repellants, mothballs, rope, etc...”

REALITY

They don't care, save your money and focus on habitat reduction and snake fencing.



serpents.com

RATTLESNAKE EGGS



5

MYTH

"Rattlesnake eggs..."



5

MYTH

"Rattlesnake eggs..."

REALITY

Rattlesnakes give live birth and actively care for their young for awhile.

5

MYTH

"Rattlesnake eggs..."

REALITY

Rattlesnakes give live birth and actively care for their young for awhile.

These are quail eggs.





6

MYTH

"Baby rattlesnakes don't have rattles yet."

6

MYTH

“Baby rattlesnakes don’t have rattles yet.”

REALITY

Baby rattlesnakes are born with a single rattle segment. No rattlesnakes have pointed tails.





7

MYTH
"Suck the venom out!"

Snakebite Suction Devices Don't Remove Venom: They Just Suck

Sean P. Bush, MD

From the Department of Emergency Medicine, Loma Linda University School of Medicine, Medical Center and Children's Hospital, Loma Linda, CA.

See related article, p. 181.

[*Ann Emerg Med.* 2004;43:187-188.]

It was only a few decades ago that incision and suction were recommended snakebite first aid. However, concerns arose about injuries and infections caused when laypersons made incisions across fang marks and

In their pr
model was us
labeled mock
Extractor aft
hypodermic
active count
venom remov
moved 0.04%
authors conc
amount and t
The main lim
use real veno

The study
that have test
Using a porci
randomized

MYTH

"Suck the venom out!"

REALITY

Never do this.

7

MYTH

"Suck the venom out!"

REALITY

Never do this.



[home](#) [→](#) [science](#) [→](#) [wildlife](#)

Some Rattlesnakes Losing Their Warning Rattle In S. Dakota

AUGUST 29, 2013 4:51 PM ET

GARY ELLENBOLT

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All Things Considered



2:44 | 128 kbps

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There are few things more chilling than the sound of a nearby rattlesnake. That distinctive sound serves as a warning that trouble could be on the way. The only thing worse than hearing a rattlesnake within striking distance — is not hearing it at all. A herpetologist in South Dakota's Black Hills has discovered a growing number of Prairie Rattlesnakes with atrophied tail muscles; he believes it's a genetic issue that multiplies because those snakes that can rattle usually end up being killed. But others

8

MYTH**"Rattlesnakes are evolving not to rattle!"**



8

MYTH

"Rattlesnakes are evolving not to rattle!"

REALITY

There is no evidence to support this.



9

MYTH
"Check out this giant rattler my buddy done kilt when we was huntin."

9

MYTH

“Check out this giant rattler my buddy done kilt when we was huntin.”

REALITY

Forced perspective.



These photos illustrate how the “close-focus wide-angle” technique is used to make snakes and other creatures appear much larger compared to the person holding them. The key is the use of a wide-angle camera lens (usually 20 to 35 mm), taking advantage of its exaggerated depth of field



9

MYTH

“Check out this giant rattler my buddy done kilt when we was huntin.”

REALITY

Forced perspective.



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It Was as Big as My Head, I Swear! Biased Spider Size Estimation in Spider Phobia

[Michael W. Vasey](#), [Michael R. Vilensky](#), [Jacqueline H. Heath](#), [Casaundra N. Harbaugh](#), [Adam G. Buffington](#), and [Russell H. Fazio](#)

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The publisher's final edited version of this article is available at [J Anxiety Disord](#)

See other articles in PMC that [cite](#) the published article.

Abstract

Go to:

The current study tested the association between fear and perception in spider phobic individuals (n = 57) within the context of a treatment outcome study. Participants completed 5 post-treatment Behavioral Approach Tasks (BATs) in which they encountered a live spider and were asked to provide spider size estimates. Consistent with predictions, results indicated that high levels of fear were associated with magnified perception of phobic stimuli. Specifically, we found a significant positive correlation between size estimates and self-reported fear while encountering spiders. Together with previous findings, these results further support the notion that fear is involved in the encoding and processing of perceptual

MYTH

“Check out this giant rattler my buddy done kilt when we was huntin.”

REALITY

Forced perspective.

People are bad at estimating size, especially when excited or scared.

10

MYTH
Killing rattlesnakes makes
an area more safe.



10

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CONSERVATION

Physiological and Behavioral Effects of Repeated Handling and Short-Distance Translocations on Free-Ranging Northern Pacific Rattlesnakes (*Crotalus oreganus oreganus*)

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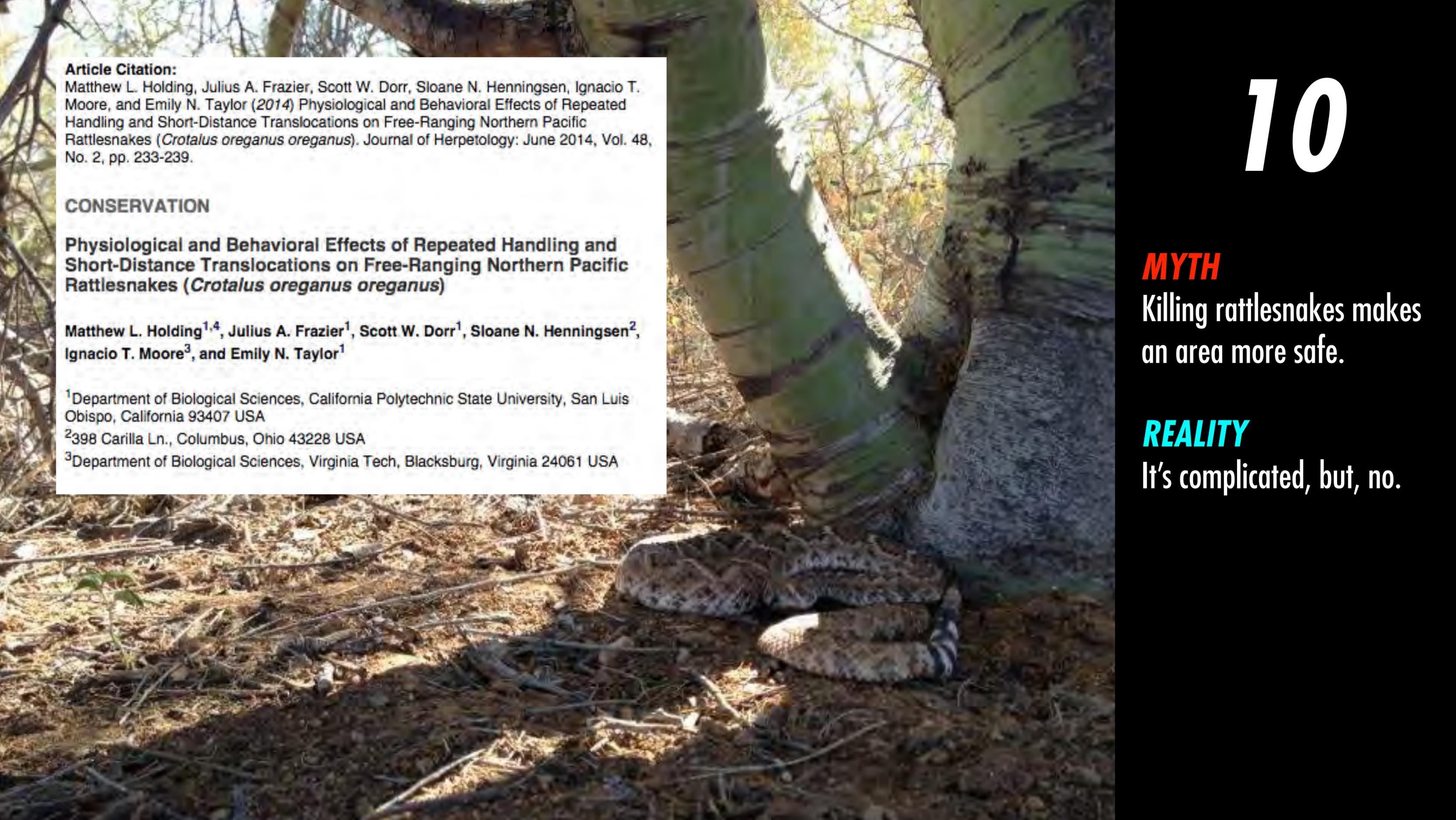
³Department of Biological Sciences, Virginia Tech, Blacksburg, Virginia 24061 USA

MYTH

Killing rattlesnakes makes an area more safe.

REALITY

It's complicated, but, no.



10

Date	Species	Location, comments
July 8, 2014	copperhead	While camping at Sam A. Baker State Park , Levins walked outside, saw the snake and brought it to his son's attention. When he picked it up, the snake bit him. Levins walked back into the cabin, washed his hand off at the kitchen sink and sat down on the couch. When Levins became sick, someone from a neighboring cabin came over to help and applied CPR. Levins was later pronounced dead at an area hospital. ^[5]
Feb 15, 2014	rattlesnake	Coots was bitten on the right hand during a service at his Full Gospel Tabernacle in Jesus Name church in Middlesboro, Kentucky . After the bite, Coots dropped the snakes, but then picked them back up and continued the ceremony. Later, he was driven to his home. When paramedics arrived, his relatives refused medical treatment for him, saying it was inconsistent with his religion. He died at home.
May 28, 2012	Timber Rattlesnake	Wolford was bitten on the thigh while handling a timber rattlesnake as part of an outdoor religious service at Panther State Forest in McDowell County, West Virginia . ^{[6][7]} Wolford did not initially seek medical treatment for his injury, but was taken to Bluefield Regional Medical Center when his condition began to deteriorate some eight hours later. ^[6] Wolford was a pastor and often handled his pet snake during church services. ^[6] Wolford's father, Mack Wolford, died in 1983 under similar circumstances. ^[8]
January 29, 2011	Copperhead	Westbrook was bitten just above the right elbow while handling a copperhead; he had been attempting to determine the snake's sex. ^[9] According to witnesses, Westbrook "tried to extract the venom with a tool after he was bitten, then he began coughing and vomiting before he collapsed." ^[10] Westbrook was pronounced dead on arrival at Erlanger Hospital in Chattanooga, Tennessee . ^[10] The cause of death was determined to be "anaphylactic shock as a result of the snake bite." ^[10]
October 13, 2010	rattlesnake, probably a Southern Pacific Rattlesnake	Price was bitten above the right ankle while wading across a stream near Cuyamaca Reservoir in Cuyamaca, California . ^[11] Price had been taking part in a study of steelhead trout that was funded by a state Department of Fish and Game grant. ^[11] According to witnesses, Price "stopped breathing within minutes" of being bitten. The bite marks on his foot were reportedly "an inch and a half across." ^[11] Price was airlifted to Palomar Medical Center , but later died.

MYTH

Killing rattlesnakes makes an area more safe.

REALITY

It's complicated, but, no.

Over-estimation of abilities
+ human nature
= ambulance.

10

IN THE LAST 10 YEARS: 25 SNAKE BITE DEATHS IN U.S.

#1 REASON: HANDLING

ONLY BITE DEATH AT A RESIDENCE IN THE PAST 15+ YEARS:

“... fire marshal, went to help a neighbor who had spotted a rattlesnake while mowing grass. He shot at the snake; it went under a shed and Guidry was bitten when he reached for it.”

MYTH

Killing rattlesnakes makes an area more safe.

REALITY

It's complicated, but, no.

Over-estimation of abilities
+ human nature
= ambulance.



10

MYTH

Killing rattlesnakes makes an area more safe.

REALITY

It's complicated, but, no.

Over-estimation of abilities
+ human nature
= ambulance.

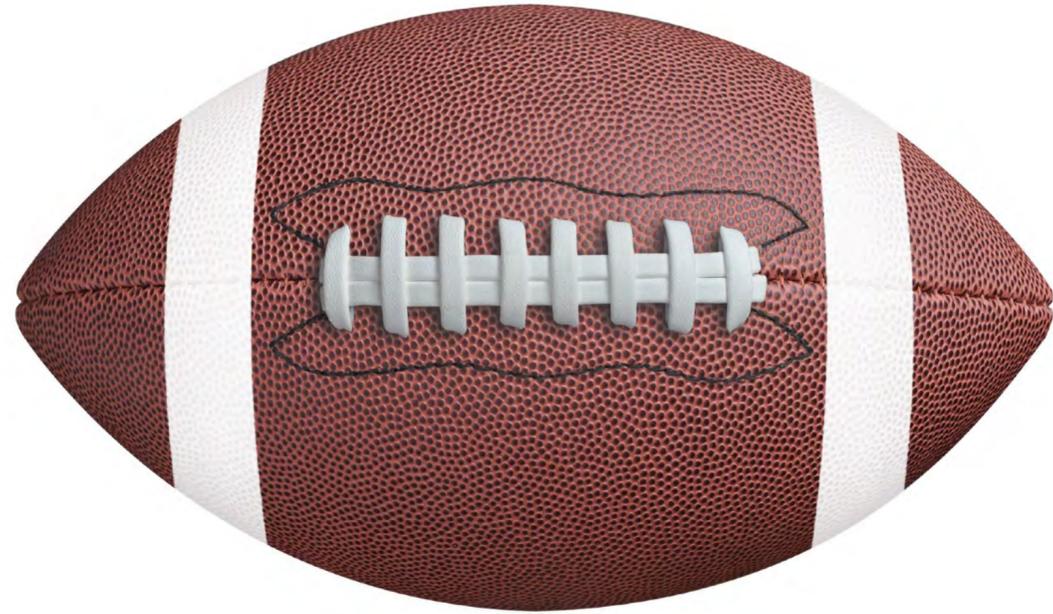
**Things more dangerous
than a rattlesnake.**



Falling out of bed. 450 per year.



Falling Coconuts. 150 per year.



High School Football. 12 per year.



Champagne corks. 24 per year.



Ants. 30 per year.



BEVMAX COKE®

Vending Machines. 13 per year.



Christmas Shopping. 1-3 per year.

Fact: Rattlesnakes get a bad rap.



MORE INFORMATION

RATTLESNAKESOLUTIONS.COM

FACEBOOK.COM/SNAKEREMOVAL

REPORT SIGHTINGS!

PHOTO & LOCATION (GPS IF POSSIBLE) TO

INFO@RATTLESNAKESOLUTIONS.COM

OR [4806943020](tel:4806943020)

LEAVE A REVIEW ;)

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