



What's the Buzz?
Research at the Rattlesnake-Human Interface



Presentation Outcomes

Learn ID tips and local phenology

Dispel common rattlesnake myths

Describe rattlesnake bite 1st aid

Describe risk reducing equipment, actions, behaviors, and management tools





Joe Ehrenberger, Adaptation Environmental Services

Bryon Shipley, Denver Zoo Foundation

Dr. Kevin Fitzgerald,
Alameda East Veterinary Hospital

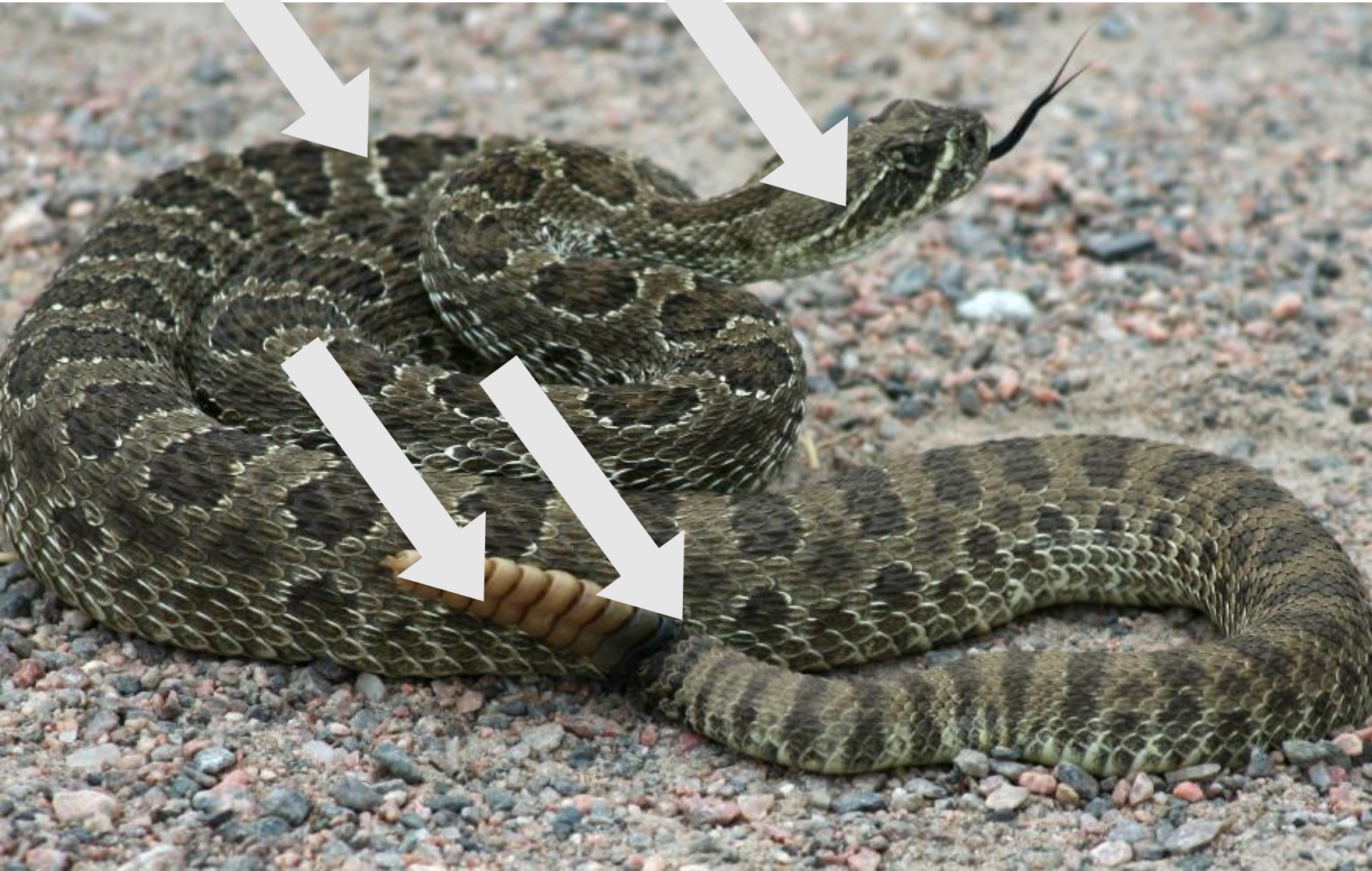
Andrew DuBois & Mary Ann Bonnell, Jeffco Open
Space

Citizen Scientists

Park Visitors

Rattlesnakes





Prairie Rattlesnake
Crotalus viridis



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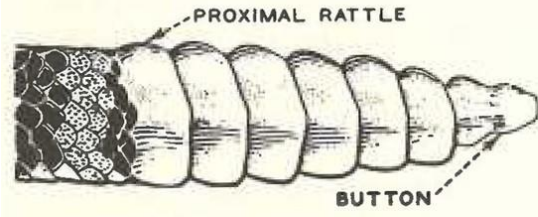


Fig. 11 A complete string

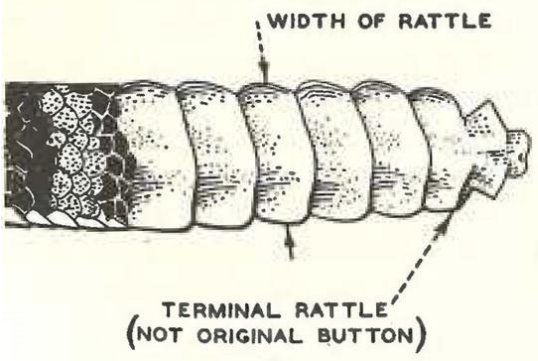


Fig. 12 A broken string after the loss of several segments

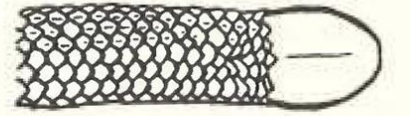


Fig. 13 A prebutton

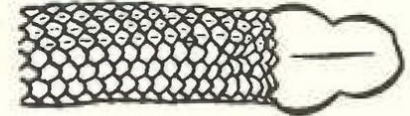


Fig. 14 A button

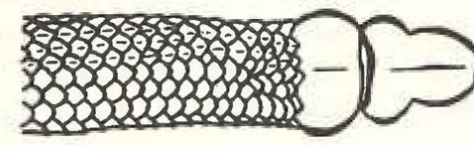


Fig. 15 A rattle-string comprising a button and a No. 2 rattle



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Legal Status

State: Game species

Small game license required to hunt

(June 15 – August 15)

If necessary to protect life or property, any person may kill a rattlesnake

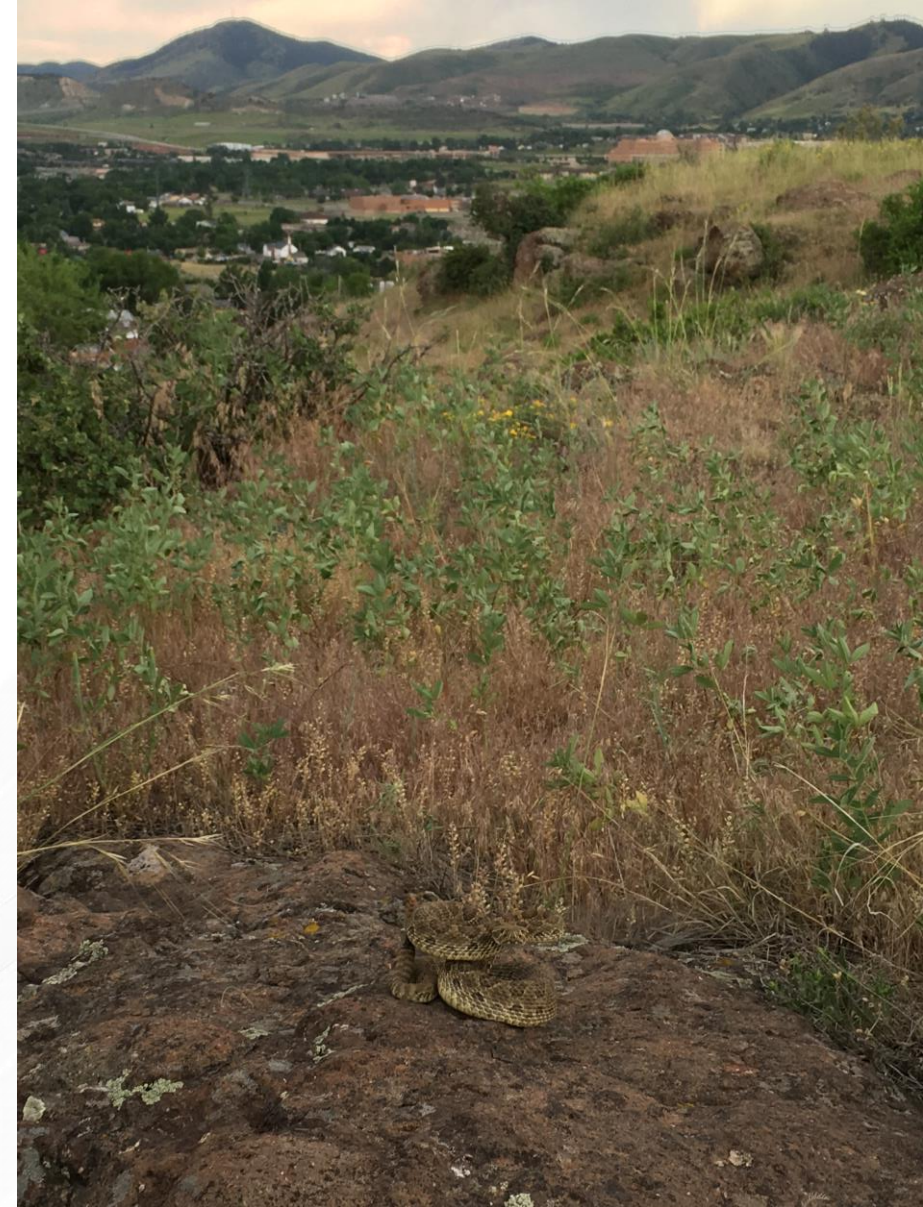
Not threatened or endangered

Some local population declines/extirpations from persecution, destruction of dens, and development

Local

Protected by JCOS Park Regulation

C.9 Wildlife Protection \$300 fine



Possession and Collecting

venomous snake possession
regulated by State

License and authorization from CPW
is required for collection or transport*

Licenses renewed annually

Venomous snakes as pets are
prohibited

Scientific collection permit
Issued for research, tagging,
education

*short distance translocation permitted, by badged officers





THE DENVER CHANNEL.COM

RATTLESNAKE FEARS CLOSE TABLE MOUNTAIN TRAIL



5:01 66°



South Table Mountain Park
1,472 Acres | 3.8 Miles of Trails

- Most Difficult
- Hiker Only Trail
- Peak to Plains Trail

No Public Access

Conservation Easement Open Space

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Research Goals

Understand local ecology,
public engagement and
improved visitor safety

Transmitters

Human Dimensions
Survey

Public Engagement

Tracking



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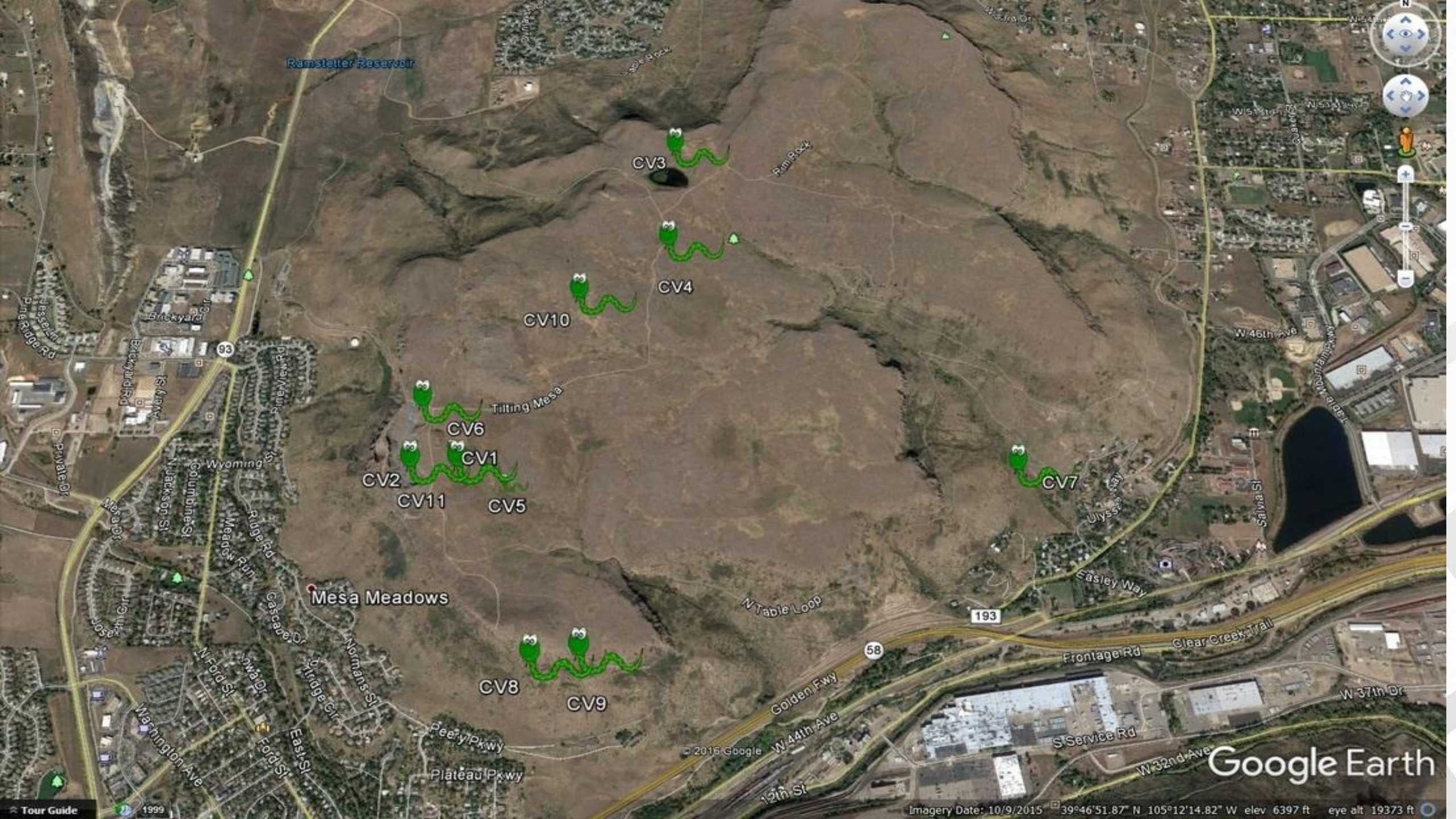




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Ramstetter Reservoir

CV3

CV4

CV10

CV6

CV1

CV2

CV11

CV5

CV7

CV8

CV9

Mesa Meadows

Google Earth

Imagery Date: 10/9/2015 39°46'51.87" N 105°12'14.82" W elev 6397 ft eye alt 19373 ft

Tour Guide 1999



Findings

Rattlesnakes utilize nearly all habitat types at NTM

Use both human-altered and natural rock infrastructure

Three overwintering dens adjacent to or near designated trails

Three rookeries



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Google Earth







Visitors and their
pets were often just
a few feet from a study
rattlesnake.



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Phenology

cyclic and seasonal natural phenomena, especially in relation to climate



Rattlesnake Phenology Scenarios

It is a sunny and chilly May morning. What do you need to do and where do you prefer to do it?

It's July and your instincts are telling you it's time to mate. You've arrived at the female you've been tracking for a week, only to find another male rattlesnake in the area. What's next?

It's the third week of August and you've just given birth to 14 live baby rattlesnakes. What do you do now?

You are a pregnant female. What are your plans for the summer?

It's July and daytime temperatures are predicted to be in the high 90s, which translates to a ground temperature of 120 degrees or more. What are your plans for the day?

It's August. You are a female snake and you've mated with three different males. What are your winter plans?

It's late September. Days are shorter and nights are colder. What's your next move?

It's December and the daytime temperature is going to be 63 degrees.

Any plans for the day?





Human Dimensions and Rattlesnakes Survey



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Findings

AGREE

90% rattlesnakes have ecological value

88% rattlesnakes belong in this park

74% know how to ID a rattlesnake

65% know what to do when they encounter a rattlesnake

66% pose a threat to pet safety



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Mary Ann @JCOSRanger1 · Aug 19

A park visitor killed this snake & left it on the trail @ North Table Mtn 📍 Do not attempt to move or harm #snakes basking on @JeffcoOpenSpace trails. It is inhumane & dangerous. Give the snake space & time to leave the trail. #ShareTheTrail, even with snakes.



Findings

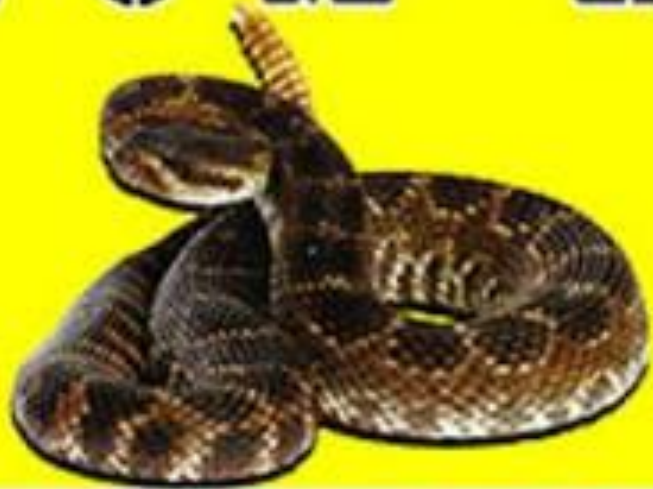
NEUTRAL

pose a threat to human safety

SPLIT

impacts ability to enjoy the trail

VENOM LOCC™



SNAKEBITE FIRST AID KIT

DESIGNED BY AN EMERGENCY ROOM DOCTOR
HELPS TO PREVENT VENOM FROM SPREADING BEYOND THE SITE OF THE BITE
See Package Back For Important Medical Information

Findings

NEEDS IMPROVEMENT

31% know how to provide
1st aid for a human

19% know how to provide
1st aid for a pet



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Snake bite first aid:

Stay calm

Call 911

Sit down or lie flat

Keep the bite location body neutral

Monitor for severe symptoms



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Bite Response Factors:

Patient's health

Patient's age

Patient's weight

Patient's allergies

Location of bite

Age of snake

Disposition of snake

How much venom is released



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Snake bite first aid:

Stay calm

If possible, carry your pet to trailhead

Seek immediate veterinary medical care

Call ahead to ensure your vet is prepared for snake bite emergencies



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Risk reducing behaviors

94%

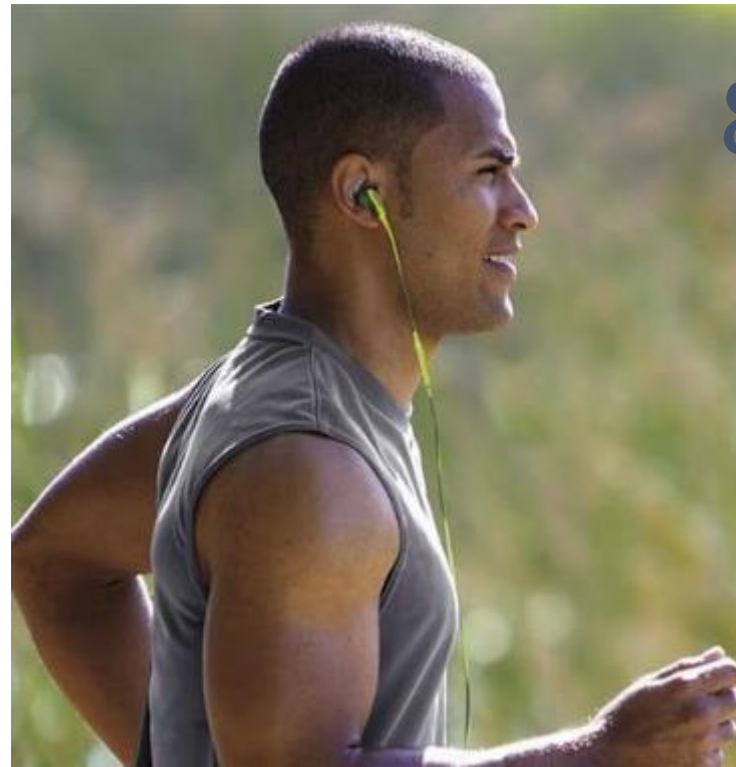
95%



88%

93%

95%



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Best practice for a snake encounter

Give snake space
and time to move
away from you.

30/30 rule



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Acceptance of management tools



91%

93%



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CLOSURE

Trail Closed Due to Rattlesnake Activity

For your safety, Cottonwood Canyon Trail is closed through November 15th.

strictly enforced
minimum fine \$150

Jefferson County Open Space
October 2017

59%

Acceptance of management tools

“Closing the trail until mid-November seems excessive. If you’re closing the trail for snakes is not in the best interest of trail users if you’re not considering ways to safely keep trails open and useable rather than just closing them.

So now we have trail closures because of snakes and eagles on NTM. Soon we won’t be able to use it at all.”

Note: At this time, 98% of the system at NTM was open and available for park visitors to enjoy.



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Exposure vs. Conflict

71% have seen a
rattlesnake
(18% reported > five)

4.2% reported conflict



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Basic Safety and Awareness



PPE for rattlesnake
country

Closed-toe shoes

Snake gaiters

Pick stick

Aware of surroundings

Advanced Safety and Awareness



PPE for
removal/translocation

Snake bucket
Snake hook
Snake tongs



Dyani Culver reviewed Jeffco Open Space, CO — 5★



Just now ·

Two open space employees saved my life, along with the lives of my boyfriend and two dogs, when we encountered a rattlesnake on a trail in Deer Creek Canyon this morning. They bravely removed the snake from the trail, and nobody was hurt. We're so thankful for them!



Jeffco Open Space, CO

Government Organization

8,626 Likes
281 talking about this

Scenarios

A park visitor finds a rattlesnake coiled behind one of the vault toilets at a busy trailhead.

A visitor says their off-leash dog was nosing around in some rocks and suddenly yelped. They didn't think much of it, but 5 minutes later the dog's lip is swollen.

A park visitor encounters a rattlesnake stretched across the trail.

You were reaching for a piece of trash in some rabbitbrush and a rattlesnake has bitten your hand.

You are camping in a remote location and sustain a rattlesnake bite to your ankle.





Public Perception

Direct engagement with technicians in the field changed knowledge, attitudes and beliefs.

Improved ID skills

Improved ability to enjoy park/trail

Reduced sense of threat to humans and pets

Improved first aid and encounter knowledge



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Public Perception

Rattlesnake Awareness
It's a waste of \$10,000... Many
signs that say "Watch out"
cost you about \$20 a yr... The
of Sen somebody out to harvest
downtown... PROB completely
Bureaucrats come up with
money...
Who comes up wit diss



JOE SIX PACK

Ya'll see that, she done winked at me!



RATTLESNAKES HAPPEN.

Research at the rattlesnake-human interface provides essential insights.

Leash your dog. Pay attention. STOP. Give the snake TIME and SPACE.



jeffco.us/open-space



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