

Animal Hazards NW!



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GENERAL
HEMATOLOGY

DISCLOSURE

Relevant Financial Relationship(s)

Speaker Bureau - None

Consultant/Research – none

Editor – UpToDate (Iron Tx)



The Talk

- **Animals we in the Northwest need to respect!**

Animal Bites: Mechanisms of Injury

- **Biting**
 - **Avulsions**
 - **Lacerations**
 - **Punctures – can be deep**
- **Clawing**
- **Swiping with paw**
- **Blunt Force**

Animal Bites

- **Most to arms and hands**
 - **Fighting off attack**
- **Face**
 - **Many animals aim for**
- **Neck**
 - **Big cats**

Treatment

- **Major bleeding needs treated first**
- **Screen for blunt trauma**
- **Clean and irrigate wound**
- **Remove foreign bodies**
- **Debride devitalized tissue**

Treatment

- **Closure controversial**
 - Many recommend no because high rate of infection
 - **Exceptions**
 - Facial wounds
 - < 8 hrs and thoroughly cleaned

Hand Wounds

- **Can be devastating**
 - **Tendons/bones/ligaments/lots of small spaces**
- **No primary closure**
- **Immobilize**
- **Prophylactic antibiotics**
- **Hand surgeon consult**

Infection Risk Factors

- **Animals**
 - All cats/humans/primates/pigs
- **Location**
 - Genitals/hands/wrist/foot
 - Any joint penetration

Infection Risk Factors

- **Patient**
 - **Asplenic/excess alcohol use**
 - **Diabetes/immunosuppression/PAD**
- **Wound**
 - **Crushed/considerable devitalized tissue/bone involvement**
 - **Puncture wounds**
 - **Presentation over 8 hours**

Antibiotics

- **Amoxicillin/Clav 875/125 bid**
- **Or**
- **Clindamycin/fluoroquinolone**
 - **Can vary by animal**
- **Don't forget tetanus!**

Wound Pathogens

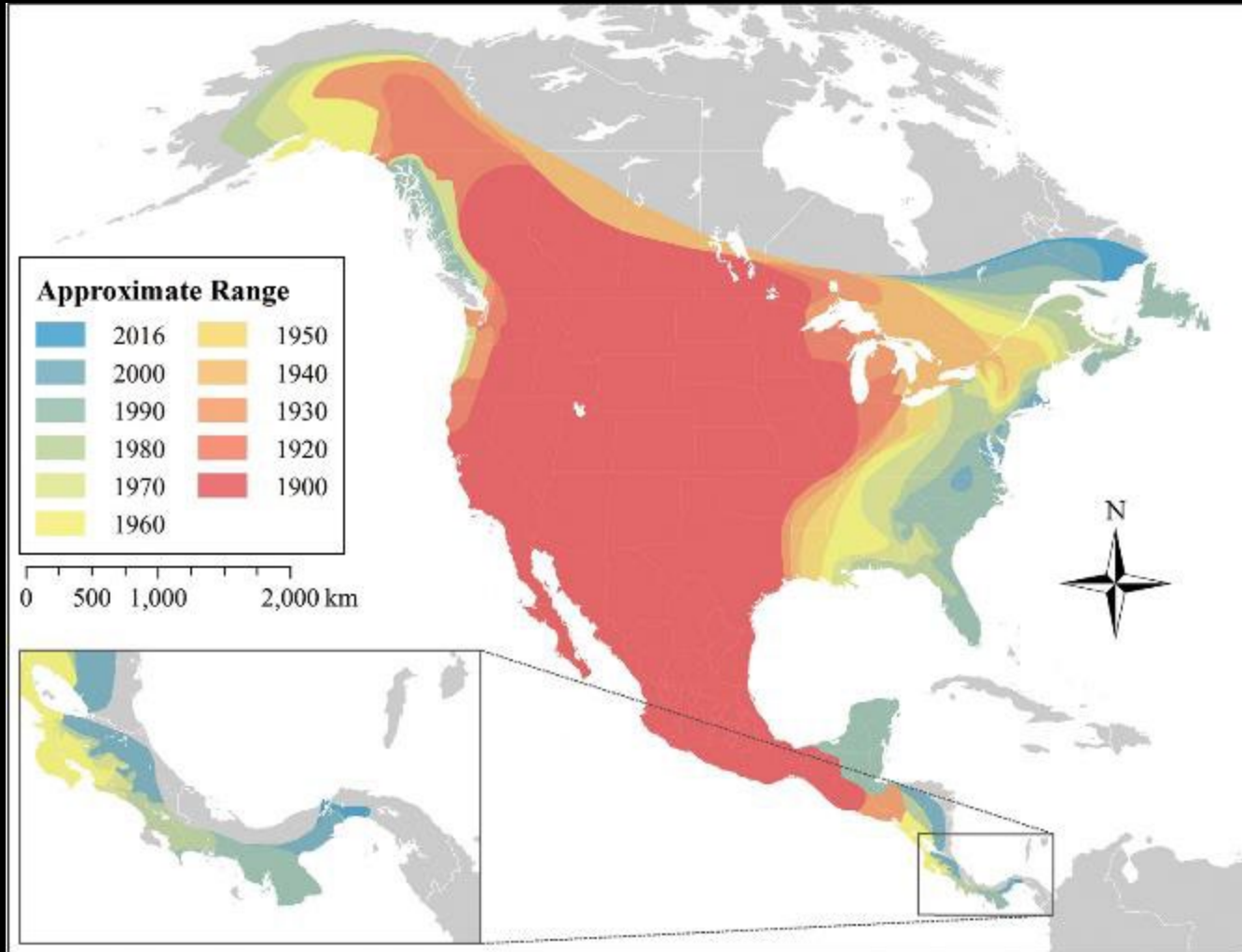
- **All wild animal bites are considered contaminated**
- **Most bite-wound infections are polymicrobial**
- **Antibiotics in high-risk cases**
- **Rabies vaccination for all large carnivore bites or crazy animals**

Wound Pathogens

- **Species dependent!**
- **Cats – Pasteurella**
- **Bears – Aeromonas, staph, strep, mycobacterium**
- **Swans - Pseudomonas**
- **Tasmanian Devils – Pasteurella**
- **Clin Microbiol Rev. 2011 24: 231–246**



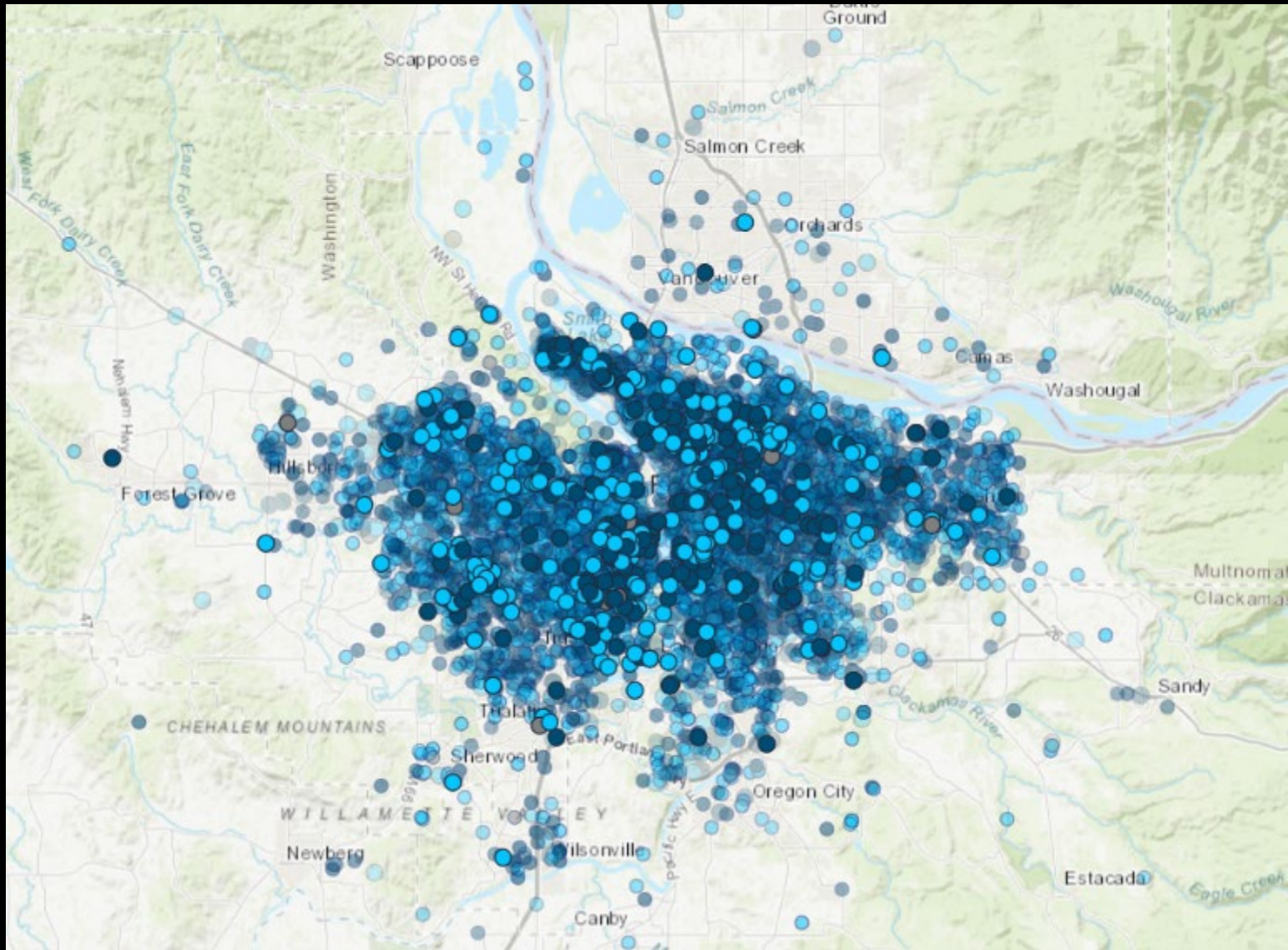
Portland Urban Coyote Project



ZooKeys 759:81-97, 2018

Portland Coyotes

- **First seen 1980**
- **Territory 4.5 mi²**
- **1400 (2015)**
- **1-2% diet cats**
- **Attacks similar to dog attack**
 - **Biting**



Portland Urban Coyote Project



one beat

Produced by John Goodmanson
Cover paintings by Annabel Wright

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SUB
POP



1. one beat
2. faraway
3. oh!

4. the remainder

5. light rail coyote

6. step aside

7. combat rock

8. O2

9. Pristinina

10. Funeral Song

11. Hollywood Ending

12. Sympathy



Coyote Rules

- **Do not feed coyotes!**
- **Do not let pets run loose**
- **Do not run from a coyote**
- **Repellents or fencing may help**
- **Do not create conflict where it does not exist**
- **Report aggressive, fearless coyotes immediately**

At the Portland Urban Coyote Project, our mission is to understand how people and coyotes interact and to help the community learn about our coyote neighbors.

[REPORT A COYOTE SIGHTING](#)

[LEARN MORE ABOUT COYOTES](#)

[SUPPORT OUR PROJECT](#)

Photos by Iwan Dufablon

www.portlandcoyote.com



[LEARN MORE](#)

<https://seattlecoyotestudy.wixsite.com/seattlecoyotestudy>



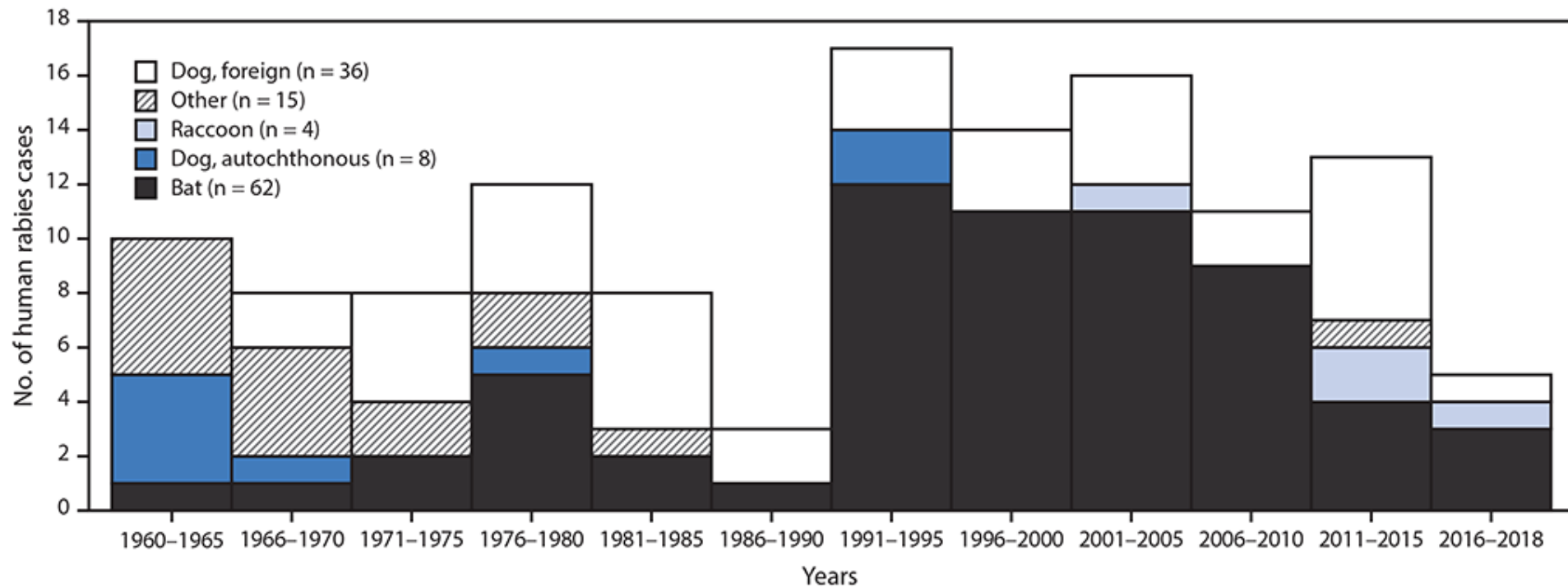


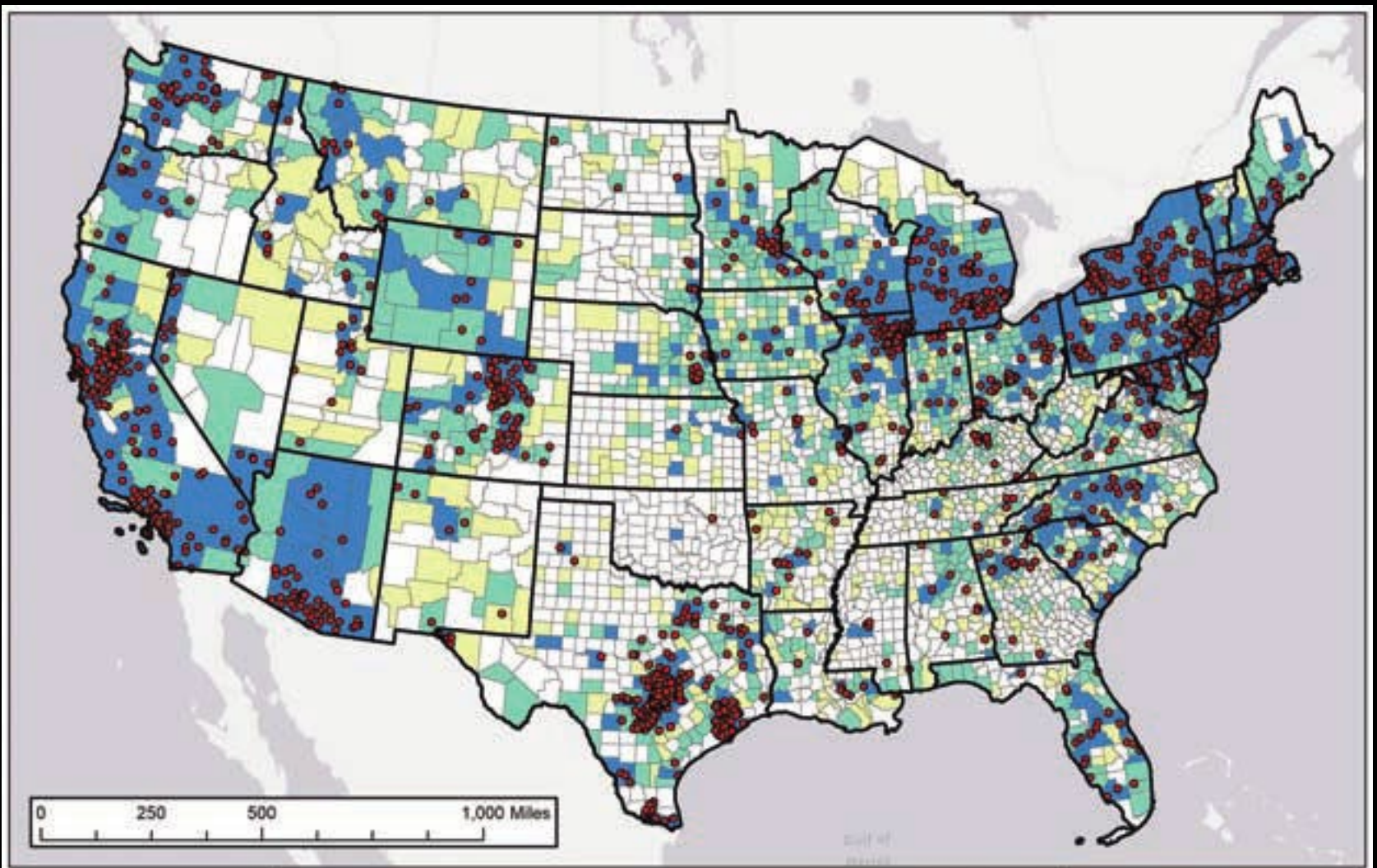




Rabies

- **Terrible way to die!**
- **Rabies a concern with any mammal bite**
- **Bats always a concern!**
 - **Tend not to get sick with rabies**
 - **Bites unnoticed**
 - **Can be infected from bat crawling on or licking you**





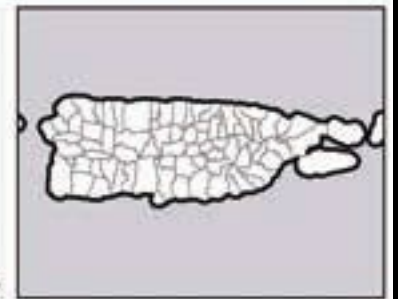
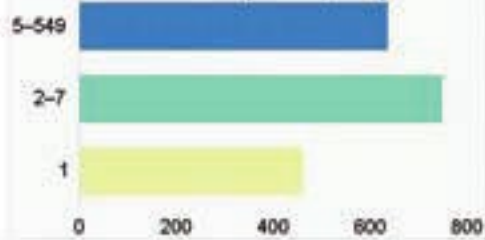
Tested



Rabid bats



Counties (n = 1,846)



Morbidity and Mortality Weekly Report

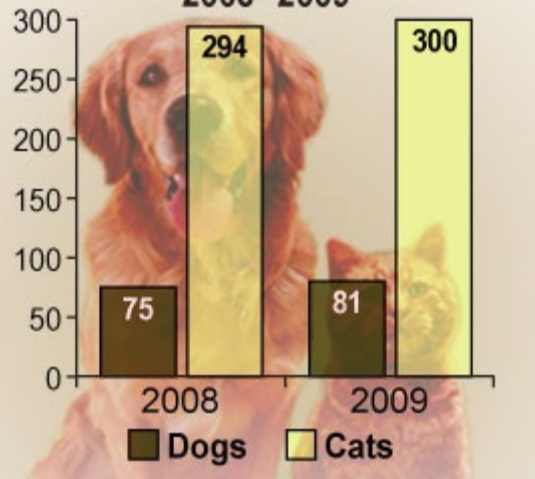
Human Rabies — Texas, 2021

Dawn Blackburn, BVMS^{1,*}; Faisal S. Minhaj, PharmD^{2,3,*}; Roukaya Al Hammoud, MD⁴; Lillian Orciari²; Jael Miller¹; Trevor Maness, PhD⁵; Jon Stewart, MPH⁵; Brittany Singletary¹; Elvia Ledezma, MPH⁵; Misti Ellsworth, MD⁴; Andrea Carlo-Angleró, MD⁴; Michael Niezgoda, MS²; Crystal M. Gigante, PhD²; Agam K. Rao, MD²; Panayampalli S. Satheshkumar, PhD²; Gloria P. Heresi, MD⁴; Amanda Kieffer, DVM⁵; Ryan M. Wallace, DVM²

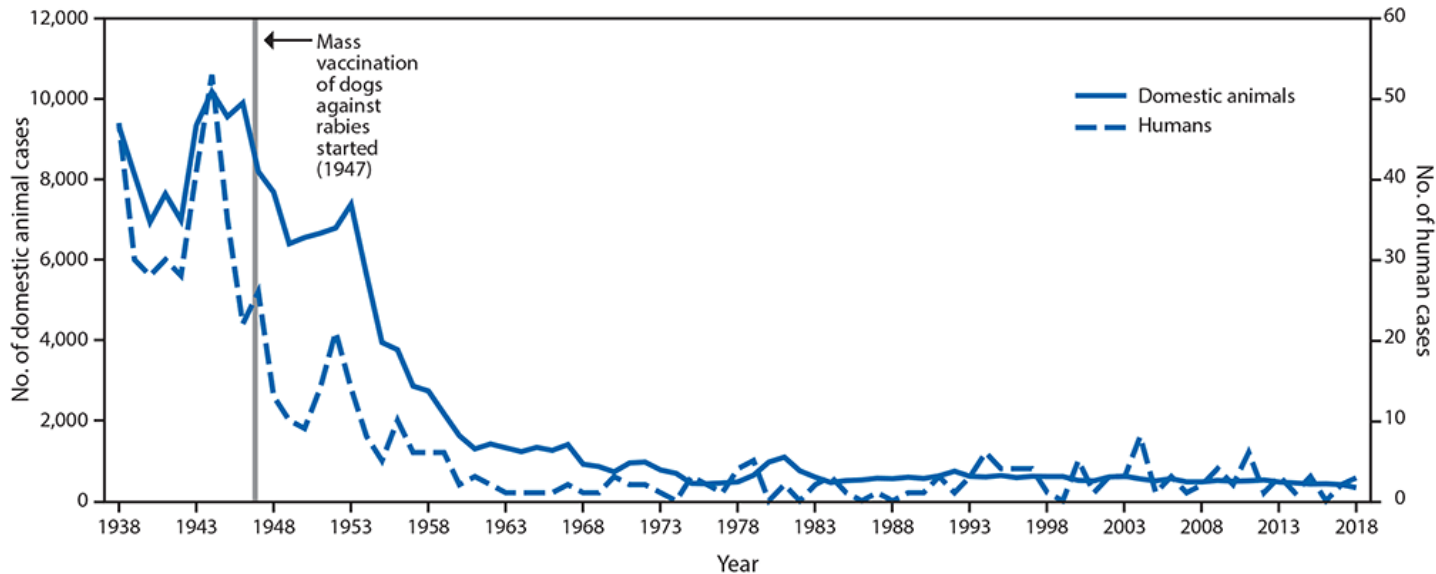
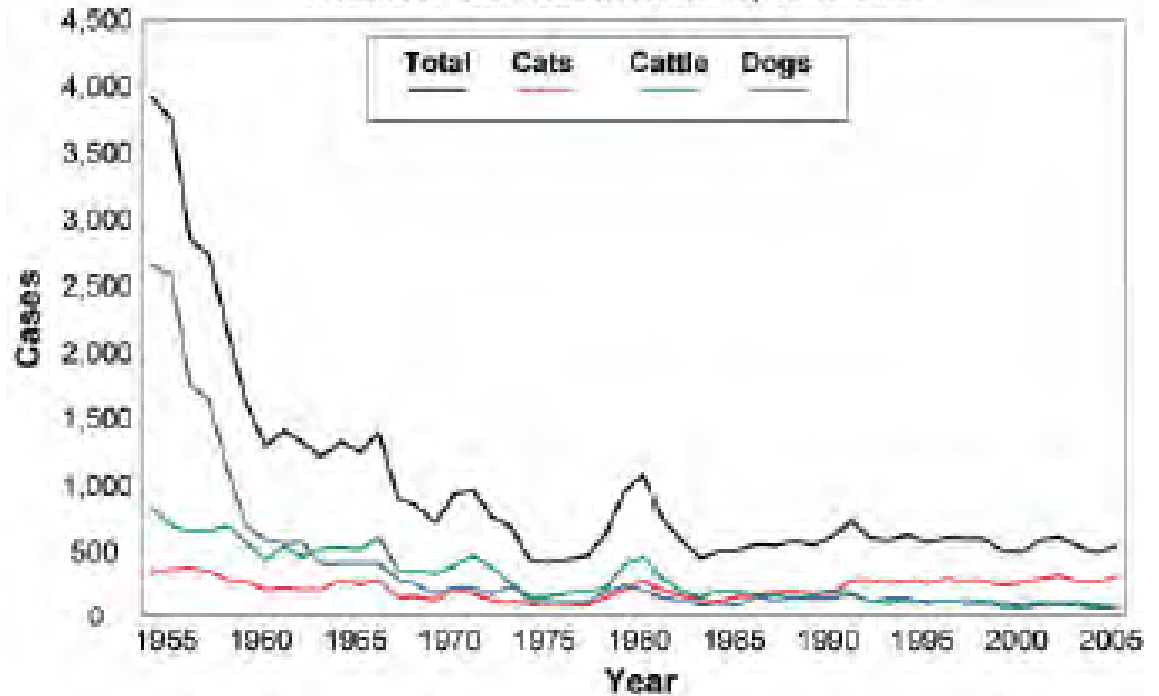
Other Animals

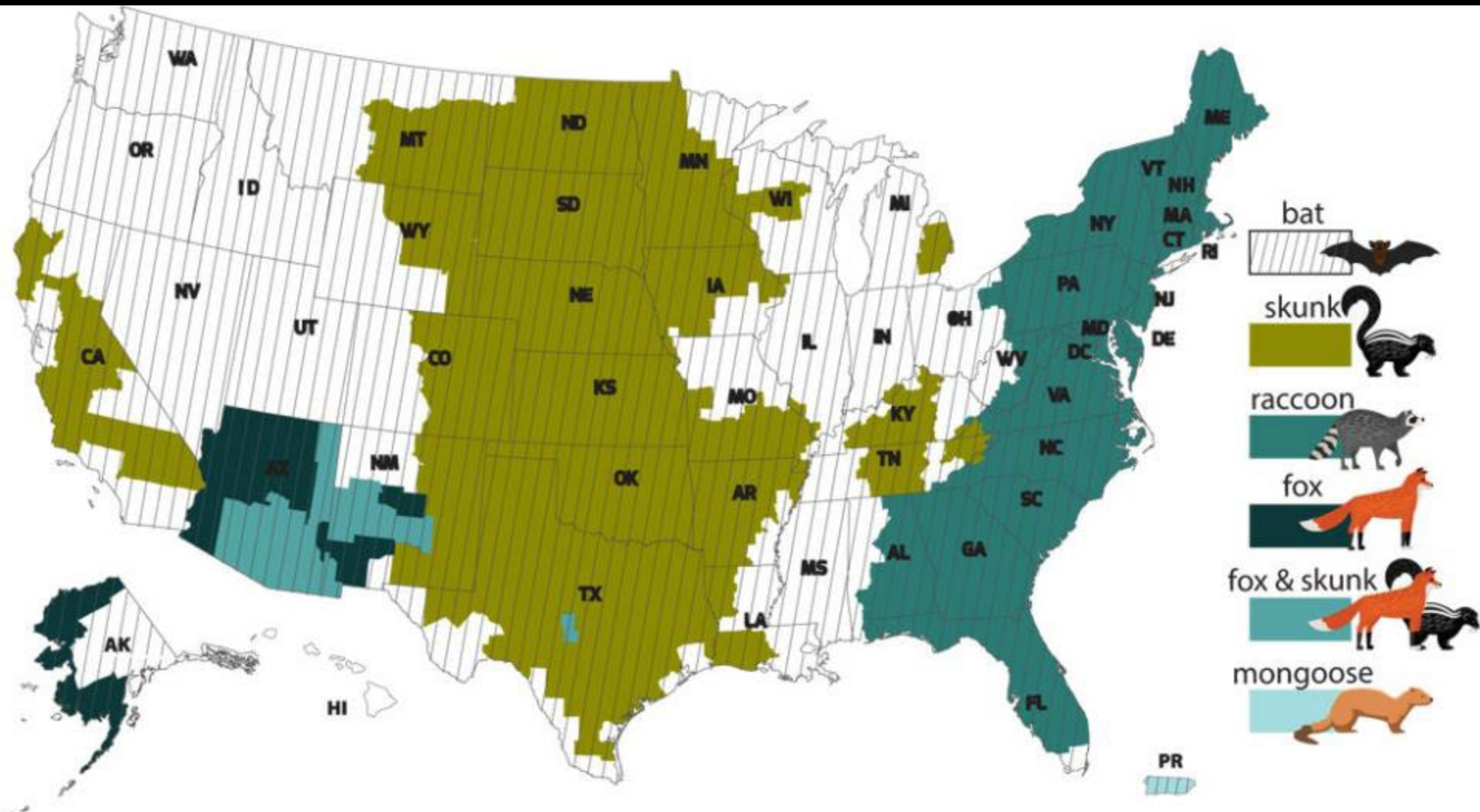
- **More rabid cats than dogs in USA**
 - 299 vs 99 in 2002
- **Dogs biggest threat world-wide**
 - Also foxes, mongooses, raccoons, jackals, and wolves

Number of Rabies Cases Among Dogs and Cats, United States—2008–2009



Rabies in Domestic Animals, 1955-2006





NW Rabies

- Oregon: 20 year data
 - 258 bats
 - 2 cats no dogs
 - 27 foxes
 - 3 coyotes, 1 skunk and 1 goat
- Washington: 30 year
 - 542 bats
 - 2 cats no dogs
 - 1 horse, 1 llama

Rabies

- **Vigorous wound cleansing with soap and water crucial first step**
- **HRIG ASAP -> vaccinations**
- **If previous vaccination no HRIG**

Local Therapy

Treatment	Infection	%
Tap water	1/19	5.3
20% soap	2/19	10.5
Ivory soap	2/20	10
Benzalkonium	2/20	10
Ivory soap/serum	2/20	10
Control	18/20	90

Bull Wld Hth Org 28:477, 1963





RABIES
(HDCV)

NDC 49281-250-51
List No 2501

Rabies Vaccine
IMOVAX® RABIES

PRE- AND POSTEXPOSURE
INTRAMUSCULAR IMMUNIZATION ONLY

NOT FOR INTRADERMAL USE

Wistar Rabies Virus Strain PM-1503-3M-Grown in Human Diploid Cell
Cultures-Single Dose-Lyophilized Vaccine, Luer Syringe with Sterile water, diluent for reconstitution
USP, one needle for reconstitution.

FOR INTRAMUSCULAR INJECTION



Bear Attacks



Bear Attacks

- **Responsible for most “wild” animal deaths**
- **Increasing bear-human interactions**
 - **Black bears “habituated”**
 - **Grizzlies – not so much**

Black vs Brown



Black Bear

Shoulder: No hump
Ears: Taller
Face: Straight profile
Front Claws: Dark ~ 1.5" long

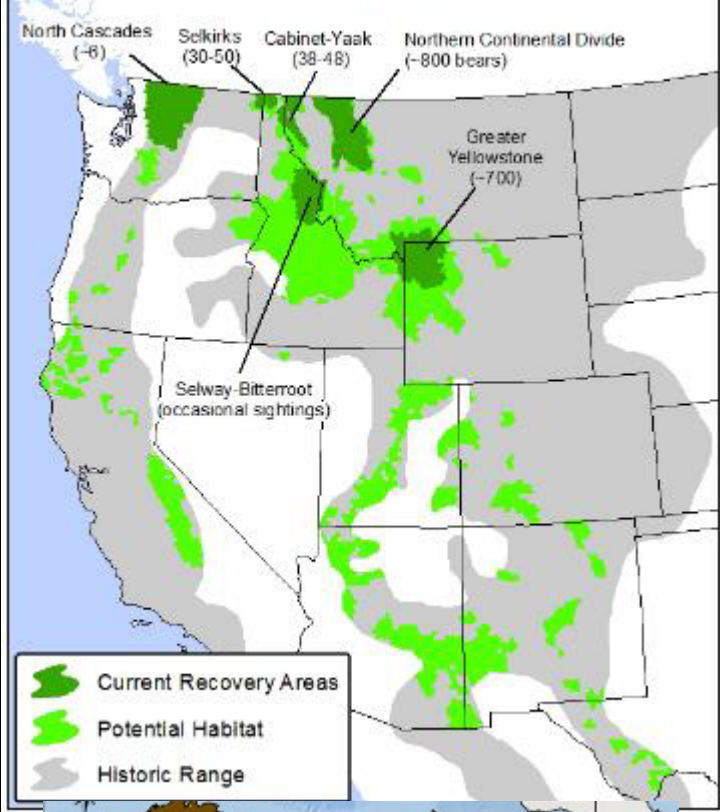


Grizzly Bear

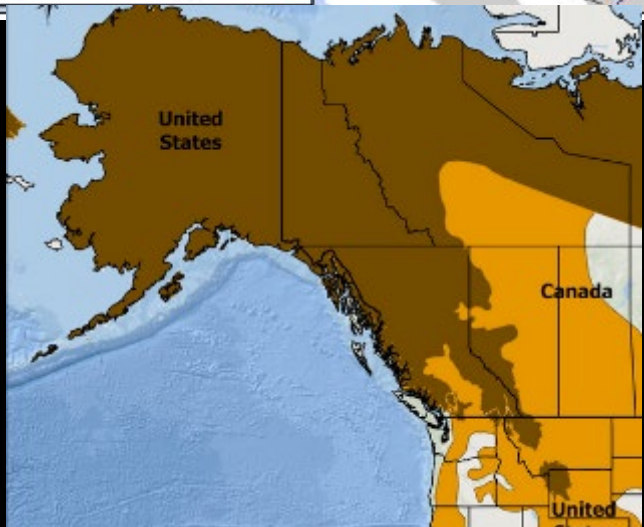
Hump
Short and rounded
Dished profile
Light ~ 2-4" long



Grizzly Bears in the West



Black Bears



Bears

Black

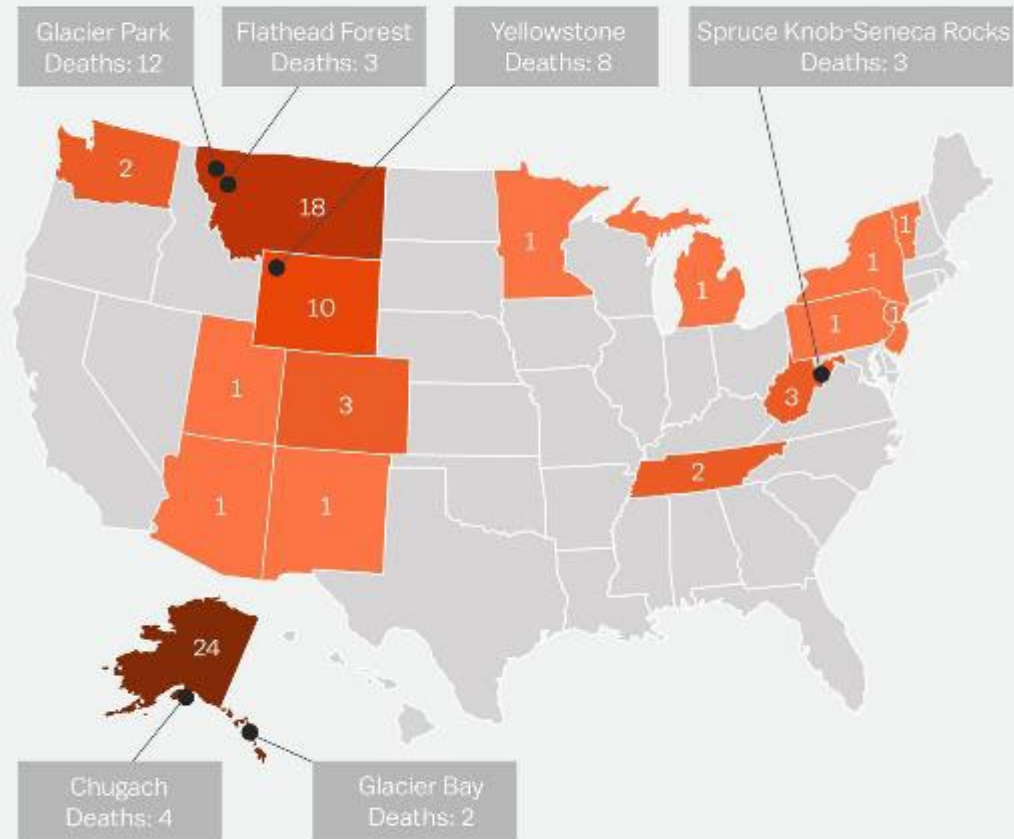
- Widespread US
- 650 pounds
- Smaller claws
 - 1-2 inches
- Range of colors
- Mothers not as aggressive
- Oregon – 25-30,000
- Washington – 25,000

Grizzly

- Restricted range
- 850 pounds
- Large claws
 - 2-4 inches
- Range of colors
- Mothers very protective
- Washington – 12-30
- Oregon – 0

Nearly half of all US bear attack deaths have occurred in 6 parks

Total fatal bear attacks (grizzly, black, and polar), 1900 to present



Source: Google news archives

Note: Attacks that occurred before the creation of national or state parks were added to the park in the current-day territory

Source:

<https://www.vox.com/2016/10/6/13170344/bear-attacks-national-state-park> Source: Wikimedia commons

Vox

Bear Attack Injuries

- **Face often attacked**
- **Mechanisms of trauma**
 - **Teeth: chewing, biting**
 - **Claws: slashing**
 - **Bulk: pinning down, crushing**
 - **Can pull or push you out of tree**

Bear Attack

- **Provoked:**
 - **Perceived threat**
 - **Mom with cubs**
 - **Surprise encounter**
 - **Getting too close!**
- **Unprovoked:**
 - **Predatory**

Avoidance

- **Make noise!**
- **Travel in groups**
- **Avoid leaving food on trail**
- **Camping – keep food downwind**

Sometimes the best relationship is a **long-distance** relationship



*Distance
is the key to
admiration.*



50 yards



*Distance gives us
new perspective.*



100 yards



*Distance makes the
heart grow fonder.*





**FRIENDS DON'T USE FRIENDS
AS BEAR BAIT**

NATIONAL PARK SERVICE

Grizzly Bears

- **Encounter**
 - Don't run
 - Walk slowly way
 - Be nonthreatening
 - Bear spray at 25 yards
 - Distract by throwing phone etc
- **Charged/attacked**
 - Play dead
 - Face/belly in dirt with hands over neck

Black Bear

- **Encounter**
 - Don't run
 - Look big, yell etc
 - Bear spray at 25 yards
- **Charged**
 - Fight back
 - Nose/eyes

Bear Spray

- Red pepper oil
- 90% effective
- 98% uninjured in close encounters
- Firearms not effective
- J Wildlife Mgt 72:640, 2008



Cougar Attacks

Biker's death near Seattle is Washington's first cougar fatality in 94 years



Pacific Northwest

Oregon hiker killed in Mount Hood cougar attack suffered broken neck, puncture wounds

Published: Oct. 24, 2018, 7:48 p.m.

Known Cougar Ranges 2015



- Oregon: 6000
- Washington: 3600

Cougar Attacks

- **Increasingly frequent:**
 - **Over 50 attacks since 1970**
 - **At least five adult and five child fatalities**
- **Most occurring in:**
 - **California**
 - **Vancouver Island**
 - **Colorado**



www.nbwphoto.com

Characteristics of Cougar Attacks

- Younger cougars more likely to attack
- Children more at risk
- Pushed to establish their own territory at about 18 months
- Forced into more human-inhabited areas
- Surprise attacks more common

The 3 most intrusive cases involved a cougar crashing through the window of an isolated cabin to attack a telephone lineman (Table 1: Kelsey Bay, B.C., 1951), a

Target of Cougar Attacks

- **Aims at victim's head and back**
- **Bites through great vessels and airway**
- **Causes forcible hyper-extension and C-spine fracture**
- **Puncture wounds from teeth are often much deeper than suspected**



Prevention of Cougar Attacks

DO:

- **Fight back**
- **Look larger, threatening**
- **Make noise**
- **Bear spray**

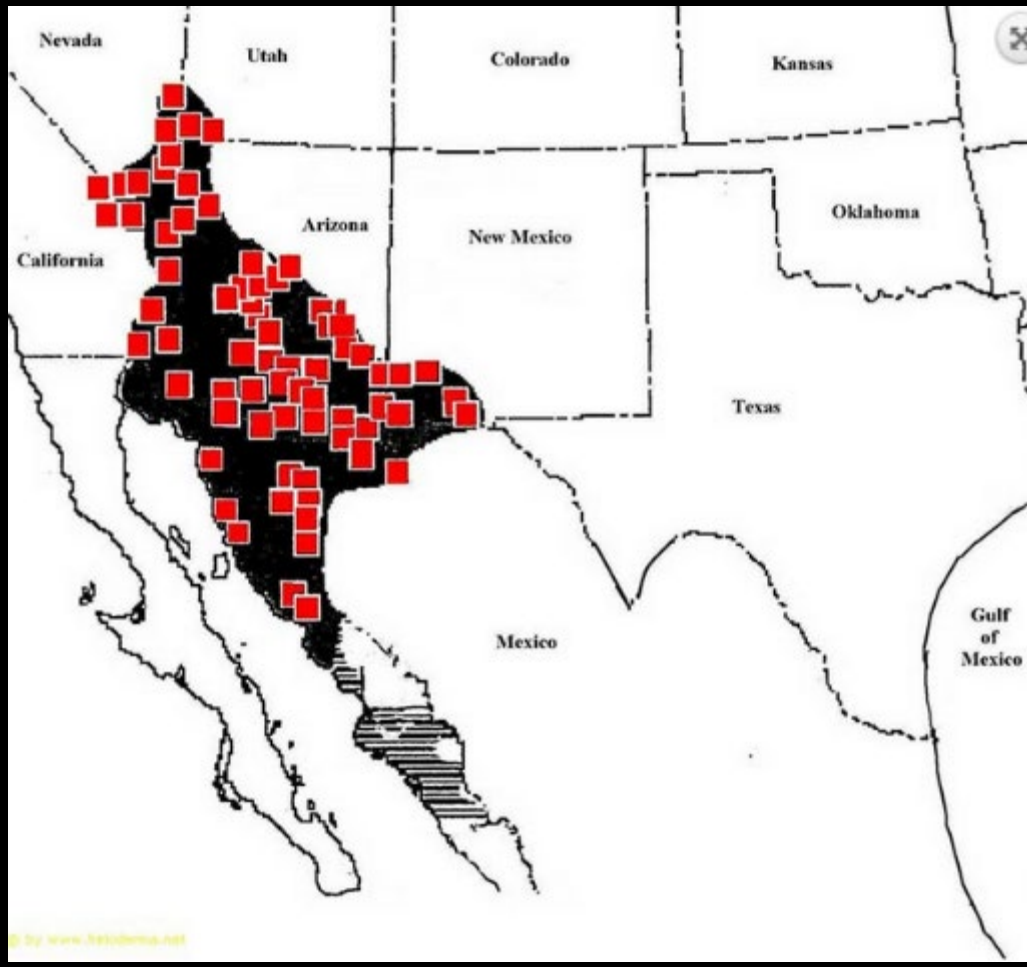
DON'T:

- **Stoop down**
- **Make direct eye contact**
- **Run**

Treatment

- **Assess for deep neck injuries**
- **Spine injuries**





Gila Monsters

- **SW USA**
- **Can be up to 2 ft long**
- **Official State Reptile of Utah!**
- **Eats 5-10 times/year**



Gila Monsters

- **Only small amounts of venom**
 - Drips into saliva
- **Fatal bites children or idiots**
- **Very painful!!!**
- **Rare reports of anaphylaxis**
- **Venom help developed GLP-1 agonists**
 - Ozempic (semaglutide)

First Aid

- **Lizard bites and doesn't let go**
 - **Banging on ground**
- **Examine wounds for broken teeth**
- **Pain control**
- **IV fluids for hypotension**

Disengage the jaws as promptly as possible, even at the expense of some laceration... Pouring alcohol (rubbing, ethyl, whiskey, etc.), **chloroform, or gasoline** into a Gila monster's mouth is an effective way to cause the lizard to loosen its grip. This may also be accompanied by the **application of the flame from a match or cigarette lighter** to the under surface of the lizard's jaw or neck.

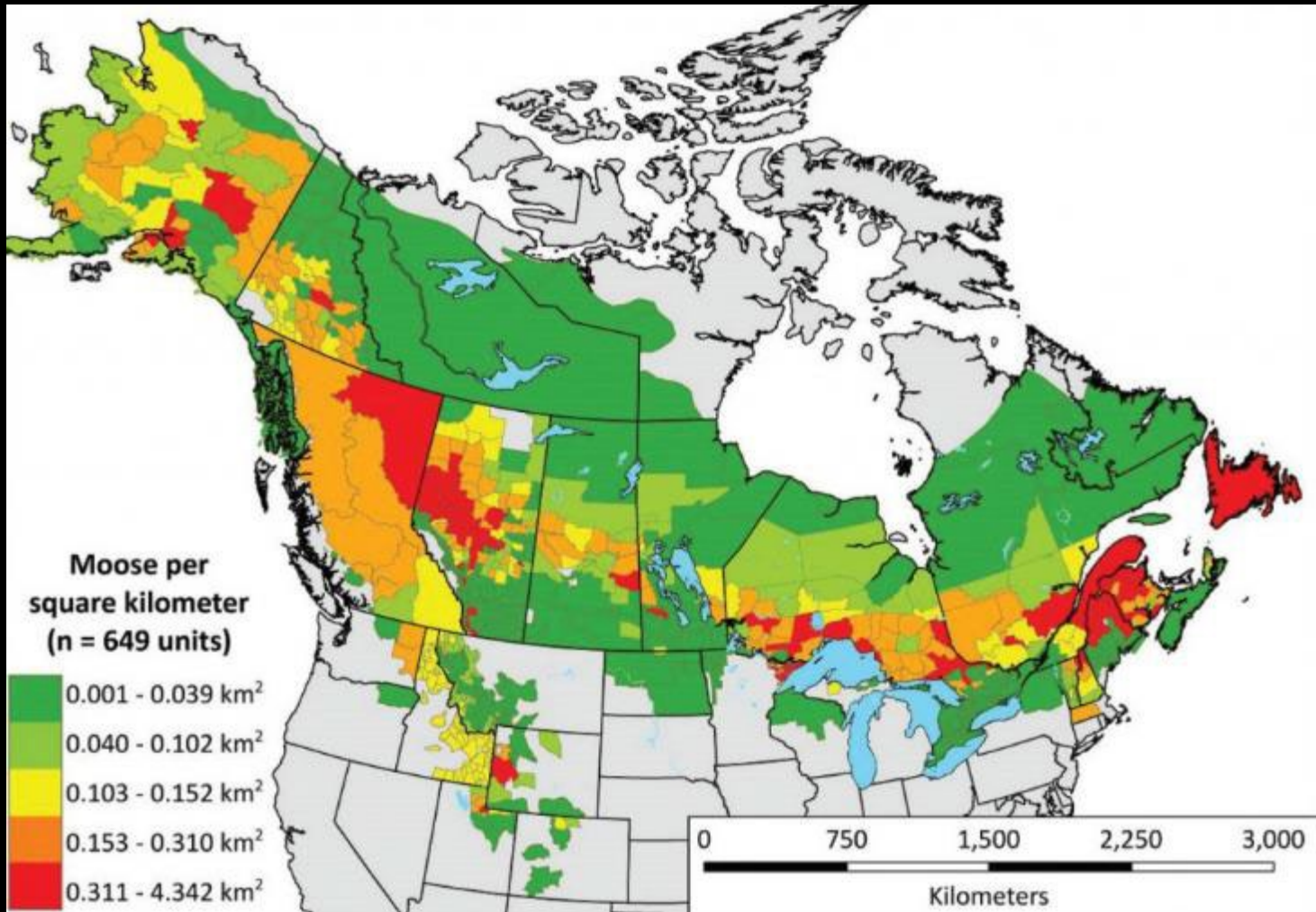
Arizona Med 18:121, 1961

A photograph of a large, dark-colored lizard, possibly a spiny-tailed monitor, lying on sand. The lizard's head and back are covered in numerous pinkish-orange, fleshy growths, likely a parasitic infection. The lizard is positioned horizontally, with its head to the right. The background is a dark, textured surface, possibly a rock or cave entrance.

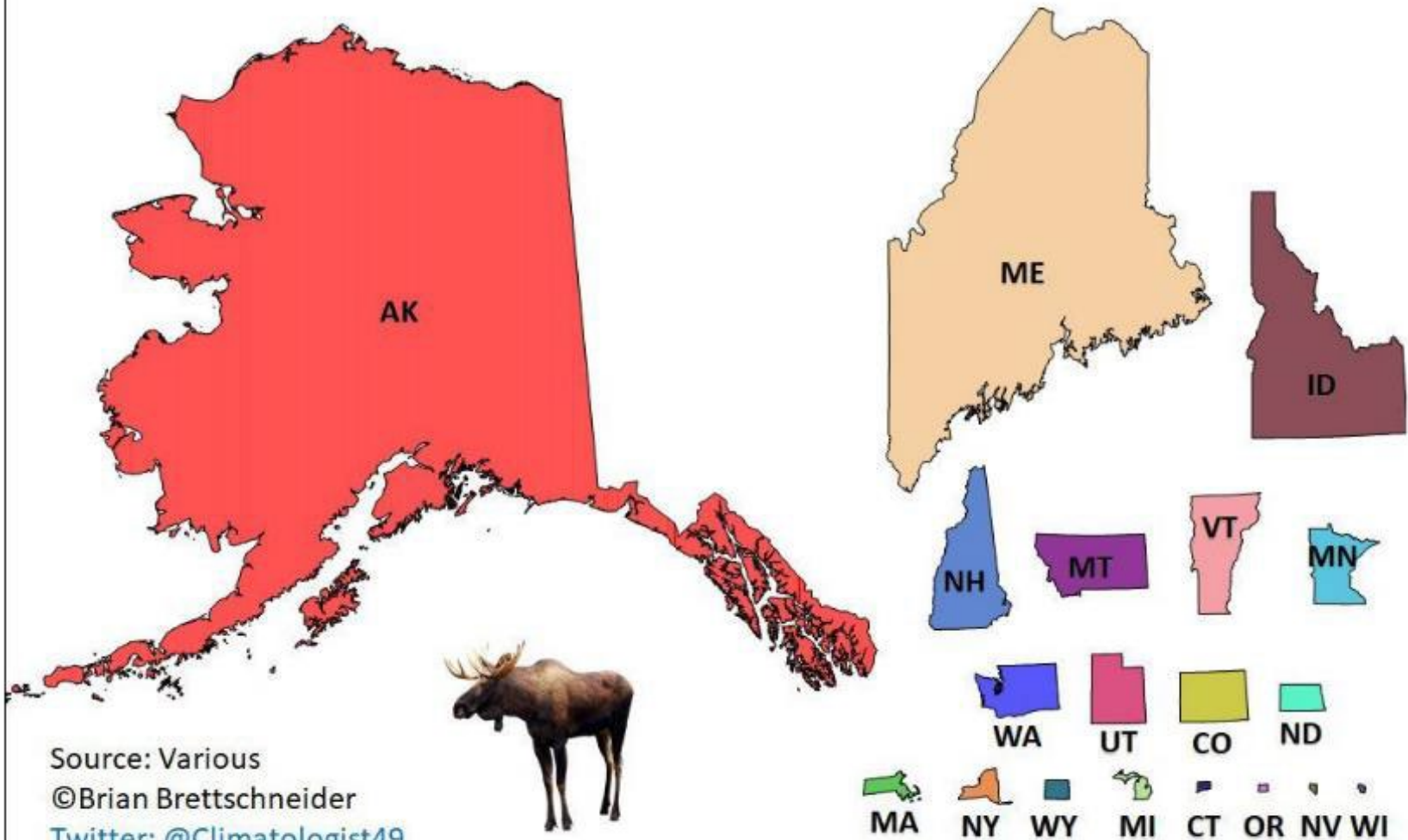
CURES OBESITY

STILL CALLED MONSTER





States Scaled by Moose Population



Moose

- **Large – up to 7 ft and 1500 pounds**
- **Usually avoid people**
- **Attacks**
 - **Mother with young**
 - **Dogs**
- **Victims stomped to death**

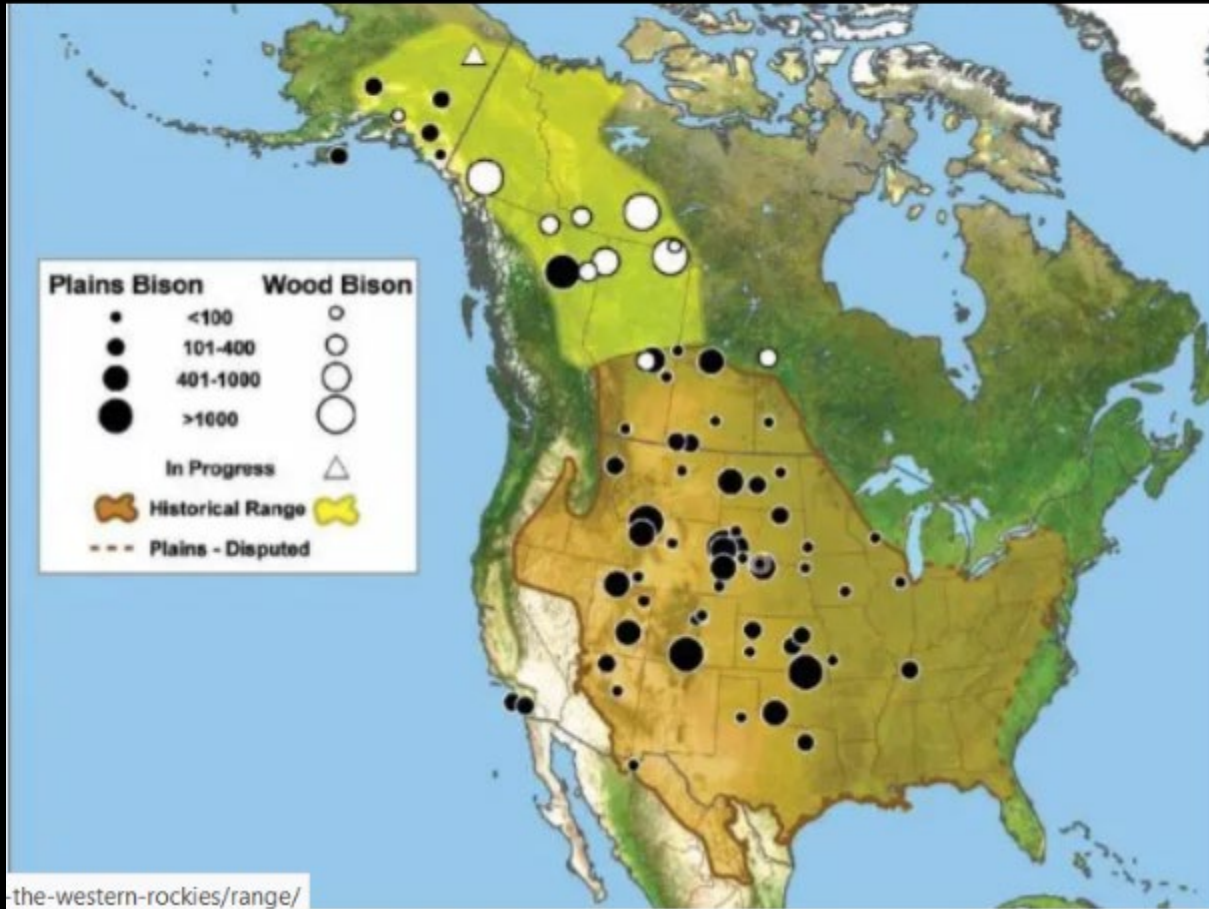


Moose

- **Warning signs**
 - Ears rearward
 - Raised rump hairs
 - Licking lips
 - Mom with calves
- **You...**
 - Hide behind a tree
 - Run away
 - Curl up in a ball if attacked







Buffalo

- **Numbers increasing in NW**
- **Weigh up to one ton**
- **Run at 20 mph/hr**
- **Most injuries are being too close**
 - **Average distance 10 feet**

Buffalo Injuries

- **Mechanisms**
 - **Goring**
 - 8-10 inches deep
 - Usually lower legs/buttocks
 - Perineum often involved
 - Chest/abdomen devastating injuries
 - **Blunt trauma from being tossed in the air**



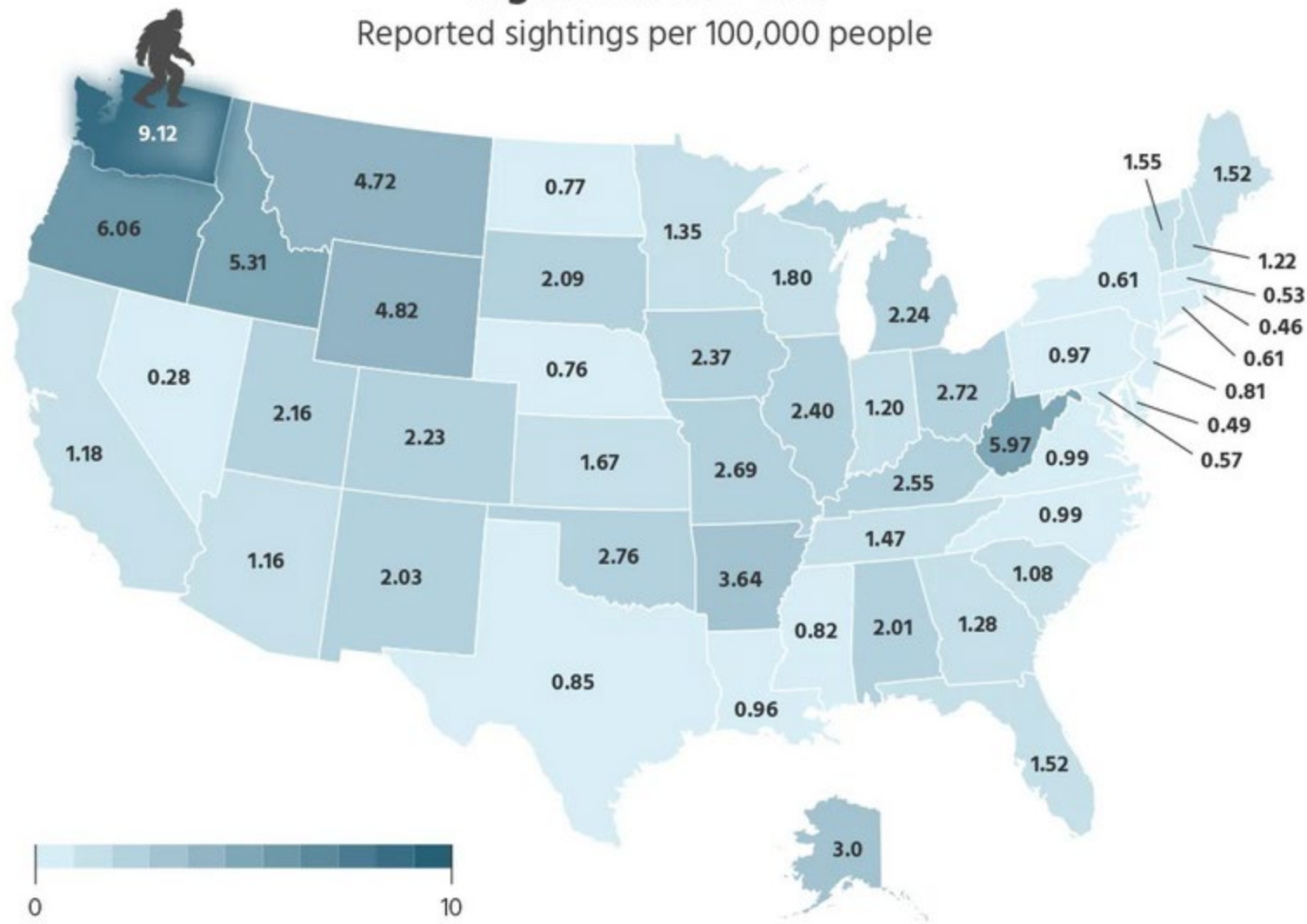
Buffalo

- **Wounds need exploration**
- **Antibiotic prophylaxis**
- **Prevention key!**
 - **Don't get near one!**



Bigfoot in the U.S.

Reported sightings per 100,000 people



Bigfoot

- Long stories of “hairy beast” in NW woods
- No reported attacks
 - Several people were shot mistaken for Bigfoot
- But what if you are attacked?

Bigfoot Attack

- **Blunt trauma**
- **Bites**
 - **No microbiology available of Bigfoot mouth**
- **Treat at human bite**

Human Bites

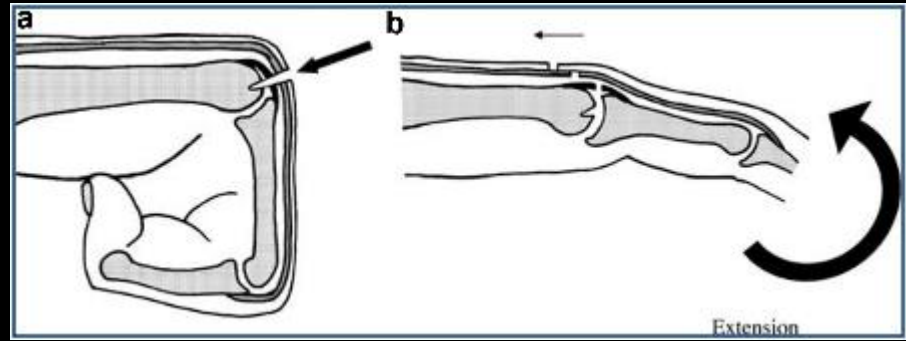
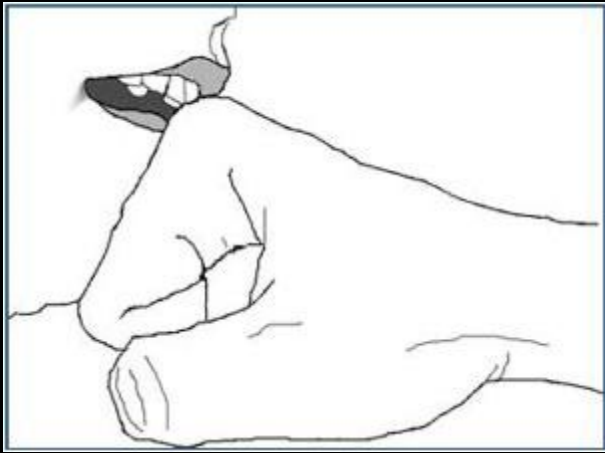
- **Can be deliberate or accidental**
- **“Fight bites” particular concern**
 - **Tendon, ligament, bone and joint infections**
- **High infection risk – 20-25%**
 - **Staph/Strep**
 - **Eikenella**
 - **Late presentation**

Human Bites

- **Risk of HIV/hepatitis**
 - **Prophylaxis/Treatment**
 - **Amox-clav 875/125 bid**
- Or**
- **Moxifloxacin 400mg daily**
 - **Combination therapy**

Fight Bites

- **Assess tendon function**
- **Normal**
 - **Follow up with a hand surgeon**
- **Abnormal**
 - **Exam in OR**
- **First dose ATB IV**



<https://doi.org/10.1016/j.nurpra.2018.12.017>

The Deadliest Animal?



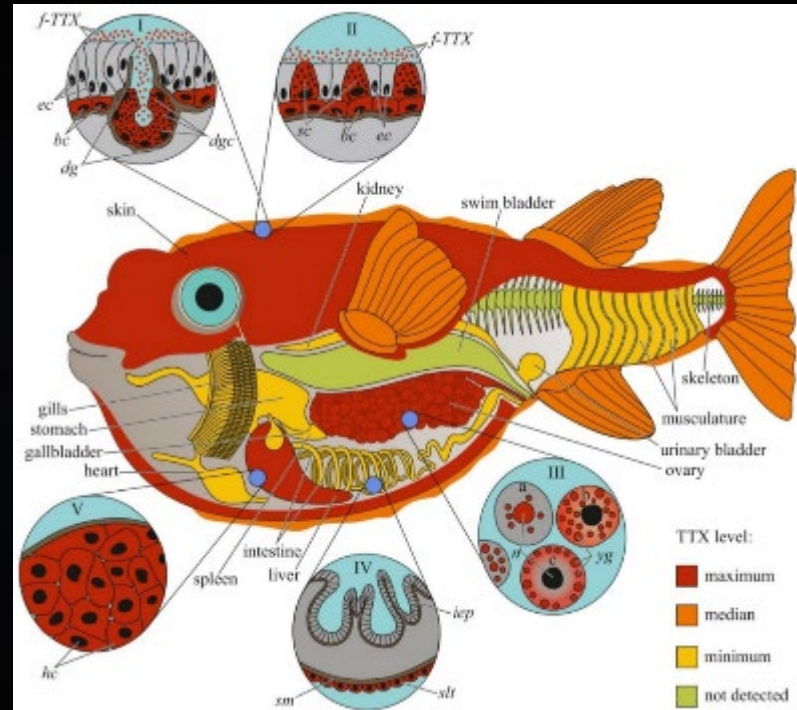
CASE 1.—A 29-year-old man drank approximately 150 mL of whiskey at about 11 AM July 9, 1979. At 6 PM he swallowed a 20-cm newt on a dare. Within ten minutes he complained of tingling of the lips.

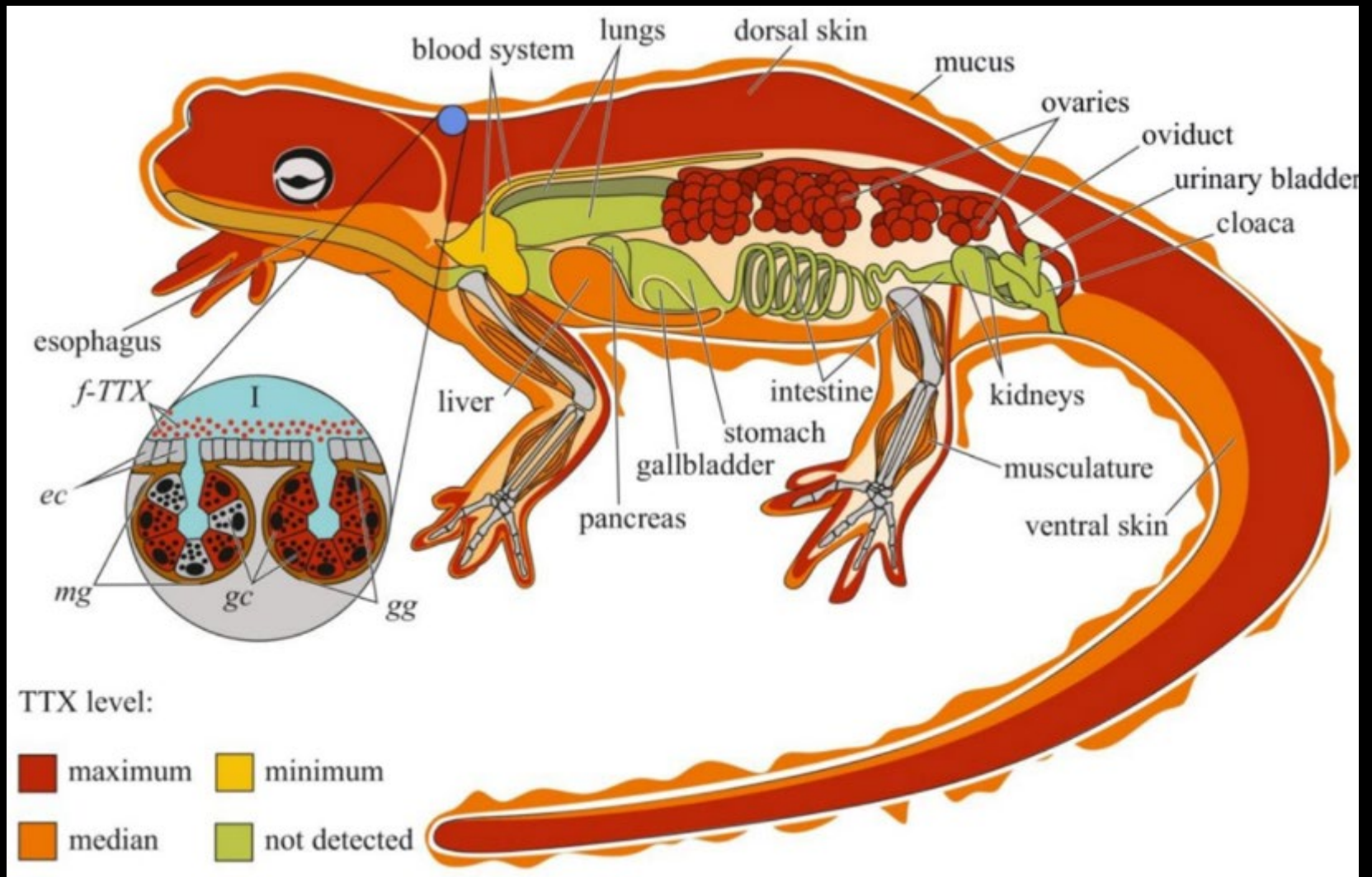
CASE 2.—A 26-year-old man ingested five *T granulosa* on July 7, 1971, on a bet in Brookings, Ore. He had been drinking alcohol at the time. Thirty minutes later

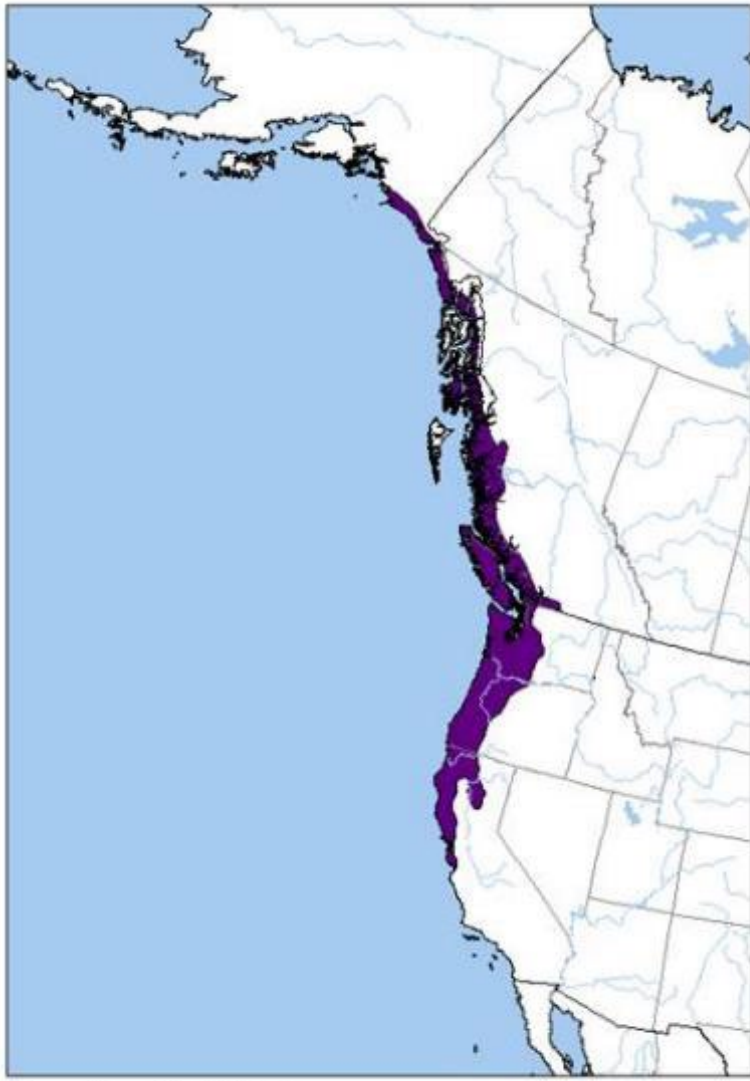
JAMA 246:247, 1981

Tetrodotoxin

- **Taricha newts contain 250ug**
 - **Human fatal dose 1 ug**
 - **250x more toxic than cyanide**
 - **Produced by bacteria in the skin**
- **Blocks sodium gates in nerves leading to paralysis**







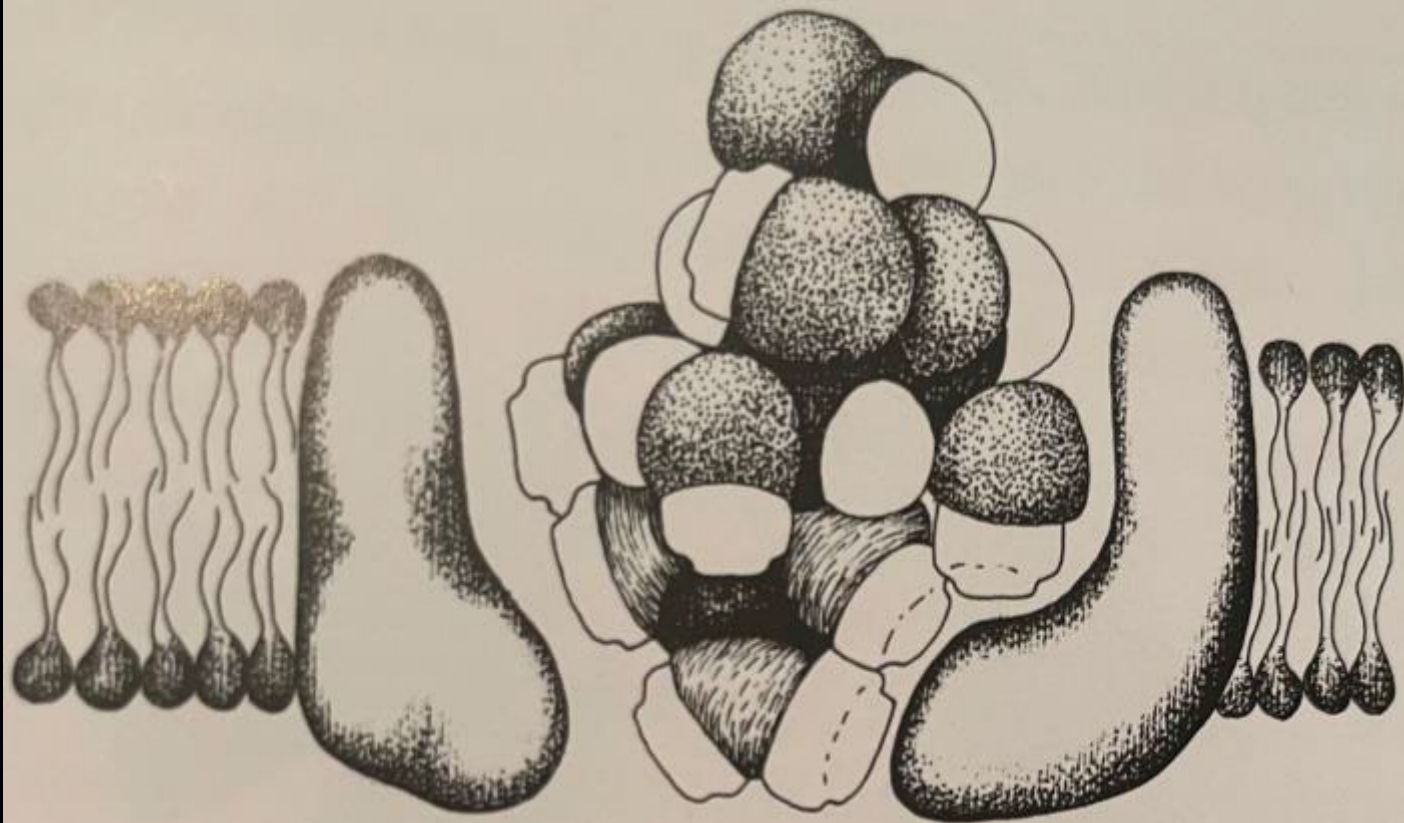
-  Permanent Resident
-  Introduced
-  Extirpated/Extinct
-  National boundary
-  Subnational boundary
-  River
-  Water body



Map created June 2005

Tetrodotoxin

- **Striated muscle paralysis**
- **Cranial nerve paralysis**
- **Hypotension**
- **Hypothermia**
- **Rapid onset after ingestion**
- **Tx: supportive care**



Tetrodotoxin

0 0,2 0,4 0,6 0,8 1 nm

Why Newts?

- **Predator is Garter snakes – which also have tetrodotoxin**
- **Garter snakes have 5 sodium channel genes with resistance to tetrodotoxin**
- **Co-evolution of predator and prey**

Conclusion

- **Amazing variety of animal hazards in the NW**
- **Can be avoided by prudent precautions**

Conclusion

- **Don't be stupid with animals!**

Conclusion

- Don't be stupid with animals!





Photo: Lindsey Fell