

# Spiders, Ticks and Leaves! Outdoors Topics Related To Your Skin (Or, Things I Teach to Boy Scouts)



**Chezna Warner, MHS, PA-C**

# ***Toxicodendron***

- **Poison ivy** (*toxicodendron radicans*), **oak**, (*t. pubescens, diversilobum*), **sumac** (*t. vernix*)
- All contain resin called ***urushiol***
- Urushiol triggers a delayed hypersensitivity reaction (type IV) in susceptible people – **the ultimate contact dermatitis**

# *Toxicodendron*

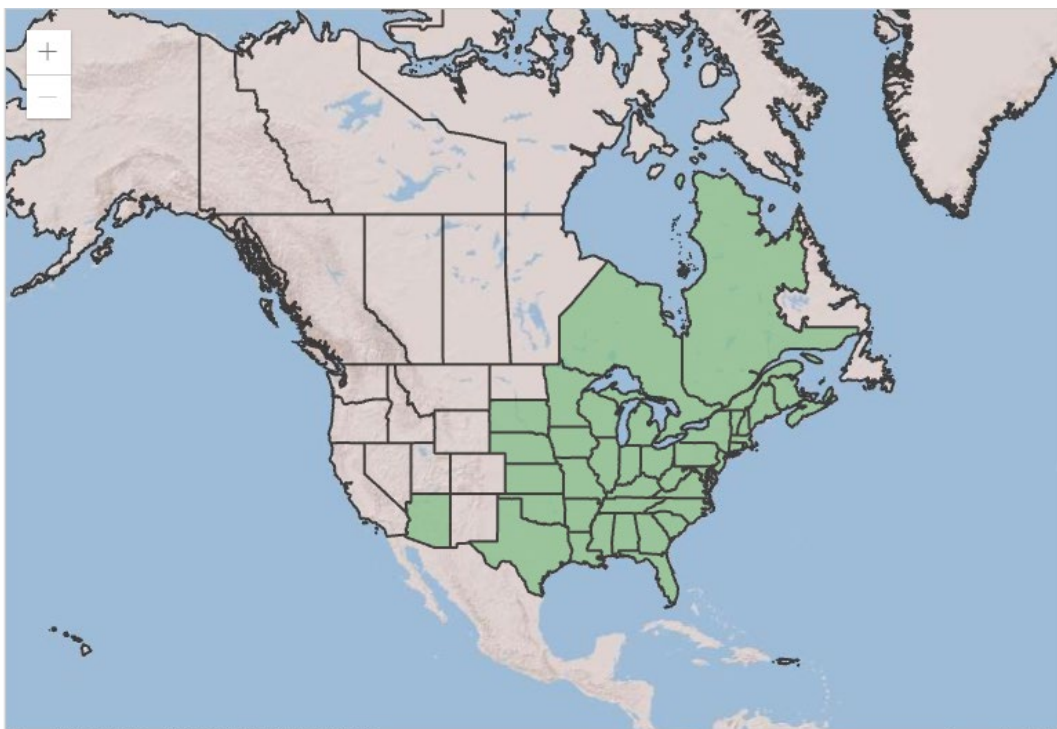
- **What is it?**

- **Allergic Contact Dermatitis**
- Allergy - unwanted immune response.
- Poison ivy, like ragweed and peanuts, is itself harmless - it is the immune system response that is the problem
- Dermatitis - inflammation of skin

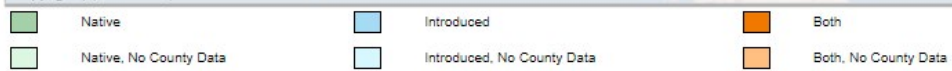
- **Who gets it?**

- Almost everybody! (Given enough exposures, that is)
- 15% of all people may be truly resistant, but with enough exposures, many who thought they could never get it, do
- 15% of people are extremely sensitive

- **Where is it?**



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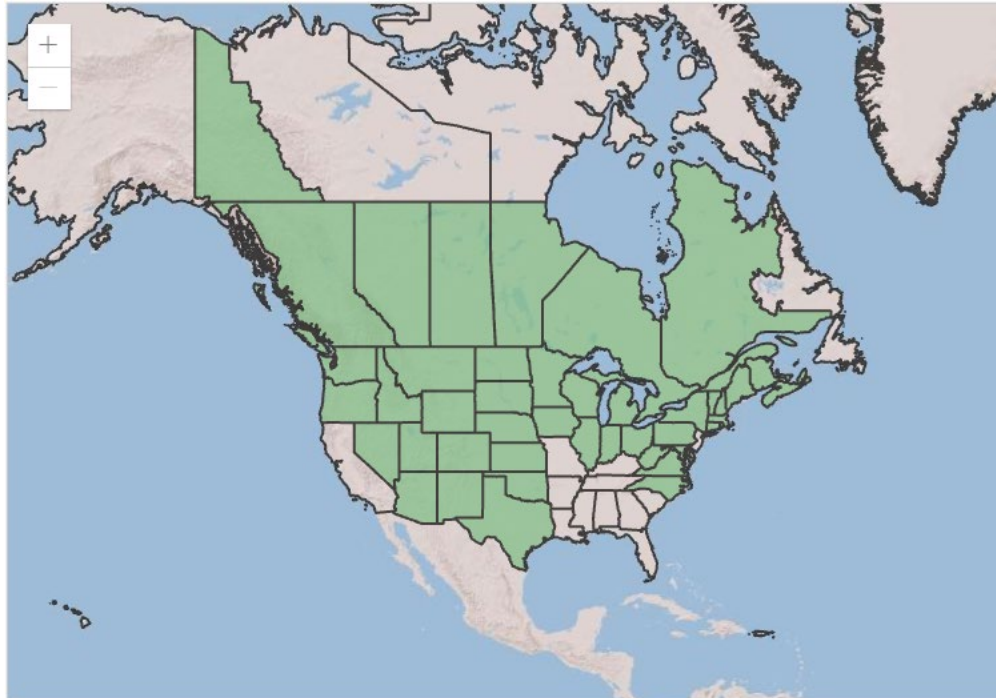


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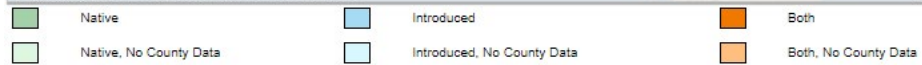
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**eastern poison ivy  
Classification**



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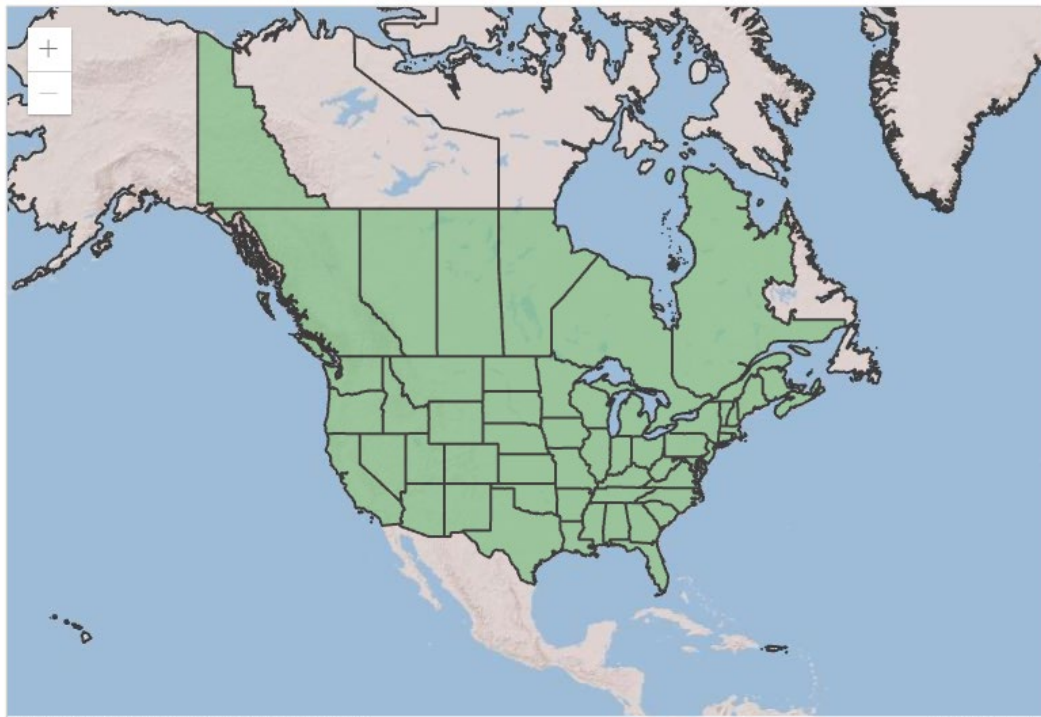


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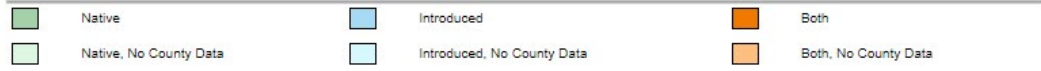


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**western poison ivy  
Classification**



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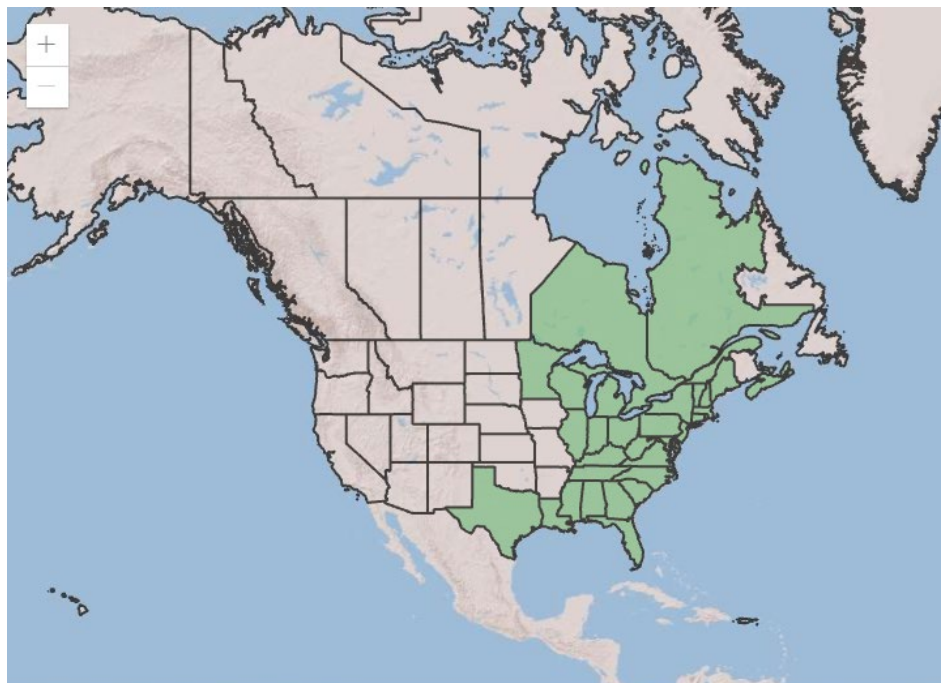


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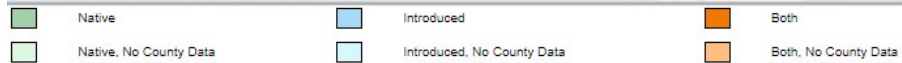


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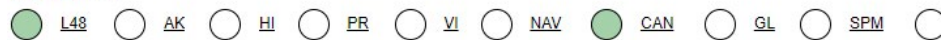
## poison oak Classification



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Native Status:



Default View

**poison sumac  
Classification**

# ***Toxicodendron***

- Note, no poison IVY in California (or Alaska or Hawaii)
- Plenty of poison oak



# *Toxicodendron*

- Linear, vesicular, highly pruritic lesions present at site of contact, site of touching skin or items with urushiol
- More severe cases become diffusely erythematous and edematous; fewer vesicles
- Can inhale it if burned
- Lesions appear one to two **DAYS after exposure** (maybe a little sooner if very reactive)
- Continue to develop for up to **three WEEKS**



# ***Toxicodendron***

- Blister fluid is ***not contagious*** to yourself or others
- Can only be passed to another person if you still have active urushiol oil on you – if you have bathed, you probably don't
  - It is now your immune system causing the problem, even though the irritant is gone
- Yes, pets can give it to you via contact
- Urushiol is the offending agent in mangoes, ficus and various other botanicals including Rhus tree in Australia - hence, **rhus dermatitis**

# ***Toxicodendron***

## Diagnosis

- It is a **clinical diagnosis**
- Differential can include other contact dermatitis, atopic dermatitis, bug bites
  - Linear nature of lesions and timeline are very telling for PI
- Most people should be able to say they were outside recently
- Often think “it can’t be poison ivy” because “I’ve never had it before!” or “I was outside last weekend, not today!”
- Wash right away with soap and water if you know you have been in PI
- Also wash clothes, hats, lawnmowers, dogs, gloves, sunglasses and so on

# ***Toxicodendron***

## Treatment

- Topical steroids have little to no effect for moderate to severe cases, but can be useful in mild cases that affect a limited area, especially if used early
  - Most potent topicals are MUCH more expensive than oral steroids
- If moderate to severe – **ORAL PREDNISONE** (or methylprednisolone) **taper** for at least 14 days, up to 3 weeks
- **NOT** a dose pack; they are not long or strong enough, and that may lead to rebound dermatitis - re-emergence of the rash!
- IM steroids OK if desired
- If very severe (eyes swollen shut, in respiratory tract from inhalation) - inpatient

# ***Toxicodendron***

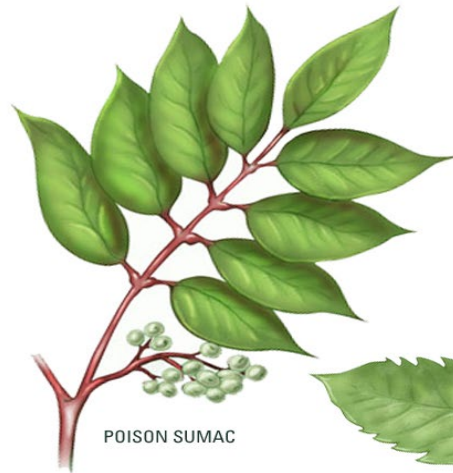
## Treatment

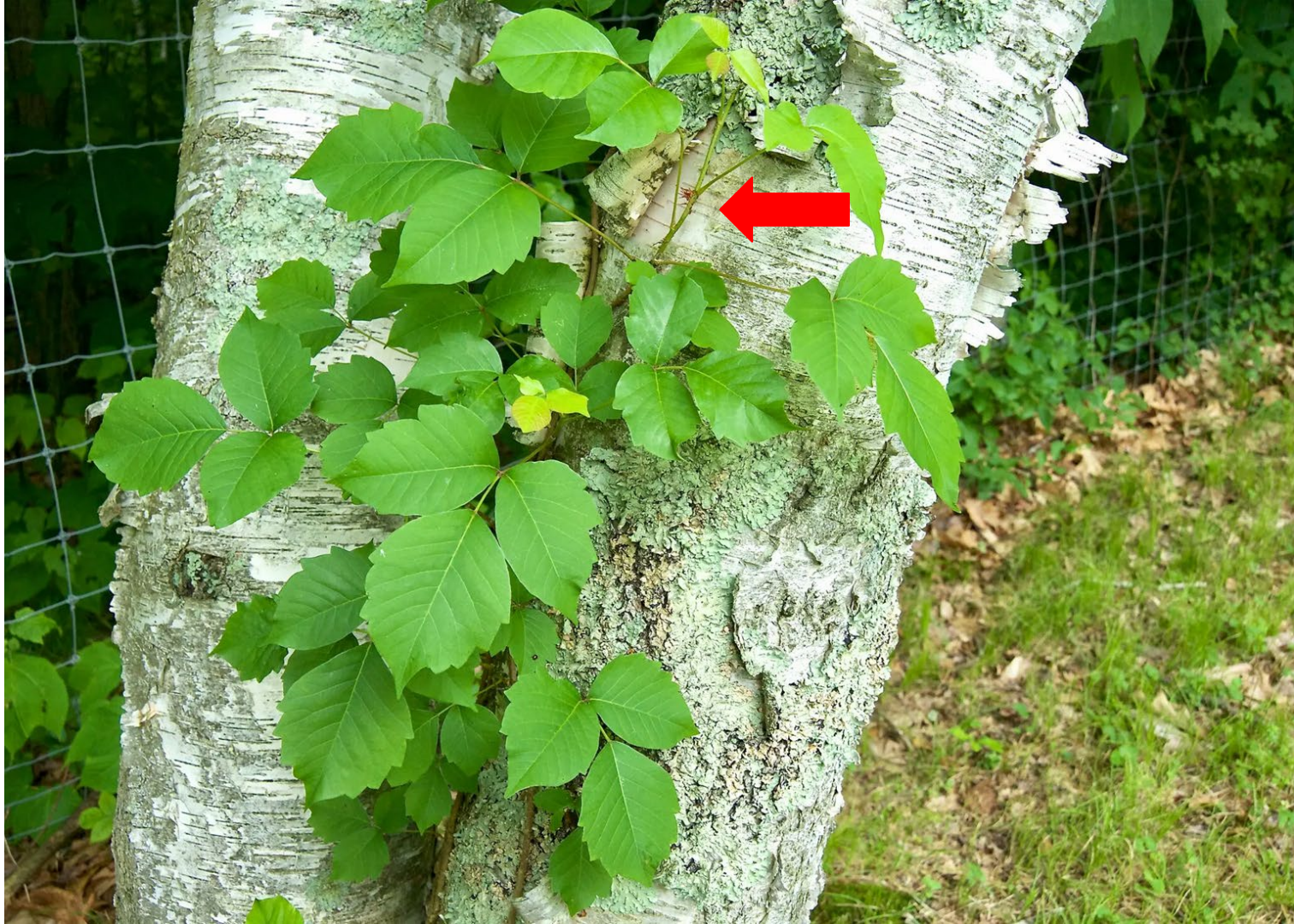
- Topical antihistamines have little to no effect
- Oral antihistamines might help; sedating ones might also help by sedating!
- If rash is mild – **no treatment needed**; calamine lotion, oatmeal baths may help
- Hydroxyzine for anti-itch and good sleep
- **It will always go away on its own** without intervention
- Secondary bacterial infection is possible



# Prevention

- Don't get it again!
- Learn to identify
- Long sleeves and pants
- Barrier creams exist - may be helpful
- No effective desensitization - yet







# Stand up for Spiders!

I totally love spiders and am quite biased

Spider bites are ***rare medical events***. Of the thousands of spider species that exist around the world, only a handful cause problems in humans.

There are a variety of more common disorders that can mimic a spider bite, some of which represent a far greater threat to the patient if not recognized and treated appropriately.

Let's look at the evidence!

## ***Reports of Envenomation by Brown Recluse Spiders Exceed Verified Specimens of Loxosceles Spiders in South Carolina***

***An Infestation of 2,055 Brown Recluse Spiders (Araneae: Sicariidae) and No Envenomations in a Kansas Home: Implications for Bite Diagnoses in Nonendemic Areas***

***It's Not a Spider Bite, It's Community-Acquired Methicillin-Resistant *Staphylococcus aureus****



Black and yellow garden  
Orb Weaver - everywhere



Tarantula and child

# Stand up for Spiders!

A common dermatologic complaint is “A spider bit me!”

Was there a spider seen, or a bite-like sensation?

Is there necrosis or neurologic complaint?

Or does it look like MRSA?



# Ways Spiders Help Indoors

**Spiders eat pests and curtail disease spread.** Spiders feed on common indoor pests, some of which are disease-carrying or otherwise problematic - like roaches, mosquitoes, flies and clothes moths. If left alone, spiders will consume most of the insects in your home, providing effective home pest control.

**Spiders kill other spiders.** When spiders come into contact with one another, a gladiator-like competition frequently unfolds, and the winner eats the loser. If your basement hosts common Long-Legged Cellar Spiders (Daddy long-legs), this is why the population occasionally shifts from numerous smaller spiders to fewer, larger spiders. That Long-Legged Cellar Spider, by the way, is known to kill Black Widow spiders, making it a powerful ally.



Spotted Orb Weaver –  
my house

# OK, Sometimes Spiders CAN Hurt You

## Black Widow

Contrary to popular belief, most people who are bitten suffer no serious damage, let alone death.

*Lactrodectus* is the genus of widow spiders. There are lots of kinds, **they are everywhere in the world except Antarctica**, they prefer warmer and darker places, and most look more or less like a common black widow.

“Widow” behavior, in which the female kills and eats the male after mating, occurs, but rarely, and not as a matter of course. Males can tell (spider sense!) if the female has eaten recently, and select those who have. (Male bites, btw, are not dangerous to people.)

They hang out outside in woodpiles, outhouses, the junk leaning against your garage, etc. - in urban, suburban, and rural settings. Rare to find indoors. They are not aggressive, and will not bite you unless you roll on them/scare them/stick your hand in their house etc.

There are false black widows (Steatoda) that can bite, but much less venomous, if at all.



*Lactrodectus hesperus*

# OK, Sometimes Spiders CAN Hurt You

## Black Widow

Bites are often on distal extremities, especially legs.

Venom is a neurotoxin

Most bites are either initially asymptomatic or cause mild pain at the bite site.

If more significant symptoms develop, it takes 30 to 120 minutes from the time of the bite but may be longer.

**Muscle pain** is the most prominent feature in systemic reactions and can affect the extremity muscles, abdomen, and back. Severe abdominal pain with abdominal wall rigidity is characteristic. **Abdominal pain from a widow bite has been mistaken for a variety of abdominal surgical emergencies**, like appendicitis and acute cholecystitis.

The pain is **self-limited** and no treatment is required. Should resolve within 24 to 72 hours of the widow spider bite.

Patient may have tremor of the affected limb, weakness, and paresthesia. They can have nausea/vomiting and headache.

Small children and infants - if a child is fussy, distressed, difficult to console - consider a spider bite if the conditions were right! You will not always see a "bite".

Widow spider bites do **not** become necrotic and rarely become infected.



*Lactrodectus hesperus*

In a 2011 American study of 10,000 black widow spider bites with adequate follow-up information, there were **no deaths!**

- Minor effects (skin wound only minor envenomation) – **65 percent**

- Moderate effects (symptoms that required treatment - moderate or severe envenomation) – **34 percent**

- Major effects (life-threatening or causing residual disability) – **1 percent**

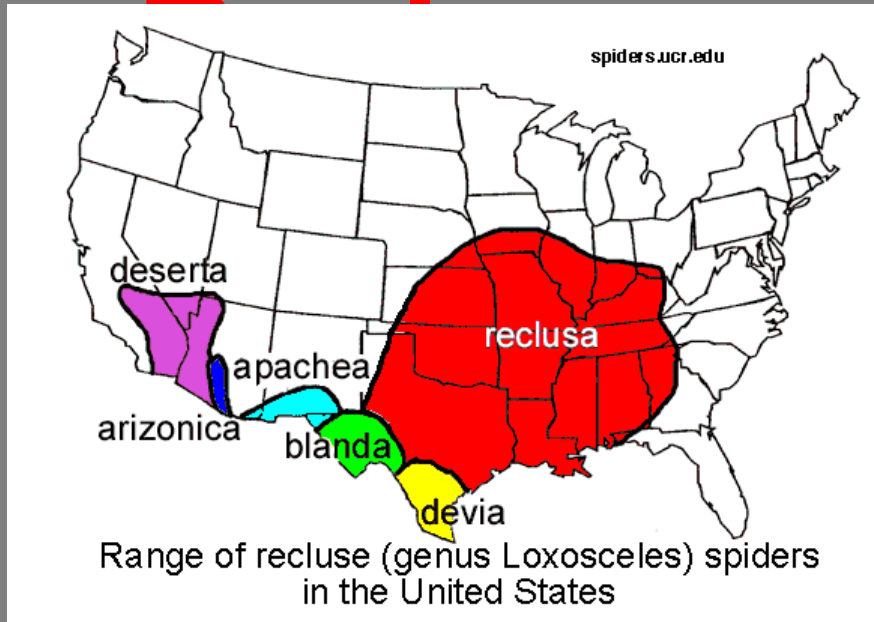
**Antivenom was used in the moderate and major effect groups and was proven to shorten symptom duration**

**Benzodiazepines and calcium were NOT found to shorten symptoms**



OK, Sometimes Spiders CAN Hurt You

**Brown**



*Loxosceles reclusa*

# Brown Recluse



- Small, 1.5 cm long spider with dark violin or fiddle-shaped marking on the back

- Bites tend to occur when people disturb areas like attics, closets, beds that are made but not in regular use, garages, piles of stuff along side of house



# Brown Recluse



## Most bites are mild and should be treated conservatively

- Clean the bite with mild soap and water.
- Apply cold packs, taking care not to freeze the tissue.
- Elevate affected limb
- Pain medication - most people do fine with NSAIDs
- Tetanus shot! (any spider bite)

## Bites with a dusky center/developing necrosis are uncommon, but certainly do occur

- There is no proven therapy, except antivenom
- There is no antivenom outside South America (they have a nastier cousin)

## People with systemic toxicity

- Labs for hemolytic anemia, rhabdomyolysis, DIC
- If present, treat!



# Hobo Spider

Is it a threat?

No one can decide - necrosis has been suspected, but CDC says NO

More prevalent in the NW US

It is a FUNNEL WEB spider, *Eratigena agrestis*.

Another group of funnel web spiders are the most deadly spiders in the world (Side note, they are only in Australia, and they still hardly ever kill an



# Spider or Staph?

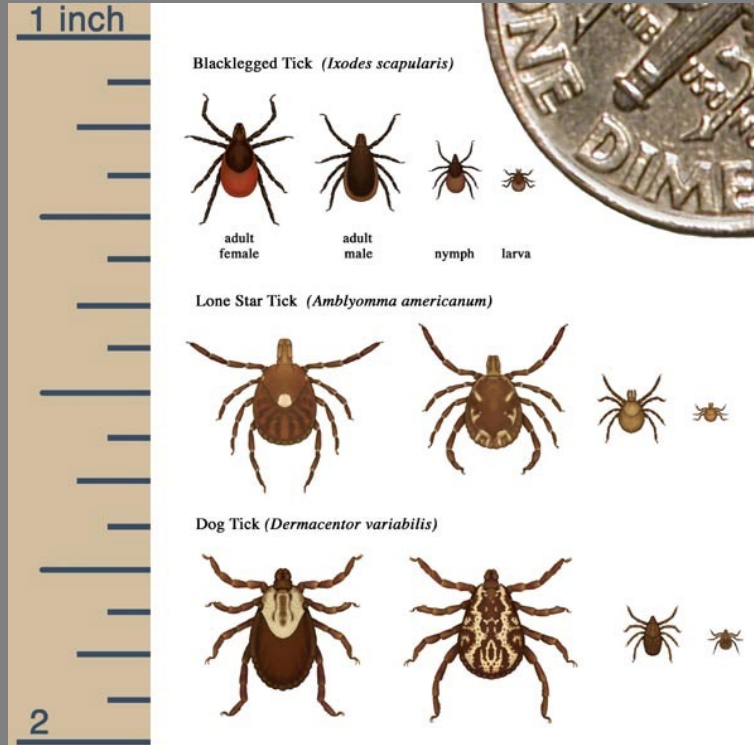


# TICKS

(and the rashes they can give you)



# TICKS (and the rashes they give you)



# TICKS – Rocky Mountain Spotted Fever

- *Rickettsia rickettsia*
- Occurs thru North America, parts of South America
- Disease severity ranges from mild to **life-threatening and fatal**
- Mortality was as high as 30% to 80% in some locales prior to antibiotics
- Now it's 0.3%; children under 4 and elderly make up most of this burden
- Get it from a TICK – various kinds, no one “RMSF tick”
- Probably needs to be on 6 to 10 hours

# TICKS – Rocky Mountain Spotted Fever

Symptoms develop 2 to 14 days later; most people fall into 5 to 7 day range

- RASH
- Fever
- Headache (may be severe)
- Malaise
- Myalgias
- Arthralgias



# TICKS – Rocky Mountain Spotted Fever

- Rash is classically a “blanching erythematous rash with macules (1 to 4 mm in size) that become petechial over time”
- Usually begins on ankles and wrists, spreads to trunk
- In rare cases, *absent!*





# TICKS – Rocky Mountain Spotted Fever



# TICKS – Rocky Mountain Spotted Fever

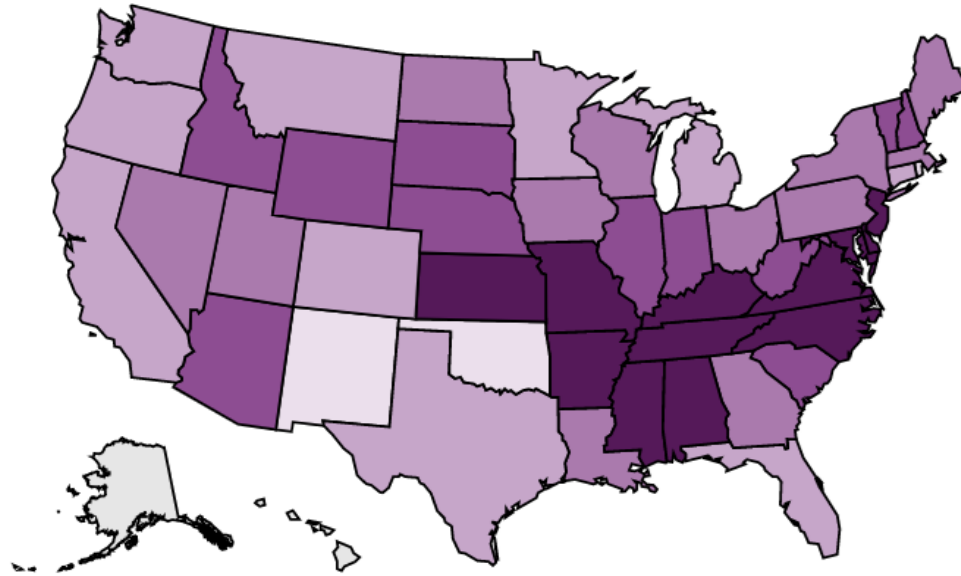
- Diagnosis – can be presumptive, based on rash, tick exposure
- Definitive diagnosis hard to acquire; usually a clinical diagnosis
- Treatment – **begin ASAP**; don't wait for rash if you're thinking this could be what you're dealing with but no rash yet
- **DOXYCYCLINE 100 mg** BID; seven days usually adequate
- Usually diagnosis and treatment are CLINICAL and EMPIRIC; response to therapy will help support the diagnosis
- Vast majority of patients get totally better; tiny number have long-term sequelae like deafness, neuropathy

# RMSF Distribution 2019 - cdc.gov

50% of cases from Missouri, Tennessee, North Carolina, Arkansas, Virginia  
Emerging in areas not previously seen - Arizona

## Annual incidence (per million population) of reported spotted fever rickettsiosis—United States

● 0 ● 0 to < 1.87 ● 1.87 to < 5.24 ● 5.24 to < 14.93 ● 14.93+ ● Not Notifiable



# TICKS – Erythema migrans/Lyme Disease

- **Erythema migrans** is the name for the rash
- Lyme disease can be **early and localized (EM, our topic)**, **early and disseminated**, or **late**
- **Erythema migrans** appears at site of tick bite, 3 days to a MONTH after bite
- Rash has central clearing eventually, can be large
- May report fatigue, anorexia, headache, neck stiffness, myalgias, arthralgias, fever - early disseminated, can include meningitis, neuropathy
- Can go into late disease manifested by arthritis, encephalopathy or neuropathy; also “post-Lyme disease syndrome” which is outside scope of this lecture



# TICKS – Erythema migrans/Lyme Disease



- **TREATMENT** of early/acute disease is **DOXYCYCLINE**
- There are good alternatives like amoxicillin and cefuroxime, but sometimes people are co-infected with other bizarre, uncommon tick diseases, and only doxy will work for those, so pick it if you can
- First-gen cephalosporins, like you'd use for cellulitis, will **NOT WORK** – so a good history is key!

# Erythema migrans - classic rash



# Erythema migrans/Lyme disease

Who gets **prophylaxis**?

A simple tick bite alone DOES NOT WARRANT antibiotics

Tick SHOULD be known to be *Ixodes scapularis* (deer tick)

SHOULD start within 72 hours of finding and removing tick

You SHOULD be in an area with lots of Lyme disease

Not pregnant or breastfeeding or under eight years old

IF ALL of these conditions are met - **doxycycline 200 mg ONCE**



# Erythema migrans/Lyme disease

Who gets **treated**?

If **erythema migrans** - **doxycycline 100 mg BID x 10 days**

CAN USE amoxicillin or cefuroxime, but doxy is best as mentioned before.

Azithromycin will work as fourth-line.

If disseminated - early or late - still doxycycline! (longer course)

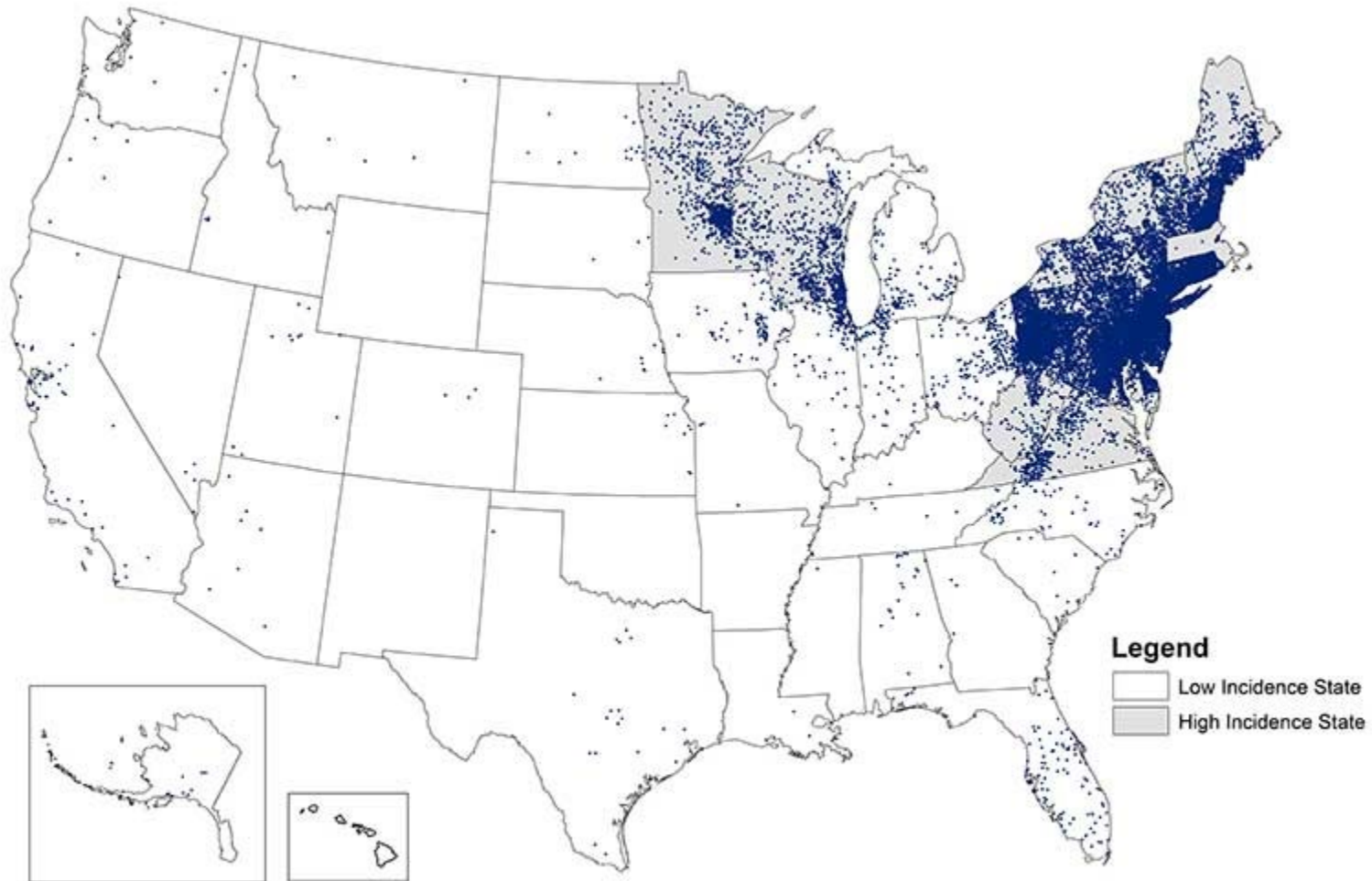




# Patient Education

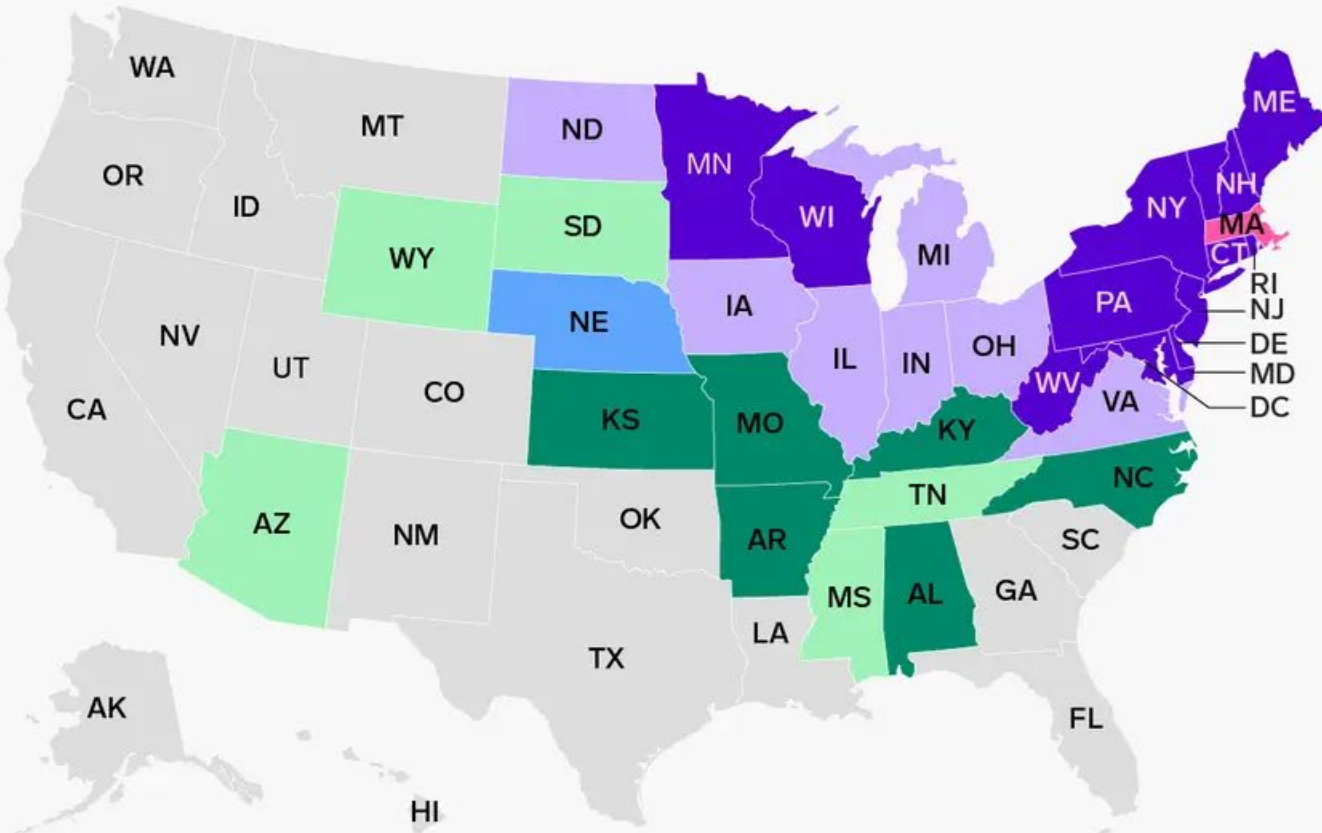
The redness shown here is just a local reaction - irritation because a tick BIT you - not erythema migrans.





# Most common tick-borne diseases by state

- High incidence of Lyme disease
- Low incidence of Lyme disease
- High incidence of RSF
- Low incidence of RSF
- Ehrlichiosis
- Anaplasmosis



# QUIZ













# References

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