

# HAZARDOUS CREATURES



# A Bit of History

## My Great Grandfather

### Hachaliah Bailey




# INTRODUCTION

- ▶ Planet has over 3,000 species of snakes - 15% are considered to be dangerous. 8 species of rattlers in California!
- ▶ The US has at least 20 venomous species except Alaska, Hawaii, and Maine
- ▶ Each year there are 45,000 snake bites in the U.S. 7,000 - 8,000 are from venomous species.
- ▶ On average 10-15 people die in the US each year








**It is estimated that up to 100 people die annually from stinging insects. More than any other group**

**On average fire ants 40-50**

**Venomous snakes kill 10 – 15 per year**

**Spiders kill 7-10**



**10/15/10 — A La Jolla resident died from a rattlesnake bite on the foot while wading through a backcountry stream a near Lake Cuyamaca Reservoir.**

**He stopped breathing within minutes; a sheriff's helicopter took Price to Palomar Medical Center where he declared dead about 45 minutes later.**

# HOW DO YOU TELL IF A SNAKE IS VENOMOUS?

- ▶ First of all, if you don't know, leave it alone. Second, even if you do know, leave it alone!!!
- ▶ Lastly – if you think your quick enough....YOUR NOT!
- ▶ In California – only Rattlers are venomous

# Consider Downloading Snakebite911



# HOW DO I RECOGNIZE A RATTLESNAKE?

The main features of rattlesnakes include:

- ▶ A broad, triangular head on a narrow neck
- ▶ Folding fangs
- ▶ Cat's-eye or elliptical pupils instead of round ones
- ▶ Usually has a rattle at the end of the tail -  
Note – May or may not rattle prior to strike
- ▶ Picking out most of these characteristics requires getting close. NOT A GOOD IDEA!!



# NOTE THE HEAD SHAPE







**GOPHER SNAKE**

# CAN YOU DETERMINE THE AGE BY # RATTLES?

- ▶ Rattlers get a new rattle segment each time they shed - about 3-4 time/year
- ▶ Baby rattlesnakes are born with only one segment/ button and are noiseless
- ▶ You can generally gauge irritability by the sound



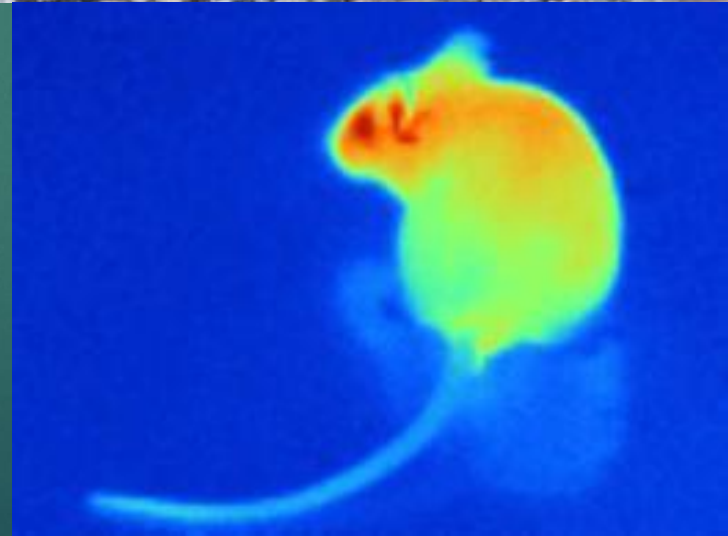
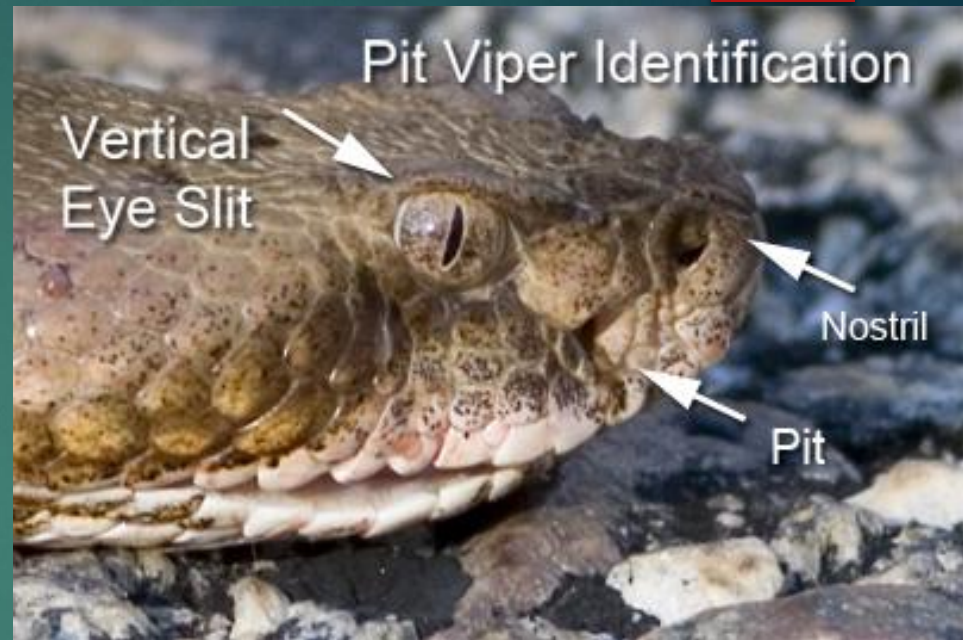
# WHAT TIME OF DAY DO SNAKES COME OUT?

- ▶ Rattlesnakes, can't regulate their own body temperature so they are active when it's warm however to stay in when it's much below 50 degrees
- ▶ In very hot weather they can overheat and die. Where might you find snakes in hot weather?
- ▶ So, it's temperature, not time of day, that determines activity.



# WHAT IS A PIT VIPER?

- ▶ Rattlesnakes use a kind of heat detecting sensors in the pit organ located in front of the eyes
- ▶ Rattlesnakes hunt when cool air enhances the heat image of prey
- ▶ Can sense about a meter away



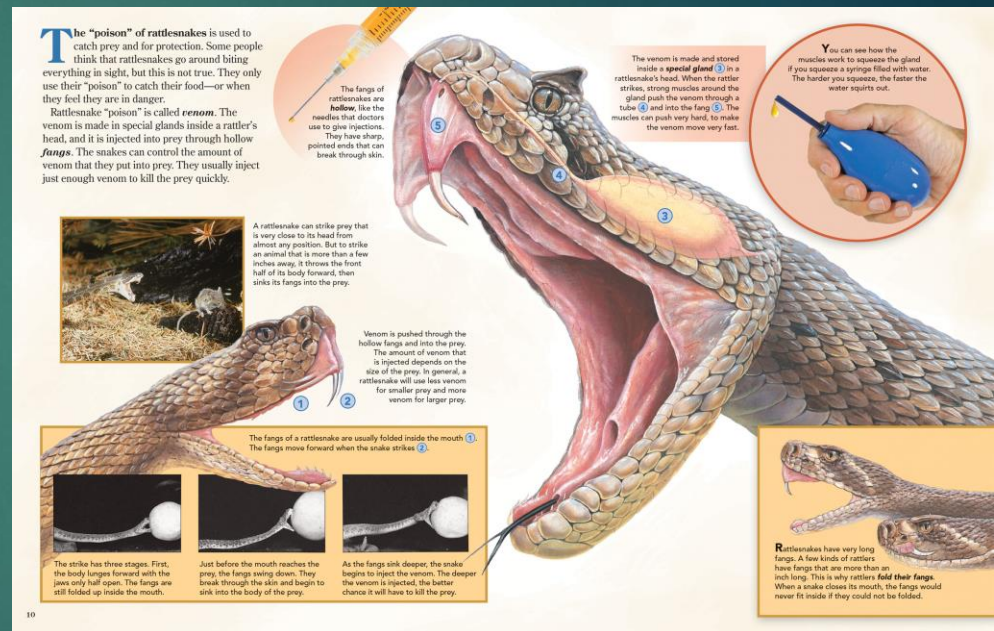


# CARE TO LIVE IN TO FLORIDA? 170 LBS!!



# THE STRIKE

- ▶ When threatened, a rattlesnake draws its body into a tight, S-shaped loop (Does not need to be coiled to bite)
- ▶ The snake's head constantly faces its adversary. A strike covers between  $\frac{1}{3}$  –  $\frac{1}{2}$  of its length.






# SNAKE BITE 101

- ▶ A snake can strike in .5 seconds – 100 mph!
- ▶ With head movement toward target in 80-100 milliseconds at 90-degree gape
- ▶ Bottom jaw makes initial contact - then compressor muscles puncture skin and push venom through hollow fangs



- 
- ▶ **85% of bites occur to the hand and forearm – why??? (Elphin Forest)**
  - ▶ **80% of bites occur when trying to catch or kill a snake**
  - ▶ **50% of victims under age 20 and 70% of bites involve alcohol consumption**

# HEAD CAN STILL BITE!

## Bite Reflex Remains Active







A man in Texas needed 26 doses of anti-venom after being bitten by the severed head of a rattlesnake.

He was clearing the yard and decapitated a snake.

As the man picked up the snake to get rid of it, the head bit him and released a fatal amount of venom.

# STAYING SAFE



**DO NOT  
approach  
any snake.**

**If you see a  
snake, back  
away slowly**

**DO NOT  
attempt to kill  
a snake,  
especially  
one that  
strikes**

- ▶ If in known snake areas, wear long pants, chaps and leather boots
- ▶ Use wear heavy gloves picking things off the ground
- ▶ Snakes often lay in long grass where they are concealed from view.
- ▶ Keep grass and landscape short



# WHAT TO DO IF BITTEN

## Call 911 immediately

- ▶ **TIME = TISSUE!**
- ▶ Delays in treatment lead to further tissue damage
- ▶ Get to ER ASAP



# REMOVE ANY CONSTRUCTIONS

- ▶ Remove rings, jewelry, tight fitting clothes and shoes
- ▶ Don't do this!

## Soldier Shoots Off Finger To Cure Snake Bite

Hattiesburg, Miss.—(P)—A 17-year-old soldier shot off a finger after it had been bitten by a rattlesnake.

The soldier, Paul Douglas Carter, said he stepped on the snake while hunting near his home. Carter is on leave from Brookley Air Force Base at Mobile, Ala.

He said the rattler struck him on the right index finger. He said he then inserted his finger in the barrel of his shotgun and fired left-handed. Amputation of the finger was completed at a clinic.

A physician said no symptoms of snake bite were apparent after the amputation.



# KEEP STILL

Any unnecessary activity and heart rate will increase the rate of venom spread

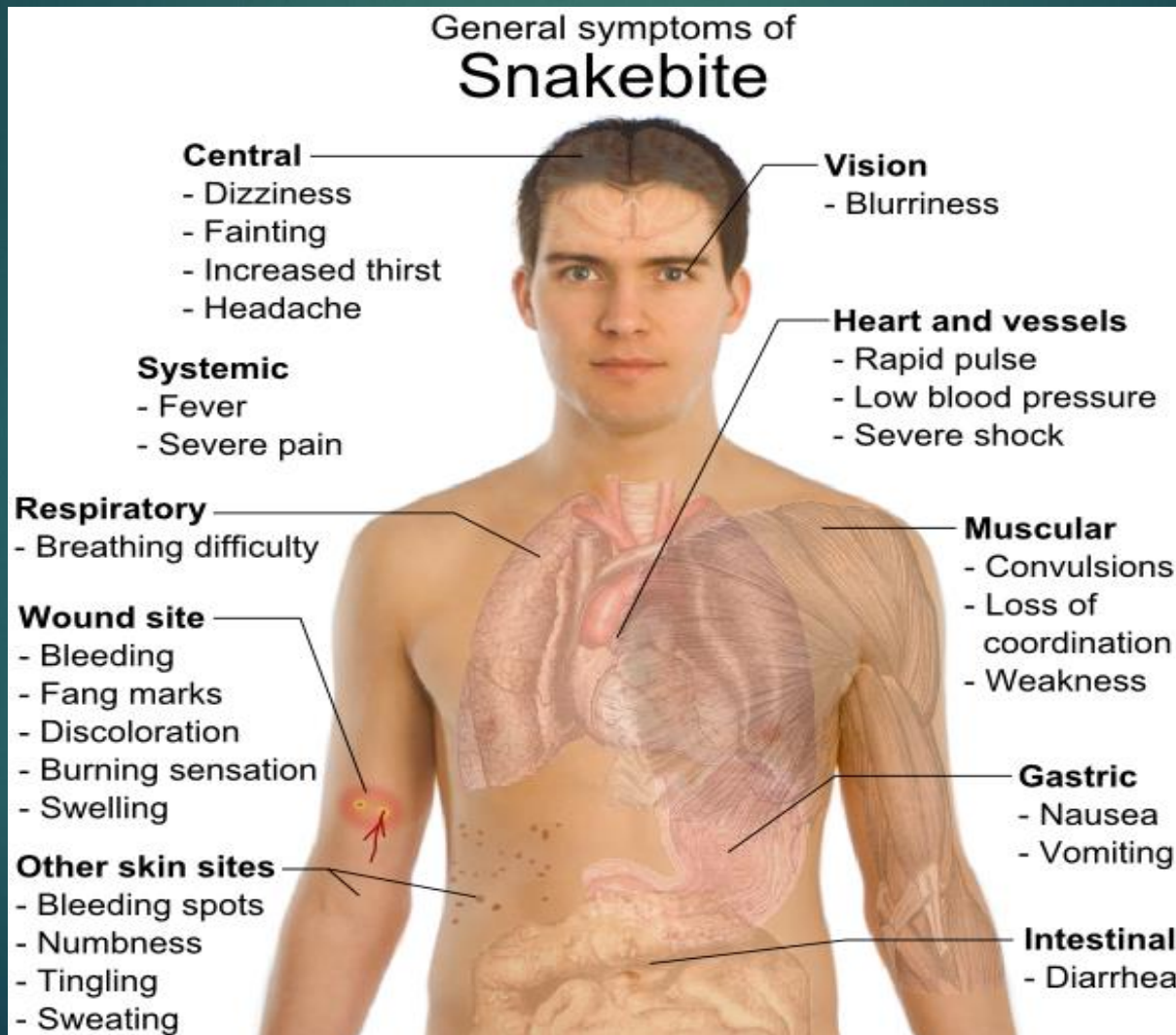


# TAKE PHOTOS TO TRACK SPREAD OF VENOM

- ▶ Take a photos of the bite area every 15 min until arrival at the ER.
- ▶ This may help the Doctors treatment plan shaving valuable minutes off treatment delay,



# EFFECTS OF ENVENOMATION





# VENOM TOXICOLOGY

- ▶ Snake venom can be comprised of Hemotoxic, Neurotoxin, or Cytotoxic properties

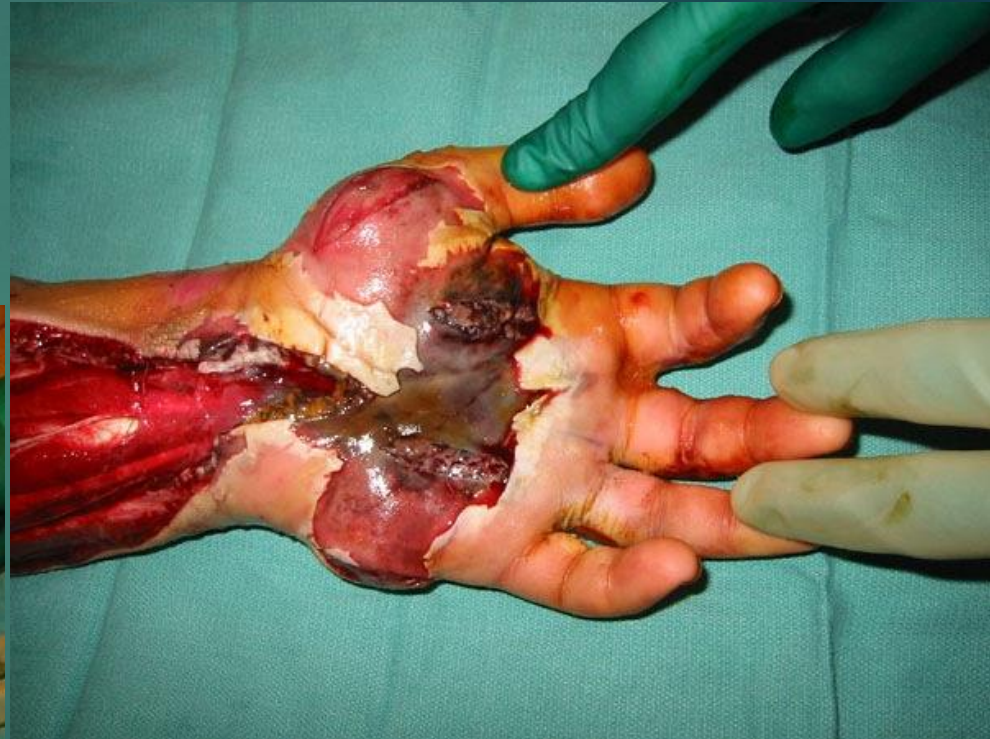


# INITIAL TREATMENT

- ▶ Initial treatment includes:
  - ▶ Blood tests
  - ▶ Wound care
  - ▶ IV fluids
  - ▶ Crofab - the only treatment for pit vipers
  - ▶ Initial dose up about 6 vials or more
- ▶ Doctors will evaluate the patient and determine the need for additional doses



# SWELLING MAY REQUIRE FACIATOMY to SAVE A LIMB!



# SOUTHERN CALIFORNIA WASTEWATER AGENCY





# WESTERN RATTLESNAKE

- ▶ Reach lengths slightly over 4 feet
- ▶ Coloring - lighter gray or brown.
- ▶ May be found in high elevations and may be a velvety, jet black.
- ▶ Tail has dark rings.





# WESTERN RATTLESNAKE FACTS

- ▶ Venom primarily hemorrhagic (affecting blood) but some subspecies contain Neurotoxic and Cytotoxic components
- ▶ The high irritability makes this snake dangerous
- ▶ Adult snakes can produce up to 112 mg of venom – a bit over 2 teaspoons – Lethal at 100 mg

# SNAKE BEHAVIOR

- ▶ In early spring, Rattlesnakes bask in the sun or glide around looking for food and mates
- ▶ In dense brush it may climb to the tops of bushes to bask and may be QUICK TO STRIKE!!!
- ▶ STAY AWAY FROM THE “SHARP END”!!!

# SPECKLED RATTLESNAKE

- ▶ Most adult Speckled Rattlesnakes measure 24 to 30 inches in length
- ▶ Matches colors of the rocks and soil it inhabits





# SPECKLED VENOM

- ▶ Venom is HIGHLY potent
- ▶ Adults contain up to 227 mg of venom but inject about 0.16 mg
- ▶ Dried snake venom potency is undiminished after near 30 years storage



# MOJAVE VENOM

- ▶ **Neurotoxic venom is similar to a cobra - (10 times more toxic than any other rattlesnake in the U.S.) affecting heart, skeletal muscles and neuromuscular junctions.**
- ▶ **One bite is sufficient to kill a human - Death occurs in a high frequency of untreated cases.**





# RED DIAMOND BACK

- ▶ One of the largest rattlers in the region. The longest on record measures a little over 5 feet, most are in the 2 1/2 foot range.
- ▶ Coloration sets it apart from other species making it easy to recognize.



# RED DIAMOND BACK FACTS

- ▶ Long fangs. Low in toxicity compared to other rattlesnakes but capable of delivering large amounts of venom.





# IF BITTEN, WILL YOU DIE?

**RARELY!** Today, there are only a small number of deaths as the result of a rattlesnake bite

**Most should make a full recovery without lasting effects provided that medical treatment is found quickly**

# WHAT TO DO IF BITTEN

- ▶ Do not panic. Rattlesnakes often dry bite for defense
- ▶ Take a deep breath. Let your adrenaline rush subside. There will be two well-defined puncture marks and immediate, lasting pain
- ▶ If you are unsure if the snake is venomous, treat it as a medical emergency anyway

# WHAT NOT TO DO

- ▶ DO NOT apply ice directly to the wound due to tissue damage
- ▶ DO NOT use a tourniquet – use a compression bandage!
- ▶ DO NOT give the victim alcohol
- ▶ NEVER cut the wound and suck out the venom, cowboy style. This nearly killed a boy in Del Mar by doing so!

# Don't Be A Hero

**DO NOT attempt to drive a snake away or kill it..... Just Don't Do It!**

**Most serious and fatal snake bites occur while trying to kill the snake**

**Give the snake time to go about its business**

**Keep a careful eye as not to lose sight of its direction to eliminate the risk of further encounter**



# Emergency Supplies

**Keep equipment on hand to deal with a bite such as first aid kits, walkie talkies and/or a cell phone if assistance is needed**



# FIRST AID

- ▶ **Get medical care ASAP!**
- ▶ **Wash the bite with soap and water**
- ▶ **Immobilize and keep it lower than the heart**
- ▶ **Cover with a clean, cool compress to minimize swelling and discomfort**
- ▶ **Monitor vital signs**
- ▶ **Apply a compression bandage two to four inches above the bite - the band should be loose enough to slip a finger under it so as not to cut off all circulation**

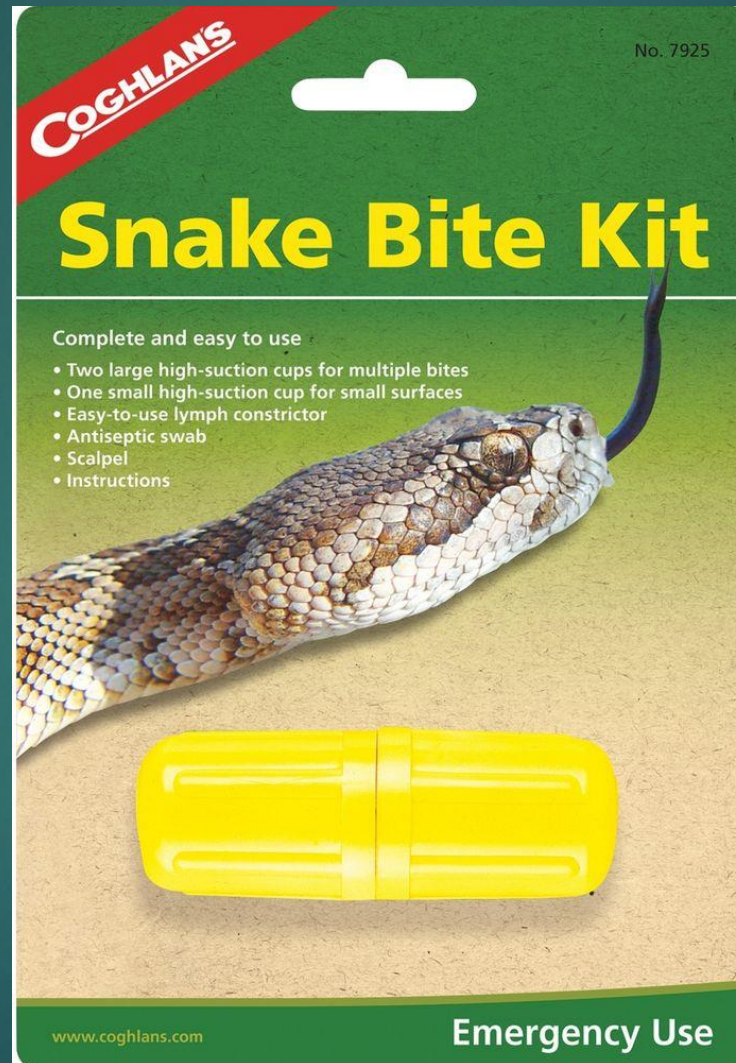
# MORE FIRST AID

- ▶ Never cut site or attempt to suck out venom
- ▶ Remove jewelry such as rings and bracelets
- ▶ **NO DC ELECTRICITY!!!**





# SNAKE BITE KIT – FORGET IT



# ANTIVENIN



# IF YOU MUST CATCH A SNAKE

- ▶ Call a professional to catch the snake – Follow your organizations procedures!
- ▶ Do so only if trained/authorized/equipped





# BEEES, WASPS, HORNETS, FIRE ANTS, ETC



# **BEES/WASPS/HORNETS & FIRE ANTS**

- ▶ **The average person can usually tolerate 10 stings for each pound of body weight**
- ▶ **However, one sting can cause death from an anaphylactic**
- ▶ **3 - 4 times more people die from bee stings than snakebites**
- ▶ **Africanized bees attack in massive swarms**
- ▶ **Fire ants sting up to 40% of the people who live in infested areas each year, causing 40-50 deaths**

# BEE FACTS

- ▶ Bees are not native - brought by the Spanish in 1600's
- ▶ Billions live in Ca
- ▶ Authorities say 90% of wild bees have been Africanized!!
- ▶ Once disturbed emit a pheromone triggering attacks



**Wasps, especially yellow jackets, are generally more aggressive than bees.**

**Wasps can sting repeatedly, while honeybees will die shortly after one sting. Bumble bees can also sting repeatedly.**

**2024**

**A woman and three others were stung hundreds of times by aggressive bees in Scripps Ranch**

**A dog killed and three others stung my swarm in Lemon Grove**

# STINGS

- ▶ For most people stings are just unpleasant followed by a rash/swelling, itching
- ▶ About 1% have a anaphylactic event
- ▶ Talk to your Dr, about Epi-pens or other meds if allergic or follow their recommendations





# FIRST AID FOR AN INSECT STING/ENVENOMATION

- ▶ Seek medical care ASAP, if reaction appears to be serious
- ▶ Keep calm
- ▶ Keep sting lower than heart
- ▶ Wipe blood or venom from the sting with credit card
- ▶ Ice can help with pain
- ▶ Bandage the sting area
- ▶ Some spider bites may require anti-venom



# AFRICANIZED FACTS

- ▶ Sting 10X more than European strain
- ▶ Defends much larger area
- ▶ 90% of wild bees are Africanized
- ▶ Hives - 60K bees
- ▶ Average attack more than 8 thousand stings





# SCORPIONS

- ▶ Only the bark scorpion, is considered dangerous to people – Found near California/AZ border
- ▶ The Arizona Hairy Scorpion is a common southern California species
- ▶ Often found under rocks, logs, and other objects
- ▶ Envenomation similar to wasps/hornets





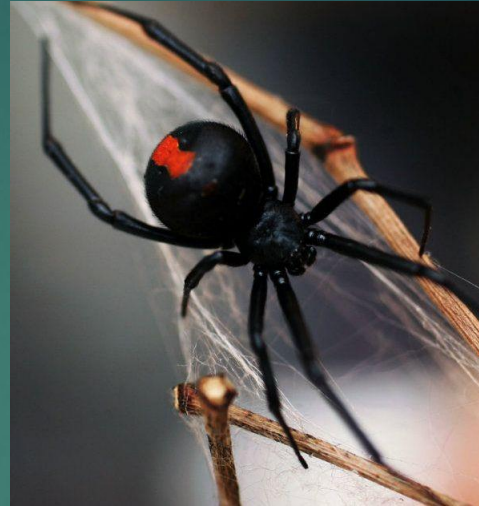
# SOUTHERN CALIFORNIA SPIDERS OF CONCERN

- ▶ Black Widows
- ▶ Brown Widows



# HOW TO AVOID SPIDER BITES

- ▶ Never put your hands in anyplace where you cannot see
- ▶ Shake out clothing, towels, shoes, gloves and boots before each use
- ▶ Use caution when using outdoor toilets, favorite places for spiders to hide



# BLACK/BROWN WIDOW BITES

- ▶ 30K people are bitten - Intense pain and burning sensation
- ▶ Venom 15X more potent than a rattler
- ▶ Sweating, nausea, rapid heartbeat muscle spasms, blurred vision
- ▶ Trouble breathing and swallowing
- ▶ May require anti-venom!



# BROWN WIDOW

- ▶ The Brown Widow was first found in San Diego County in 2000. Now a common member of the spider population
- ▶ Not as toxic as black widows
- ▶ Mottled tan and brown in appearance. Also have a hourglass like figure on the underside of their abdomen, however it's orange rather than red.













# FIRE ANTS

- ▶ Vary in size
- ▶ Dark reddish brown in color on the head with a darker abdomen
- ▶ Mounds can be more than 15 inches high and up to 5 feet deep
- ▶ When disturbed are highly aggressive, especially near the nest
- ▶ Cause very painful stings that raise a small welt





# QUESTIONS??

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