

# **RACCONS**

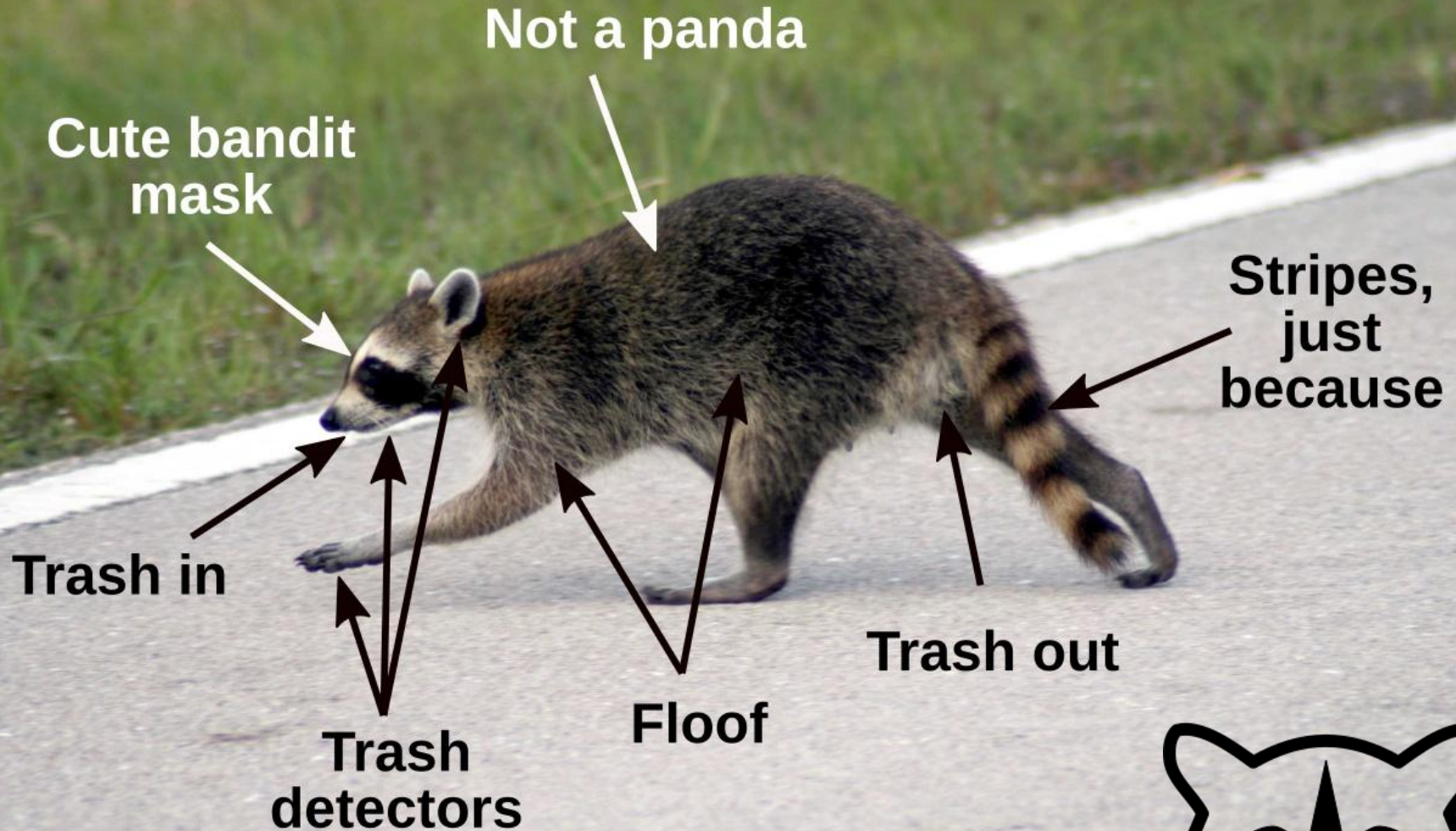
## **AND THEIR PATHOGENS**

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# PROPER ANATOMY OF A RACCOON







Omnivorous

+

Skillful

+

Smart

=

**Very adaptable**





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UF







# **RACCOONS IN URBAN ENVIRONMENTS**



# TREE TOPS PARK (DAVIE, FL)

Urban recreational park

77 raccoons handled

15 GPS collars

Full measurements  
+  
monitoring





# TREE TOPS PARK (DAVIE, FL)





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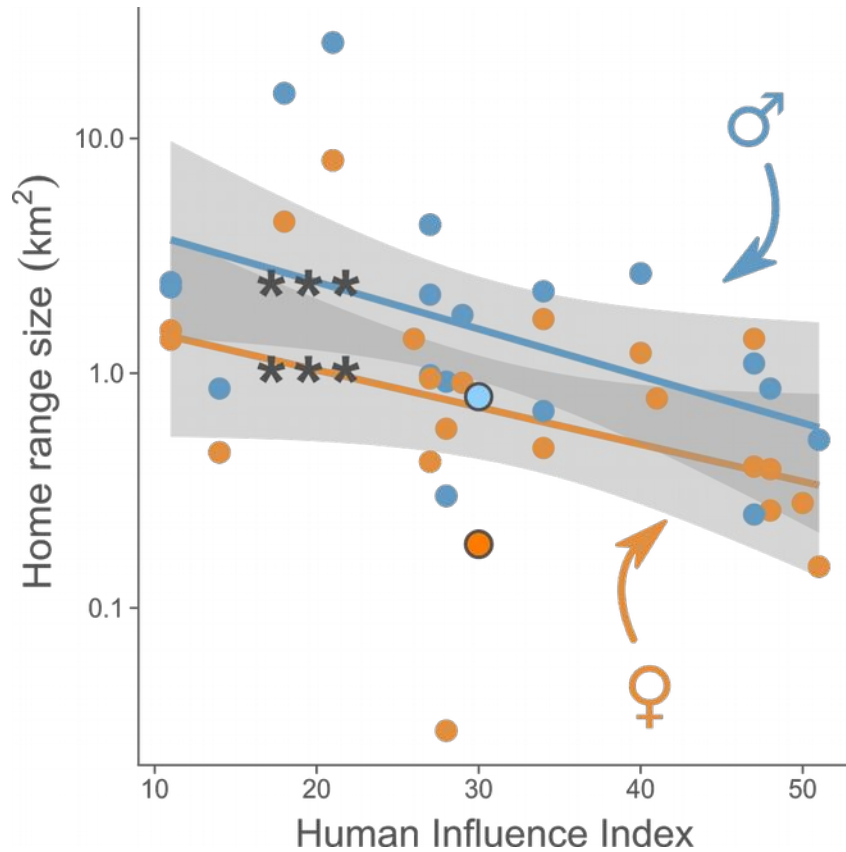
Ride on a  
garbage  
truck?





# TREE TOPS PARK (DAVIE, FL)

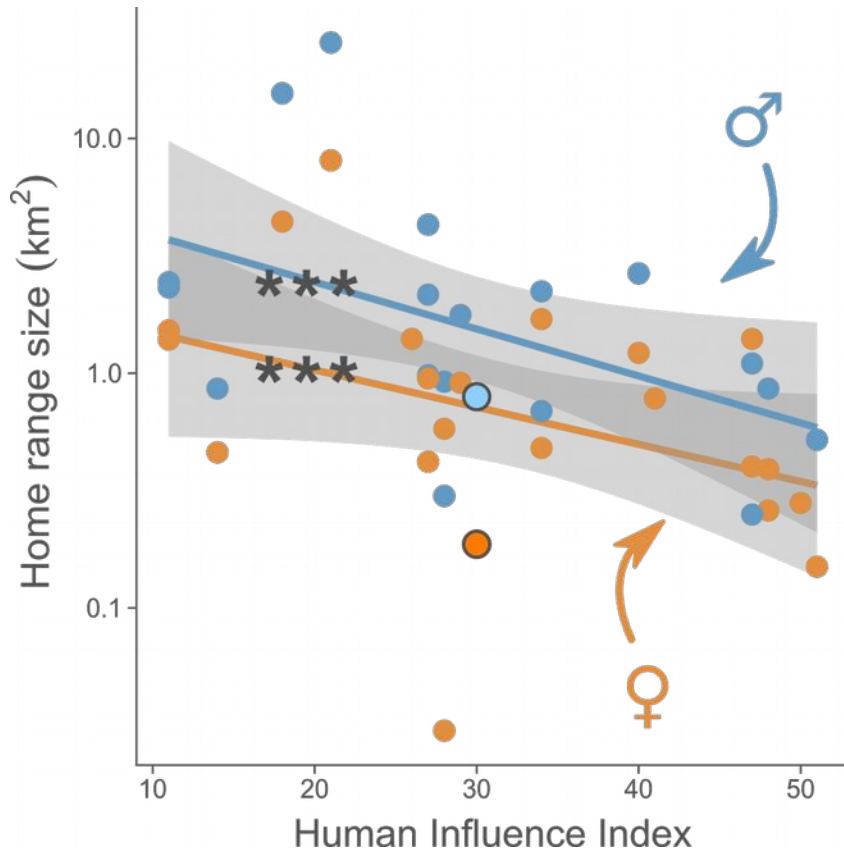
## America



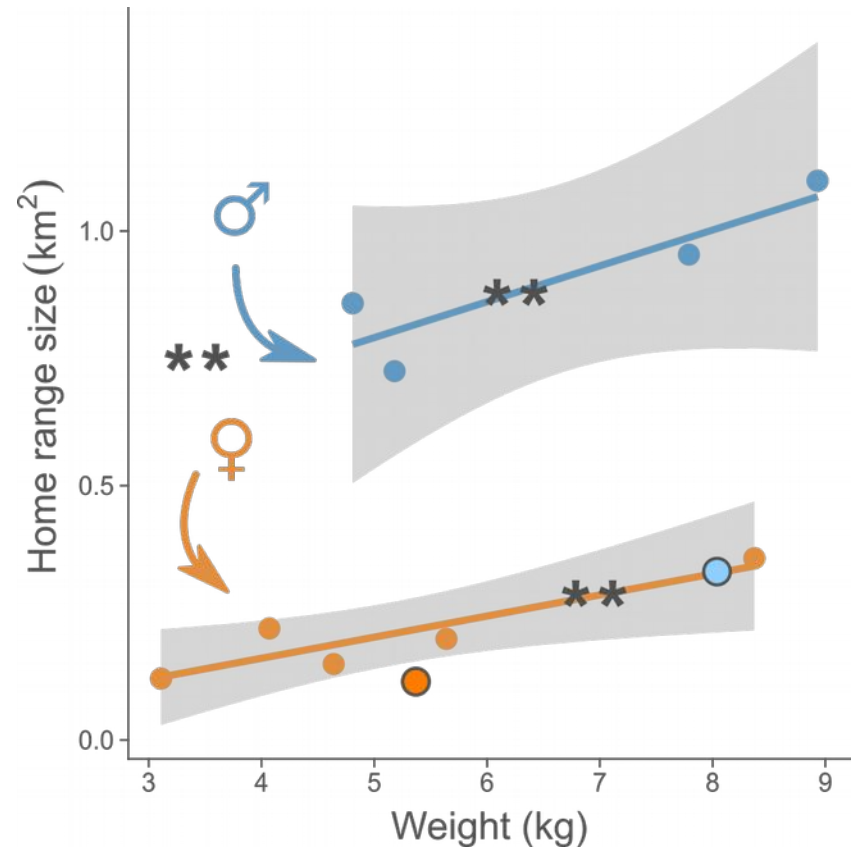


# TREE TOPS PARK (DAVIE, FL)

## America



## Tree Tops





# TREE TOPS PARK (DAVIE, FL)





# TREE TOPS PARK (DAVIE, FL)

Resources



High density



Diseases





**Main causes  
of raccoon death:**

- 1) collisions with cars**
- 2) diseases**





A raccoon is perched on a thick, textured tree branch. The raccoon has grey and black fur with a white chest and face. It is looking to the right. The background is filled with green leaves and branches, creating a natural, outdoor setting.

# **RACCOON-BORNE PATHOGENS**





**VIRUSES**



# RABIES

## Raccoons

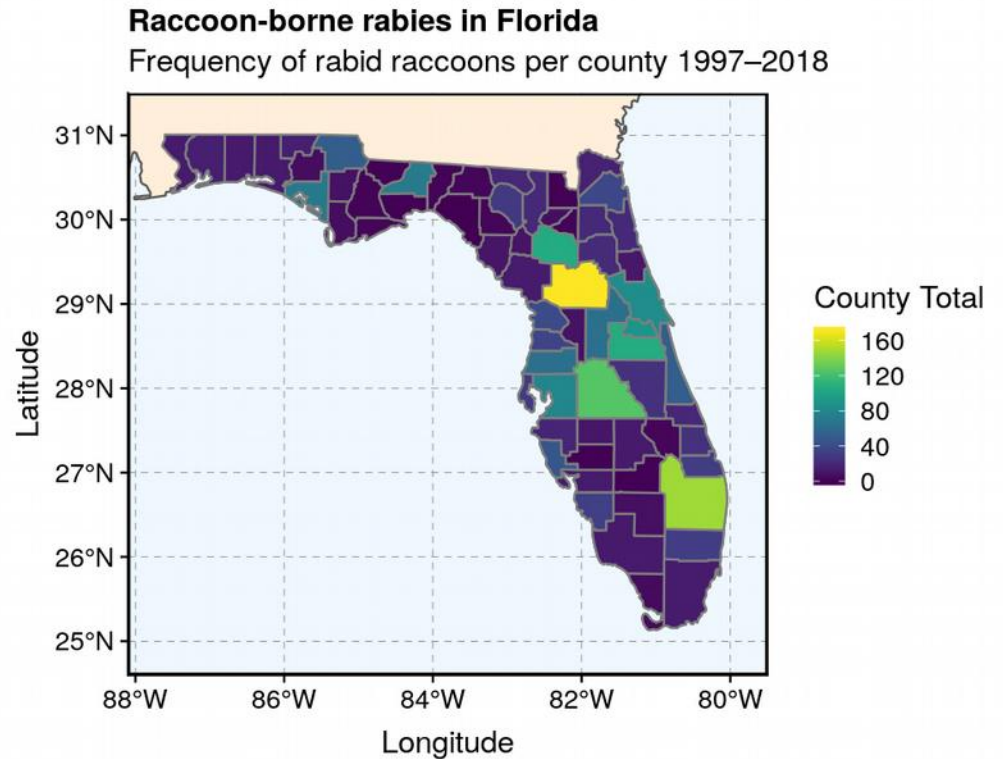
- Rare, but fatal
- Can infect all warm-blooded animals
- Various neurological symptoms
  - Transmission through saliva



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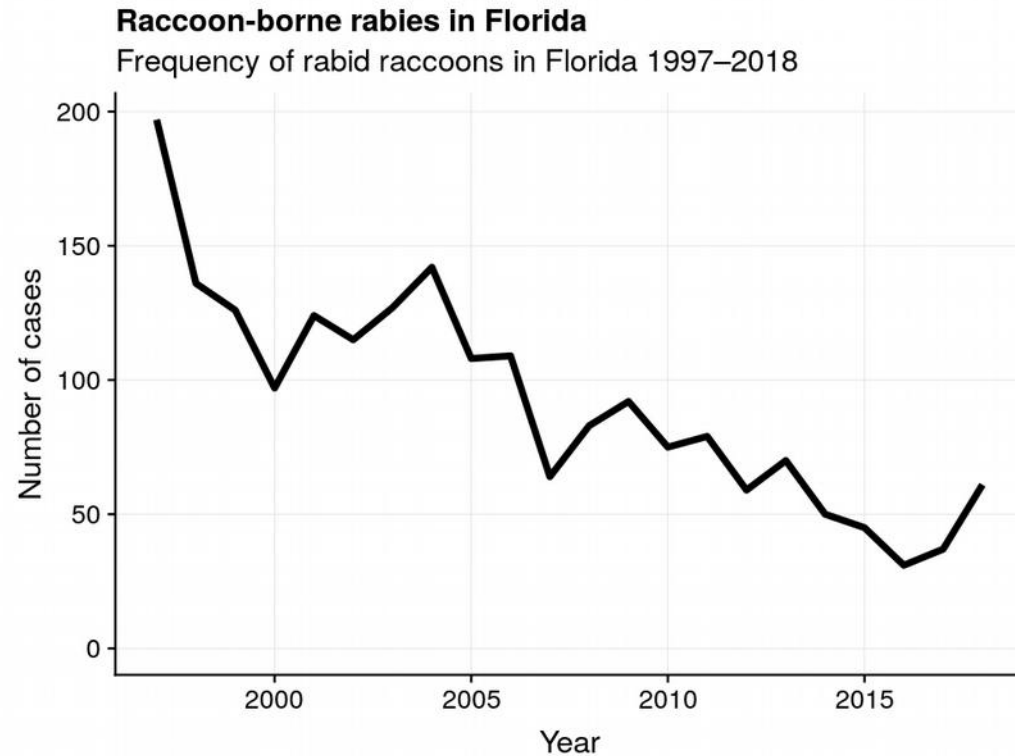




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# RABIES

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## Humans

- Nearly 100 % fatal
- Only a dozen people survived without vaccine
- 1–2 deaths/year in the US, but many more post-exposure treatments

## Pets

- Can infect dogs and cats



# RABIES

## What to do?

### Pre-exposure vaccine

- Recommended for people at risk
- *Still requires post-exposure treatment if exposed!*
- Needs to be checked at least every 2 years

→ **Vaccinate your pet!**

### Post-exposure treatment

- A mammal bite is a possible rabies exposure
- Testing the animal requires brain dissection and euthanasia
- Rabies travels through the nervous system—once it is in the brain, it is too late

→ ***Seek immediate treatment!***



# CANINE DISTEMPER

## Raccoons

- Common, fatal
- Leading natural cause of death after collisions
- Respiratory difficulties, lethargy, to rabies-like neurological symptoms  
→ Transmission through blood, saliva or urine

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## Humans

- Cannot infect humans

## Pets

- Can infect dogs and several other carnivores
- Only palliative care, some dogs can recover with lifelong symptoms

**→ Vaccinate your dog!**



# FELINE DISTEMPER

## FELINE PANLEUKOPENIA

### Raccoons

- Feline parvovirus, not related to canine distemper
- Fatal
- Symptoms (*if anything at all!*): fever, depression, anorexia, vomiting...
  - Transmission through nasal secretions, blood, feces, urine, fleas

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→ Transmission through nasal secretions, blood, feces, urine, fleas

### Humans

- Cannot infect humans

### Pets

- Can infect cats
- Adult cats have chances to survive, generally without long term effects  
  
→ **Vaccinate your cat!**



# CANINE PARVOVIRUS

## Raccoons

- Carry the pathogen without symptom  
→ Transmission through direct contact, feces

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## Humans

- Cannot infect humans

## Pets

- Can infect and kill dogs
- Attack dog's gastrointestinal tract
- Treatment is supportive, dog may still die

**→ Vaccinate your dog!**



A close-up, high-magnification image of two red, textured bacterial cells. The cells are oval-shaped with a rough, pebbled surface. They are positioned diagonally, with one cell slightly above and to the right of the other. The background is a dark blue, wavy, and irregular pattern, resembling a microscopic view of a surface or a fluid medium. The lighting is dramatic, highlighting the texture of the cells.

**BACTERIA**

# SALMONELLA

**Causes food poisoning (vomiting, fever, diarrhea)**

- Normally resolve in 3–8 days without treatment
- Sometimes severe cases, can be fatal
  - Transmission through food, but also contaminated mammals, birds, reptiles (mostly through feces)
- **Can infect humans: Causes 400 human death a year in the US alone**
- Can also infect pet mammals and birds



# FRANCISELLA TULARENSIS

Causes *tularemia* (rabbit fever)

- Difficult to diagnose, better with early treatment, can be fatal
  - Transmission through ticks or direct contact with mammalian tissue (including game)
- **Can infect humans: most people recover, may require antibiotic treatment**
- Can infect dogs, cats, birds

# EDWARDSIELLA TARDA

Causes *Edwardsiella septicemia*, rare but deadly disease

- Symptoms: Gastroenteritis
  - Transmission through feces (especially through water)
- **Can infect humans: 44% mortality rate with treatment**
- Can also infect pets



# LEPTOSPIRA

## *Causes leptospirosis*

- Symptoms: kidney damage, liver failure, meningitis, respiratory distress, and death if not treated
  - Transmission through urine (especially through water)
- **Can infect humans: uncommon**
- Can infect dogs: on the rise in urban areas; uncommon in cats



**PARASITES**

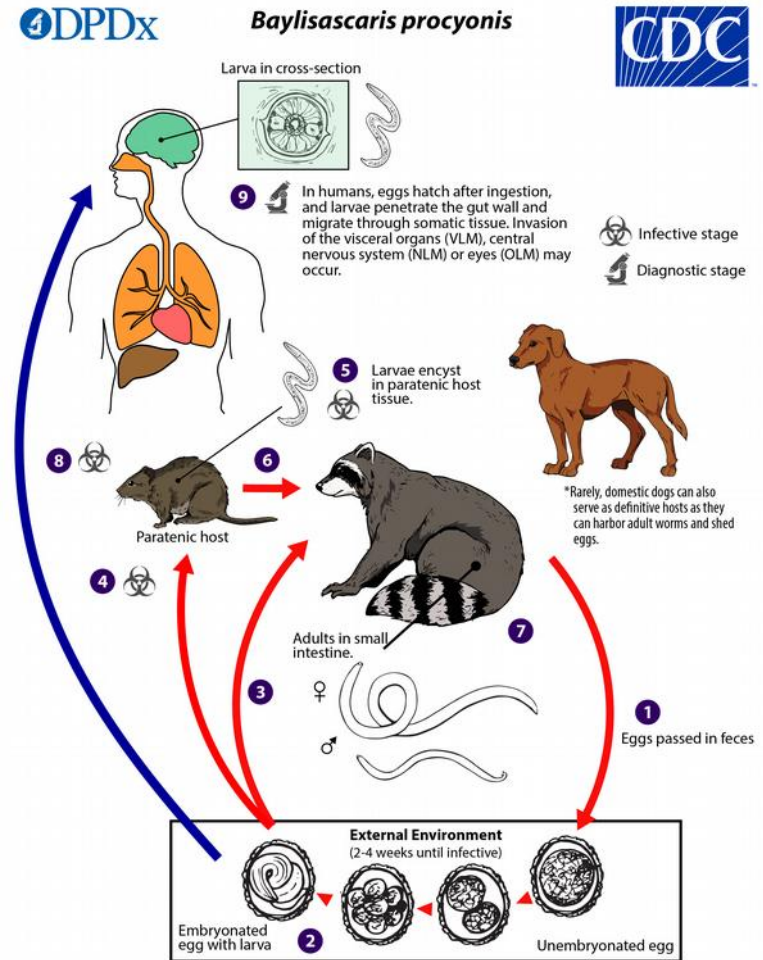


# BAYLISASCARIS PROCYONIS

## RACCOON ROUNDWORM

Nematode, causes *baylisascariasis*

- Cycle:
  - Raccoon = definitive host
  - Eggs through feces, can survive for months
  - Transmission through direct/indirect contact with feces
  - Eggs hatch and larvae migrate throughout the body



# BAYLISASCARIS PROCYONIS

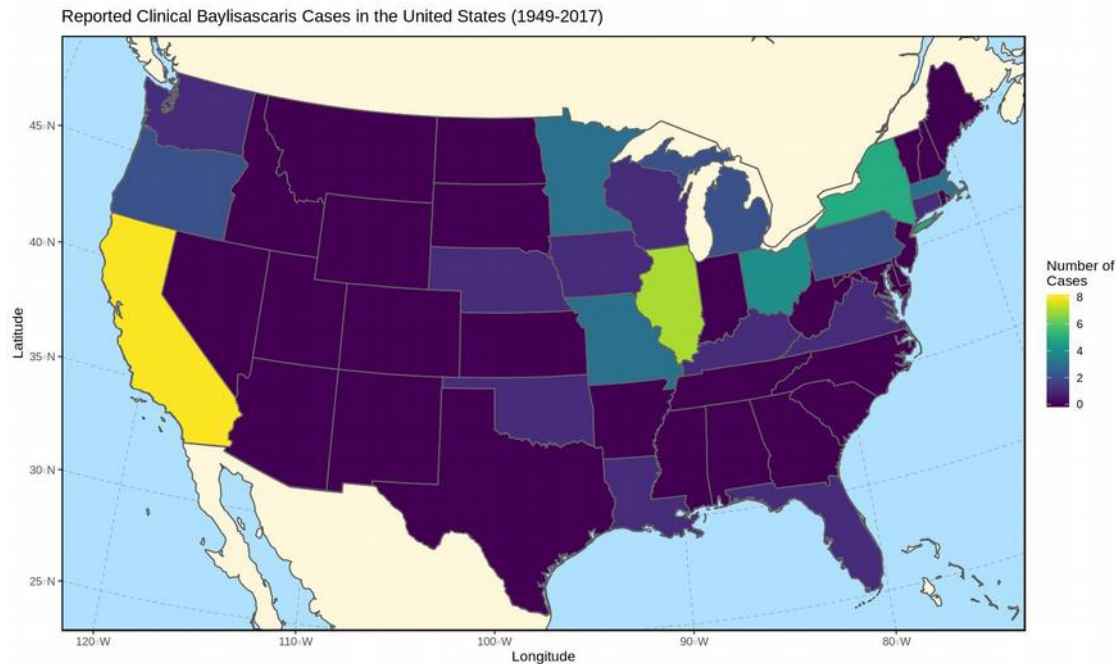
## RACCOON ROUNDWORM

### Raccoons

- Typically harmless

### Other hosts

- Very rare in the US
- Can infect dogs, birds, etc.; cats are immune
- Deworming of dogs will prevent spread





# BAYLISASCARIS PROCYONIS

## RACCOON ROUNDWORM

**Three forms, depending on larvae migrating to different areas of the body:**

### 1) Neural system

- Rare in humans
- Symptoms: fever, lethargy, loss of coordination, seizures, coma and death
- Can be fatal, especially for children
- Increased survival in recent years

### 2) Eye

- Sudden reduced or lost vision

### 3) Viscera

- Causes inflammation of various organs and tissues

# TOXOPLASMA GONDII

**Protozoa, causes *toxoplasmosis***

- Cycle:  
Cats = definitive host  
→ Transmission through feces
- Other species can show  
behavioral alteration (e.g. lack  
of fear)



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## Humans

- Very common: estimated 60 millions people in the US; usually no obvious symptoms in adults
- **Hazardous to fetus**, and people with weak immune system
- Transmitted from mother to fetus:  
→ Can cause miscarriage, or developmental issues

# TRYPANOMOSA CRUZI

**Protozoa, causes Chagas disease**

- Cycle:  
All mammals susceptible,  
mostly rodents, raccoons,  
coyotes, opossums...  
→ Transmission through feces  
of triatomine insects (kissing  
bugs)
- Most characteristic symptom:  
swelling of the eyelid closest  
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## Humans

- Emerging disease in southern US
- Can infect humans
- Normally resolve on their own; can be hazardous to people with weak immune system
- Treatment exists for humans

## Pets

- Can infect dogs
- Treatment exists for dogs

# DIROFILARIA IMMITIS

## HEARTWORMS

Roundworms, causes *dirofilariasis*  
in mammals

- Cycle:  
Canids = definitive host  
→ Transmission by mosquitoes
- Raccoons can be infected

# DIROFILARIA IMMITIS

## HEARTWORMS

Roundworms, causes *dirofilariasis* in mammals

- Cycle:  
Canids = definitive host  
→ Transmission by mosquitoes
- Raccoons can be infected

**Humans**

- Humans rarely infected, usually not serious

**Pets**

- Can infect dogs, fatal if not treated
- Cats rarely infected, no treatment and can be fatal



# TRICHINELLA

**Nematode that causes**  
*trichinellosis*

- Cycle:  
Raccoons are host: no  
documented symptom  
→ Transmission through eating  
undercooked meat, especially  
game

# TRICHINELLA

## Nematode that causes *trichinellosis*

- Cycle:  
Raccoons are host: no documented symptom  
→ Transmission through eating undercooked meat, especially game

## Humans

- Can infect humans
- Symptoms: nausea, vomiting, abdominal discomfort; most cases resolve in a few months, can be rarely fatal

## Pets

- Can infect dogs
- Mostly unnoticed, same symptoms as humans

# DIROFILARIA TENUIIS

**Nematode that causes small nodules under the skin, or rarely in the eye**

- Common in raccoons  
→ Transmission by mosquitoes

## **Humans**

- Can infect humans: rare



# TICKS

**Five species of ticks known on raccoons, three are of concern:**

- American dog tick: Rocky Mountain spotted fever, tularemia
- Black legged or deer tick: Lyme disease, babesiosis, anaplasmosis, Powassan virus, etc.
- Lone star tick: STARI, tularemia, ehrlichiosis, etc.



# FLEAS

## Raccoons carry the cat flea (*Ctenocephalides felis*)

- Can parasite humans, cats, dogs, and other mammals
  - Can carry a range of diseases: tapeworms, feline distemper, plague (extremely rare)
  - Mostly a cause of itching and allergic reactions
- Repellent (available for dogs and cats)







**CONCLUSIONS**



# WHAT (NOT) TO DO?

Don't freak out!



# WHAT (NOT) TO DO?

- Raccoons are wildlife. **Never feed wildlife.** This is illegal.
- Vaccinate your pets
- Feed pets inside
- Raccoon-proof garbage cans
- Problematic raccoons: call a specialist (check [FWC](#))



# WHAT (NOT) TO DO?

***NEVER FEED  
WILDLIFE!***







***Thanks for  
your attention!***

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<https://vimeo.com/359118786>