RACCONS

AND THEIR PATHOGENS

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PROPER ANATOMY OF A RACCOON

- Not a panda
- Cute bandit mask
- Trash in
- Trash detectors
- Floof
- Trash out
- Stripes, just because
Omnivorous + Skillful + Smart = Very adaptable
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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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America
TREE TOPS PARK (DAVIE, FL)

America

Tree Tops

- Home range size (km²) vs. Human Influence Index
- Home range size (km²) vs. Weight (kg)
Tree Tops Park (Davie, FL)

Resources

↓

High density

↓

Diseases
Main causes of raccoon death:
1) collisions with cars
2) diseases
VIRUSES
Rabies

Raccoons

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

Raccoon-borne rabies in Florida
Frequency of rabid raccoons in Florida 1997–2018

- Number of cases
- Year

**Legend:**

- 2000
- 2005
- 2010
- 2015
<table>
<thead>
<tr>
<th>Rabies</th>
<th>Humans</th>
<th>Pets</th>
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| Raccoons:  
- Rare, but fatal  
- Can infect all warm-blooded animals  
- Various neurological symptoms  
  → Transmission through saliva | 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
# 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

## 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
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

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
CANINE PARVOVIRUS

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

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!
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
FRANCISIELLA 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
CAUSES OF 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
Protozoa, causes toxoplasmosis

• Cycle:
  Cats = definitive host
  → Transmission through feces

• Other species can show behavioral alteration (e.g. lack of fear)
Protozoa, causes toxoplasmosis

- Cycle:
  - Cats = definitive host
  - Transmission through feces

- Other species can show behavioral alteration (e.g. lack of fear)

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
Trypanomosoa cruzi

Protozoa, causes Chagas disease

- Cycle:
  All mammals susceptible, mostly rodents, raccoons, coyotes, opposums...
  → Transmission through feces of triatomine insects (kissing bugs)

- Most characteristic symptom: swelling of the eyelid closest to the infection site
Trypanomosoa cruzi

Protozoa, causes Chagas disease

- Cycle:
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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 *dirofilaria*is 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
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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 TENUIS

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

- Common in raccoons
  → Transmission by mosquitoes

Humans
- Can infect humans: rare
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.
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)
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](https://www.flfishandwildlife.com))
WHAT (NOT) TO DO?

NEVER FEED WILDLIFE!
Thanks for your attention!
Contact me: basille@ufl.edu