

# Diseases

You Can Get From

# Wildlife



Photo: Parks Canada

A Field-guide for Hunters, Trappers,  
Anglers and Biologists

## For more information, contact:

*British Columbia Centre for Disease Control (BCCDC)*

[www.bccdc.ca](http://www.bccdc.ca)

*Ministry of Environment (MOE)*

<http://www.env.gov.bc.ca/main/prgs/regions.htm>

*Provincial Wildlife Veterinarian*

(250) 953-4285

*BC Nurseline & BC Health Guide*

Local calling within Greater Vancouver: (604) 215-4700

Toll-free elsewhere within B.C. 1-866-215-4700

BCHealthGuide OnLine at: <http://www.healthlinkbc.ca/>

*Public Health Units*

<http://www.health.gov.bc.ca/socsec/>

*Canadian Food Inspection Agency (CFIA)*

<http://www.inspection.gc.ca/english/directory/offbure.shtml>

*Manual of Common Diseases and Parasites  
of Wildlife in Northern British Columbia*

[http://www.unbc.ca/nlui/wildlife\\_diseases\\_bc/index.htm](http://www.unbc.ca/nlui/wildlife_diseases_bc/index.htm)

## A note on filter masks:

• Appropriate well-fitting masks for respiratory (breathing) protection against airborne bacteria and viruses include:

- 1) NIOSH-approved 100 series filters - N100, P100, R100 (formerly called HEPA filters)
- 2) Respirator with P100 cartridges
- 3) N95 mask



• *Note: dust masks for insulating or painting DO NOT protect against most airborne bacteria and viruses*

• Appropriate filter masks can be bought at most safety supply stores and some hardware & home building outlets

• For more information on special precautions and proper use, see your local public health unit or Workers Compensation Board (<http://www.worksafebc.com>)

# Diseases

You Can Get From

# Wildlife

in British Columbia

**WILD GAME AND FISH MAY CARRY DISEASES  
THAT CAN BE TRANSMITTED TO PEOPLE**

**DISEASE TRANSMISSION TO PEOPLE CAN BE PREVENTED  
BY FOLLOWING THE GUIDELINES PROVIDED IN THIS  
PAMPHLET**

**WITH THE USE OF PROPER PRECAUTIONS,  
YOUR CHANCE OF INFECTION IS VERY LOW**

**IF YOU HAVE ANY QUESTIONS OR ISSUES WITH AN  
ANIMAL YOU HAVE HARVESTED,  
OR HAVE FOUND DEAD, SICK OR INJURED,  
CONTACT THE LOCAL MINISTRY OF ENVIRONMENT  
OFFICE**

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Insect-borne Diseases	• Bird Flu
Water-borne Diseases	• Filarial Worms
	• Raccoon Roundworm

## *Specific Diseases*

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Anisakiasis	Papillomas (warts)
Anthrax	Plague
Chronic Wasting Disease	Rabies
Diphyllobothriasis	Ringworm
Giant Liver Fluke	Sarcocystis
Hydatid Disease	Sarcoptic Mange
Leptospirosis	Trichinellosis
Moose Measles	Tuberculosis
Orf	Tularemia

# Legend

## Can I still use the animal?



Yes - Doesn't look nice

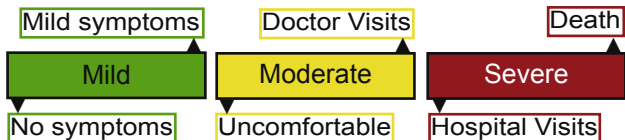


Yes - Take safety precautions



No - Contact the local Ministry of Environment (MOE) office

## How bad can it get?



## Safety Symbols

Wash  
Hands



Wear  
Gloves



Wear  
Mask



Safe to Eat:

Yes



No



Food Preparation:

Cook



Freeze



Safe for Pets:

Yes



Caution



# Top 10 Tips ~

## 1) **Cook all Meat**

- Thoroughly cook game meat & fish to recommended temperatures
- Never eat raw or undercooked meat
- *Caution: Freezing, microwaving or smoking MAY NOT KILL all the bacteria, viruses or parasites*

## 2) **Wash Your Hands**

- Use soap and water:
  - After handling game & fish
  - After using the bathroom
  - Before eating or handling food

## 3) **Drink Safe Water**

- Pack it in, OR
- Boil it first, OR
- Use an approved water purifier or filter

## 4) **Safe Field Dressing**

- Keep it **CLEAN, COOL & SAFE** (pg 6)
  - Protect meat from intestinal contents
  - Follow safe meat-handling practices (pg 7)

## 5) **Bush Bathroom**

- Bury your wastes away from water
- Don't touch animal waste

## 6) **Not Your Kill? Leave it Alone!**

- Stay away from sick or dead animals & contact the local Ministry of Environment
- Avoid rodents where possible & use caution if trapping beaver / muskrat

## 7) **Keep Bugs Off**

- Wear long pants & long-sleeved shirts
- Wear light coloured clothing
- Use insect repellents (with DEET)

## 8) **First Aid**

- Clean cuts / wounds with soap & water
- Consult your doctor, and explain that you had contact with wildlife

## 9) **Play it Safe**

- Wear reflective clothing
- Don't mix guns and alcohol
- Drive safely
- Use sunscreen

## 10) **Not Feeling Well?**

- Consult your doctor if you are ill and have recently eaten, or had contact with, wild animals or fish
- Tell your doctor of your recent activities and that the BC Centre for Disease Control has additional information

# *Safe Field Dressing ~*

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## ▶ **Things that spoil meat**

- Poor shot / arrow placement
- Improper field-dressing or careless butchering
- Dragging a dressed carcass
- Hanging or aging the carcass for too long
- High temperatures during aging

## ▶ **Why prevent meat spoilage?**

- To reduce the risk of illness
- Properly dressed & aged meat tastes better

## ▶ **Keep it CLEAN**

### **Prevent bacterial contamination**

- Water, mud, soil and leaves carry bacteria
  - Butcher animal in cleanest area possible
  - Keep carcass covered when transporting
- Prevent bacterial-related spoilage:
  - Wash your hands
  - Always use clean equipment and knives
  - Avoid contact between clothes & carcass
    - Clothes can carry bacteria
    - Wash clothes when you get home
  - Wear disposable gloves

*Wash equipment that cuts into intestines*

- Before you butcher the carcass, clean off hair, dirt and other debris



## ~ Prevent Meat Spoilage

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### Keep it COOL

#### Prevent bacterial growth

- Spoilage results from bacterial growth
- Spoilage and disease are affected by **TIME & TEMPERATURE**
- Field dress & skin the animal as soon as possible - fur may protect the carcass, but can also prevent proper cooling!

*The warmer the temperature, the faster the spoilage*

### Keep it SAFE

- Protect meat from intestinal contents; they contain bacteria & parasites
  - Wash knives frequently
  - Trim contaminated meat
  - Cook well
- Label meat packages with the date to:
  - Select specific cuts for cooking
  - Freeze for up to 12 months for best quality
- When in the kitchen or campsite:
  - Clean hands, cooking utensils and surfaces
  - Separate raw meat from ready-to-eat foods
  - Cook to recommended temperatures *to kill bacteria, viruses and parasites*
  - Refrigerate promptly *to slow bacterial growth*

# *Food-Borne Diseases ~*

## **Fecal contamination**

- Bacteria, viruses and parasites live and grow in the intestines of animals
- They can contaminate hands, meat & utensils and can cause illness if eaten
- This is sometimes called **FOOD POISONING**

*Beware: Some food-borne diseases can be transmitted from person to person*

## **Examples**

- *Salmonella*
- *E-coli*
- Toxoplasmosis

## **How can I get sick?**

- Eating raw or undercooked meat
- Improper food **PREPARATION & COOKING**
- Contaminating cooked food with:
  - Raw or undercooked meat
  - Dirty hands & utensils
  - Dirty food preparation surfaces

## **How can I protect myself?**

- Cook meat to recommended temperatures



*Beware: Freezing may not kill all harmful bacteria, viruses or parasites*

## *~ Make Your Food Safe to Eat*

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- Wash your hands with soap and water
  - After using the bathroom
  - After handling carcasses, live animals or their feces
  - Before eating or handling food
- Properly store meat
  - Refrigerate
  - Freeze when storage for more than 2 days is required
  - Thaw meat in the fridge and not on the counter
- Cook in a clean area
  - Scrub surfaces, utensils and cooking equipment with soap and water before and after food preparation



### **Not feeling well?**

- Recognize common symptoms of food-borne disease:
  - Diarrhea
  - Nausea
  - Vomiting
  - Fever
  - Weakness
  - Stomach pain
- Contact your doctor if you become ill after eating raw or undercooked meat
- Tell your doctor what you hunted & ate

# Insect-Borne Diseases ~

## ▶ **Insects that can carry disease**



## ▶ **Examples**

- Lyme Disease
- Ehrlichiosis
- Babesiosis
- Rocky Mountain Spotted Fever
- West Nile Virus (WNV)

## ▶ **How can I get sick?**

- You get bitten by an infected tick, flea or mosquito

## ▶ **How bad can it get?**

- Symptoms can range from mild illness ➔ hospitalization ➔ death

## ▶ **How can I protect myself?**

- Prevent TICK bites
  - Walk on cleared trails
  - Wear a hat, long sleeves & pants, and light coloured clothing
  - Tuck pant legs into socks or boots
  - Use insect repellents (with DEET) on clothing and exposed skin

*Inspect clothes and skin for ticks*

*Have a health care professional remove the ticks immediately*

## ~ Prevent Insects from Biting You

*If you have to remove the whole tick with tweezers, try not to squeeze it!*

- Prevent MOSQUITO bites
  - Wear light coloured, long-sleeved clothing
  - Use insect repellents (with DEET)

*Beware: Mosquitoes are most active at dusk and dawn - take precautions!*

### Not feeling well?

- Initial symptoms may be mild & include:
  - Fever
  - Chills
  - Nausea
  - Sweats
  - Vomiting
  - Sore throat
  - Headache
  - Cough
  - Muscle pains
  - Rash
  - Fatigue
- More serious conditions can develop, and include the sudden onset of:
  - Chest pain
  - Muscle pain
  - Stomach pain
  - Loss of appetite and / or weight
- Consult your doctor if you have any of these symptoms up to 2 months after exposure to ticks, fleas or mosquitoes

# Water-Borne Diseases ~

## Background

- Water (especially from streams, rivers, ponds and lakes) can contain harmful bacteria, viruses and parasites
- You may become ill after drinking water from these sources

## Examples

- Beaver Fever (Giardiasis)
- Cryptosporidiosis



## How can I get sick?

- Drinking water contaminated with animal or human feces

## How can I protect myself?

- Bring safe or bottled water
- Boil all stream, river and lake water at a rolling boil for at least three minutes before using it for:
  - Drinking
  - Preparing food
  - Brushing your teeth



*Beware: Chemical disinfection & filters may not kill all bacteria, viruses or parasites*

- Avoid swallowing the water when swimming in streams, rivers and lakes

## *~ Make Your Drinking Water Safe*

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- Protect water sources:
  - Bury your wastes far away from any water

### **Not feeling well?**

- Recognize common symptoms of water-borne disease:
  - Diarrhea
  - Nausea
  - Fatigue
  - Chills
  - Stomach cramps
  - Bloating
  - Weight loss
  - Fever
- If you develop symptoms:
  - Drink plenty of safe water
  - Use oral rehydration salts
  - Contact your doctor as soon as possible
  - Tell your doctor that you may have swallowed contaminated water

*Beware: Some water-borne diseases can be transmitted from person to person*

# *Additional Diseases ~*

## **Abscesses**

- Pus & bacteria-filled lumps found within animal tissues, usually during butchering
  - Most animals appear to be healthy
- If there is only one abscess, trim away and discard the affected meat
- If multiple abscesses are found, it is safer not to eat the animal

*NEVER cut into abscesses or eat meat containing abscesses*

## **Hantavirus**

- A rare & potentially fatal virus in wild mice
- You may contract it by breathing virus carried on dust particles from mouse feces, dried urine or nesting materials
  - Rodent-proof your home / cabin
  - Avoid contact with rodents & their feces
  - Wear a protective mask when you work in enclosed spaces where rodents live

*Details on safe clean-up are available at [www.bccdc.ca](http://www.bccdc.ca) under 'Health Topics'*

## **Bird Flu (Avian Influenza)**

- Some forms of bird flu can be transmitted to people
- Contact BCCDC for any updates to the situation in British Columbia



## ~ *That you Should Know About*

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- Wild birds can carry bird flu but rarely get sick
- Practise proper hygiene when butchering birds - wear gloves & wash hands

*Avoid handling sick or already dead wild birds*

### **Filarial Worms**

- Long, white & slender roundworms found under the skin of black bears
- Black flies spread these worms to new hosts
- These worms rarely cause illness in people

*Filarial worms may be seen during the butchering of bears*

*Bear meat is still edible, but cook it first*

### **Raccoon Roundworm (Baylisascaris)**

- Found in raccoon intestines
- People can be exposed by ingesting roundworm eggs - take precautions
- Practise proper hygiene and wear protective clothing (gloves and coveralls) when skinning raccoons
- Disinfect your work space
- Health effects in people may include:
  - Skin irritation
  - Brain damage
  - Eye damage
  - Death is rare

*Avoid contact with raccoons & their feces*

# Anisakiasis

Caution

## Commonly infected wildlife



### Is this animal infected?

- Affected marine fish have worms that are:
  - Often free in the fish's body cavity
  - 1.8 to 3.6 cm long, and < 1 cm wide
  - White in colour
  - Often in the shape of a "watch-spring" coil



### Can I get it?

- Yes
  - By consuming raw or undercooked fish
  - *Caution: some people may develop allergic reactions after eating these worms*

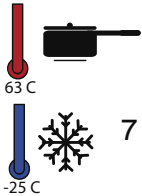
### How bad can it get?



Beware: May require medical attention

## Protect myself and others

- Gut & process the fish immediately to stop worms moving into the muscle
- Kill worms in the muscle:
  - Cook fish to 63<sup>0</sup> C for 10 min.
- OR
- Freeze at -25<sup>0</sup> C for 7 days, especially when the fish will be prepared for sushi



## Symptoms in people

- Occur within hours of eating infected fish
  - Severe stomach pain
  - Nausea and vomiting
- Worms may enter the intestine 1-2 weeks after infection
  - Surgical removal may be necessary if worms burrow into the intestinal wall
  - Worms are occasionally coughed up
- Seek medical advice if you become ill after eating raw or undercooked fish

## Safe for pets?

- Yes, if the fish is well cooked
- Worms cannot survive in pets for very long



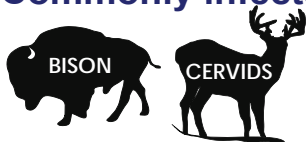
## What causes it?

- A roundworm called *Anisakis simplex*
- Commonly known as herring worm

# Anthrax

Danger

## Commonly infected wildlife



## Is this animal infected?

- Living animals may be slow, weak, disoriented & dead within hours to days
- Dead animals bloat and decompose quickly
- There may be a bloody discharge from the mouth, nose & anus



## Can I get it?

- **YES!**
  - Through cuts, open sores and scratches
  - Inhaling spores from contaminated materials, such as dust and grass
  - Eating undercooked meat

## How bad can it get?



Spread by Cuts, Eating It, or Breathing It In

## Protect myself and others

- Animals suspected of having anthrax:
  - DO NOT TOUCH or EAT!
  - Wear a proper filter mask
  - Contact the local MOE, CFIA, or Public Health Unit



## Symptoms in people

- Cutaneous (skin) anthrax:
  - Most common type of anthrax infection in people
  - Small painless sore ➔ blister
  - ➔ ulcer with a black centre
  - Identify early
  - Treat with antibiotics
- Inhalation (lungs) anthrax:
  - Fever, sore throat, general ill-feeling
  - Cough, shortness of breath, chest pain
  - Breathing difficulties ➔ death
- Gastrointestinal (digestive) anthrax:
  - Fever, loss of appetite, vomiting, diarrhea, stomach pain

## Safe for pets?

- **NO!** Carcasses should not be opened or cut into



## What causes it?

- Toxins from the bacteria *Bacillus anthracis*
- Anthrax has been reported in wood bison in the Northwest Territories and Alberta

# CWD *(Chronic Wasting Disease)*



## Commonly infected wildlife



### Is this animal infected?

- CWD is a slowly progressing disease
- Animals can appear healthy for many years before they show symptoms:
  - Lack of coordination & paralysis
  - Excess salivation, difficulty swallowing, unusual behaviour & weight loss

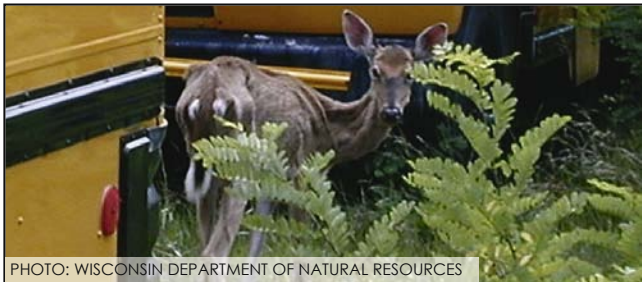


PHOTO: WISCONSIN DEPARTMENT OF NATURAL RESOURCES

### Can I get it?

- No evidence at the present time that people can get CWD

### How bad can it get?



As of 2006, CWD has not been found to infect people

## Protect myself and others

- Animals that have CWD should not be eaten
- CWD has NOT been found in B.C.
- Animals that look like they have CWD can be tested
  - Contact the local MOE

## Symptoms in people

- CWD is not known to infect people

## Safe for pets?

- Animals that have CWD should not be fed to pets



## What causes it?

- An abnormal protein called a prion
- Other prion diseases include:
  - BSE (or Mad Cow Disease) in cattle
  - CJD (Creutzfeldt-Jakob Disease) in people

# Diphyllobothriasis

Caution

## Commonly infected wildlife



## Is this animal infected?

- Many species of fresh water fish and salmon can be infected
- Affected animals have worms that may be coiled in the muscles, or in cysts within the internal organs
- Worms vary in length (from a few mm to cm)

PHOTO: CRAIG BANNER, OREGON DEPARTMENT OF FISH AND WILDLIFE



## Can I get it?

- Yes
  - By consuming raw or undercooked fish
  - People can develop mature tapeworms in their intestines

## How bad can it get?

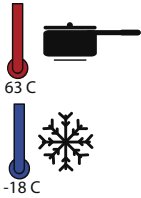


Medications can kill & remove the worms



## Protect myself and others

- Kill the worms!
  - Cook fish to  $63^{\circ}\text{C}$  for 5 min.
- OR
- Freeze at  $-18^{\circ}\text{C}$  for 24 hr.  
(at  $-18^{\circ}\text{C}$ , ice cream is frozen solid)



## Symptoms in people

- Most people have no or mild symptoms:
  - Fatigue
  - Weight loss
  - Diarrhea
  - Vomiting
  - Dizziness
  - Itchy anus
- Massive infection may cause:
  - Numbness of extremities
- Additional symptoms may include:
  - Loss of appetite
  - Paleness
  - Shortness of breath
  - Weakness
  - Confusion

## Safe for pets?

- **NOT RAW!** Cook or freeze it first
  - These worms can survive and grow in dog intestines



## What causes it?

- A tapeworm called *Diphyllobothrium*
- Commonly known as broad fish tapeworm
- It can grow to 9 m (30 feet) in length in people's intestines

# Giant Liver Fluke



## Commonly infected wildlife



## Is this animal infected?

- Animals rarely show external signs
- Livers may be swollen & lumpy (see photo)
- Purple-gray, fat, oval shaped worms (f uke) may be seen in the liver
- Worms vary in size from 1.5 to 3 cm wide and 3 to 10 cm long



## Can I get it?

- No

## How bad can it get?



No risk to people

## Protect myself and others

- The meat of infected animals can be eaten
  - BUT
    - Discard the infected liver
    - Infected liver is unappetizing



## Symptoms in people

- None - people are not at risk

## Safe for pets?

- Yes



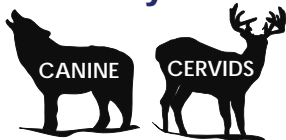
## What causes it?

- A flatworm (fuke) called *Fascioloides magna*

# Hydatid Disease

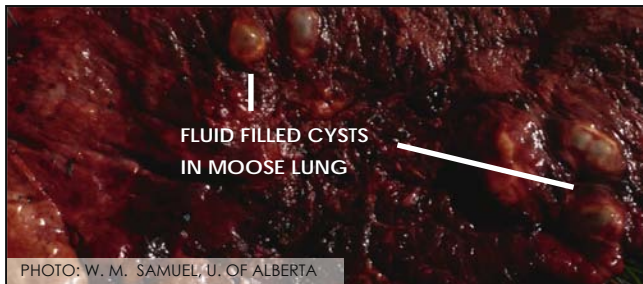
Caution

## Commonly infected wildlife



## Is this animal infected?

- Adult worms live and grow in infected dog and wild canine (**wolf & coyote**) intestines
- Affected cervids often have large fluid-filled cysts in the lungs or liver - *these cysts are NOT infectious to people*



## Can I get it?

- **YES!** Dogs and wild canines eat cysts in cervid lungs & liver, and worms mature
- The worms release eggs in the dog & wild canine feces, and eggs stick to their fur
- The shed eggs can infect people

## How bad can it get?



Gets worse with time and depends on organ affected

## Protect myself and others

- When handling live canines, their feces, pelts or carcasses:
  - Wear disposable gloves
  - Practise good hygiene
    - WASH YOUR HANDS!
  - Disinfect your work space



## Symptoms in people

- Severity of symptoms depends on if and where the juvenile worms form cysts:
  - Brain ➔ Death
  - Lungs ➔ Breathing difficulties
  - Abdomen ➔ Liver damage
- Consult your doctor if you have health concerns after handling wolf or coyote carcasses

## Safe for pets?

- **NO!**
  - Cysts found in cervids can infect pet dogs
  - Once infected, pet dogs can be a source of infection to you and your family
  - *DO NOT ALLOW dogs access to lungs and liver from cervids*



## What causes it?

- In British Columbia, the tapeworm *Echinococcus granulosus* causes hydatid disease

# Leptospirosis

Caution

## Commonly infected wildlife



## Is this animal infected?

- Infection is believed to be uncommon
- Most infected animals have no symptoms

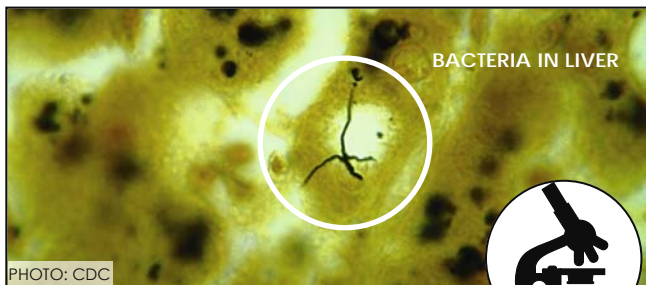


PHOTO: CDC



## Can I get it?

- **YES!**
  - Contact with:
    - Urine or tissues of infected animals
    - Water, soil or vegetation contaminated by infected urine
  - Consumption of:
    - Food or drinking water contaminated by infected urine

## How bad can it get?



Can be fatal if not treated immediately

## Protect myself and others

- When handling rodents (including beavers) & raccoons:
  - Wear disposable gloves
  - Wash your hands afterwards
- Clean cuts or wounds with soap and water
- Wear boots when wading in water



## Symptoms in people

- Most people will not have symptoms
- If symptoms do occur, they can include:
  - High fever, severe headache, chills, muscle aches, and vomiting
- Other symptoms can include:
  - Jaundice (yellow skin and eyes)
  - Red eyes
  - Abdominal pain, diarrhea, rash
- If untreated, symptoms can include:
  - Kidney damage, liver failure, breathing problems, headache, stiff neck
- Fatalities are rare

## Safe for pets?

- In severe cases, pets can die from leptospirosis
- Pets can also transfer the bacteria to you
- Talk to your veterinarian about vaccines



## What causes it?

- A bacteria called *Leptospira*

# Moose Measles



## Commonly infected wildlife



## Is this animal infected?

- Adult worms live & grow in the intestines of infected carnivores
- Affected herbivores will have small white cysts, usually in muscle and connective tissue
  - Animal may have few or many cysts



## Can I get it?

- No
  - The cysts contain juvenile worms that do NOT infect people

## How bad can it get?



No risk to people



## Protect myself and others

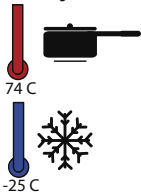
- The meat of infected animals can be eaten
- Cysts can be trimmed out or killed by:

- Normal cooking temperatures

OR

- Freezing

- Cysts can look unappetizing
- Affected meat may be more acceptable if processed as ground meat



## Symptoms in people

- None - people are not at risk

## Safe for pets?

- Not raw
  - Cysts in fresh, unfrozen meat can infect pet dogs
  - Freeze the meat to kill the cysts



## What causes it?

- The tapeworm *Taenia ovis krabbei*

# Orf (*Contagious Ecthyma*)

Caution

## Commonly infected wildlife



## Is this animal infected?

- Infected animals have obvious single or multiple crusty lumps, usually on their lips
- Young animals are more likely to be affected & may have difficulty nursing
- Lesions can also occur on the:
  - Face
  - Inside the mouth
  - Udder
  - Above the hooves

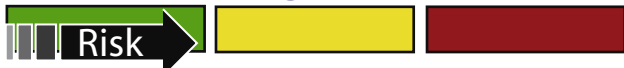


PHOTO: DR. HELEN SCHWANTJE, B.C. MINISTRY OF ENVIRONMENT

## Can I get it?

- Yes, by contacting affected skin
  - Especially if you have cuts on your skin

## How bad can it get?



May require medical attention & treatment

## Protect myself and others

- Wear disposable gloves
- Practise good hygiene
  - Wash your hands
  - Wash your clothes
- Trim away affected tissue
- Avoid contact between affected tissue and edible meat



## Symptoms in people

- Red skin lesion(s) on the hand, arm or face
- Swollen, painful lymph nodes
- Mild fever
- Consult with your doctor for proper diagnosis and treatment
- Skin lesions usually go away within 6 weeks without scarring

## Safe for pets?

- Yes



## What causes it?

- A parapox-virus that infects both wild and domestic sheep and goats

# Papillomas (Warts)



## Commonly infected wildlife



## Is this animal infected?

- Affected animals have hairless growths on their skin
- These growths are:
  - Variable in color, texture, number & size (from dime to baseball)
  - Often found around the eyes & neck, but may also be on the body or legs



PHOTO: KEVIN GILES, B.C. MINISTRY OF ENVIRONMENT

## Can I get it?

- No
  - People cannot get this type of wart

## How bad can it get?



No risk to people

## Protect myself and others

- Trim away affected tissue - it is unappetizing and should not be eaten
  - Once affected tissue has been trimmed away, the meat can be cooked and eaten



## Symptoms in people

- None - people are not at risk

## Safe for pets?

- Yes
  - After trimming away affected tissue



## What causes it?

- A virus in the Papillomavirus group

# Plague

Danger

## Commonly infected wildlife



## Is this animal infected?

- This is a rare disease in British Columbia
- Signs during outbreaks in rodents include:
  - Swollen and / or rotting lymph nodes
  - Multiple red spots on skin / organs (see photo below)



## Can I get it?

- **YES!**
  - Being bitten by an infected rodent flea
  - Contact with abscesses on infected animals
  - Through bites and scratches
  - Inhaling infectious airborne droplets (rare)

## How bad can it get?



Beware: May require medical attention

## Protect myself and others

- Avoid rodents
- Prevent flea bites by wearing:
  - Long sleeved clothing & disposable gloves
- Do not consume infected animals
- Wear a proper filter mask
- Wash puncture wounds and scratches with soap and water



## Symptoms in people

- Bubonic form (flea bite)
  - Fever and general illness
  - Swollen / painful / hot lymph nodes
  - Tissue swelling around the flea bite
- Septicemic (in blood) or pneumonic (in lungs) form
  - Fever & signs of shock
  - Breathing problems, including cough
  - Excessive bleeding
  - Death

## Safe for pets?

- **NO!**
  - Carnivores may be infected when they eat infected tissues
  - Once infected, pets can potentially cause illness to you or your family



## What causes it?

- The bacteria *Yersinia pestis*
- It is primarily a flea-transmitted disease

# Rabies

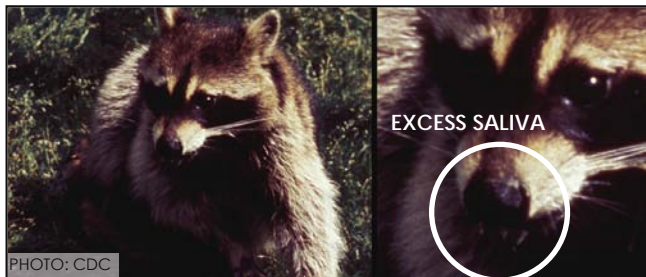
Danger

## Commonly infected wildlife



## Is this animal infected?

- Insect-eating bats are the only rabies carriers in B.C., but the disease is rare
- Rabies can infect any mammal
  - Affected animals may be found dead, be weak, or show unusual behaviour



## Can I get it?

- **YES!**
  - From the bite or scratch of an infected animal
  - From saliva of infected animals that touches your eyes, nose, mouth, or skin wounds

## How bad can it get?



Rabies is serious. Seek treatment as soon as possible after contact with a rabid animal



## Protect myself and others

- Any animal that shows unusual behaviour should not be approached
  - DO NOT TOUCH!
  - Contact the local MOE, CFIA or Public Health Unit



## Symptoms in people

- **RABIES IS SERIOUS - IT CAN BE FATAL**
- Symptoms may not be detected for weeks, months or years
- Symptoms may start with:
  - Pain, tingling or itching near exposure site
  - Fever, chills, fatigue, muscle aches, irritability
- Additional symptoms can include:
  - High fever, confusion, agitation, seizures, coma, headache, paralysis, incoordination

*If bitten or scratched by a suspect animal:*

- *Clean & flush wound with soap and water*
- *Seek medical attention immediately*

## Safe for pets?

- **NO!**
- Talk to your veterinarian about vaccines



## What causes it?

- A virus of the family Rhabdoviridae

# Ringworm

Caution

## Commonly infected wildlife



## Is this animal infected?

- Affected animals have areas of thickened skin with hair loss over the head or legs
- Skin may be red
- Hair easily breaks away
- Lesions can be itchy



## Can I get it?

- Yes, by touching the skin & hair of infected animals
- Note: some types of ringworm may be less contagious than others

## How bad can it get?



Beware: May require medical attention

## Protect myself and others

- Wear disposable gloves
- Wash your hands
- Disinfect your work space
- Avoid contact between affected skin / hair and edible meat
- **WARNING:**
  - Once infected, you can transmit ringworm to your family



## Symptoms in people

- Skin lesions are:
  - Red, circular, and spread outwards
  - Vary from dry and scaly to moist and crusty
  - Often have a central healed area surrounded by a “ring” of infection
- Can be itchy

## Safe for pets?

- No
  - Once infected, pets can be a source of infection to you and your family



## What causes it?

- Fungi that grow in the soil, on people and on animals (e.g. *Microsporium canis*, *Trichophyton verrucosum*)

# Sarcocystis

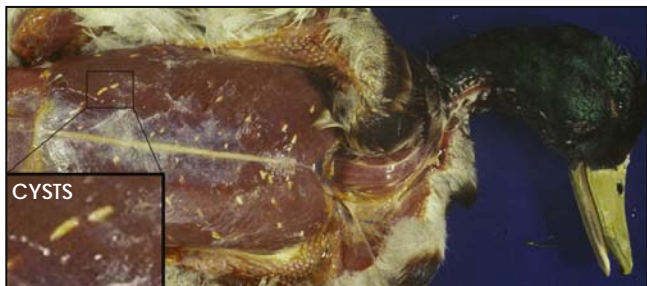


## Commonly infected wildlife



## Is this animal infected?

- Affected birds have cream-colored cysts that are longer than they are wide in breast, heart and leg muscle
  - Cysts resemble rice grains, and can be several mm (1/4 inch) long
  - Cysts feel gritty when cut with a knife



## Can I get it?

- No

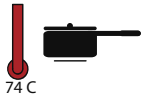
## How bad can it get?



No known risk to people

## Protect myself and others

- Scientists recommend that people and pets do not eat heavily infested meat
- Heavily infested carcasses are unappetizing
- The parasite can be killed by cooking



## Symptoms in people

- No known risk to people

## Safe for pets?

- Not raw
  - Carnivores shed eggs in their feces, which then become infectious to birds
  - Pets may play a role in transmission of sarcocystis to birds



## What causes it?

- A protozoan parasite called *Sarcocystis rileyi*
- Sarcocystis is found around the world in many types of animals, including deer, moose, caribou, elk, seals and domestic livestock

# Sarcoptic Mange



## Commonly infected wildlife



### Is the animal infected?

- Affected animals show varying degrees of hairloss, usually on the legs & tail but over most of the body in severe cases
- Some animals may have thickened skin
- Badly affected animals are in poor body condition
  - Animal may be weak & fearless of people



### Can I get it?

- Yes, but the risk appears to be low
  - Infections are rare and short lived

### How bad can it get?



Itchy, but rare and short lived; can be treated

## Protect myself and others

- Wear disposable gloves
- Disinfect the work space after skinning / handling infected animals
- Wash your hands
- Wear long-sleeved clothing
- Shower and wash your clothing after handling wildlife



## Symptoms in people

- Skin redness & rashes may be extremely irritating
- It can be treated - seek medical attention to:
  - Ensure it is not human mange (which can be more difficult to treat)
  - Treat the infection so you don't transmit it to your pets

## Safe for pets?

- No
  - This is a skin disease of pet dogs and wild canines
  - Mange can be transferred to pets from infected animals by direct contact



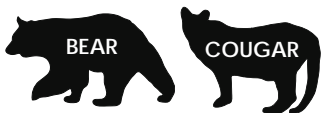
## What causes it?

- Parasitic mites called *Sarcoptes scabiei*
- Mites are microscopic insects related to spiders and ticks

# Trichinellosis

Caution

## Commonly infected wildlife



## Is this animal infected?

- Wild animals rarely show signs of disease
- Always assume bear and cougar meat is infected



PHOTO: BCCDC LABORATORY SERVICES

## Can I get it?

- **YES!**
  - By eating undercooked bear or cougar meat infected with the *Trichinella* worm
- You cannot get it from an infected person

## How bad can it get?

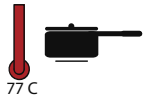


No or mild symptoms most common; can be fatal



## Protect myself and others

- DO NOT EAT RAW MEAT
- Kill the worms!
  - Cook meat thoroughly
  - Heat to at least 77<sup>0</sup> C
- Worms are **not** killed by
  - Smoking
  - Curing
  - Microwaving
  - Drying
  - Freezing



## Symptoms in people

- Variable, but may include:
  - Nausea / Vomiting
  - Fatigue
  - Diarrhea
  - Aching Joints
  - Fever
  - Eye Swelling
  - Stomach Pain
  - Muscle Pain
- May be FATAL if the worms interfere with the heart, diaphragm, lungs or brain
- Consult with your doctor if you have any of the above symptoms for up to 8 weeks after eating wild bear or cougar meat

## Safe for pets?

- **NOT RAW!** Cook it first



## What causes it?

- A roundworm called *Trichinella*, found in the muscles of infected animals

# Tuberculosis

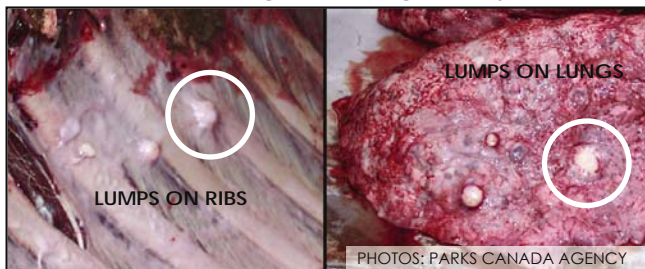
Caution

## Commonly infected wildlife



## Is this animal infected?

- This is a rare, slowly worsening disease
- Affected animals may have no signs or be in poor body condition
- Small, multiple, round gritty lumps in lymph nodes and on lungs & rib cage are typical



## Can I get it?

- **YES!**
  - Inhaling bacteria from: open wounds, fluids from the mouth and nose, or feces of an infected animal
  - Directly through breaks in the skin (rare)

## How bad can it get?



Gets worse with time; fatal if untreated

## Protect myself and others

- If you see multiple pale (tan or yellow) rounded lumps on lungs, rib cage or internal organs in bison or cervids:
  - STOP HANDLING THE ANIMAL
  - Wash your hands
  - Wear a proper filter mask
  - Contact the local MOE, CFIA or Public Health Unit



## Symptoms in people

- Dependent on where lesions are located
- Lungs
  - Prolonged illness with fever, cough, night sweats, weight loss
  - Occasionally will cough up blood
- Intestines
  - Stomach pain
  - Diarrhea
- Symptoms get worse with time
- Untreated disease can be FATAL
- Immunosuppressed people are at a higher risk



## Safe for pets?

- **NO!**

## What causes it?

- A bacteria called *Mycobacterium bovis* in wood bison and *Mycobacterium avium* in birds

# Tularemia

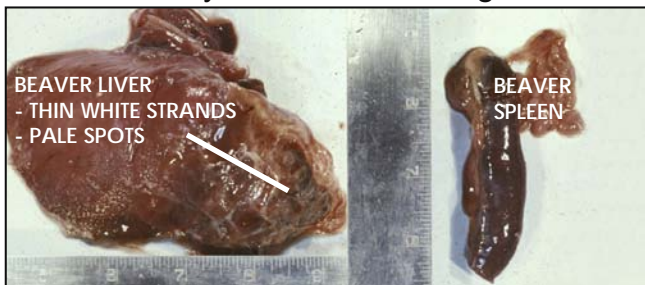
Caution

## Commonly infected wildlife



## Is this animal infected?

- Affected animals may be very sick or dead & in good body condition
- An enlarged liver or spleen is common
- Tiny pale spots & thin white strands of material may be seen on the organs



## Can I get it?

- **YES!**
  - Bites or scratches from infected wildlife
  - Contact with meat, water, feces, urine or body parts of infected animals
  - Breathing in dust from pelts and paws

## How bad can it get?



Fever-like symptoms; early treatment reduces severity

## Protect myself and others

- Take precautions, avoid tick bites!
  - Wear long sleeved clothing
  - Use insect repellents
  - Inspect yourself for, and remove, all ticks
- Handle animals found dead near human water sources with caution and report to the MOE
- When handling, dressing or skinning any wild animal
  - Wear disposable gloves & a proper filter mask
  - Wash hands well afterwards
- Cook beaver, hare & rabbit meat before eating it



## Symptoms in people

- Symptoms appear up to 14 days after infection:
  - Sore throat
  - Diarrhea
  - Stomach pain
  - Vomiting
  - Swollen, painful lymph nodes
  - Ulcer at the site of tick bite or animal contact

## Safe for pets?

- **NOT RAW!**
  - Dogs and cats can die from tularemia



## What causes it?

- A bacteria called *Francisella tularensis*

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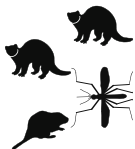
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Research and Design by Tyler Stitt, MPH&TM



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