


WILDLIFE DISEASES: An Overview

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A stylized silhouette of a mountain range in shades of teal, located at the bottom right of the slide.

Topics to cover....

- ◆ Wildlife values and conflicts
- ◆ Diseases terms and concepts
- ◆ Wildlife diseases: some examples
- ◆ Dealing with wildlife diseases and reducing risks
- ◆ Further information



Wildlife has great value.....



- ◆ Recreational values
 - Consumptive
 - Non-consumptive
- ◆ Ecosystem roles, biodiversity
- ◆ Contribute to all levels of economy
- ◆ A PUBLIC resource held in trust!

But wildlife cause damage and conflicts...

- ◆ Agricultural crops
- ◆ Forestry, orchards
- ◆ Rangeland, livestock
- ◆ Property, cables, structures
- ◆ Natural resources
- ◆ Human health and safety

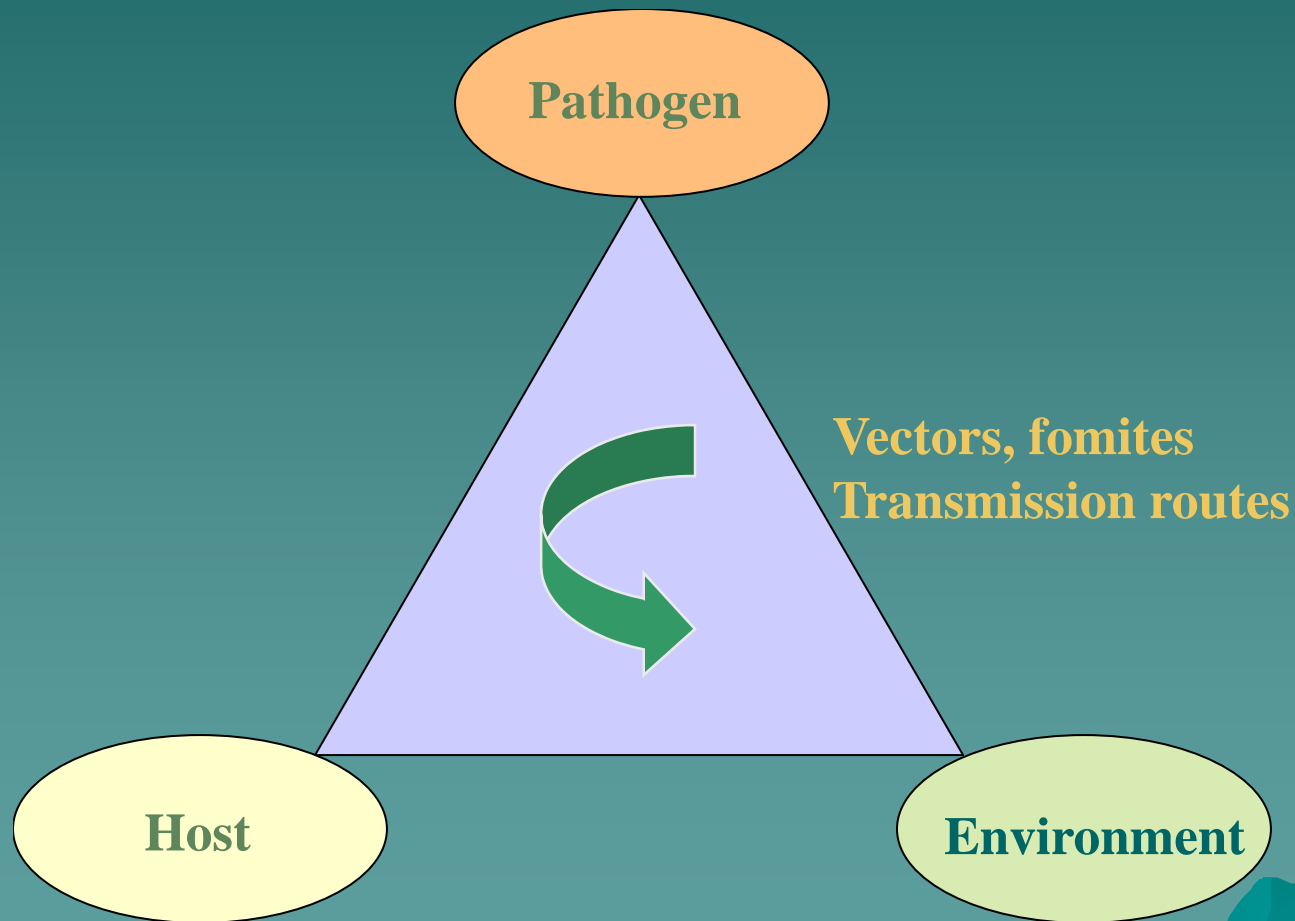


Wildlife are subject to---and can transmit---numerous diseases....



- ◆ Some wildlife diseases can be transmitted to people, livestock, pets
- ◆ Problems most likely when wildlife is overabundant or in close contact with "us"
- ◆ All types of wildlife can be involved: rodents, ungulates, birds, carnivores
- ◆ Situations difficult to predict, monitor, deal with!

The setting for a disease situation...



Some other disease terms.....


- ◆ Epidemiology
- ◆ Surveillance
- ◆ Incidence and prevalence rates
- ◆ Disease diagnostic tests:
 - Sensitivity
 - Specificity
- ◆ Virulence, resistance
- ◆ Infectious, shedding
- ◆ Zoonotic disease
- ◆ Endemic vs. exotic foreign, emerging
- ◆ Disease outbreak:
 - Epidemic
 - Pandemic



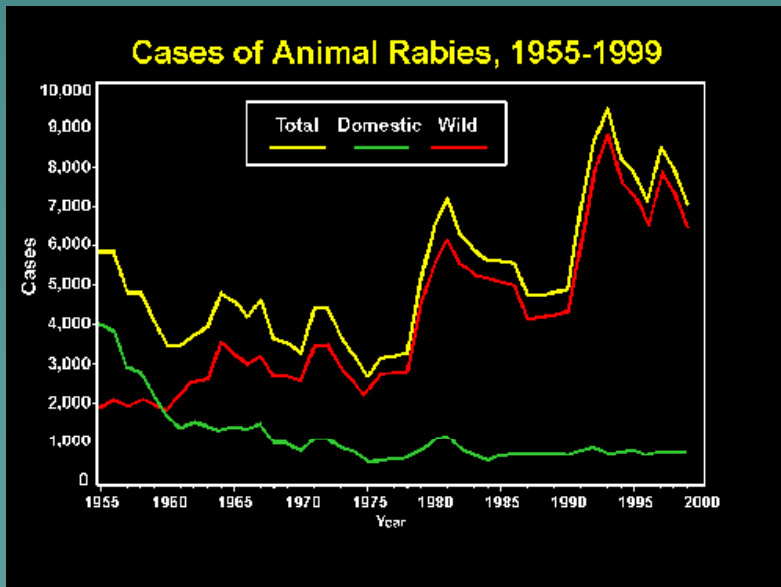
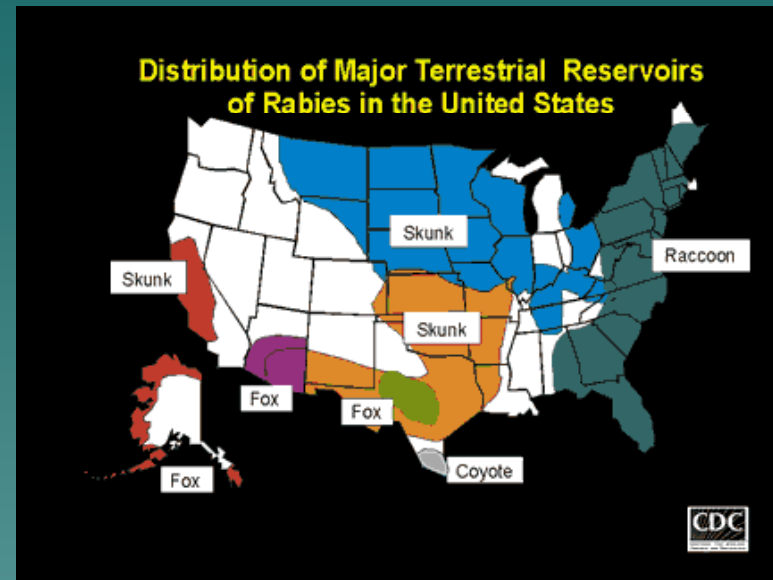
Examples of disease agents or pathogens involving wildlife....

- ◆ Viruses: hantavirus, rabies, West Nile virus
- ◆ Bacteria: Lyme disease, plague, tularemia
- ◆ Rickettsia: Rocky Mtn. spotted fever, typhus fever
- ◆ Prions: Chronic wasting disease (CWD)
- ◆ Mycotic (fungus): histoplasmosis, cryptococcosis
- ◆ Protozoans: toxoplasmosis, giardia
- ◆ Parasites: trichinosis, raccoon roundworm

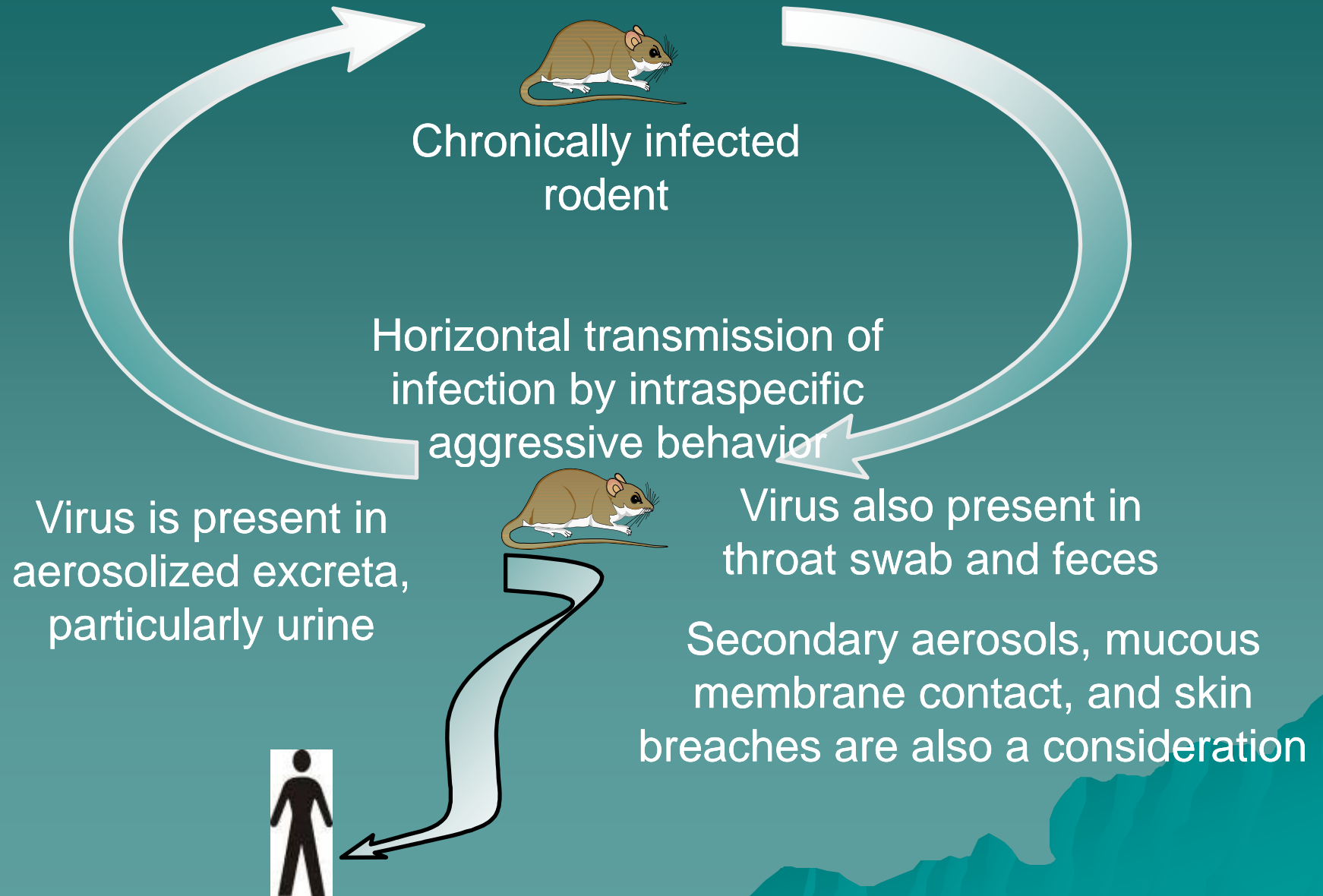
Many ways (direct and indirect) to get exposed to wildlife diseases....

- ◆ Handling contaminated materials
 - ◆ Ingesting infected meat, water
 - ◆ Bites or scratches from infected wildlife
 - ◆ Inhaling contaminated air, materials
 - ◆ Bites from infected insects
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- A decorative graphic at the bottom of the slide showing a silhouette of a mountain range in shades of teal and blue.

Rabies exposure comes from a direct bite or scratch of an infected animal.....



Indirect transmission of hantaviruses



Infection via an insect vector: West Nile Virus transmission cycle

Mosquito vectors

Culex species



VIRUS

VIRUS

VIRUS



Secondary and Incidental Hosts

Virus

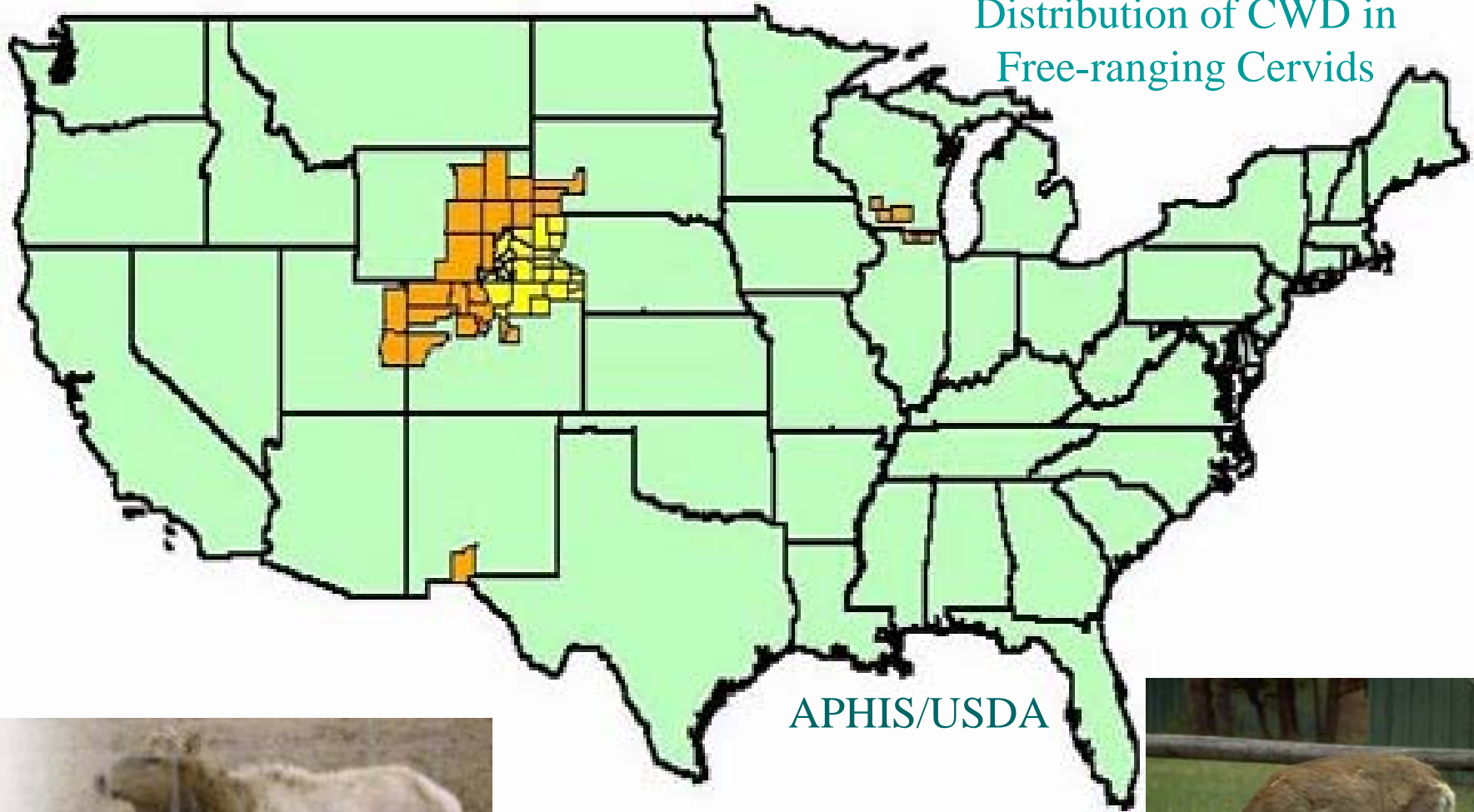
Avian reservoirs



Bird Mortality

Chronic Wasting Disease (CWD)


Distribution of CWD in
Free-ranging Cervids



Chronic Wasting Disease (CWD)....

- ◆ Agent: prion (an abnormal protein)
- ◆ Transmissible spongiform encephalopathy: BSE (cattle), Scrapie (sheep), TME (mink), and CJD (humans)
- ◆ Neurologic disease of cervids (deer & elk)
- ◆ Slow developing, chronic disease, animals "waste away"; 1-5% infection rates
- ◆ Prions are very persistent in the environment and can't be detected
- ◆ Are trying to develop live animal tests
- ◆ Herd/density reductions are generally used to control

Many difficulties in dealing with wildlife diseases...

- ◆ Hard to sample wildlife; hard to detect diseased animals and carcasses rarely found
 - ◆ Few diagnostic tests for wild animals
 - ◆ Knowledge of wildlife diseases, transmission and cycles lacking
 - ◆ People very protective of wildlife
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How do we protect ourselves and reduce the risk of contracting a wildlife disease??

- ◆ Know the wildlife and diseases that occur in your area!!
- ◆ Know the symptoms of those diseases!!
- ◆ Seek medical help if you even suspect that you were exposed!!
- ◆ Practice good sanitation (clean and cook foods properly, use only treated water, wash hands before eating, use disinfectants)

Additional suggestions.....

- ◆ Don't handle wild animals or carcasses without training and proper equipment and procedures
- ◆ Use insecticides & proper clothing in certain risk situations
- ◆ Gloves and face masks/respirators should be used in some situations
- ◆ Get vaccinated, if available, before going into a high risk situation
- ◆ Minimize exposure of self, pets, livestock to wildlife
- ◆ Take steps to reduce populations of certain hosts or vectors
- ◆ Report unusual observations, events

Conducting risk analysis of disease in wildlife....

- ◆ Potentially big economic aspects: human health, livestock, wildlife resources
- ◆ Assess the risks....
- ◆ Manage the risks...
- ◆ Communicate info about the risks....
- ◆ Much federal and state activity in this area !



Where to get more information....

- ◆ State and county health offices
- ◆ Centers for Disease Control
(www.cdc.gov)
- ◆ Control of Communicable Diseases in Man, A. Benenson (ed.), Publ. by the Amer. Public Health Assoc.
- ◆ Wildlife Diseases and Humans, R. McLean, *in* The Prevention and Control of Wildlife Damage, S. Hygnstrom (ed.), Nebraska Cooperative Extension Service, Lincoln