

Practical Aspects of Rabies Surveillance

West Virginia Department of Health and
Human Resources

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General Format:

- Rabies Background
- Safety and surveillance
- The Active surveillance process
- Specimen collection, sample storage, and carcass disposal.

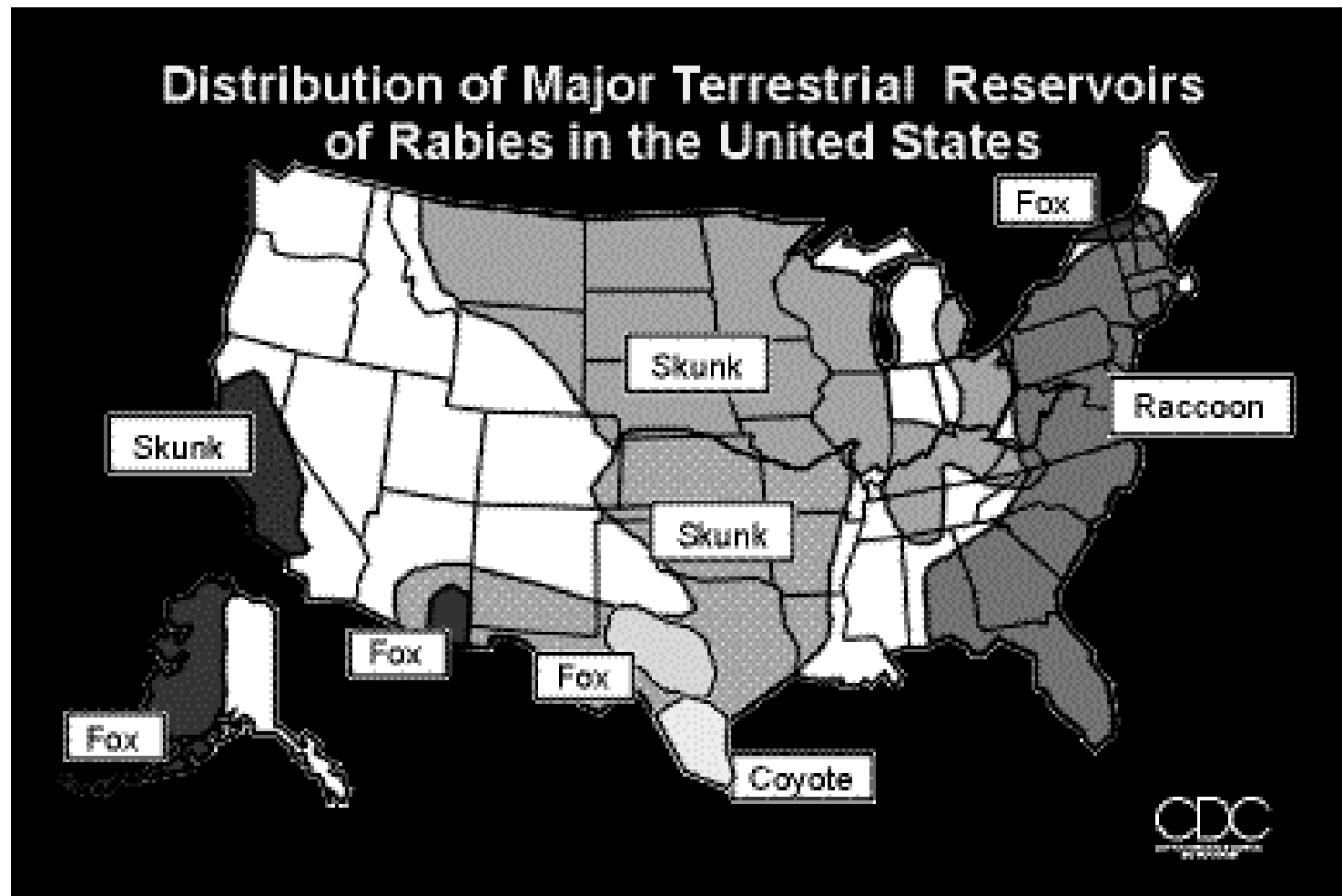
Rabies

Viral zoonotic disease targets central nervous system.

Near 100% mortality rate upon clinical signs

Affects all warm-blooded animals

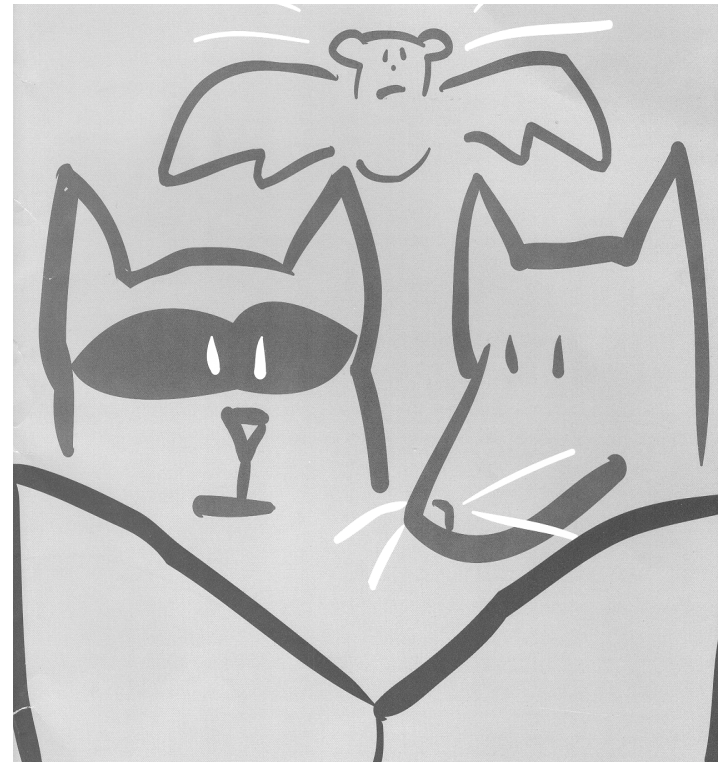
Wildlife remain the principle reservoirs of rabies virus in the United States



The 5 major wildlife reservoirs of rabies include:
bat, raccoon, skunk, fox, and coyote

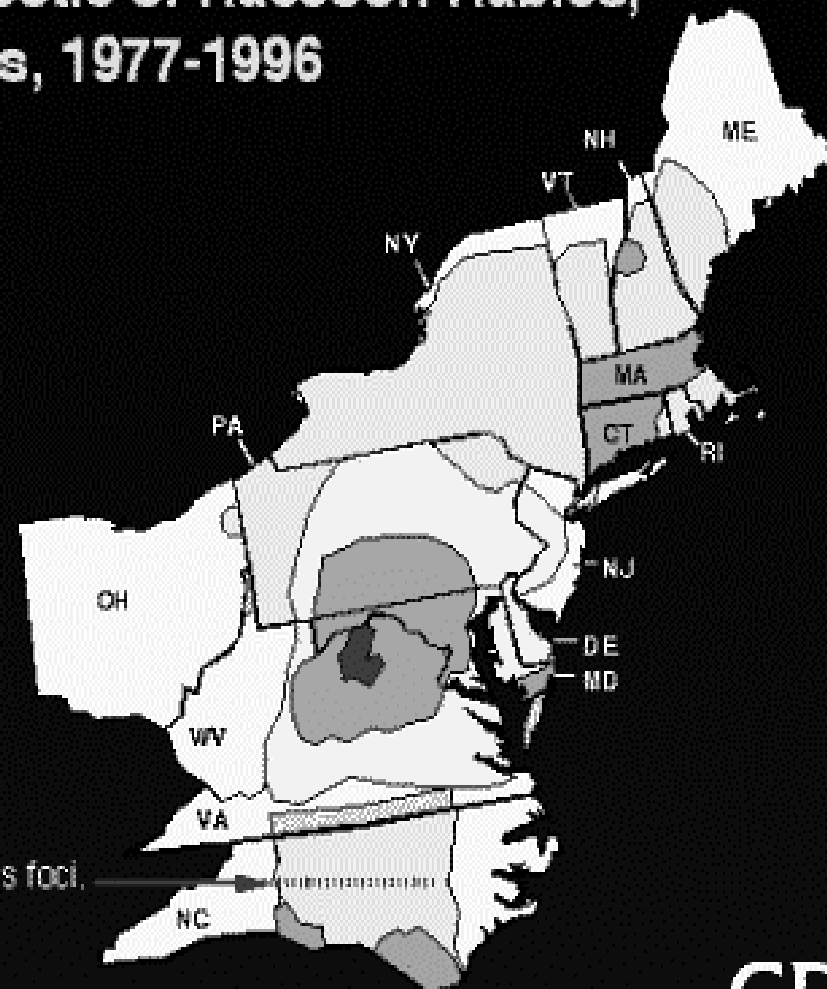
Impact of Raccoon Rabies Epizootic

- Large number of raccoons infected
- Spills over into wide variety of animals
 - unusual wildlife, rodents/deer
 - domestic animals, cats
- Increase in pet exposures
- Increase in human PEP



The Expanding Epizootic of Raccoon Rabies, Eastern United States, 1977-1996

- 1977-1979
- 1980-1984
- 1985-1989
- 1990-1993
- 1994-1996
- No raccoon rabies detected

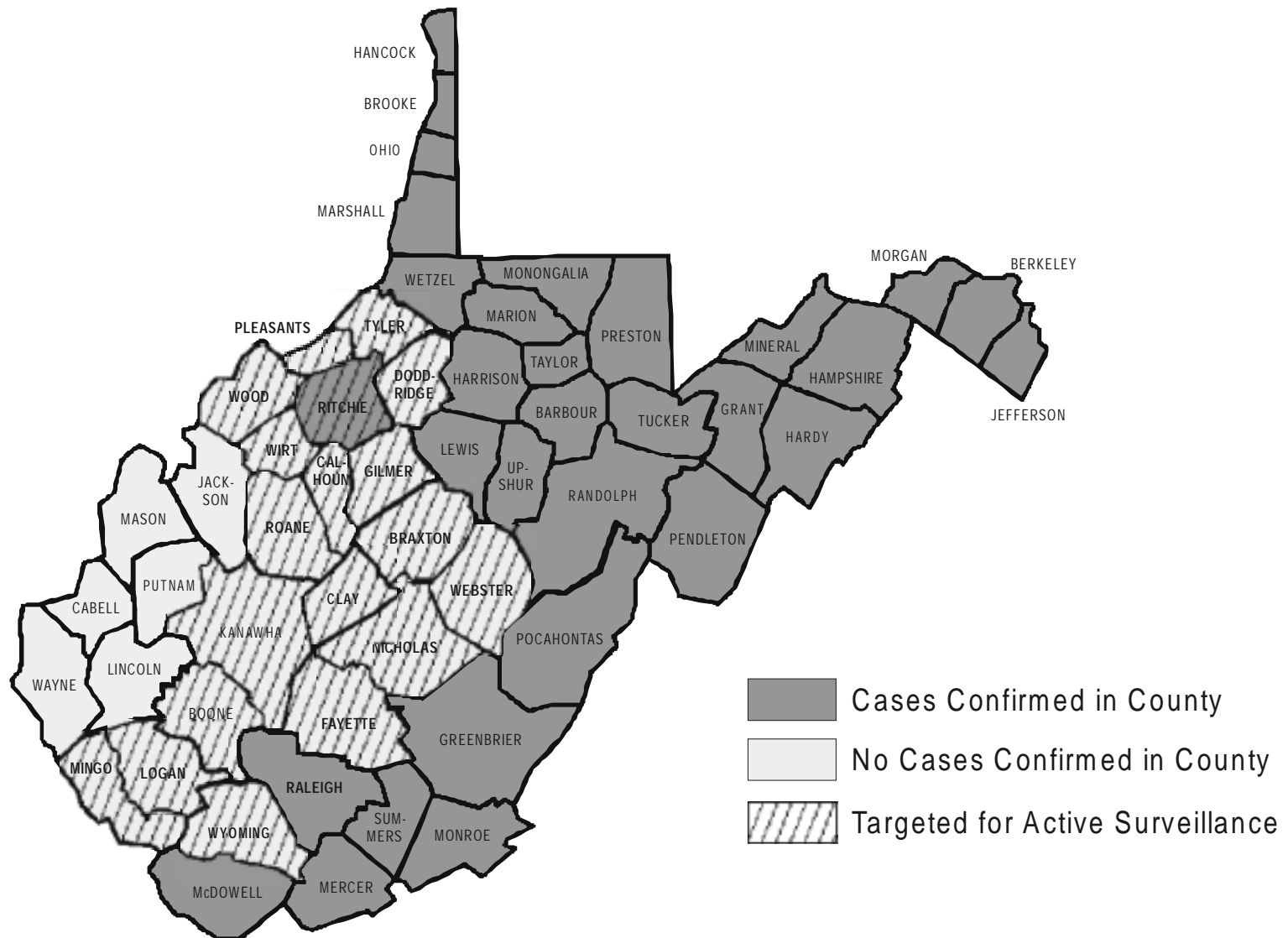


Epizootic convergence between
Southeastern and mid-Atlantic rabies foci.

SOURCE: MMWR 1996;45:1117.

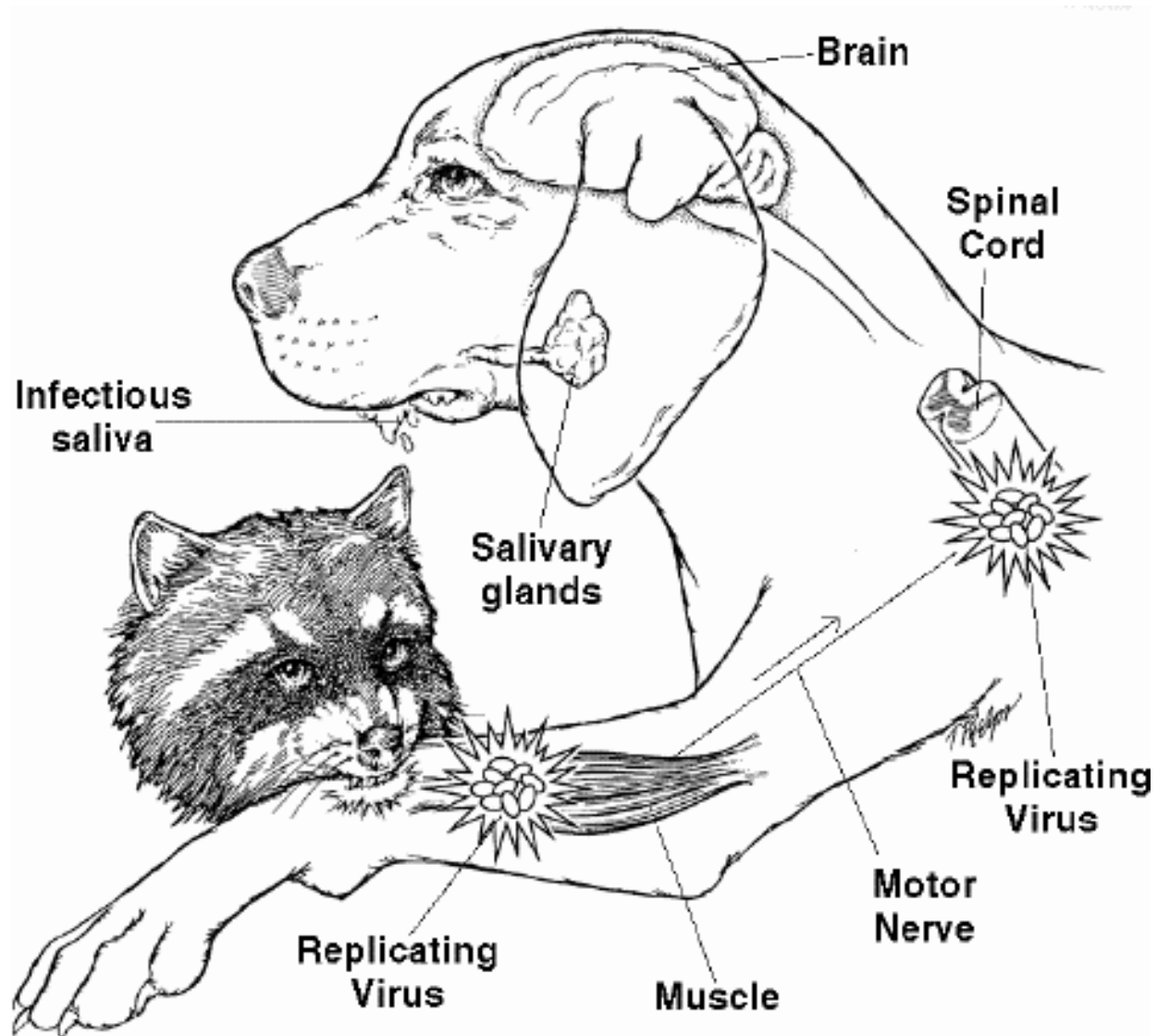
West Virginia Counties Targeted for Active Raccoon Rabies Surveillance

Last Revised 2/02/2001



Safety

Pathogenesis:



What constitutes a rabies exposure?

Transmission of rabies virus occurs when virus is introduced into bite wounds, open cuts in skin, or onto mucous membranes.

1. Bite

- penetration of skin by teeth;
- all bites, regardless of location, represent a risk

2. Non bite

- contamination of open wound, abrasions, mucous membranes (eyes), or theoretically scratches, with saliva or other infectious tissue (neural tissue).

Reference: MMWR ACIP Recommendations, 1999

What is not a rabies exposure:

- Touching the fur of a rabid animal.
- Contact with blood, urine or feces of a rabid animal.

*Reference: MMWR ACIP
Recommendations, 1999*

- Practice safe hygiene when working with wildlife.

Retrieving Dead Animals:

Precautions:

- Treat all animals as suspect rabies positive.
- Use plastic gloves to prevent direct contact with saliva or exposed neural tissue from carcass.
- Pick up, transport, and deliver carcasses inside two plastic bags (demonstration).
- Use disinfectant on surfaces contacted with potentially infectious material.
- Always wash hands following handling of carcasses.

Materials:

- Disposable gloves
- Garbage bags (13 gallon / ply (minimum 1 mil))
- Disinfectant: 1/10 dilution of bleach

Brain stem collection:

Precautions:

- Completion of pre exposure rabies vaccination series.
- Utilize protective equipment for hands (gloves), face (goggle/mask), and body (gown).
- Training in instrument use, sample collection, equipment disinfection will be provided.

If an exposure occurs:

1. Immediately - wash wound w/ soap and water for a minimum of 5 minutes.
2. Report incident to supervisor at local health department.
3. Submit entire head of animal for rabies testing to WVDHHR diagnostic laboratory.
4. Consult physician with regard to wound management and PEP (antibiotics, tetanus, and PEP)

SURVEILLANCE

WANTED for rabies testing



Raccoons that:

- ❖ are sick or acting strange
- ❖ had contact with pets or livestock
- ❖ have bitten or attacked a person

We need *your* help to stop this dangerous disease.

For further information:

Surveillance

- Throughout West Virginia passive surveillance provides follow up on reported human and animal exposures, protecting public health.
- Active surveillance will be initiated in 19 counties in order to identify RSR epizootic front.
- This will facilitate effective distribution of oral rabies vaccine in the fall.

Surveillance Cont'd

Active surveillance - proactive monitoring for rabies in suspect animals.

(ie. raccoons, skunks, and foxes)

On a local level important elements include:

- Interagency networking
 - specimen identification and retrieval
- Public education/awareness
- Brainstem sample collection and submission



Suspect Animals

1. Report “odd behavior”
raccoons, fox, skunk
2. Submit wildlife rabies
reservoirs found dead or road
kill.



“Strange Acting Raccoon”

Abnormal behavior:

- Out during daylight hours.
- Contact w/ dogs
- Aggressive or unusually friendly

Physical signs:

- Drunken/wobbly gate
- Paralysis
- Seizure activity
- Hyper salivation

*Reference: Hubbard 1985,
Jenkins and Winkler 1987*

Submission of rabies suspect wildlife

- Determine local contacts with training/experience in dispatching suspect animal.
(law enforcement, game warden, animal control officer)
- Avoid damage to head and neck.
- If animal or human exposure occurred process animal through regular routes necessary for submission of entire head.

Road Kill

- Road kill raccoons have served as a source of surveillance specimens in rabies enzootic states.
- Collect fresh specimens:
 - Double bag specimen
 - Wear gloves
 - Disinfectant: 1/10 bleach
 - Wash hands or use hand sanitizer
- Potential for identifying specimens:
 - Speak with drivers traveling routes regularly (sanitation workers, dept of transportation, school bus drivers, etc.)

Data Collected for Suspect Animals

- Rabies Test Submission Report:
 1. Specie
 2. Location where found, including GIS coordinates:

Hand held GPS unit

- County Highway Transportation Maps

Reporting Odd Behavior / Dead Raccoons

Agencies/individuals alerted if abnormal wildlife activity:

1. Animal control officers
2. Game warden
3. Sanitarians
4. Law Enforcement
5. Wildlife Biologists
6. Veterinarians
7. Park Rangers
8. Fire Department
9. Nuisance Animal Trappers
10. Animal Rehabilitators

Members of community with increased wildlife awareness:

1. Farmers
2. Hunters/Trappers
3. Outdoors groups

Public Educational/Information Materials

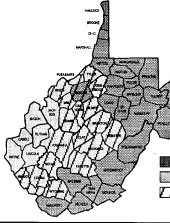
Active Raccoon Rabies Surveillance

The West Virginia Bureau for Public Health and your Local Health Department are conducting active raccoon rabies surveillance throughout the Spring and Summer months of 2001 in preparation for an oral rabies vaccine bait drop to occur in September 2001. The purpose of this baiting is to prevent further westward spread of raccoon rabies. If you live in one of the active surveillance counties indicated on the map below, you can help with this important project! Contact your local wildlife officials, animal control officer, or local health department if you see a raccoon exhibiting any of the following behavior:

- Attacking people or animals
- Being out during daylight hours
- Exhibiting "drunken" behavior
- Appearing sick or injured
- Acting "strange"

Roadkill and other dead raccoons, as well as foxes, skunks, and other "nuisance" animals should be avoided.


West Virginia Counties Targeted for Raccoon Rabies Surveillance
Last Revised 2/10/2001



A message from the West Virginia Bureau for Public Health and your Local Health Department


Rabies Prevention

Checklist for Protecting Your Pets!



- ✓ Make sure your pets get and stay vaccinated, and make sure they wear their tags.
- ✓ Consider keeping your pets indoors.
- ✓ Call animal control to take wild or stray animals away.
- ✓ Get your pets spayed or neutered. Pets that are fixed are less likely to leave home, become strays, and make more stray animals.
- ✓ Keep outdoor pets in a fenced yard or on a leash.

WANTED for rabies testing



Raccoons that:

- ❖ are sick or acting strange
- ❖ had contact with pets or livestock
- ❖ have bitten or attacked a person

We need *your* help to stop this dangerous disease.

For further information:

- Protect your pets:
 - Vaccination/ Stray animal control
 - Spay/neuter
 - Leash laws
- Protect yourself:
 - Emphasize wildlife avoidance
 - Discourage wildlife scavenging (secure garbage cans, don't leave pet food sitting outside)

Specimen collection

Sample storage

Carcass disposal

Brain Stem Specimen Collection

Materials (provided in kit):

- Protective equipment

- Dissection instruments

- Specimen Storage container

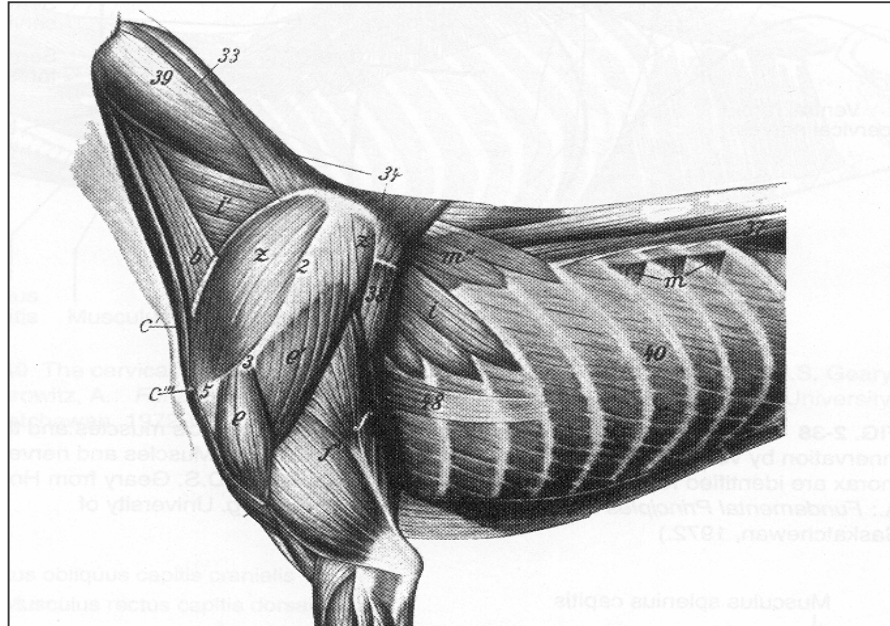
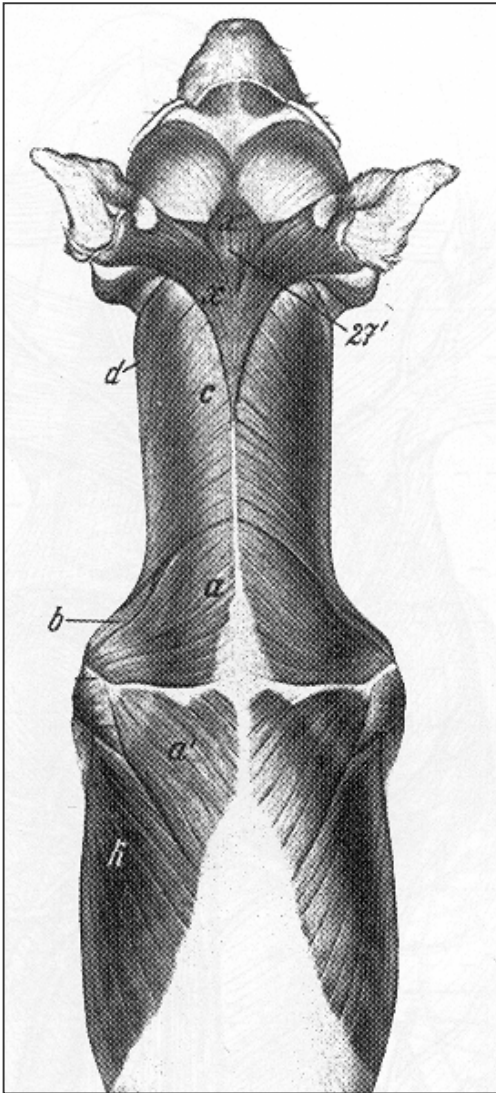
- Disinfectant

- Waste Container (Sharps)

Additional Materials:

- 1/10 bleach solution and plastic bags (13 gallon)

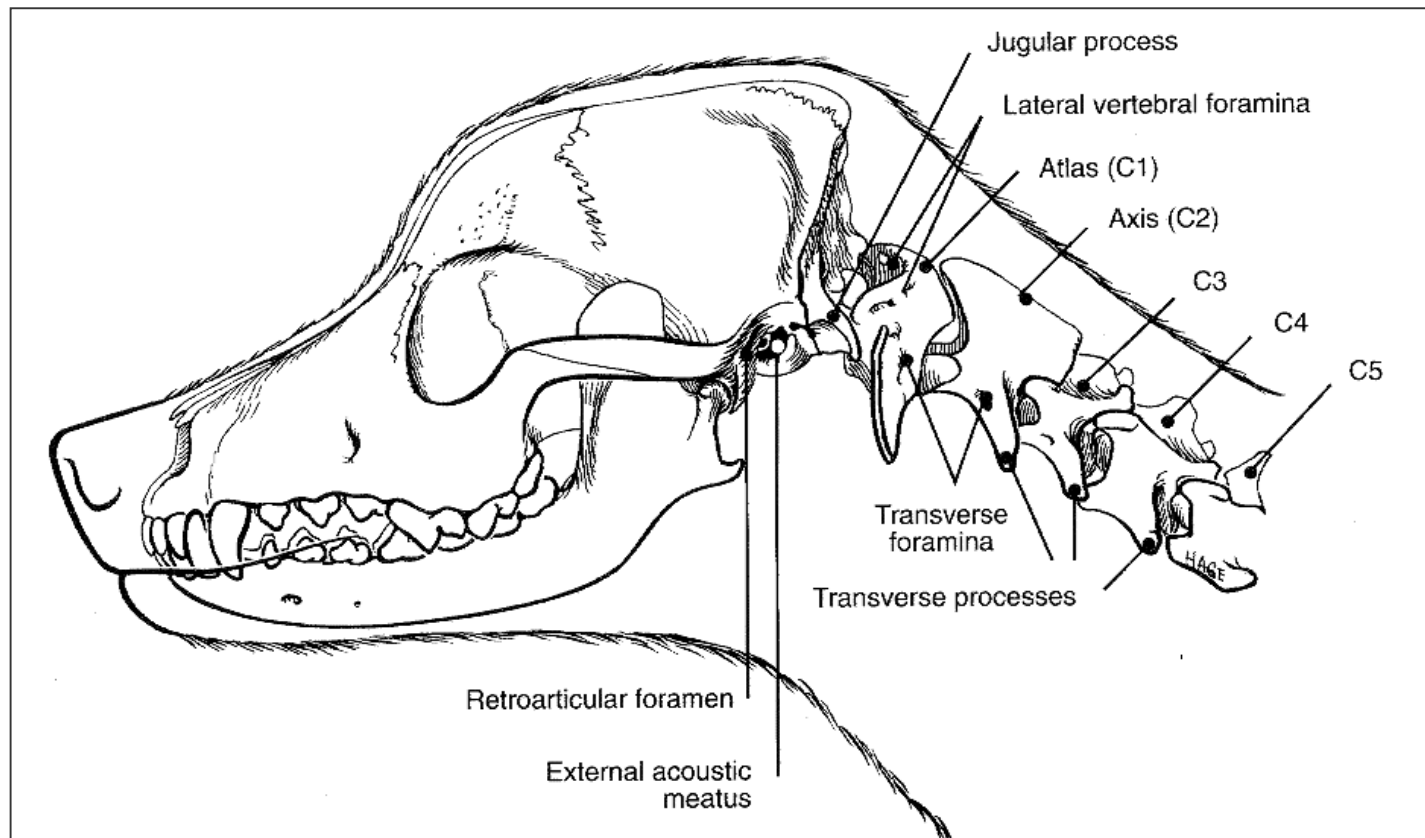
(DORSAL OR VENTRAL APPROACH)



Dorsal Approach

- Dorsal skin incision
- Identify joint between head and neck
- Cut neck musculature along dorsal midline

Brain Stem Collection Cont'd



- Joint between skull and neck.
- Cut spinal ligaments.
- Visualize and excise section of brainstem with scalpel.

Specimen Identification

- Tissue sample stored in metal container.
 - Identification information recorded on “Rabies Test Submission Report” and container lid.
 - On both lid and report form (top right corner) record:
 - initials of person collecting brainstem
 - number identifying cumulative samples submitted this year
- J.S. #5 (Jean Smith'S, 5th sample submitted this year)

Specimen Shipment

- Unlike heads, brainstem tissue specimens can be stored in refrigerator or freezer
- Anticipate once per week shipment.
- Containers for shipment will be provided.

Carcass Disposal

- Carcass not considered medical waste
- Potential options:
 - Incineration (ideal)
 - Veterinary disposal
 - Consenting landfill – dumpster/ dumping site
 - Burial

Take the Bite out of Rabies



- ❑ **AVOID** contact with wild animals and animals you do not know
- ❑ **VACCINATE** all your dogs and cats, and keep them current
- ❑ **CALL**
your doctor, if bitten
your veterinarian, if your pet was exposed

Report all human or animal exposures to your local health department.