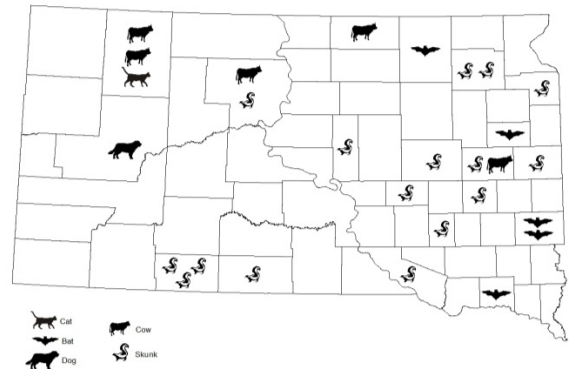


# Rabies surveillance, South Dakota, 2013

Rabies is an enzootic, nearly-always fatal, viral disease and a serious public health concern in South Dakota. In 2013, 635 animals were tested for rabies with 28 animals testing positive, 4.4%, which is a -53% decrease from the previous year. The 28 rabid animals included 7 domestic animals (5 cattle, 1 dog and 1 cat), and 21 wild animals (16 skunks and 5 bats). No human rabies was reported. South Dakota's last human rabies case was in 1970.

Animal rabies, South Dakota 2013



During 2013, 607 animals tested negative for rabies, including 206 cats, 143 bats, 111 dogs, 66 cattle, 28 raccoons, 12 skunks, 11 horses, 6 deer, 5 sheep, 2 each goats, fox, mice, opossums and woodchucks, and 1 each bison, coyote, elk, gopher, mink, mountain lion, muskrat, porcupine and prairie dog.

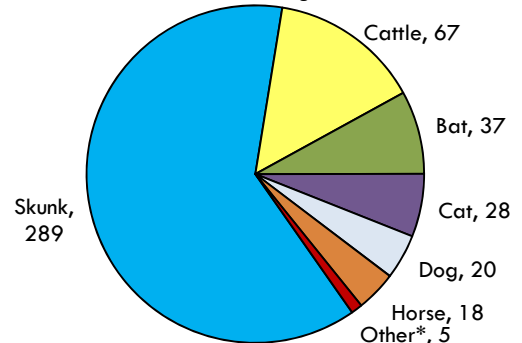
During 2013 rabid animals were detected in 20 South Dakota counties. Animals were submitted for testing from 56 of South Dakota's 66 counties. Over the past 10 years, 2004-2013, rabid animals were reported from 60 of the state's counties, with every county, except Ziebach, submitting animals for testing. Over the decade 7,077 animals were tested and 464 (6.6%) were rabid.

During the past decade 29% of rabies cases in South Dakota were domestic animals. The domestic animals included 28 rabid cats and 20 rabid dogs, many of which were unvaccinated strays or barn cats. Rabid livestock included 67 cattle, 18 horses and 2 goats.

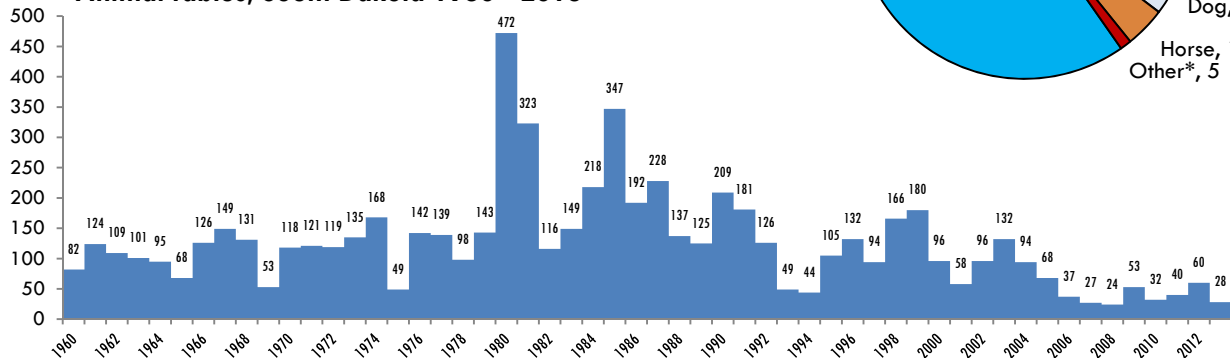
Skunks (*Mephitis mephitis*) are the primary rabies reservoir in South Dakota. Over the past decade 55% of skunks tested have been rabid. Bat rabies is also enzootic in South Dakota with 3% bats testing positive. Although rabies is not enzootic in other South Dakota animals, during the past 10 years rabies has been detected in 2 raccoons and 1 woodchuck, likely spillover infections following exposure to rabid skunks.

Rabid animals, South Dakota 2004-2013

\*Others include 2 raccoons, 2 goats, and 1 woodchuck



Animal rabies, South Dakota 1960 - 2013



Over the past half-century animal rabies has been reported every year in South Dakota. The most cases were reported in 1980 with 472 rabid animals and the fewest in 2008 with 24 rabid animals.

The most recent national animal rabies surveillance data are reported for 2012 (Dyer, et al.). Nationally, there was a +2% increase from the previous year with 6,612 cases of animal rabies reported (8% domestic and 92% wild animals). Nationally, rabid domestic animals included 257 cats, 115 cattle, 84 dogs, 47 horses/mules, 13 goats/sheep, 2 bison and 1 llama. Wild animals testing positive for rabies included 1,953 raccoons, 1,680 bats, 1,539 skunks, 340 foxes, 42 groundhogs, 16 bobcats, 12 deer, 7 coyotes, 4 beavers, 3 opossums, and 1 each bear, cougar, mink, otter, and ringtail.

| Animal               | 2013      |              | 2004 - 2013 |              |             |
|----------------------|-----------|--------------|-------------|--------------|-------------|
|                      | Positive  | Total tested | Positive    | Total tested | Percent Pos |
| Skunk                | 16        | 28           | 289         | 522          | 55%         |
| Cattle               | 5         | 71           | 67          | 837          | 8%          |
| Bat                  | 5         | 148          | 37          | 1,169        | 3%          |
| Cat                  | 1         | 207          | 28          | 2,182        | 1%          |
| Dog                  | 1         | 112          | 20          | 1,418        | 1%          |
| Horse/donkey         | 0         | 11           | 18          | 156          | 12%         |
| Raccoon              | 0         | 28           | 2           | 332          | 1%          |
| Goat                 | 0         | 2            | 2           | 26           | 8%          |
| Woodchuck            | 0         | 2            | 1           | 17           | 6%          |
| Deer, elk            | 0         | 7            | 0           | 81           | 0%          |
| Rodents              | 0         | 5            | 0           | 68           | 0%          |
| Squirrel, chipmunk   | 0         | 0            | 0           | 55           | 0%          |
| Muskrat              | 0         | 1            | 0           | 43           | 0%          |
| Sheep                | 0         | 5            | 0           | 42           | 0%          |
| Opossum              | 0         | 2            | 0           | 28           | 0%          |
| Fox                  | 0         | 2            | 0           | 23           | 0%          |
| Weasel, ferret, mink | 0         | 1            | 0           | 22           | 0%          |
| Coyote, wolf         | 0         | 1            | 0           | 20           | 0%          |
| Rabbit, hare         | 0         | 0            | 0           | 10           | 0%          |
| Badger               | 0         | 0            | 0           | 6            | 0%          |
| Pig                  | 0         | 0            | 0           | 4            | 0%          |
| Shrew, mole          | 0         | 0            | 0           | 4            | 0%          |
| Mountain lion        | 0         | 1            | 0           | 4            | 0%          |
| Bison                | 0         | 1            | 0           | 3            | 0%          |
| Other animals        | 0         | 0            | 0           | 5            | 0%          |
| <b>TOTAL</b>         | <b>28</b> | <b>635</b>   | <b>464</b>  | <b>7,077</b> | <b>6.6%</b> |

Thirty-one human rabies cases were reported nationally, 2004-2013, including 28 deaths and 3 survivals, which is a 90% case fatality rate.

#### Distribution of terrestrial rabies virus variants in the United States, 2012 (Dyer, et al.)



Nineteen of the human cases (61%) were associated with bat-rabies virus, 8 (26%) had dog rabies virus (all foreign imports), 1 fox, 2 raccoon and 1 unknown exposure. The 31 human rabies cases were from Texas (6), California (5), Indiana (2), Massachusetts (2), Wisconsin (2) and 1 case each in Arkansas, Florida, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New York, North Carolina, Oklahoma, South Carolina and Virginia.

In South Dakota two laboratories provide rabies testing services: (1) Animal Disease Research Diagnostic Laboratory (ADRDL), Brookings, (2) State Public Health Laboratory (SDPHL), Pierre. Both laboratories use the direct fluorescent antibody (DFA) technique. During 2013, 60% of rabies tests were done at ADRDL and 40% at SDPHL. The case definition of a confirmed animal rabies case is a positive DFA test, performed preferably on central nervous system tissue, or isolation of the rabies virus in cell culture or in a laboratory animal. Human serum rabies antibody titers may be ordered through SDPHL.

Rabies consultations by the South Dakota Department of Health are available 7 days a week. Consultations are based on Centers for Disease Control and Prevention (CDC) recommendations\*. We strive to recommend appropriate rabies prevention measures and to minimize unnecessary and inappropriate testing and post-exposure prophylactic treatment.

## Rabies Prevention

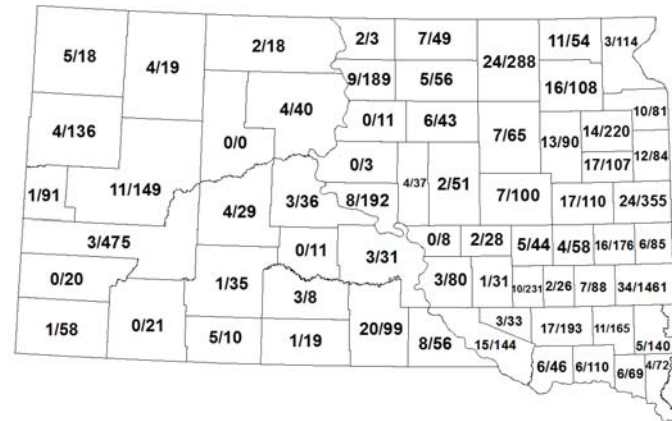
### Pet rabies prevention:

- Vaccinate pet dogs, cats and ferrets.
- Keep pets away from wildlife so they won't be bitten by a rabid animal.
- Call local Animal Control to remove wild or stray animals from city, especially if acting strangely.
- If an animal bites your pet, take it to a veterinarian for a rabies booster vaccination.

### Human rabies prevention:

- Never touch stray, unfamiliar or wild animals, especially skunks and bats.
- Never adopt wild animals or bring them into your home.
- Keep your trash cans tightly closed and don't leave pet food out to attract skunks or raccoons.
- If you are bitten by an animal, consult your physician.
- Post-exposure prophylaxis: rabies immune globulin and 4 doses of rabies vaccine over 14 days.

## Animal rabies tests (positive/total tested), South Dakota 2004-2013



## Addresses, telephone numbers and websites

**Department of Health** (rabies consultations)  
 615 East Fourth Street  
 Pierre, SD 57501-1700  
 Phone: 800-592-1861 or 605-773-3737;  
 after hours 800-592-1861 or 605-773-3737  
<http://doh.sd.gov/DiseaseFacts/Rabies.aspx>

**Department of Health, Public Health Laboratory**  
 (rabies testing)  
 615 East Fourth Street  
 Pierre, SD 57501-1700  
 Phone: 800-592-1861 or 605-773-3368  
<http://doh.sd.gov/Lab/rabies.aspx>

**South Dakota Bat Group** <http://sdbwg.org>

**Animal Disease Research and Diagnostic Laboratory** (rabies testing)  
 North Campus Drive  
 South Dakota State University  
 Brookings, SD 57007-1396  
 Phone: 605-688-5171  
[www.sdstate.edu/vs/adrdl](http://www.sdstate.edu/vs/adrdl)

**SD Animal Industry Board** (livestock and animal veterinary and regulatory issues)  
 441 S. Fort Street, Pierre, SD 57501  
 Phone: 605-773-3321  
<http://aib.sd.gov>

CDC Rabies: [www.cdc.gov/rabies](http://www.cdc.gov/rabies)

## References and resources

\*CDC. Human rabies prevention – United States, 2008 (ACIP). MMWR 2008; 57 (RR-3).  
[www.cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm)

CDC. Compendium of animal rabies prevention and control, 2011. National Assoc of State Public Health Veterinarians. MMWR 2011; 60 (RR-6). [www.cdc.gov/mmwr/preview/mmwrhtml/rr6006a1.htm?s\\_cid=rr6006a1\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6006a1.htm?s_cid=rr6006a1_w)

Compendium of measures to prevent disease associated with animals in public settings, 2013: National Assoc of State Public Health Veterinarians. Journal of the Am Veterinary Medical Assoc 243: 1270-1288.  
<http://avmajournals.avma.org/doi/pdf/10.2460/javma.243.9.1270>

Dyer J, R. Wallace, L. Orciari, D. Hightower, P. Yager and J. Blanton. 2013. Rabies surveillance in the United States during 2012. Journal of the Am Veterinary Medical Assoc 243: 805-815. <http://avmajournals.avma.org/doi/pdf/10.2460/javma.243.6.805>

## South Dakota Rabies Control Laws

### **RABIES CONTROL STATUTE: Chapter 40-12 (Section 12-1, 2, 3, 4, 5, 6)**

40-12-1. Confinement of animals required in localities where rabies exists -- Neglect as misdemeanor. In localities where rabies exists, the animal industry board may require that any animal deemed likely to spread such disease shall be muzzled, caged, tied or confined in any manner that may be deemed necessary. It is a Class 1 misdemeanor for any owner or person in charge of any animal so ordered to be muzzled, caged, tied or confined, to refuse or neglect to carry out such order.

40-12-2. Destruction of rabid animal required. If the animal industry board determines that rabies exists in any animal, the board may kill such animal and any animal there is reason to believe has been bitten by any animal affected with rabies.

40-12-4. Definition of terms. Terms used in this chapter mean:

- (1) "Department," the department of health;
- (2) "Owner," any person who has a right of property in a pet, keeps or harbors a pet or who has it in his care or acts as its custodian, or permits a pet to remain on or about any premises occupied by him;
- (3) "Pet," any dog, cat or other species of carnivore kept for domestication or display.

40-12-5. Confinement of pet after attack upon person -- Violation as misdemeanor. The department may serve written notice upon the owner of any dog or cat which has attacked or bitten a person to confine the animal at the owner's expense upon his premises or at a city pound or other place designated in the notice for a period of at least ten days after the animal has attacked or bitten any person. The department may examine the animal at any time within the ten-day period of confinement to determine whether such animal shows symptoms of rabies. In the case of any pet other than a dog or cat, which has attacked or bitten a person, the department may serve written notice upon the owner of such animal that the owner shall have the animal euthanized immediately and submit the brain to an approved laboratory for rabies examination. Any owner who fails to comply with a written notice served pursuant to this section is guilty of a Class 1 misdemeanor.

40-12-6. Confinement of pet bitten by animal suspected of having rabies -- Violation as misdemeanor. The department may serve written notice upon the owner of a dog or cat known to have been bitten by an animal known or suspected of being affected by rabies, requiring the owner to confine such dog or cat for a period of not less than six months. However, if such dog or cat had been properly treated with an antirabic vaccine, confinement shall be for a period of not less than three months. In the case of any pet other than a dog or cat, the department may serve written notice upon the owner of such animal that the owner shall have the animal euthanized immediately. Any owner who fails to comply with a written notice served pursuant to this section is guilty of a Class 1 misdemeanor.

**SHERIFF: Chapter 7-12 (Section 7-12-29)** Taking and holding animal suspected of being dangerous -- Formal determination -- Disposal of dangerous animal. The sheriff may take possession of any animal suspected of being dangerous. The sheriff may hold such animal until a formal determination can be made of the extent of the danger such animal poses. If the animal has attacked or bitten a human or an animal pet, the formal determination shall include consultation with the Department of Health for the purposes of rabies control. The sheriff may dispose of any animal so determined to be dangerous.

**REPORTABLE DISEASES: Administrative Rule 44:20:01:03** Category I reportable diseases have a potential for epidemic spread or require rapid application of public health measures to prevent a serious threat to public health or safety. Category I reportable diseases include: Rabies, human and animal.

**CONTROL MEASURES: Administrative Rule 44:20:03:10** Application of public health measures to animals. The department may instruct a person who owns or is in possession of an animal known or suspected to be a carrier of an infectious agent in public health measures for preventing infection and spread of disease. If the department knows or has reason to believe, because of testing or epidemiological information, that an animal is infected with an infectious agent and is a threat to the public health, it may issue a public health notice directing the person who owns or is in possession of the animal to take one or more of the following actions:

- (1) To examine or test the animal to determine whether it is infected with an infectious agent capable of causing human disease
- (2) To report to an authorized department representative for counseling on methods for preventing transmission of the infectious agent;
- (3) To confine or quarantine the animal for the duration of the incubation period or contagious period;
- (4) To destroy the animal or provide treatment until it is cured or free from the infection and to follow measures for preventing reinfection;
- (5) To cease from specific activities involving the infected animal that endanger the health of others;
- (6) To cooperate with the department in implementation of reasonable public health measures.

**Health requirements for dogs and cats on exhibit: Administrative Rule 12:02:10:03** All dogs for exhibition must be accompanied by a health certificate signed by a licensed accredited veterinarian within 30 days before entry to the South Dakota State Fair. The health certificate shall indicate the dates of vaccination for rabies, canine distemper, and canine parvovirus. All vaccines must be current. All cats for exhibition must be accompanied by a health certificate signed by a licensed accredited veterinarian within 30 days before entry to the South Dakota State Fair. The health certificate shall indicate the dates of vaccination for rabies and feline distemper. All vaccines must be current.

**Health certificate for imported cats and dogs: Administrative Rule 12:68:06:09** Any cat or dog imported into South Dakota must be accompanied by a health certificate as described in SDCL 40-14-2 issued by a state or federal government veterinary official of the originating state or by a licensed veterinarian. The certificate must state that the animal has not been exposed to rabies, that it is free from signs of any contagious or communicable disease, that it has been currently vaccinated by a licensed veterinarian, the date of vaccination, the type of vaccine used, and the date the animal is due for boosting for rabies immunization.