

# Rabies surveillance, South Dakota, 2011

Rabies is an enzootic fatal viral disease and a serious public health concern in South Dakota. In 2011, 711 animals were tested for rabies with 40 animals testing positive. This is a +25% increase over the previous year. The 40 rabid animals included 28 wild animals (20 skunks, 6 bats and 2 raccoons) and 12 domestic animals (4 cats, 4 cattle, 3 dogs and 1 horse). No human rabies was reported. South Dakota's last human rabies case was in 1970.

During 2011, 671 animals tested negative for rabies, including 191 cats, 167 dogs, 115 bats, 70 cattle, 41 raccoons, 21 skunks, 14 horses, 13 muskrats, 11 deer, 4 mice, 3 coyotes, 3 minks, 3 opossums, 2 fox, 2 goats, 2 pigs, 2 rats, and 1 each badger, gopher, guinea pig, moose, porcupine, squirrel and woodchuck.

During 2011 rabid animals were detected in 24 South Dakota counties (see table). Animals were submitted for testing from all but three counties. Over the past 10 years, 2002-2011, rabid animals were reported in 58 of the state's counties, with 65 of 66 counties submitting animals for testing. Over the decade 7,988 animals were tested and 604 (8%) were rabid.

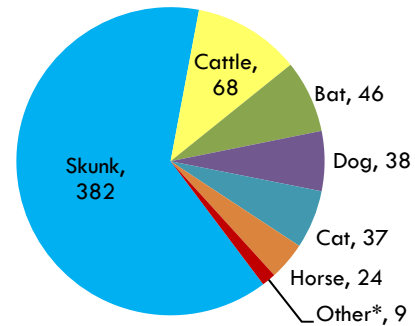
During the past decade 28% of rabies cases in South Dakota have been domestic animals. There were 37 rabid cats and 38 rabid dogs, many of which were unvaccinated strays or semi-tame barn cats. Rabid livestock included 68 cattle, 24 horses and 4 goats.

Skunks (*Mephitis mephitis*) are the enzootic rabies reservoir in South Dakota. Since 2002, 62% of tested skunks have been rabid. Bat rabies is also enzootic in South Dakota with 46 of 1,507 (3%) bats testing positive. Although rabies is not enzootic in other wild animals in South Dakota, during the past 10 years rabies has been detected in 3 raccoons, 1 fox and 1 woodchuck. These other animals are likely spillover infections following exposure to rabid skunks.

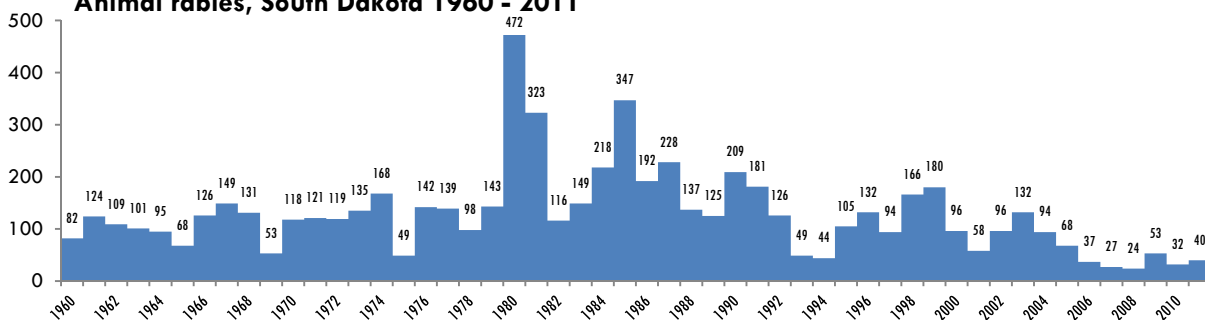
During the past 51 years animal rabies has been reported every year in the state. The most cases were reported in 1980 with 472 rabid animals and the fewest were reported in 2008 with 24 rabid animals.

**Rabid animals, South Dakota 2002-2011**

\*Others include 4 goats, 3 raccoons, 1 fox and 1 woodchuck



**Animal rabies, South Dakota 1960 - 2011**



The most recent national animal rabies surveillance data reported are for 2010 (Blanton, et. al.). Nationally, there was an 8% decrease from the previous year with 6,154 cases of animal rabies reported (92% wild and 8% domestic animals) in 2010. Nationally, rabid domestic animals included 303 cats, 71 cattle, 69 dogs, 37 horses/mules, 6 goats/sheep, and 1 pig. Wild animals testing positive for rabies included 2,246 raccoons, 1,448 skunks, 1,430 bats, 429 foxes, 29 groundhogs, 25 mongooses, 22 bobcats, 10 coyotes, 10 deer, 4 otters, 3 opossums, 2 fishers, 2 javelinas, and 1 each badger, coati, marmot, muskrat, rabbit and squirrel.

**Animals tested and confirmed rabid cases, South Dakota 2002 - 2011**

Animal	2011		2002 - 2011		
	Positive	Total tested	Positive	Total tested	% Pos
Skunk	20	41	382	619	62%
Cattle	4	74	68	878	8%
Bat	6	121	46	1,507	3%
Dog	3	170	38	1,590	2%
Cat	4	195	37	2,290	2%
Horse	1	15	24	241	10%
Goat	0	2	4	27	15%
Raccoon	2	43	3	350	1%
Fox	0	2	1	31	3%
Woodchuck	0	1	1	16	6%
Deer, elk, donkey	0	11	0	89	0%
Squirrel, chipmunk	0	1	0	74	0%
Rodents*	0	9	0	74	0%
Sheep	0	0	0	45	0%
Muskrat	0	13	0	43	0%
Opossum	0	3	0	28	0%
Coyote, wolf	0	3	0	26	0%
Weasel, ferret, mink	0	3	0	22	0%
Rabbit, hare	0	0	0	13	0%
Pig	0	2	0	6	0%
Badger	0	1	0	5	0%
Shrew, mole	0	0	0	4	0%
Bison	0	0	0	3	0%
Mountain lion	0	0	0	3	0%
Moose	0	1	0	1	0%
Other animals	0	0	0	6	0%
<b>TOTAL</b>	<b>40</b>	<b>711</b>	<b>604</b>	<b>7,991</b>	<b>8%</b>

Nationally from 2001 through 2011, there were 29 human rabies cases, including 26 deaths and 3 survivals, which is a 90% case fatality rate. Twenty of the human cases (70%) were associated with bat-rabies virus, 6 (21%) had dog rabies virus (all foreign imports) and 1 raccoon, 1 fox and 1 unknown exposure. These 29 human rabies cases were from California (7), Texas (5), Indiana (2), Virginia (2), Wisconsin (2) and 1 case each in Arkansas, Florida, Iowa, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Oklahoma, Puerto Rico and Tennessee.

**Distribution of terrestrial rabies virus variants in the United States, 2010 (J. Blanton et al.)**



Two laboratories provide rabies tests in South Dakota: (1) the Animal Disease Research Diagnostic Laboratory (ADRDL) in Brookings, and (2) the State Public Health Laboratory (SDPHL) in Pierre. Both laboratories use the direct fluorescent antibody (DFA) technique. 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 are available from the Office of Disease Prevention, South Dakota Department of Health, 7 days a week. Consultations are based on current Centers for Disease Control and Prevention (CDC) recommendations\*. We strive to recommend appropriate rabies prevention measures and to minimize unnecessary and inappropriate post-exposure testing and prophylactic treatment.

**Animal Rabies Cases by County, South Dakota, 2002 - 2011**

County	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	TOTAL
Aurora	0	6	0	0	0	0	0	1	0	0	7
Beadle	2	5	1	3	0	1	0	0	0	1	13
Bennett	0	0	0	0	0	0	0	0	0	0	0
BonHomme	0	1	1	2	2	1	0	0	0	0	7
Brookings	3	4	3	6	2	2	1	1	3	1	26
Brown	11	6	7	2	5	4	2	3	0	0	40
Brule	2	4	0	0	1	0	0	0	1	0	8
Buffalo	0	1	0	0	0	0	0	0	0	0	1
Butte	1	1	0	0	0	0	0	0	0	2	4
Campbell	2	0	1	1	0	0	0	0	0	0	4
CharlesMix	5	9	4	2	0	0	0	2	1	2	25
Clark	1	2	1	2	2	3	3	2	0	0	16
Clay	1	2	0	1	3	0	0	1	0	1	9
Codington	1	1	6	1	0	1	0	2	2	1	15
Corson	0	1	0	0	0	0	0	0	0	0	1
Custer	0	0	0	0	0	0	0	0	0	0	0
Davison	5	2	4	2	1	0	0	0	1	0	15
Day	6	4	3	2	1	0	2	2	2	0	22
Deuel	0	1	4	5	1	1	0	0	0	0	12
Dewey	1	0	1	0	0	0	0	0	0	0	2
Douglas	0	2	1	1	0	0	0	1	0	0	5
Edmunds	1	1	1	0	0	1	1	0	0	0	5
Fall River	1	0	0	0	0	0	0	0	0	0	1
Faulk	0	1	1	2	1	1	0	0	0	1	7
Grant	0	1	2	1	0	0	1	1	0	3	9
Gregory	4	1	0	2	0	0	2	1	0	1	11
Haakon	0	0	0	0	0	0	0	0	0	0	0
Hamlin	3	4	4	1	2	2	2	0	4	1	23
Hand	2	2	0	1	0	0	0	1	0	0	6
Hanson	0	3	0	0	1	0	0	1	0	0	5
Harding	1	0	0	0	0	0	0	2	0	2	5
Hughes	0	4	2	3	1	0	0	1	0	1	12
Hutchinson	0	7	5	3	0	0	1	3	2	0	21
Hyde	1	0	1	1	0	0	0	1	0	0	4
Jackson	0	0	0	0	0	1	0	0	0	0	1
Jerauld	2	1	0	0	1	0	0	0	0	0	4
Jones	0	0	0	0	0	0	0	0	0	0	0
Kingsbury	1	6	7	0	1	1	0	2	2	0	20
Lake	4	3	4	3	0	0	1	6	1	0	22
Lawrence	1	0	0	0	0	0	0	0	0	1	2
Lincoln	1	1	1	1	0	0	0	1	1	1	7
Lyman	0	0	0	0	0	1	0	0	0	2	3
Marshall	1	1	4	2	1	0	1	0	1	1	12
McCook	3	8	3	0	1	0	2	0	0	1	18
McPherson	1	3	1	0	0	1	0	3	1	0	10
Meade	0	0	0	0	1	3	2	2	0	0	8
Mellette	0	0	0	0	1	0	0	0	0	2	3
Miner	1	5	0	0	1	0	0	0	1	1	9
Minnehaha	6	6	7	5	3	0	3	4	3	5	42
Moody	3	2	2	3	1	0	0	0	0	0	11
Pennington	2	2	0	0	0	0	0	2	0	1	7
Perkins	0	0	1	0	0	0	0	0	0	0	1
Potter	0	1	0	0	0	0	0	0	0	0	1
Roberts	2	3	0	0	0	0	0	1	0	0	6
Sanborn	6	1	2	2	0	0	0	0	0	1	12
Shannon	0	0	0	0	0	0	0	0	0	0	0
Spink	3	2	1	2	0	0	0	3	0	0	11
Stanley	0	0	0	1	1	0	0	0	0	0	2
Sully	0	0	0	0	0	0	0	0	0	0	0
Todd	0	0	0	0	0	0	0	0	0	0	0
Tripp	2	2	1	1	0	1	0	0	1	6	14
Turner	1	5	1	2	0	0	0	3	4	1	17
Union	1	0	1	0	2	1	0	0	0	0	5
Walworth	1	3	2	2	1	1	0	0	0	0	10
Yankton	0	1	3	0	0	0	0	0	1	0	5
Ziebach	0	0	0	0	0	0	0	0	0	0	0
<b>West River counties</b>	<b>13</b>	<b>7</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>4</b>	<b>7</b>	<b>1</b>	<b>17</b>	<b>65</b>
<b>East River counties</b>	<b>83</b>	<b>125</b>	<b>91</b>	<b>64</b>	<b>35</b>	<b>21</b>	<b>20</b>	<b>46</b>	<b>31</b>	<b>23</b>	<b>539</b>
<b>South Dakota</b>	<b>96</b>	<b>132</b>	<b>94</b>	<b>68</b>	<b>38</b>	<b>27</b>	<b>24</b>	<b>53</b>	<b>32</b>	<b>40</b>	<b>604</b>

## Rabies Prevention

### Pet rabies prevention:

- Make sure your pet dog, cat or ferret gets its rabies shot.
- Keep your pets away from wildlife so they won't be bitten by a rabid animal.
- Call your local Animal Control to take wild or stray animals away, especially if acting strangely.
- If an animal bites your pet, take them to your veterinarian so they can get 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 closed up tight and don't leave pet food out to attract skunks or raccoons.

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## 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 605-280-4810

<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 Working Group <http://sdbwg.org>

### Animal Disease Research and Diagnostic

Laboratory (rabies testing)

Box 2175, 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)

### Rabies post-exposure prophylaxis online training:

<http://ideha.dhnh.maryland.gov/training/SitePages/rabies.aspx>

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## 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 Association 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)

CDC. Compendium of measures to prevent disease associated with animals in public settings, 2011: National Association of State Public Health Veterinarians. MMWR 2011; 60 (RR-4).

[www.cdc.gov/mmwr/pdf/rr/rr6004.pdf](http://www.cdc.gov/mmwr/pdf/rr/rr6004.pdf)

Blanton, JD, D Palmer, J Dyer and CE Rupprecht. 2011. Rabies surveillance in the United States during 2010. Journal of the American Veterinary Medical Association 239: 773-783.

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