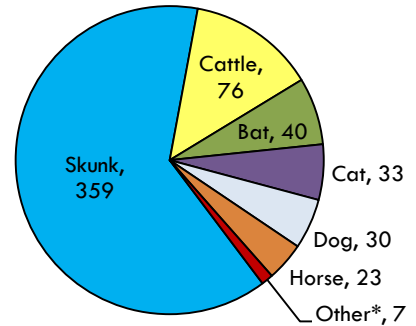


# Rabies surveillance, South Dakota, 2012

Rabies is a zoonotic, nearly-always fatal, viral disease and a serious public health concern in South Dakota. In 2012, 805 animals were tested for rabies with 60 animals testing positive, 7.5%. This is a +50% increase over the previous year. The 60 rabid animals included 21 domestic animals (16 cattle, 3 horses and 2 cats) 35%, and 39 wild animals (36 skunks and 3 bats) 65%. More rabid cattle were detected in 2012 than in any year since 1999. No human rabies was reported. South Dakota's last human rabies case was in 1970.

**Rabid animals, South Dakota 2003-2012**

\*Others include 3 raccoons, 2 goats, 1 fox and 1 woodchuck

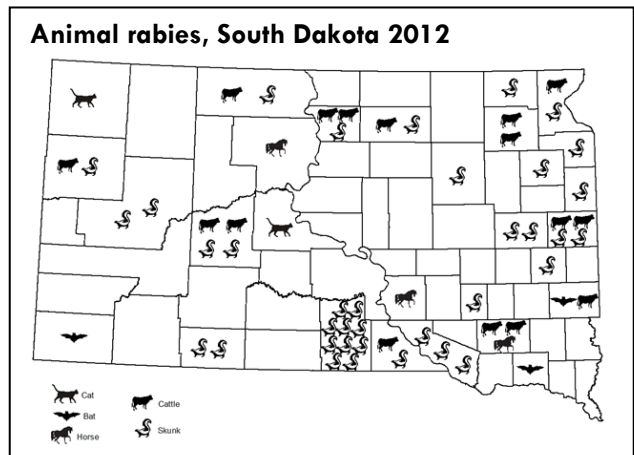


During 2012, 745 animals tested negative for rabies, including 212 cats, 168 bats, 126 dogs, 94 cattle, 45 raccoons, 39 skunks, 13 horses, 11 deer, 8 muskrats, 6 sheep, 5 mice, 2 fox, 2 goats, 2 minks and 1 each badger, beaver, coyote, donkey, elk, ferret, ground hog, opossum, shrew, squirrel, weasel and woodchuck.

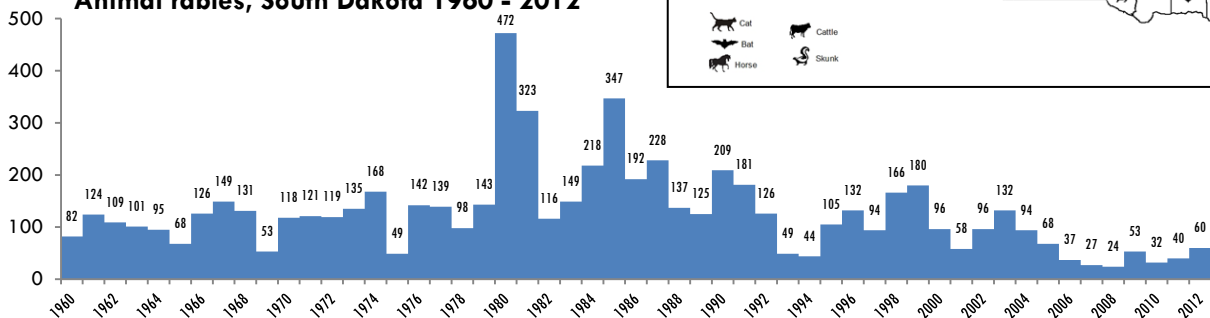
During 2012 rabid animals were detected in 29 South Dakota counties (see table). Animals were submitted for testing from all but seven counties. Although 23% of animals tested came from West River counties, 47% of the positive rabid animals were from West River. Over the past 10 years, 2003-2012, rabid animals were reported in 60 of the state's counties, with 65 of 66 counties submitting animals for testing. Over the decade 7,535 animals were tested and 568 (7.5%) animals tested were rabid.

During the past decade 29% of rabies cases in South Dakota were domestic animals. The domestic cases included 33 rabid cats and 30 rabid dogs, many of which were unvaccinated strays or semi-tame barn cats. Rabid livestock included 76 cattle, 23 horses and 2 goats.

Skunks (*Mephitis mephitis*) are the primary rabies reservoir in South Dakota. Over the past decade 60% of tested skunks 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 3 raccoons, 1 fox and 1 woodchuck. These other animals are likely spillover infections following exposure to



**Animal rabies, South Dakota 1960 - 2012**



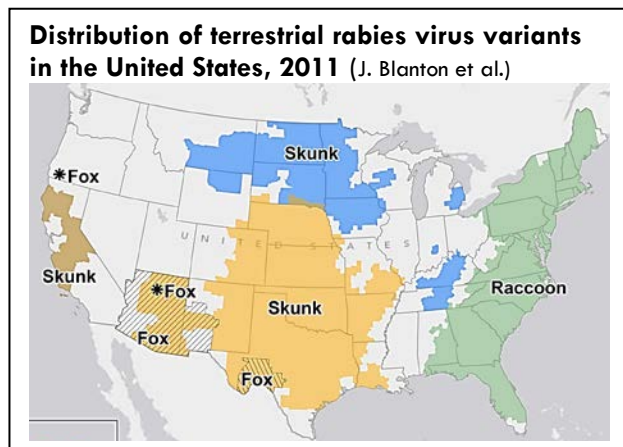
rabid skunks.

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 reported are for 2011 (Blanton, et. al.). Nationally, there was an 2% decrease from the previous year with 6,031 cases of animal rabies reported (92% wild and 8% domestic animals) in 2011. South Dakota had the second highest state percentage of domestic animal rabies cases, 30%. Nationally, rabid domestic animals included 303 cats, 70 dogs, 65 cattle, 44 horses/mules, 12 goats/sheep, 1 bison and 1 alpaca. Wild animals testing positive for rabies included 1,981 raccoons, 1,627 skunks, 1,380 bats, 427 foxes, 45 groundhogs, 35 mongooses, 19 bobcats, 8 coyotes, 5 deer, 3 beavers, 2 otters, 2 javelinias, and 1 wolf hybrid.

Animals tested and confirmed rabid cases, South Dakota 2003 - 2012					
Animal	2012		2003 - 2012		
	Positive	Total tested	Positive	Total tested	% Pos
Skunk	36	75	359	602	60%
Cattle	16	110	76	889	9%
Bat	3	171	40	1,300	3%
Horse	3	16	23	170	14%
Cat	2	214	33	2,229	1%
Dog	0	126	30	1,507	2%
Raccoon	0	45	3	340	1%
Goat	0	2	2	26	8%
Fox	0	2	1	25	4%
Woodchuck	0	2	1	16	6%
Deer, elk, donkey	0	13	0	93	0%
Rodents*	0	6	0	73	0%
Squirrel, chipmunk	0	1	0	67	0%
Sheep	0	6	0	46	0%
Muskrat	0	8	0	43	0%
Opossum	0	1	0	27	0%
Coyote, wolf	0	1	0	23	0%
Weasel, ferret, mink	0	4	0	22	0%
Rabbit, hare	0	0	0	12	0%
Badger	0	1	0	6	0%
Pig	0	0	0	6	0%
Shrew, mole	0	1	0	4	0%
Mountain lion	0	0	0	3	0%
Bison	0	0	0	2	0%
Other animals	0	2	0	5	0%
<b>TOTAL</b>	<b>60</b>	<b>805</b>	<b>568</b>	<b>7,536</b>	<b>8%</b>

Nationally from 2002 through July 2012, there were 33 human rabies cases, including 30 deaths and 3 survivals, which is a 91% case fatality rate. Twenty-two of the human cases (67%) were associated with bat-rabies virus, 8 (24%) had dog rabies virus (all foreign imports), 1 fox, 1 raccoon and 1 unknown exposure. The 33 human rabies cases were from California (6), Texas (5), Indiana (2), Massachusetts (2), Virginia (2), Wisconsin (2) and 1 case each in Arkansas, Florida, Iowa, Louisiana, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New York, Oklahoma, Puerto Rico, South Carolina and Tennessee.



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. During 2012, 53% of rabies tests were done at ADRDL and 47% 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.

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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>

### 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)

### 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>

### 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>

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

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

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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 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)

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, J, J Dyer, J McBrayer and C Rupprecht. 2012. Rabies surveillance in the United States during 2011. Journal of the Am Veterinary Medical Assoc 241: 712-722. [avmajournals.avma.org/doi/pdf/10.2460/javma.241.6.712](http://avmajournals.avma.org/doi/pdf/10.2460/javma.241.6.712)

**Animal Rabies Cases by County, South Dakota, 2003 - 2012**

County	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	TOTAL
Aurora	6	0	0	0	0	0	1	0	0	0	7
Beadle	5	1	3	0	1	0	0	0	1	0	11
Bennett	0	0	0	0	0	0	0	0	0	2	2
Bon Homme	1	1	2	2	1	0	0	0	0	0	7
Brookings	4	3	6	2	2	1	1	3	1	4	27
Brown	6	7	2	5	4	2	3	0	0	0	29
Brule	4	0	0	1	0	0	0	1	0	1	7
Buffalo	1	0	0	0	0	0	0	0	0	0	1
Butte	1	0	0	0	0	0	0	0	2	2	5
Campbell	0	1	1	0	0	0	0	0	0	0	2
Charles Mix	9	4	2	0	0	0	2	1	2	3	23
Clark	2	1	2	2	3	3	2	0	0	0	15
Clay	2	0	1	3	0	0	1	0	1	0	8
Codington	1	6	1	0	1	0	2	2	1	1	15
Corson	1	0	0	0	0	0	0	0	0	2	3
Custer	0	0	0	0	0	0	0	0	0	0	0
Davison	2	4	2	1	0	0	0	1	0	1	11
Day	4	3	2	1	0	2	2	2	0	2	18
Deuel	1	4	5	1	1	0	0	0	0	1	13
Dewey	0	1	0	0	0	0	0	0	0	1	2
Douglas	2	1	1	0	0	0	1	0	0	0	5
Edmunds	1	1	0	0	1	1	0	0	0	2	6
Fall River	0	0	0	0	0	0	0	0	0	1	1
Faulk	1	1	2	1	1	0	0	0	1	0	7
Grant	1	2	1	0	0	1	1	0	3	1	10
Gregory	1	0	2	0	0	2	1	0	1	2	9
Haakon	0	0	0	0	0	0	0	0	0	4	4
Hamlin	4	4	1	2	2	2	0	4	1	0	20
Hand	2	0	1	0	0	0	1	0	0	0	4
Hanson	3	0	0	1	0	0	1	0	0	0	5
Harding	0	0	0	0	0	0	2	0	2	1	5
Hughes	4	2	3	1	0	0	1	0	1	0	12
Hutchinson	7	5	3	0	0	1	3	2	0	3	24
Hyde	0	1	1	0	0	0	1	0	0	0	3
Jackson	0	0	0	0	1	0	0	0	0	0	1
Jerauld	1	0	0	1	0	0	0	0	0	0	2
Jones	0	0	0	0	0	0	0	0	0	0	0
Kingsbury	6	7	0	1	1	0	2	2	0	2	21
Lake	3	4	3	0	0	1	6	1	0	1	19
Lawrence	0	0	0	0	0	0	0	0	1	0	1
Lincoln	1	1	1	0	0	0	1	1	1	0	6
Lyman	0	0	0	0	1	0	0	0	2	0	3
Marshall	1	4	2	1	0	1	0	1	1	1	12
McCook	8	3	0	1	0	2	0	0	1	0	15
McPherson	3	1	0	0	1	0	3	1	0	0	9
Meade	0	0	0	1	3	2	2	0	0	2	10
Mellette	0	0	0	1	0	0	0	0	2	0	3
Miner	5	0	0	1	0	0	0	1	1	0	8
Minnehaha	6	7	5	3	0	3	4	3	5	2	38
Moody	2	2	3	1	0	0	0	0	0	0	8
Pennington	2	0	0	0	0	0	2	0	1	0	5
Perkins	0	1	0	0	0	0	0	0	0	0	1
Potter	1	0	0	0	0	0	0	0	0	0	1
Roberts	3	0	0	0	0	0	1	0	0	2	6
Sanborn	1	2	2	0	0	0	0	0	1	0	6
Shannon	0	0	0	0	0	0	0	0	0	0	0
Spink	2	1	2	0	0	0	3	0	0	1	9
Stanley	0	0	1	1	0	0	0	0	0	1	3
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	1	1	0	1	0	0	1	6	10	22
Turner	5	1	2	0	0	0	3	4	1	0	16
Union	0	1	0	2	1	0	0	0	0	0	4
Walworth	3	2	2	1	1	0	0	0	0	3	12
Yankton	1	3	0	0	0	0	0	1	0	1	6
Ziebach	0	0	0	0	0	0	0	0	0	0	0
West River	7	3	4	3	6	4	7	1	17	28	80
East River	125	91	64	35	21	20	46	31	23	32	488
<b>South Dakota</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>60</b>	<b>568</b>