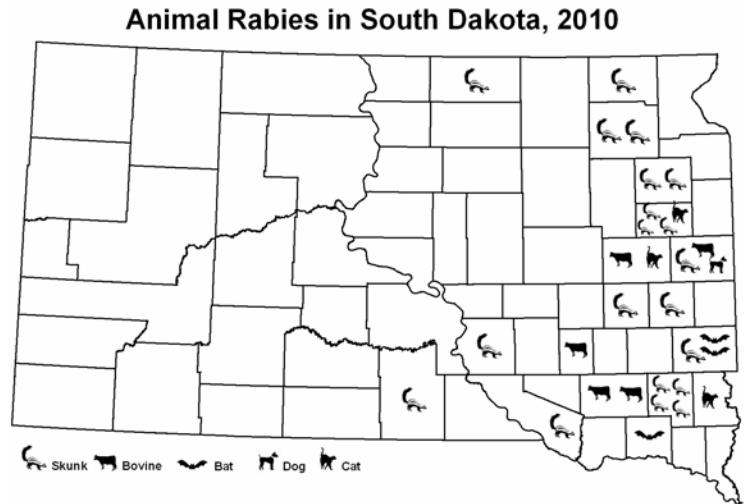


Rabies Surveillance, South Dakota, 2010

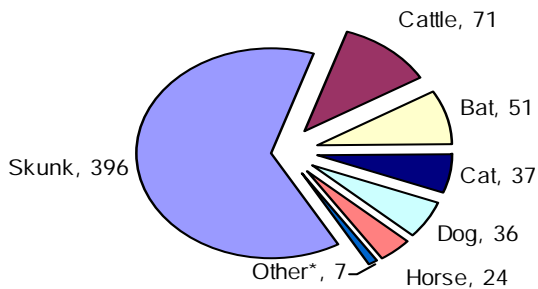
Rabies is an enzootic fatal viral disease and a serious public health concern in South Dakota. In 2010, 671 animals were tested for rabies with 32 animals testing positive. This is a 40% decrease from the previous year. The 32 rabid animals included 23 wild animals (20 skunks and 3 bats) and 9 domestic animals (5 cattle 3 cats and 1 dog). South Dakota's last human rabies case was in 1970.

In 2010, 665 animals tested negative for rabies, including 199 cats, 138 dogs, 107

bats, 68 cattle, 31 skunks, 28 raccoons, 13 horses, 10 deer, 8 squirrels, 5 sheep, 5 goats, 5 muskrats, 3 gophers, 2 each elk, donkeys, fox, moles, rabbits and rats, and 1 each badger, coyote, ferret, hamster, mouse, pig and woodchuck.



Rabid animals, South Dakota 2001-2010



*Others include goat 4, fox 1, raccoon 1, woodchuck 1.

During 2010 rabid animals were detected in 18 South Dakota counties (see map and table). Animals were submitted for testing from all counties except Bennett, Campbell, Lyman, Mellette, Sully and Ziebach.

During the 10-year period (2001-2010) 622 of 8,462 (7%) animals tested were

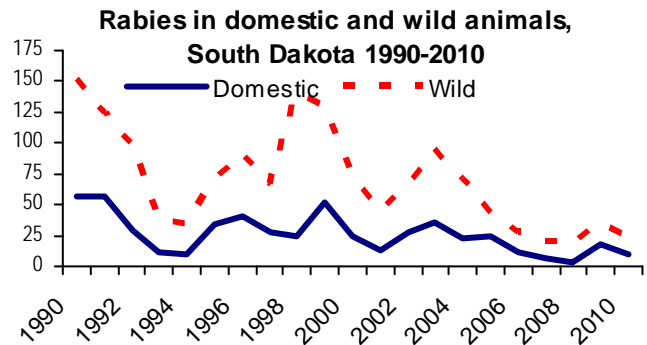
Animal	2010		2001 - 2010		
	Pos	Total tested	Pos	Total tested	% Pos
Skunk	20	51	396	647	61%
Cattle	5	73	71	909	8%
Bat	3	110	51	1792	3%
Cat	3	202	37	2381	2%
Dog	1	139	36	1615	2%
Horse	0	13	24	250	10%
Goat	0	5	4	25	16%
Raccoon	0	28	1	351	0%
Fox	0	2	1	32	3%
Woodchuck	0	1	1	17	6%
Deer, elk, donkey,	0	14	0	86	0%
Squirrel, chipmunk	0	8	0	80	0%
Rodents, other*	0	7	0	71	0%
Sheep	0	5	0	51	0%
Muskrat	0	5	0	35	0%
Opossum	0	0	0	29	0%
Coyote, wolf	0	1	0	26	0%
Weasel, ferret, mink	0	1	0	25	0%
Rabbit, hare	0	2	0	13	0%
Pig	0	1	0	6	0%
Badger	0	1	0	4	0%
Bison	0	0	0	4	0%
Shrew, mole	0	2	0	4	0%
Mountain lion	0	0	0	3	0%
Bobcat, bear	0	0	0	1	0%
Other animals	0	0	0	5	0%
TOTAL	32	671	622	8462	7%

*Rodents: rat, mouse, prairie dog, gopher, ground squirrel, hamster, beaver, porcupine, vole

Animal rabies by SD County, 2001-2010					
County	2010		2001-2010		
	Pos	Neg	Pos	Neg	%Pos
Aurora	0	7	7	36	16%
Beadle	0	8	13	120	10%
Bennett	0	0	0	4	0%
BonHomme	0	1	8	37	18%
Brookings	3	33	28	381	7%
Brown	0	22	42	291	13%
Brule	1	14	8	64	11%
Buffalo	0	1	1	6	14%
Butte	0	12	3	141	2%
Campbell	0	0	4	9	31%
CharlesMix	1	12	24	139	15%
Clark	0	4	16	78	17%
Clay	0	10	8	75	10%
Codington	2	26	15	211	7%
Corson	0	3	1	9	10%
Custer	0	1	2	27	7%
Davison	1	28	16	241	6%
Day	2	8	23	84	21%
Deuel	0	3	12	93	11%
Dewey	0	2	2	17	11%
Douglas	0	1	5	31	14%
Edmunds	0	5	5	48	9%
Fall River	0	8	2	82	2%
Faulk	0	6	6	39	13%
Grant	0	6	7	75	9%
Gregory	0	3	11	57	16%
Haakon	0	4	0	22	0%
Hamlin	4	4	24	100	19%
Hand	0	4	7	49	13%
Hanson	0	1	5	20	20%
Harding	0	1	3	14	18%
Hughes	0	14	11	195	5%
Hutchinson	2	16	21	187	10%
Hyde	0	5	5	54	8%
Jackson	0	5	1	36	3%
Jerauld	0	1	5	27	16%
Jones	0	3	1	10	9%
Kingsbury	2	6	21	116	15%
Lake	1	15	23	165	12%
Lawrence	0	7	3	91	3%
Lincoln	1	17	6	147	4%
Lyman	0	0	1	32	3%
Marshall	1	7	12	63	16%
McCook	0	7	17	86	17%
McPherson	1	3	10	56	15%
Meade	0	11	9	120	7%
Mellette	0	0	1	5	17%
Miner	1	5	9	62	13%
Minnehaha	3	137	48	1,979	2%
Moody	0	11	12	90	12%
Pennington	0	34	10	717	1%
Perkins	0	2	1	18	5%
Potter	0	4	1	14	7%
Roberts	0	12	10	129	7%
Sanborn	0	4	12	42	22%
Shannon	0	2	0	35	0%
Spink	0	4	12	56	18%
Stanley	0	5	2	19	10%
Sully	0	0	1	2	33%
Todd	0	1	0	42	0%
Tripp	1	11	11	84	12%
Turner	4	19	16	172	9%
Union	0	4	5	77	6%
Walworth	0	19	12	214	5%
Yankton	1	10	5	98	5%
Ziebach	0	0	0	0	na
South Dakota	32	639	622	7,840	7%

positive for rabies. During the decade animals were tested from all counties, except Ziebach, and rabid animals were found in all counties except Bennett, Haakon, Shannon, Todd, and Ziebach. The most animals were submitted for testing from Minnehaha County.

In the 10 years since 2001, 28% of rabies cases in South Dakota have been domestic animals. There were 37 rabid cats and 36 rabid dogs many of which were unvaccinated strays or barn cats. Rabid livestock since 2010 included 71 cattle, 23 horses and 4 goats.

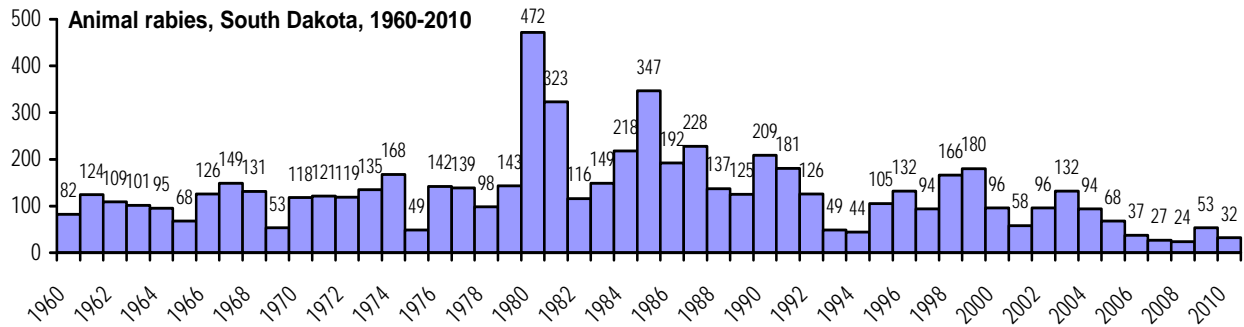


Skunks (*Mephitis mephitis*) are the enzootic rabies reservoir in South Dakota. Since 2001, 61% of tested skunks have been rabid. Bat rabies is also enzootic in South Dakota with 51 of 1,741 (3%) bats testing positive over the past 10 years.

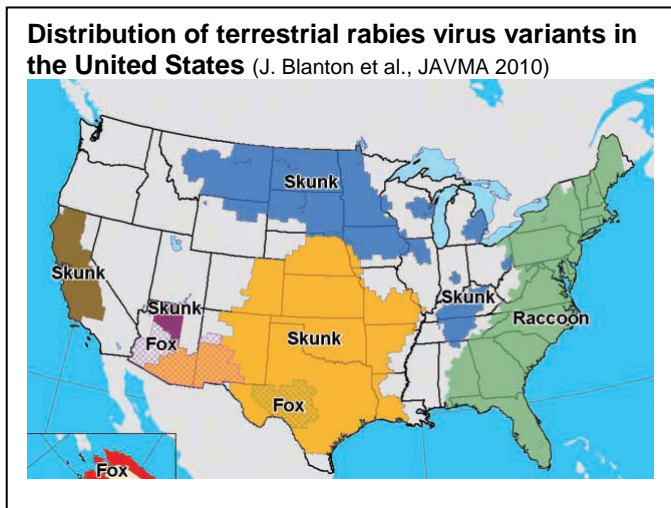
Although rabies is not enzootic in other wild animals in South Dakota, during the past 10 years rabies has been detected in 1 fox, 1 raccoon, and 1 woodchuck. These other wild animals are likely spillover rabies following exposure to rabid skunks. Although raccoon rabies is common in eastern United States, rabid raccoons are rare in South Dakota. Since 1990, 998 raccoons have been tested for rabies in South Dakota and 3 of these were positive (0.3%).

During the past 50 years animal rabies has been reported every year in South Dakota (see figure below). The most cases were reported in 1980 with 472 rabid animals and the fewest were reported in 2008 with 24 rabid animals.

Nationally from 2000 through 2009, there were 31 human rabies cases, including 29 deaths and 2 survivals. Twenty-two of the human cases (71%) were associated with bat-rabies virus, 7 (23%) had dog rabies virus (all foreign imports) and 1 each raccoon and fox exposure. These 27 human rabies cases were from Arkansas, California (7), Florida, Georgia, Indiana (2), Iowa, Michigan, Minnesota (2), Mississippi, Missouri, New York, Oklahoma, Puerto Rico, Tennessee, Texas (5), Virginia (2) and Wisconsin (2).



The most recent national animal rabies surveillance data reported are for 2009 (Blanton, et. al., 2010). Nationally, there was a 2% decrease from the previous year with 6,690 cases of animal rabies reported (92% wild and 8% domestic animals) in 2009. Nationally, rabid domestic animals included 300 cats, 81 dogs, 74 cattle, 41 horses/mules, 8 goats/sheep, and 1 ferret. Nationally, wild animals testing positive for rabies included 2,327 raccoons, 1,625 bats, 1,603 skunks, 504 foxes, 34 mongooses, 32 groundhogs, 30 bobcats, 11 coyotes, 3 fishers, 3 opossums, 2 beavers, 2 deer, 2 otters, 2 squirrels, and 1 each cougar, muskrat, rabbit, ringtail and wolf.



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 on previously vaccinated people 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.

References and resources

*CDC. Human rabies prevention – United States, 2008: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2008; 57 (RR-3). www.cdc.gov/mmwr/preview/mmwrhtml/rr5703a1.htm

CDC. Compendium of animal rabies prevention and control, 2008: National Association of State Public Health Veterinarians. MMWR 2008; 57 (RR-2). www.cdc.gov/mmwr/preview/mmwrhtml/rr5702a1.htm

CDC. Compendium of measures to prevent disease associated with animals in public settings, 2009: National Association of State Public Health Veterinarians. MMWR 2009; 58 (RR-5). <http://www.cdc.gov/mmwr/pdf/rr/rr5805.pdf>

Blanton, JD, D Palmer and CE Rupprecht. 2010. Rabies surveillance in the United States during 2009. Journal of the American Veterinary Medical Association 235: 646-657. <http://avmajournals.avma.org/doi/pdf/10.2460/javma.237.6.646>

Addresses, telephone numbers and websites

Department of Health (rabies consultations)

615 East Fourth Street
Pierre, SD 57501-1700
Phone: 1-800-592-1861 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: 1-800-592-1861 or 605-773-3368
<http://doh.sd.gov/Lab/rabies.aspx>

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/adrld

SD Animal Industry Board (livestock and other 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

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

Rabies is a viral infection that affects the nervous system of mammals. Rabies is usually transmitted by a bite from an infected animal, scratch or exposure to saliva with symptoms usually starting 3 - 8 weeks later. Symptoms may include headache, behavior changes, fever, malaise, sensory changes, and paralysis. Rabies is almost always fatal. Prompt vaccination following a bite prevents rabies in humans. *If a human is exposed to rabies they must have anti-rabies shots.*

2009 US Animal Rabies

State Cases

Alabama 81
Alaska 14
Arizona 273
Arkansas 47
California 227
Colorado 104
Connecticut 153
Delaware 15
DC 57
Florida 162
Georgia 404
Hawaii 0
Idaho 8
Illinois 83
Indiana 40
Iowa 35
Kansas 78
Kentucky 46
Louisiana 5
Maine 62
Maryland 384
Massachusetts 130
Michigan 69
Minnesota 69
Mississippi 4
Missouri 66
Montana 24
Nebraska 90
Nevada 12
New Hampshire 34
New Jersey 288
New Mexico 26
New York 468
North Carolina 492
North Dakota 16
Ohio 47
Oklahoma 50
Oregon 12
Pennsylvania 453
Rhode Island 45
South Carolina 153
South Dakota 53
Tennessee 88
Texas 830
Utah 13
Vermont 67
Virginia 572
Washington 14
West Virginia 123
Wisconsin 25
Wyoming 40
Puerto Rico 43
TOTAL 6694

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.