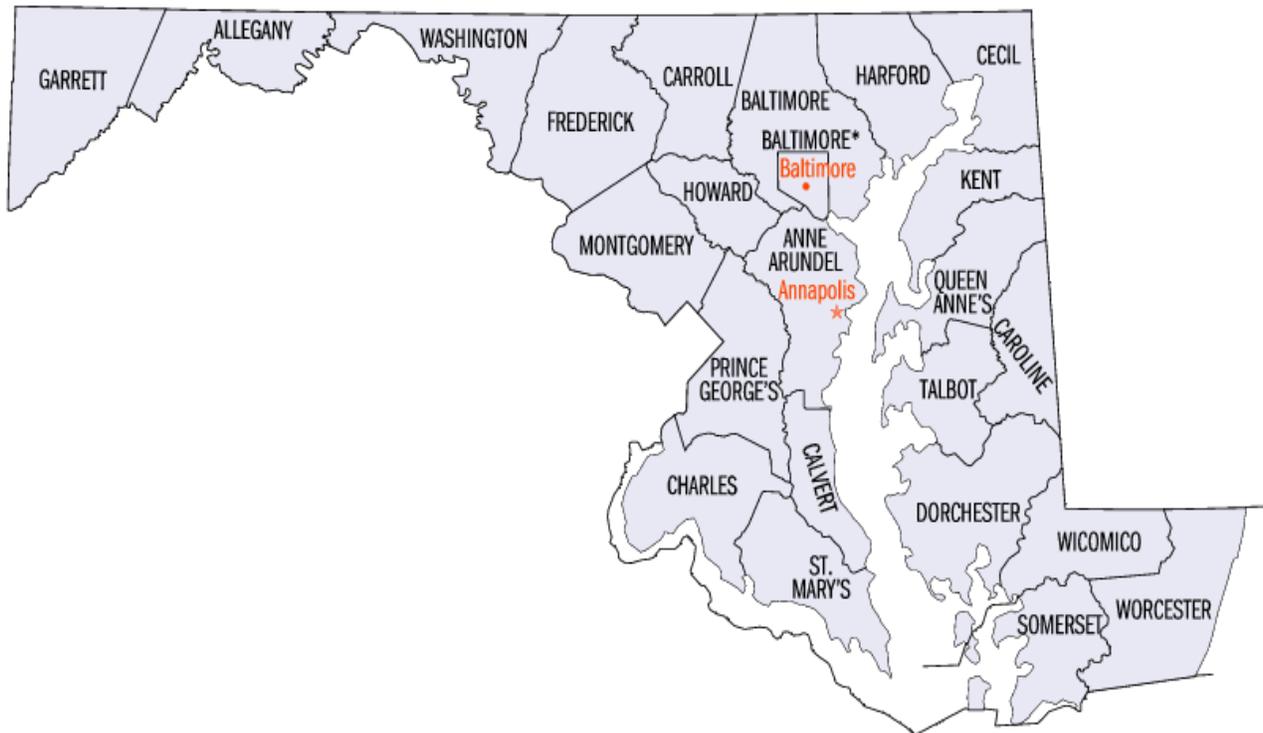


REPORT OF LABORATORY CONFIRMED CASES OF ANIMAL RABIES IN MARYLAND

2003



Map Courtesy of the Department of Commerce,
Economics and Statistics Administration,
Bureau of the Census

Boundaries as of January 1, 1990

**Center for Veterinary Public Health
Office of Epidemiology and Disease Control Programs
Community Health Administration
Maryland Department of Health and Mental Hygiene**

Preface

This report presents surveillance data on laboratory confirmed rabid animals in Maryland in 2003. The Maryland Department of Health and Mental Hygiene's (DHMH) Laboratories Administration tested the majority of the animals. In addition, the Maryland Department of Agriculture (MDA) Animal Health Diagnostic Laboratory in Salisbury also tested select animals for rabies. The DHMH Laboratories Administration, Virology Section, tested all animals involved in human exposure for rabies.

Within DHMH, the Division of Rabies and Vector-borne Diseases determines the number of laboratory confirmed rabid animals reported for each jurisdiction by comparing individual and monthly reports from both laboratories with monthly reports submitted by the 24 local health jurisdictions in Maryland. Rabid animals are reported by the date of specimen receipt at the rabies laboratory and by the jurisdiction submitting the animal for testing. Also included in this document are detailed summary data comparing rabies cases in Maryland over a 10-year period, from 1983-2003.

The Center for Veterinary Public Health (CVPH) would like to thank the communicable disease and environmental health staff of the local health departments in Maryland for their case investigations and reporting of rabies surveillance data. The CVPH would also like to express appreciation to the DHMH Rabies Laboratory and the Salisbury Animal Health Laboratory for their excellent diagnostic work and timely reporting as well as the Centers for Disease Control and Prevention (CDC) for their epidemiological and laboratory support. We also extend sincere gratitude to Kristin Jones with the Maryland Department of Natural Resources (DNR) for the initial organization of this document. Finally, we wish to thank two members of the CVPH staff who were instrumental in the preparation of this report: Mary Armolt, who collected and tabulated the data and input it into tables, and Kimberly Mitchell who composed and edited the text and refined the tables and graphs.

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Report of Laboratory Confirmed Cases of Animal Rabies in Maryland, 2003

In 2003, the 24 jurisdictions of Maryland reported 371 laboratory confirmed cases of rabies in animals (Tables 1 and 2; Figure 1). The Maryland Department of Health and Mental Hygiene (DHMH) Rabies Laboratory and the Salisbury Animal Health Laboratory collectively received 4828 specimens for diagnostic testing in 2003 (7.7% positive). These data indicate a slight increase in the number of specimens submitted from last year and a slight decrease in the number of specimens submitted in 2001. In 2002, 4,498 samples were submitted and in 2001 4,964 samples were submitted. However, the positive cases of rabies from both 2002 (396 positive out of 4498 tested; 8.8% positive) and 2001 (505 positive out of 4964 tested; 10.2% positive) were slightly higher (Table 6). The largest numbers of specimens are typically submitted for rabies testing during the summer months (June – August) due to increased contact between humans and animals as a result of outdoor activities (Figure 2).

Animal rabies was reported from all 24 Maryland jurisdictions. Jurisdictions with the largest number of laboratory confirmed cases of rabies included Frederick (57 cases), Montgomery (52 cases), and Prince Georges (24 cases) counties. Jurisdictions with the fewest confirmed rabies cases include Allegany County (1), Baltimore City (2), and Kent County (2). Table 1 presents animal rabies cases by jurisdiction.

Wild animals accounted for 92.7% of laboratory confirmed rabies in Maryland during 2003 (Table 2); this percentage is similar to the findings in 2002 and 2001. Raccoons continue to represent the majority of laboratory confirmed cases of rabies in animals (269 cases, 72.5%). Other wild animals diagnosed as rabid in 2003 include skunks (16 cases, 4.3%), foxes (37 cases, 10%), bats (10 cases, 2.7%), groundhogs (11 cases, 3.0%). In 2003, the number of confirmed rabid animal cases remained essentially the same in all reported wild animal species, except for bats and skunks, which experienced a significant decrease from 2002 to 2003. See Table 3 for a listing of numbers of other species tested for rabies in Maryland.

Local health jurisdictions report rabies test results in both domestic and wild animals. For purposes of this report, the term “domestic animals” is divided into two categories: small domestics and large domestics. Small domestics include dogs, cats, and ferrets; large domestics include livestock (horses, cattle, pigs, sheep, and goats). Domestic animals accounted for 7.3% of laboratory confirmed rabies in Maryland during 2003. Cats accounted for the majority of laboratory confirmed cases of rabies in small domestic animals (21 cases, 88%), and overall, represent 5.7% of rabies cases in all animals (Figure 1). Health officials must continue to promote and increase the percentage of cats immunized against rabies through anti-rabies clinics and public educational campaigns. Other small domestics diagnosed with rabies in 2003 included 2 canines and 1 ferret. Large domestics diagnosed as rabid consisted of 1 horse, 1 cow, and 1 pig. Table 4 presents animal rabies cases by month and species; Table 5 shows cases by jurisdiction and species. No cases of rabies in humans were reported in Maryland during 2003.

Although strain typing is no longer routinely performed on specimens submitted for testing, it is performed upon request by the local health jurisdiction through the Center for Veterinary Public Health (CVPH). A total of 15 positive animal rabies specimens were submitted for strain typing in 2003, of which one was unsuitable for typing. Strain typing of laboratory confirmed rabies cases identified the raccoon strain present in all specimens typed.

Table 1: Laboratory Confirmed Cases of Animal Rabies by Jurisdiction and Species, in Maryland, 2003

Jurisdiction	Bat	Cat	Dog	Fox	Groundhog	Raccoon	Skunk	Other	Total
Allegany					1				1
Anne Arundel	2	2		1		14	1	1	21
Baltimore		1		1	1	20			23
Baltimore City	1					1			2
Calvert				6		7			13
Caroline						8	1		9
Carroll		5		1		12			18
Cecil		1		2		13			16
Charles				1		6	1		8
Dorchester		1			1	14			16
Frederick		3		7	1	38	7	1	57
Garrett						9			9
Harford		2		3		14		2	21
Howard				2		9			11
Kent						2			2
Montgomery	3	3		6	2	36	1	1	52
Prince George's	2	2		2	3	15			24
Queen Anne's	1	1	1	1		8			12
Somerset				1		8			9
St. Mary's			1			6			7
Talbot					1	6			7
Washington	1			1	1	4			7
Wicomico				2		10	5		17
Worcester						9			9
Total Positive	10	21	2	37	11	269	16	4	371
Total Tested	563	1868	844	141	154	590	39	629	4828

Table 2: Laboratory Confirmed Cases of Animal Rabies by Species in Maryland, 2003

Species	Frequency	Percent Positive
Raccoon	269	72.5
Skunk	16	4.3
Fox	37	10.0
Bat	10	2.7
Cat	21	5.6
Groundhog	11	2.9
Ferret	1	0.3
Bovine	1	0.3
Horse	1	0.3
Canine	2	0.5
Opossum	1	0.3
Pig	1	0.3
TOTAL	371	100.0

Table 3: Number of Other Animal Species Tested for Rabies in Maryland, 2003

Other Species	Number Tested
Cattle	35
Chipmunk	18
Deer	9
Ferret	12
Gerbil	7
Goat	18
Guinea Pig	5
Hamster	8
Horse	73
Mole	7
Mouse	28
Muskrat	5

Other Species	Number Tested
Opossum	144
Ovine	9
Pig	3
Rabbit	49
Rat	30
Shrew	1
Squirrel	156
Vole	4
Woodchuck	2
Other	6
Total	629

Table 4: Laboratory Confirmed Case of Animal Rabies by Month and Species, in Maryland, 2003

Month	Bat	Cat	Cattle	Dog	Fox	Opossum	Raccoon	Groundhog	Horse	Pig	Ferret	Skunk	Total
Jan					3		24					1	28
Feb		2			1		18						21
Mar				1	3		34	1				2	41
Apr		3			5		29					2	39
May	1	4			6		35	3					49
Jun	2	4			8		18	2				1	35
Jul	2	2			1	1	24	2	1			1	34
Aug		2	1		4		15	1		1		3	27
Sep	1	2		1	2		14					1	21
Oct	1				2		30	2				2	37
Nov	2	2			1		17						22
Dec	1				1		11				1	3	17
TOTAL	10	21	1	2	37	1	269	11	1	1	1	16	371

Table 5: Laboratory Confirmed Rabid Animals and Animals Tested for Rabies by Jurisdiction and Species in Maryland, 2003

Jurisdiction	Bats		Cats		Dogs		Foxes		Groundhogs		Raccoons		Skunks		Other Species		TOTAL		
	Pos	Test	Pos	Test	Pos	Test	Pos	Test	Pos	Test	Pos	Test	Pos	Test	Pos	Test	Pos	Tested	% Pos
Allegany		5		43		14		1	1	2				1		5	1	71	1%
Anne Arundel	2	136	2	267		126	1	13		9	14	41	1	2	1	86	21	680	3%
Baltimore		39	1	224		145	1	5	1	13	20	65				25	23	516	4%
Baltimore City	1	77		110		90		4			1	31				8	2	320	1%
Calvert		8		29		11	6	9		3	7	17				18	13	95	14%
Caroline		3		19		4		3		2	8	8	1	1		8	9	48	19%
Carroll		12	5	97		7	1	5		13	12	28		2		6	18	170	11%
Cecil		9	1	52		17	2	6		1	13	15				8	16	108	15%
Charles		8		46		21	1	7		3	6	9	1	2		17	8	113	7%
Dorchester			1	14		4		2	1	1	14	19				12	16	52	31%
Frederick		18	3	182		54	7	17	1	24	38	88	7	12	1	99	57	494	12%
Garrett		9		8		4				1	9	21		1		8	9	52	17%
Harford		13	2	89		39	3	7		2	14	31			2	14	21	195	11%
Howard		5		58		16	2	5		13	9	22	1			16	11	136	8%
Kent		4		16		6					2	2				5	2	33	6%
Montgomery	3	126	3	226		81	6	30	2	35	36	89	1	7	1	156	52	750	7%
Prince George's	2	58	2	181		91	2	4	3	20	15	26				84	24	464	5%
Queen Anne's	1	13	1	45	1	20	1	5		3	8	11				19	12	116	10%
St. Mary's		3		16	1	11		3		1	6	9				4	7	47	19%
Somerset				15		1	1	2			8	11				3	9	32	22%
Talbot		1		21		11		3	1	2	6	11		1		1	7	51	14%
Washington	1	6		46		26	1	5	1	5	4	6				3	7	97	7%
Wicomico		9		35		40	2	7		1	10	16	5	5		15	17	128	13%
Worcester		1		29		5		1			9	13		2		9	9	60	15%
TOTAL	10	563	21	1868	2	844	37	144	11	154	269	589	16	37	5	629	371	4828	8%

Figure 1: Laboratory-Confirmed Rabid Animals in Maryland by Species, 2003 (n = 371)

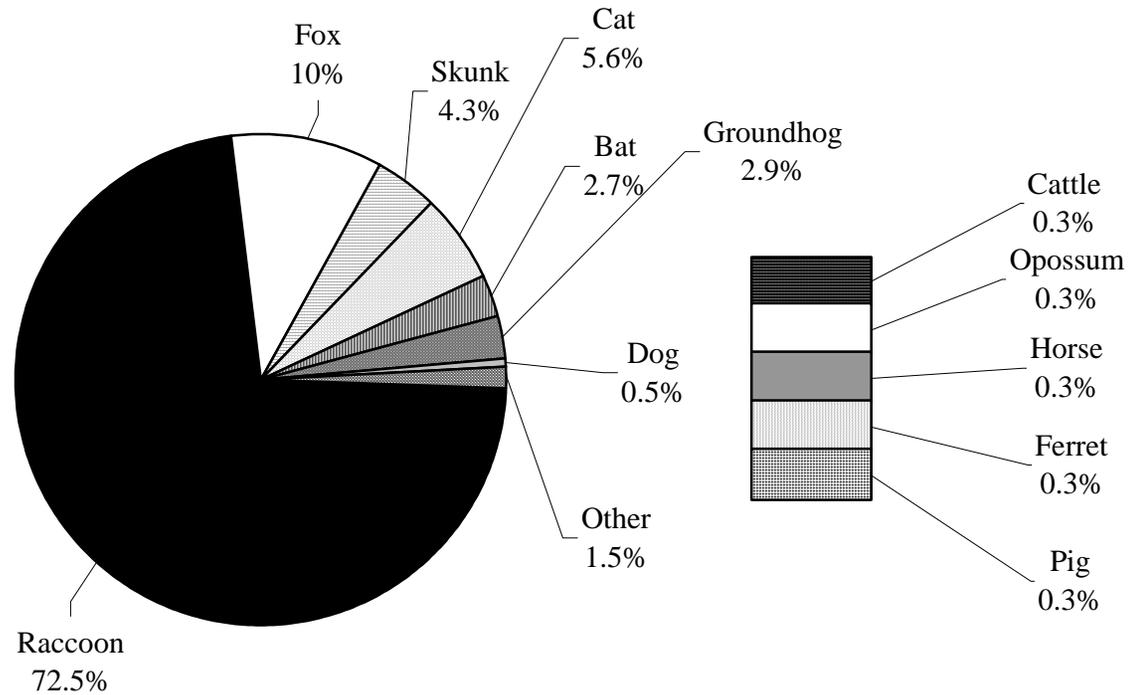


Table 6: Laboratory Confirmed Rabies by Species 1983 –2003

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
All Species	838	1101	760	683	450	338	389	468	579	553	624	520	441	638	619	439	394	413	505	396	371
Raccoons	735	964	672	586	384	255	295	382	467	413	501	412	326	512	494	346	311	313	366	272	269
Other species	103	137	88	97	66	83	94	86	112	140	123	108	115	126	125	93	83	100	139	114	102

Species	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	TOTAL
Bats	51	46	34	28	18	21	26	14	13	17	9	5	10	11	11	8	4	17	27	35	10	415
Beavers	2								1						1		1					5
Cats	8	15	11	18	2	13	16	11	15	22	21	9	17	19	23	12	19	18	23	11	21	324
Cattle	3	2	3	3	2	2		2	1			1	2	2	1	3	1	2	1	2	1	34
Chipmunk																				1		1
Deer	1	1		1		1															1	5
Dogs		1	1		4		2	1	2	2	3	2	2	1	1	2		1	1	1	2	29
Ferrets												1										2
Foxes	5	19	21	25	18	21	23	17	18	27	21	30	36	34	44	27	22	28	38	30	37	541
Goats				1		1																2
Groundhogs	5	14	7	7	2	5	4	4	10	6	6	4	6	13	6	5	7	9	5	7	11	143
Horses		1	2	1			3	1	1	1	2	1	1				2		1	3	1	21
Muskrats											1											1
Opossums		2	1										2		1			1			1	8
Otters								1			1			1								3
Pig																					1	1
Sheep							1							1								2
Skunks	28	32	6	12	20	19	19	35	51	65	59	55	39	44	37	34	26	24	42	34	16	697
Squirrels		2	2	1																		5
Rats		1																				1
Rabbits		1														2						3
Raccoons	735	964	672	586	384	255	295	382	467	413	501	412	326	512	494	346	311	313	366	272	269	9275
Weasels																	1					1
TOTAL	838	1101	760	683	450	338	389	468	579	553	624	520	441	638	619	439	394	413	505	396	371	11519

Figure 2: Laboratory-Confirmed Rabid Animals (n=371) and Total Animals Tested for Rabies (n=4828) in Maryland, 2003

