**1**



**Bureau of Infectious Disease and Laboratory Sciences**

**Rabies Annual Surveillance Summary, 2021**

**Suggested citation:**

Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences.

*Annual Rabies Surveillance Summary, 2021.*

https://www.mass.gov/lists/rabies-surveillance-data#annual-summaries-rabies-annual-surveillance-summary-2021

**Bureau of Infectious Disease and Laboratory Sciences**

Massachusetts Department of Public Health

Jamaica Plain Campus/State Public Health Laboratory  
305 South Street  
Jamaica Plain, MA 02130

**To speak to the on-call epidemiologist**

Tel: (617) 983-6800

**Questions about infectious disease reporting**

Tel: (617) 983-6801

**Requests for additional data**

https://www.mass.gov/infectious-disease-surveillance-reporting-and-control

**Acknowledgments**

This report was prepared by the following MDPH staff:

Catherine M. Brown, DVM, MSc, MPH

Brandi Hopkins, MPH

Matthew Osborne, MPH

Sarah Scotland, MPH, CIC

Massachusetts Department of Public Health

Bureau of Infectious Disease and Laboratory Sciences

*2021 Rabies Annual Surveillance Summary*

Introduction

Rabies is a serious viral disease that affects the brain and spinal cord of mammals. Rabies is usually a disease of animals, but it can spread from an infected animal to a person. The virus is transmitted via direct contact with saliva (most commonly through a bite or scratch but can also enter broken skin or mucous membranes in the eyes, nose, or mouth) or brain/nervous system tissue from an infected animal. In people, the disease can be prevented by getting appropriately vaccinated after an exposure; otherwise, the disease is fatal. The animals that most commonly carry rabies in Massachusetts are raccoons, skunks, and bats.

All animal bites or other direct exposure from wildlife to a person should be assessed for risk of potential rabies transmission. Animal bites by a domestic animal (dog, cat, ferret, or livestock) should be reported to the Animal Inspector of the city or town where the bite occurred. Animal bites by wildlife should be reported to the 24/7 Epidemiology Line (617) 983-6800 for risk assessment and coordination of the animal for rabies testing at the Massachusetts State Public Health Laboratory (MASPHL). MDPH uses this [table](https://www.mass.gov/doc/species-considerations-for-rabies-testing/download) in evaluating risk of rabies transmission by species. Additional resources are available at [www.mass.gov/rabies](http://www.mass.gov/rabies).

Prevention

The public should be aware of several important steps in rabies prevention: 1) residents should not feed or interact with feral cats or other wild animals; 2) domestic animals with wounds of unknown origin must be treated as possibly having been exposed to rabies; and 3) even domestic animals that remain primarily indoors should be vaccinated against rabies. If a resident believes they have been exposed to a wild animal, please contact your local Animal Control Officer or MDPH at (617) 983-6800.

2021 Rabies Data

The following summarizes data collected on animal specimens from Massachusetts sent to the MASPHL for rabies testing in 2021. Data are current as of April 22, 2022, and subject to change. These data represent only animals that are submitted for testing. Previous annual reports are available on the MDPH website at [www.mass.gov/rabies](http://www.mass.gov/rabies).

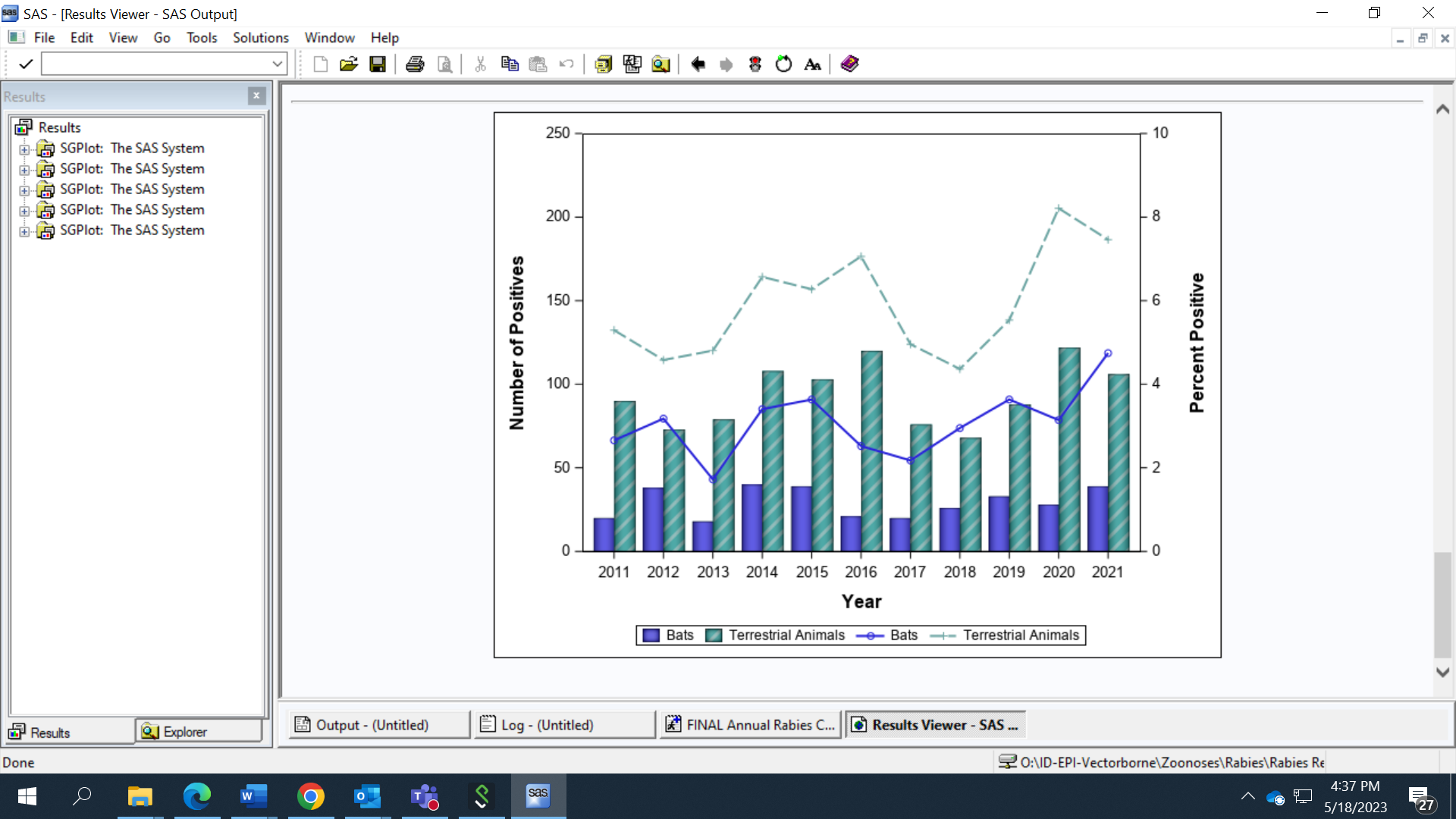
# Number of Submissions and Positive Results by Year

The number and percentage of terrestrial animals that tested positive in 2021 was lower than that of the previous year (see **Table 1 and Figure 1**). The number of bats that were submitted for rabies testing was slightly lower in 2021, while the percentage of bats that tested positive in 2021 was higher than that of the previous year.

## Table 1. Number of Animals Positive for Rabies, Number of Animals Submitted, and % Positive, 2021

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Bats Submitted** | **Positive Bats** | **% Positive Bats** | **Terrestrial Animals Submitted** | **Positive Terrestrial Animals** | **% Positive Terrestrial Animals** |
| **2011** | 753 | 20 | 2.7 | 1,700 | 90 | 5.3 |
| **2012** | 1,196 | 38 | 3.2 | 1,594 | 73 | 4.6 |
| **2013** | 1,045 | 18 | 1.7 | 1,644 | 79 | 4.8 |
| **2014** | 1,175 | 40 | 3.4 | 1,644 | 108 | 6.6 |
| **2015** | 1,073 | 39 | 3.6 | 1,642 | 103 | 6.3 |
| **2016** | 833 | 21 | 2.5 | 1,700 | 120 | 7.1 |
| **2017** | 919 | 20 | 2.2 | 1,533 | 76 | 5.0 |
| **2018** | 881 | 26 | 3.0 | 1,558 | 68 | 4.4 |
| **2019** | 908 | 33 | 3.6 | 1,590 | 88 | 5.5 |
| **2020** | 891 | 28 | 3.1 | 1,486 | 122 | 8.2 |
| **2021** | 822 | 39 | 4.7 | 1,421 | 106 | 7.5 |
| **Total** | 10,496 | 322 | 3.1 | 17,512 | 1,033 | 5.9 |

## Figure 1. Number of Animals Positive for Rabies and Percent Positive by Year: Massachusetts, 2011-2021



# Number of Submissions and Positive Results by Species

Raccoons, bats, skunks, foxes, woodchucks and cats accounted for the majority of rabies positive animals in Massachusetts in 2021.

## Table 2. Number of Animals Positive for Rabies/Animals Submitted (%), 2021

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2021**  **Positives** | **2021**  **Submitted** | **2021**  **% Positive** |
| **BAT** | 39 | 822 | 4.7 |
| **CAT** | 2 | 462 | 0.4 |
| **COYOTE** | 0 | 3 | 0.0 |
| **DOG** | 0 | 460 | 0.0 |
| **FOX** | 6 | 34 | 17.6 |
| **OTHER\*** | 0 | 93 | 0.0 |
| **RACCOON** | 62 | 169 | 36.7 |
| **SKUNK** | 33 | 107 | 30.8 |
| **WOODCHUCK** | 3 | 93 | 3.2 |

\*includes alpacas, bears, chipmunks, goats, horses, mice, muskrats, opossums, pigs, rabbits, rats, squirrels, deer, donkeys, fishers, otters, and weasels.

# Submissions and Positive Results by County

In 2021, all counties in Massachusetts submitted at least one animal for rabies testing, and all counties except Nantucket had at least one animal that tested

positive (see Table 3). Middlesex, Worcester, Norfolk, and Essex counties submitted the highest number of animals (n=475, n=345, n=285,

n=251 respectively). Middlesex, Worcester, Norfolk, and Essex had the highest number of animals that tested positive (n=33, n=27, n=21, n=14).

## Table 3. Rabies Testing Data by County- Number of Animals Positive for Rabies/Number of Animals Submitted (%) 2021

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Q1 Positives** | **Q1 Submitted** | **Q1**  **%** | **Q2 Positives** | **Q2 Submitted** | **Q2**  **%** | **Q3 Positives** | **Q3 Submitted** | **Q3**  **%** | **Q4 Positives** | **Q4 Submitted** | **Q4**  **%** | **Total Positives** | **Total Submitted** | **Total**  **%** |
| **BARNSTABLE** | 0 | 11 | 0.0 | 1 | 24 | 4.2 | 0 | 50 | 0.0 | 0 | 12 | 0.0 | 1 | 97 | 1.0 |
| **BERKSHIRE** | 2 | 10 | 20.0 | 1 | 11 | 9.1 | 4 | 24 | 16.7 | 0 | 5 | 0.0 | 7 | 50 | 14.0 |
| **BRISTOL** | 0 | 24 | 0.0 | 2 | 46 | 4.3 | 5 | 82 | 6.1 | 0 | 30 | 0.0 | 7 | 182 | 3.8 |
| **DUKES** | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 33.3 | 0 | 0 | 0.0 | 1 | 3 | 33.3 |
| **ESSEX** | 3 | 36 | 8.3 | 5 | 74 | 6.8 | 4 | 105 | 3.8 | 2 | 36 | 5.6 | 14 | 251 | 5.6 |
| **FRANKLIN** | 0 | 7 | 0.0 | 1 | 9 | 11.1 | 3 | 19 | 15.8 | 0 | 1 | 0.0 | 4 | 36 | 11.1 |
| **HAMPDEN** | 2 | 21 | 9.5 | 1 | 18 | 5.6 | 2 | 43 | 4.7 | 4 | 22 | 18.2 | 9 | 104 | 8.7 |
| **HAMPSHIRE** | 2 | 14 | 14.3 | 1 | 17 | 5.9 | 3 | 36 | 8.3 | 0 | 8 | 0.0 | 6 | 75 | 8.0 |
| **MIDDLESEX** | 4 | 68 | 5.9 | 13 | 133 | 9.8 | 10 | 184 | 5.4 | 6 | 90 | 6.7 | 33 | 475 | 6.9 |
| **NANTUCKET** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0.0 | 0 | 1 | 0.0 |
| **NORFOLK** | 3 | 41 | 7.3 | 8 | 80 | 10.0 | 5 | 121 | 4.1 | 5 | 43 | 11.6 | 21 | 285 | 7.4 |
| **PLYMOUTH** | 1 | 34 | 2.9 | 7 | 59 | 11.9 | 1 | 53 | 1.9 | 2 | 23 | 8.7 | 11 | 169 | 6.5 |
| **SUFFOLK** | 1 | 30 | 3.3 | 0 | 39 | 0.0 | 2 | 65 | 3.1 | 1 | 36 | 2.8 | 4 | 170 | 2.4 |
| **WORCESTER** | 4 | 54 | 7.4 | 8 | 113 | 7.1 | 9 | 129 | 7.0 | 6 | 49 | 12.2 | 27 | 345 | 7.8 |

## Figure 2. Animal Submissions and Positive for Rabies, 2021

