

Animal bites at Louisville, USA (1985-2017)

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RABIES

Rabies is a viral disease transmitted mainly by the bite or scratch of a rabid animal. It has the highest mortality rate (> 99%) from any disease and causes almost 60,000 human deaths every year.

The global economic costs of rabies are estimated at \$ 8.6 billion annually, related to premature death, treatment costs and livestock losses.

The most effective way to reduce the burden of the disease is dog vaccination. This prevention method also represents less than 1.5% of the total economic burden related to the disease.

BITE REGISTERS

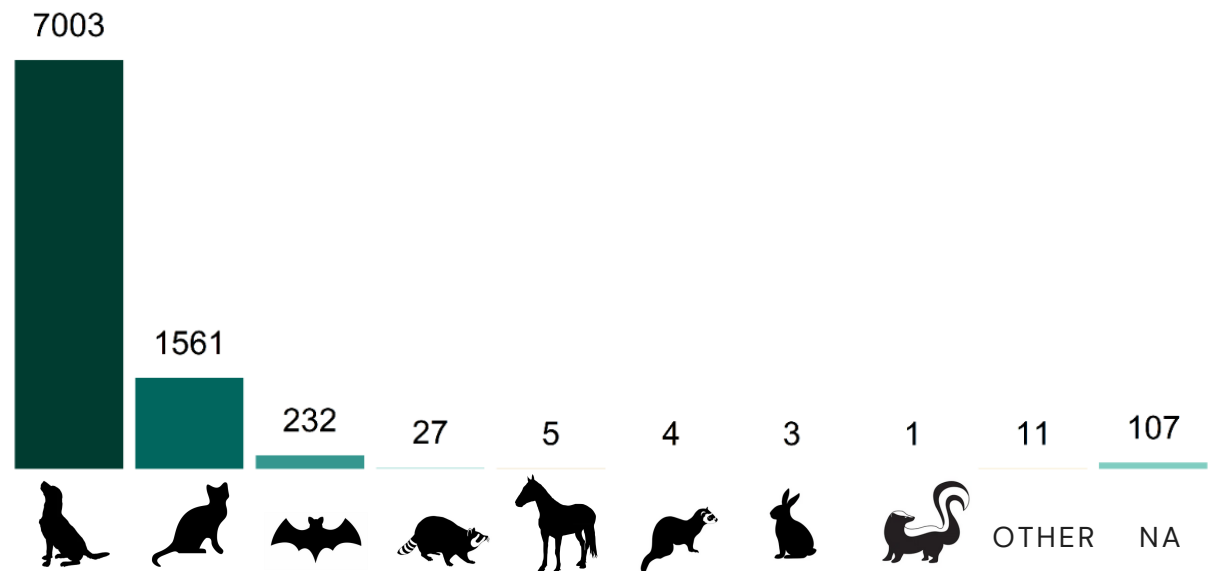
Each animal bite incident must be officially reported to the Louisville Metro Department of Public Health and Wellness. These records are essential for the correct treatment of any bitten citizen, as well as to prevent outbreaks of rabies and plan vaccination actions.

BITE INFORMATION IN LOUISVILLE

From 1985 to 2017, 8,954 incidents related to animal bites were recorded in Louisville, KY. In this report, I highlight information about species, time, season and location of incidents. I also present some recommendations and complementary material on statistical and spatial analysis.

Describing the data

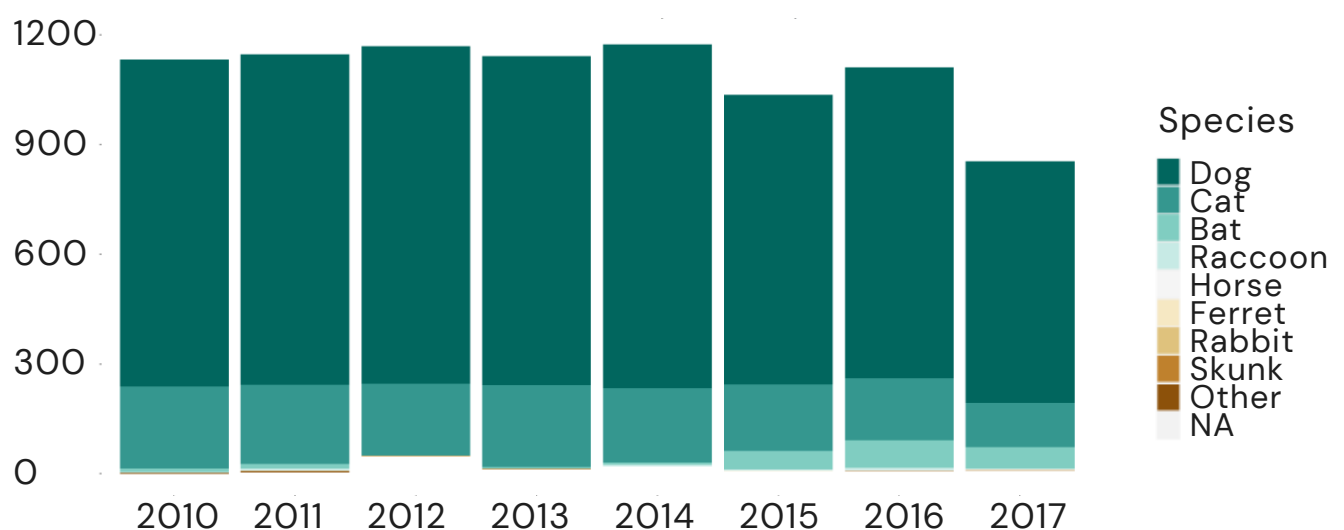
REGISTERED BITES BY SPECIES



The highest number of bite incidents were related to **dogs**, **cats**, and **bats**. In 11 cases the species were identified as "other", and in 107 cases the species were not registered.

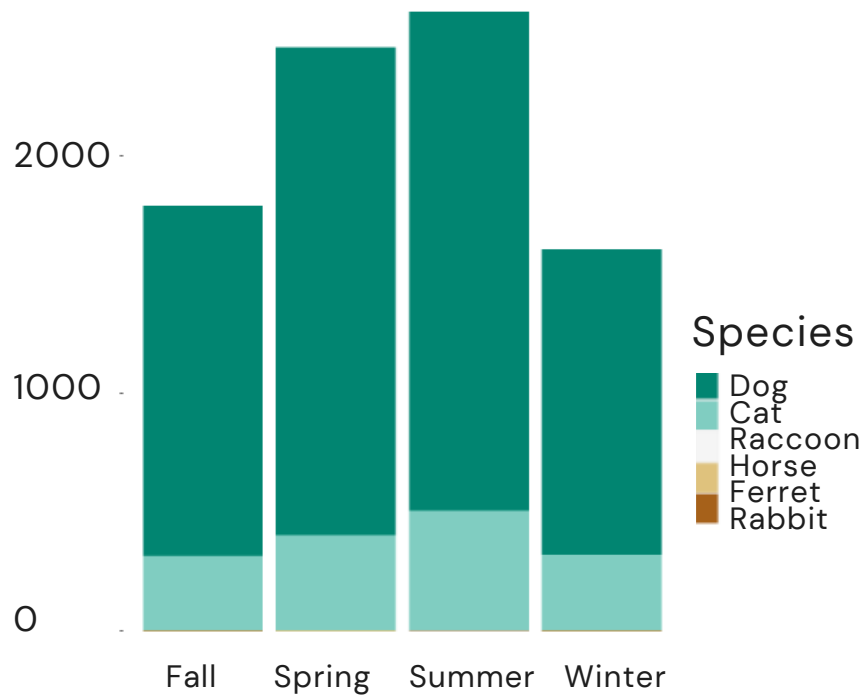
REGISTERED BITES PER YEAR

The same pattern can be observed over the years, as shown for years with more than 100 bite records (2010–2017).



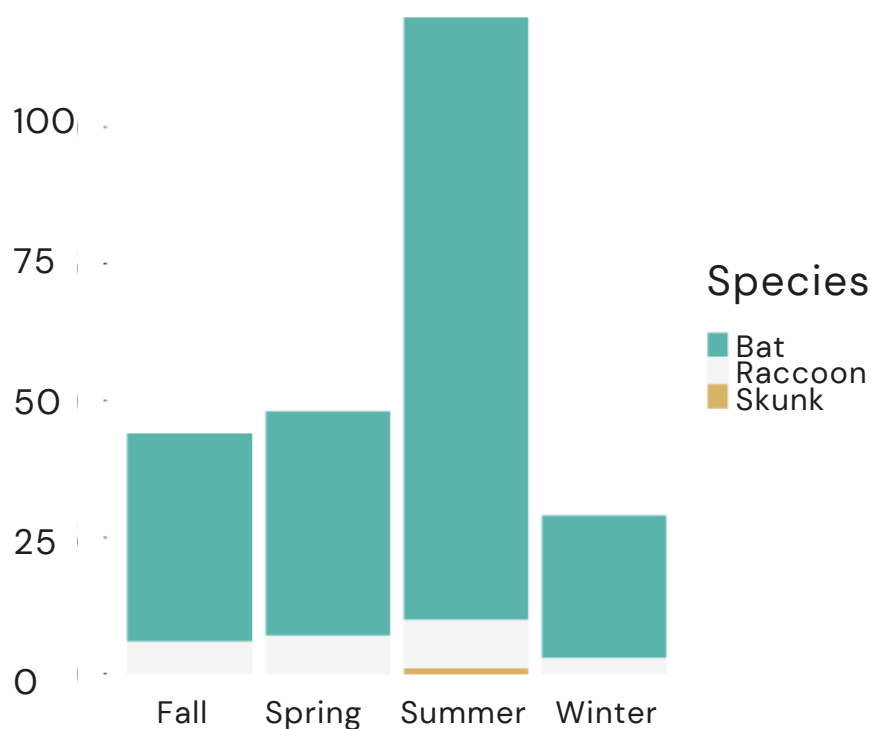
Bites incidents per season

BITES PER DOMESTIC SPECIES



Although it is possible to identify an increase in the number of bites per domestic species in spring and summer, there is no statistical evidence of a difference between the seasons ($p=0.85$)

BITES PER WILD SPECIES



The same pattern was found in wild animals. There is no statistical evidence of a difference between the seasons ($p=0.9$), but it is possible to identify an increase in incidents in the summer.

Rabies at Louisville

Species	Rabies test	Count
Bat	Negative	158
Bat	Positive	3
Bat	Unknown	17
Cat	Negative	64
Cat	Unknown	239
Dog	Negative	58
Dog	Positive	1
Dog	Unknown	979
Raccoon	Negative	9
Raccoon	Unknown	2
Other	Negative	5
Other	Unknown	3

CONFIRMED CASES

17% of the incidents were rabies tested

4 positive results

Rate of
positive
cases



1.69%

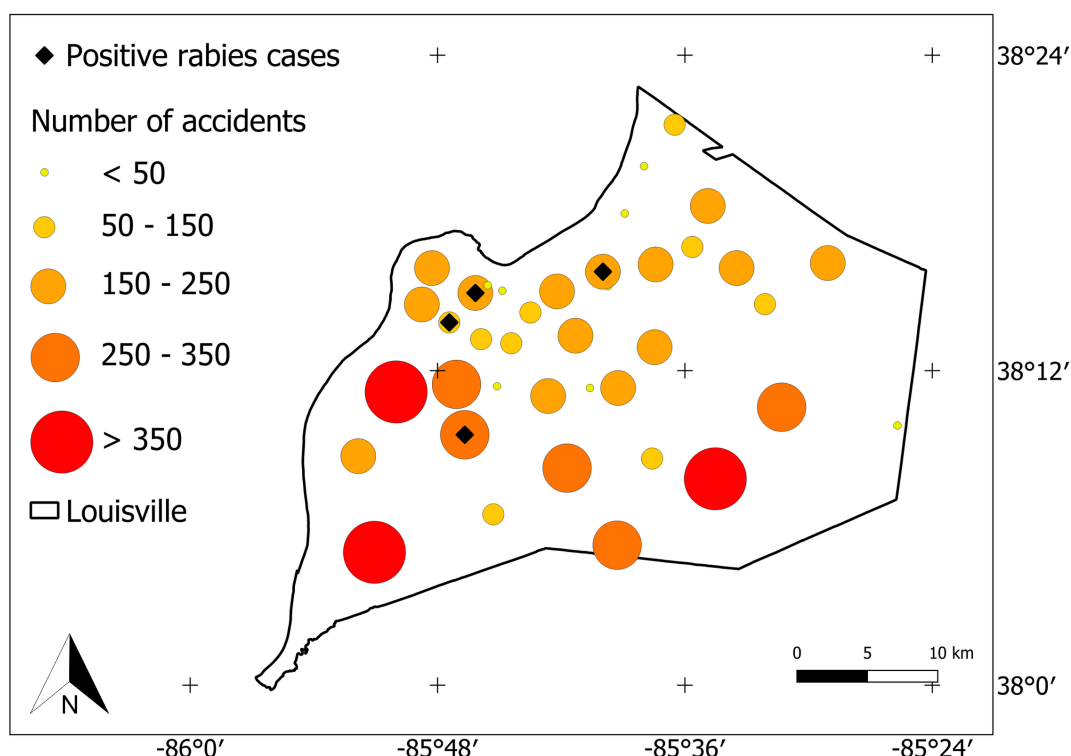


1.86%

LOCATION OF INCIDENTS

It is possible to identify that some regions of Louisville have a higher occurrence of incidents with animal bites, mainly in the borders of the city.

All positive cases of rabies were recorded in urbanized areas.

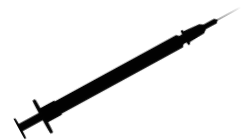


Insights and recommendations



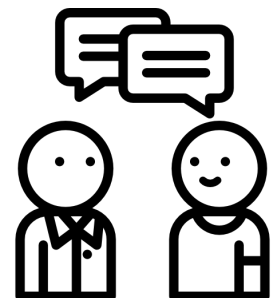
THE MAIN INCIDENTS OF ANIMAL BITES WERE CAUSED BY **DOGS**. THEREFORE, IT IS IMPORTANT TO PROMOTE **AWARENESS CAMPAIGNS** IN RELATION TO **RABIES VACCINATION** AND **LEASH** WHILST OUT WALKING.

VACCINATION CAMPAIGNS ARE NECESSARY AT **ANY TIME IN THE YEAR**, AS EVIDENCED BY THE REGISTERED BITE CASES.



THERE IS AN **INCREASE IN INCIDENTS** WITH WILDLIFE DURING THE **SUMMER**. HENCE, IT IS RECOMMENDED TO MAKE THE POPULATION AWARE OF THE IMPORTANCE OF **NOT TOUCHING WILD ANIMALS** WHILE ENJOYING THE OUTDOORS.

THE REGIONS WITH A **HIGHER OCCURRENCE** OF ANIMAL BITES INCIDENTS SHOULD RECEIVE **EXTRA ATTENTION** REGARDING **AWARENESS CAMPAIGNS**.



Insights and recommendations

ALTHOUGH THE RATES OF **POSITIVE RABIES CASES** HAVE BEEN LOW, IT IS IMPORTANT TO MAINTAIN THE **PERCEPTION OF THE POSSIBLE SEVERITY** OF THIS DISEASE. THEREFORE, FUTURE RESEARCHES ON ANIMAL BITES AND THE INCIDENCE OF RABIES ARE RECOMMENDED.

SOME TOPICS THAT SHOULD RECEIVE **GREATER ATTENTION** ARE:



- THE **ENVIRONMENTAL ASPECTS** OF THE AREAS WITH HIGHEST WILDLIFE INCIDENTS (GREEN AREAS, DISTRIBUTION OF SPECIES, ETC.)
- THE **POPULATION'S PERCEPTION** OVER RABIES-RELATED TOPICS, SUCH AS PREVENTION AND PROPHYLAXIS.

REFERENCES:

- ANIMAL BITES DATA: LOUISVILLE METRO DEPARTMENT OF PUBLIC HEALTH - AVAILABLE ON [KAGGLE](#)
- SPATIAL INFORMATION: [IGISMAP](#)
- ZIPCODE INFORMATION: [GEOCODE](#)