

N POSTER



# Temporal assessment and spatial distribution of rabies in the northwest region of São Paulo

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## INTRODUCTION

Rabies is caused by a neurotropic RNA virus that affects most mammals with high lethality. In Brazil, it is considered endemic and has a heterogeneous distribution across regions. The present study aimed to perform a temporal assessment and spatial distribution in relation to the volume of samples analyzed, positivity, origin, and provenance



Fonte: VET Profissional

## METHODS

The data collection was carried out through a database provided in Excel by the laboratory at São Paulo State University, containing information on samples analyzed from various cities in the northwest region of the State of São Paulo from 2016 to 2023. These samples were from domestic animals and predominantly from wild animals. A geoprocessing of the cities with the most samples over the 8-year period (2016-2023) was also performed. This geoprocessing was done using QGIS 3.34 Prizren software, utilizing the geographic coordinates (latitude and longitude) of the cities to create point coordinates, facilitating the geolocation of the cities in the state of São Paulo with the most samples for analysis. With the geolocation of these cities and the data on the number of samples from wild and domestic animals, a heat map was created, showing the areas with the highest occurrence of suspected rabies cases.

WILD ANIMALS											
CITY	LATITUDE	LONGITUDE	YEAR 2016	YEAR 2017	YEAR 2018	YEAR 2019	YEAR 2020	YEAR 2021	YEAR 2022	YEAR 2023	POSITIVES RESULTS
Araçatuba	-21.2089	-50.4328	82	58	146	121	63	41	81	116	6
Ilha Solteira	-20.4328	-51.3425	20	0	31	20	3	0	0	7	0
Brejo Alegre	-21.1651	-50.1861	1	0	0	0	0	0	0	0	0
Penápolis	-21.4197	-50.0775	51	25	49	41	10	3	14	20	0
Castilho	-20.8689	-51.4884	9	0	2	0	0	0	1	0	0
Valparaíso	-21.2278	-50.8683	5	2	3	2	0	5	2	9	1
Bitac	-21.4033	-50.4706	0	0	0	0	0	0	0	0	0
Mirandópolis	-21.1314	-51.1033	0	0	2	1	1	3	1	3	0
Birigui	-21.2886	-50.3400	16	15	27	26	11	40	12	11	1
Andradina	-20.8961	-51.3794	7	14	8	11	3	4	2	5	0
Guararapes	-21.2608	-50.6428	1	2	11	8	0	0	5	3	0
Pereira Barreto	-20.6383	-51.1092	8	3	5	7	1	0	5	9	0
Buritama	-21.0661	-50.1475	0	0	1	1	0	0	0	0	0
Sud Menucci	-20.6872	-50.9238	8	0	0	0	1	0	2	1	0
Nova Independência	-21.1026	-51.4905	2	1	0	0	0	0	1	1	0

DOMESTIC ANIMALS											
CITY	LATITUDE	LONGITUDE	YEAR 2016	YEAR 2017	YEAR 2018	YEAR 2019	YEAR 2020	YEAR 2021	YEAR 2022	YEAR 2023	POSITIVES RESULTS
Araçatuba	-21.2089	-50.4328	15	10	16	34	4	6	4	10	1
Ilha Solteira	-20.4328	-51.3425	2	0	6	0	0	0	0	0	0
Brejo Alegre	-21.1651	-50.1861	3	2	6	1	0	0	0	0	0
Penápolis	-21.4197	-50.0775	0	5	16	13	2	2	1	0	0
Castilho	-20.8689	-51.4884	2	0	1	1	0	0	0	0	0
Valparaíso	-21.2278	-50.8683	0	1	2	4	0	0	0	3	0
Bitac	-21.4033	-50.4706	1	0	1	0	0	0	0	0	0
Mirandópolis	-21.1314	-51.1033	1	1	13	17	0	0	0	0	0
Birigui	-21.2886	-50.3400	1	3	1	4	0	0	0	1	0
Andradina	-20.8961	-51.3794	16	11	22	16	7	4	15	19	0
Guararapes	-21.2608	-50.6428	3	1	1	2	0	0	1	0	0
Pereira Barreto	-20.6383	-51.1092	16	2	16	8	1	3	9	6	0
Buritama	-21.0661	-50.1475	0	0	2	1	1	0	0	0	0
Sud Menucci	-20.6872	-50.9238	6	0	1	2	1	0	0	10	0
Nova Independência	-21.1026	-51.4905	1	0	1	2	1	0	1	1	0

## RESULTS

Between 2016 and 2023, 1,839 animal samples were analyzed in the northwest region of São Paulo, with 1,375 (74,7%) from wild animals and 463 (25,3%) from domestic animals, resulting in 11 positive cases of rabies (9 bats and 2 cattle). In 2018, 408 samples were analyzed, with 2 positives (1 bat in Araçatuba/SP and 1 in Birigui/SP). In 2019, out of 354 samples, 1 was positive (bat in Araçatuba). In 2020, out of 116 samples, 4 were positive (3 bats in Araçatuba and 1 in Pindorama/SP). In 2023, out of 240 samples, 1 was positive (bat in Araçatuba). In 2022, out of 168 cases, 2 were positive in domestic animals (1 cattle in Araçatuba and 1 cattle in Lucélia/SP). There were no positive results in 2016, 2017, and 2021.

YEAR	TOTAL SAMPLES	DOMESTIC ANIMALS	WILD ANIMALS	POSITIVE RESULTS
2016	283	75	208	0
2017	159	36	123	0
2018	408	114	294	2
2019	354	113	241	1
2020	116	21	95	4
2021	111	16	95	1
2022	168	38	130	2
2023	240	50	189	1
<b>TOTAL</b>	<b>1839</b>	<b>463</b>	<b>1375</b>	<b>11</b>

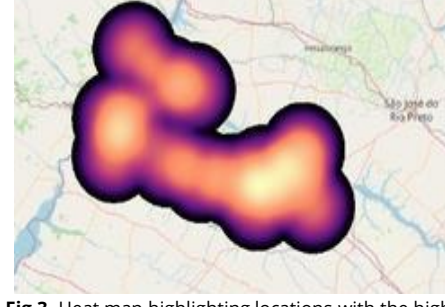
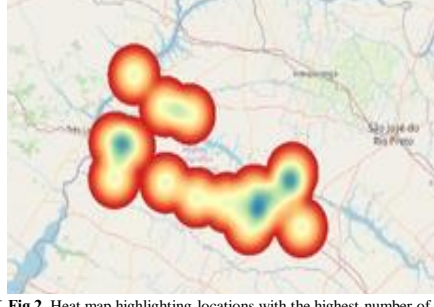
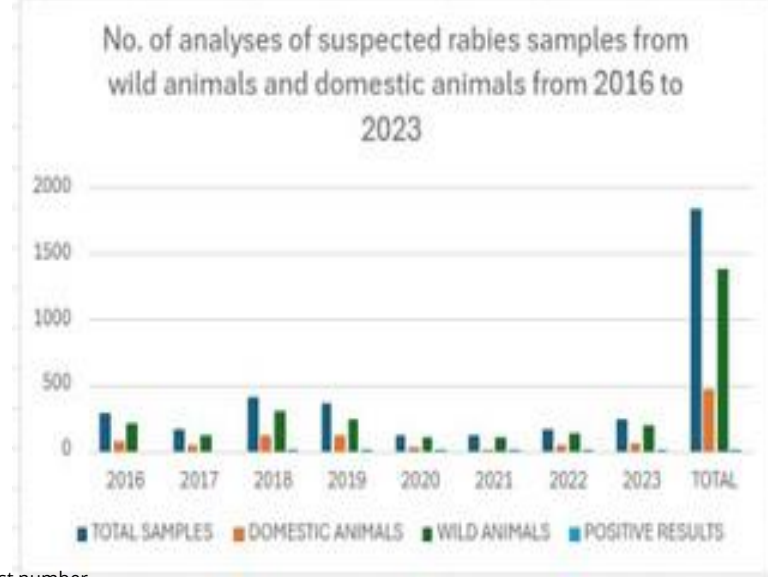


Fig 1. Coordinates of the cities with the highest number of suspected rabies samples 2016-23. Fig 2. Heat map highlighting locations with the highest number of suspected rabies samples from domestic animals between 2016-23. Fig 3. Heat map highlighting locations with the highest number of suspected rabies samples from wild animals.

## CONCLUSION

The results warn about the need to monitor the airborne cycle of disease transmission, the presence of virus circulation among non-hematophagous bats, and the importance of rabies diagnostic services in the northwest region of the state of São Paulo. In this context the development of prophylactic measures related to rabies control is of fundamental importance to one health.

References: Maps created using QGIS software. Available at: <https://qgis.org> Image illustrating the different transmission cycles zoonotic diseases. Source: VET Profissional.