

Georgia Arboviral State Report, 2023

GMCA Annual Meeting

Rosmarie Kelly

18 Oct 23

Mosquito Species, 2023

Species	Count
<i>Ae. aegypti</i>	8
<i>Ae. albopictus</i>	1666
<i>Ae. albopictus (male)</i>	8
<i>Ae. vexans</i>	641
<i>Aedes/Ochlerotatus spp.</i>	41
<i>An. barberi</i>	1
<i>An. crucians</i>	500
<i>An. crucians (male)</i>	2
<i>An. punctipennis</i>	157
<i>An. quadrimaculatus</i>	49
<i>An. walkeri</i>	1
<i>Anopheles spp.</i>	6
<i>Cq. perturbans</i>	5157
<i>Cs. melanura</i>	829
<i>Culex spp.</i>	3128
<i>Culex spp. (male)</i>	129
<i>Culiseta spp.</i>	25
<i>Cx. coronator</i>	52
<i>Cx. erraticus</i>	2524
<i>Cx. nigripalpus</i>	10259
<i>Cx. quinquefasciatus</i>	129400
<i>Cx. restuans</i>	1370
<i>Cx. salinarius</i>	1512
<i>Cx. territans</i>	28

Species	Count
<i>Ma. titillans</i>	237
<i>Mansonia spp.</i>	26
<i>Oc. atlanticus</i>	305
<i>Oc. canadensis</i>	40
<i>Oc. dupreei</i>	16
<i>Oc. fulvus pallens</i>	9
<i>Oc. infirmatus</i>	145
<i>Oc. japonicus</i>	116
<i>Oc. sollicitans</i>	49
<i>Oc. taeniorhynchus</i>	290
<i>Oc. triseriatus</i>	71
<i>Oc. triseriatus (male)</i>	2
<i>Oc. trivittatus</i>	1
<i>Or. signifera</i>	3
<i>Ps. ciliata</i>	39
<i>Ps. columbiae</i>	88
<i>Ps. ferox</i>	447
<i>Ps. horrida</i>	940
<i>Ps. howardii</i>	8
<i>Ps. howardii (male)</i>	1
<i>Psorophora spp. (male)</i>	2
<i>Tx. rutilus</i>	3
<i>unknown</i>	174
<i>Ur. sapphirina</i>	83



A total of 36 species from 10 genera have been collected.

Mosquitoes – Tested (to date)

- We continue to work with limited funding.
- Mosquitoes have been tested from seven counties; 4 counties have reported WNV+ mosquitoes.

County	vector species	# WNV+ pools
Chatham	<i>Culex spp.</i>	4
	<i>Cx. nigripalpus</i>	6
	<i>Cx. quinquefasciatus</i>	50
DeKalb	<i>Cx. quinquefasciatus</i>	27
	<i>Cx. restuans</i>	2
Fulton	<i>Cx. quinquefasciatus</i>	25
Lowndes	<i>Cx. quinquefasciatus</i>	4

Minimum Infection Rates

County	# mosquitoes submitted	# WNV+ pools	WNV MIR	# EEE+ pools	EEE MIR
Camden	5925				
Chatham	70354	60	0.96	1	0.02
Cook	40				
DeKalb	12751	29	2.44		
Fulton	4938	25	5.06		
Glynn	16160				
Lowndes	28214	4	0.25		
TOTAL	138409	109		1	

The Minimum Infection Rate or MIR = (# WNV+ Pools/Total # Mosquitoes Tested) X 1000.

- MIR of 0 - no viral activity detected in the area
- MIR of 0.1 to 3.9 - some viral activity is present, increased vigilance and testing are needed
- MIR of 4.0 or above - high level of viral activity is present, human infections are imminent (if not already present), and prompt action is required

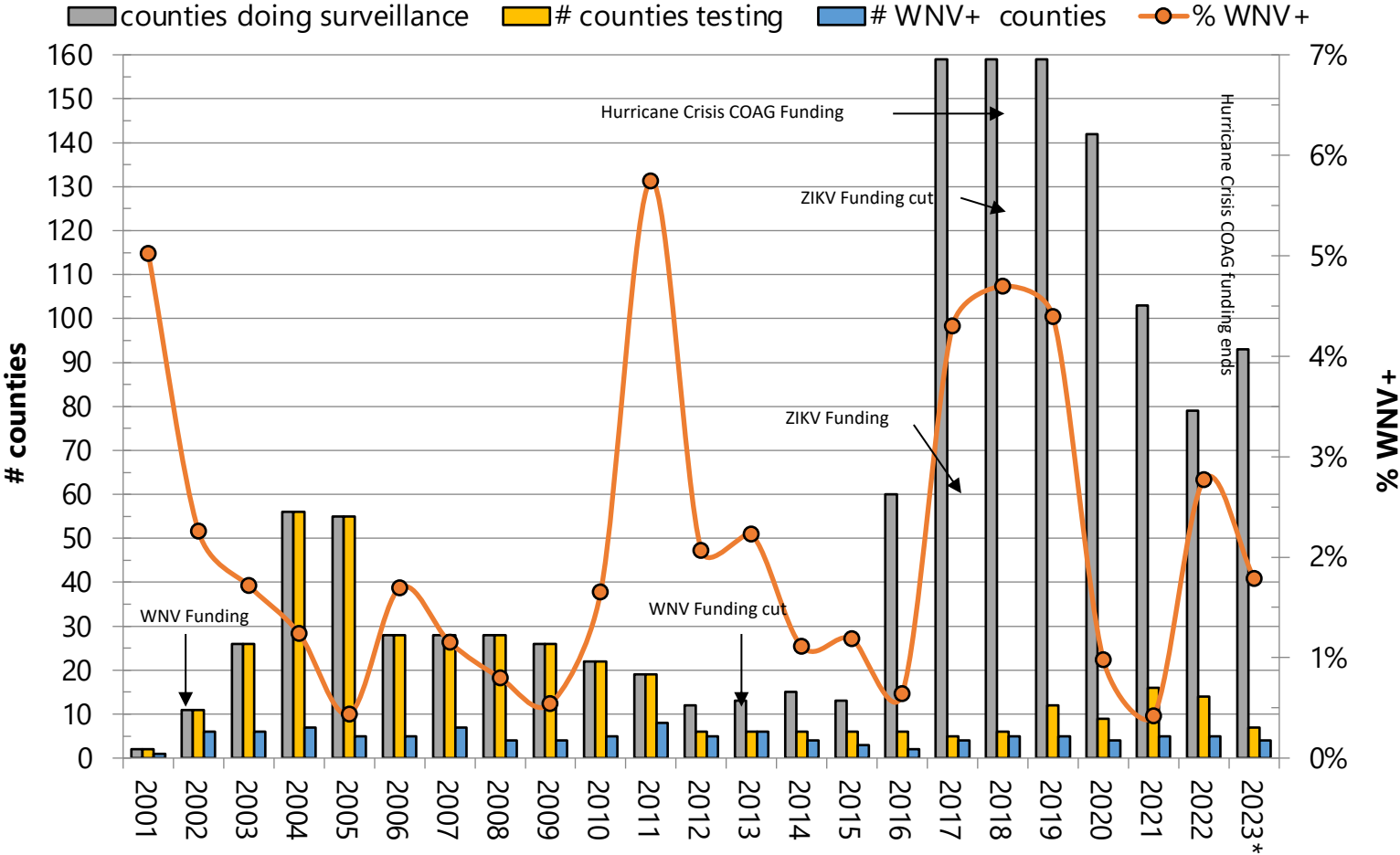
Arboviral Surveillance 2001-2023

year	WNV+ pools	EEE+ pools	counties doing surveillance	# counties testing	# WNV+ counties	total mosquito pools tested	% WNV+	Human WNV+
2001	30		2	2	1	597	5.0%	6
2002	91		11	11	6	4032	2.3%	36
2003	106	1	26	26	6	6177	1.7%	55
2004	126	2	56	56	7	10161	1.2%	23
2005	67	8	55	55	5	15248	0.4%	24
2006	81		28	28	5	4785	1.7%	11
2007	75		28	28	7	6513	1.2%	55
2008	51	1	28	28	4	6383	0.8%	12
2009	24		26	26	4	4446	0.5%	6
2010	99	3	22	22	5	5990	1.7%	14
2011	438		19	19	8	7622	5.7%	25
2012	125	3	12	6	5	6042	2.1%	117
2013	166	1	13	6	6	7453	2.2%	20
2014	56	2	15	6	4	5038	1.1%	13
2015	40		13	6	3	3366	1.2%	15
2016	36		60	6	2	5620	0.6%	13
2017	276	2	159	5	4	6419	4.3%	63
2018	310	3	159	6	5	6598	4.7%	38
2019	243		159	12	5	5532	4.4%	16
2020	59		142	9	4	6025	1.0%	12
2021	31	1	103	16	5	7357	0.4%	5
2022	100	2	79	14	5	3611	2.8%	23
2023*	118	1	93	7	4	6103	1.9%	21

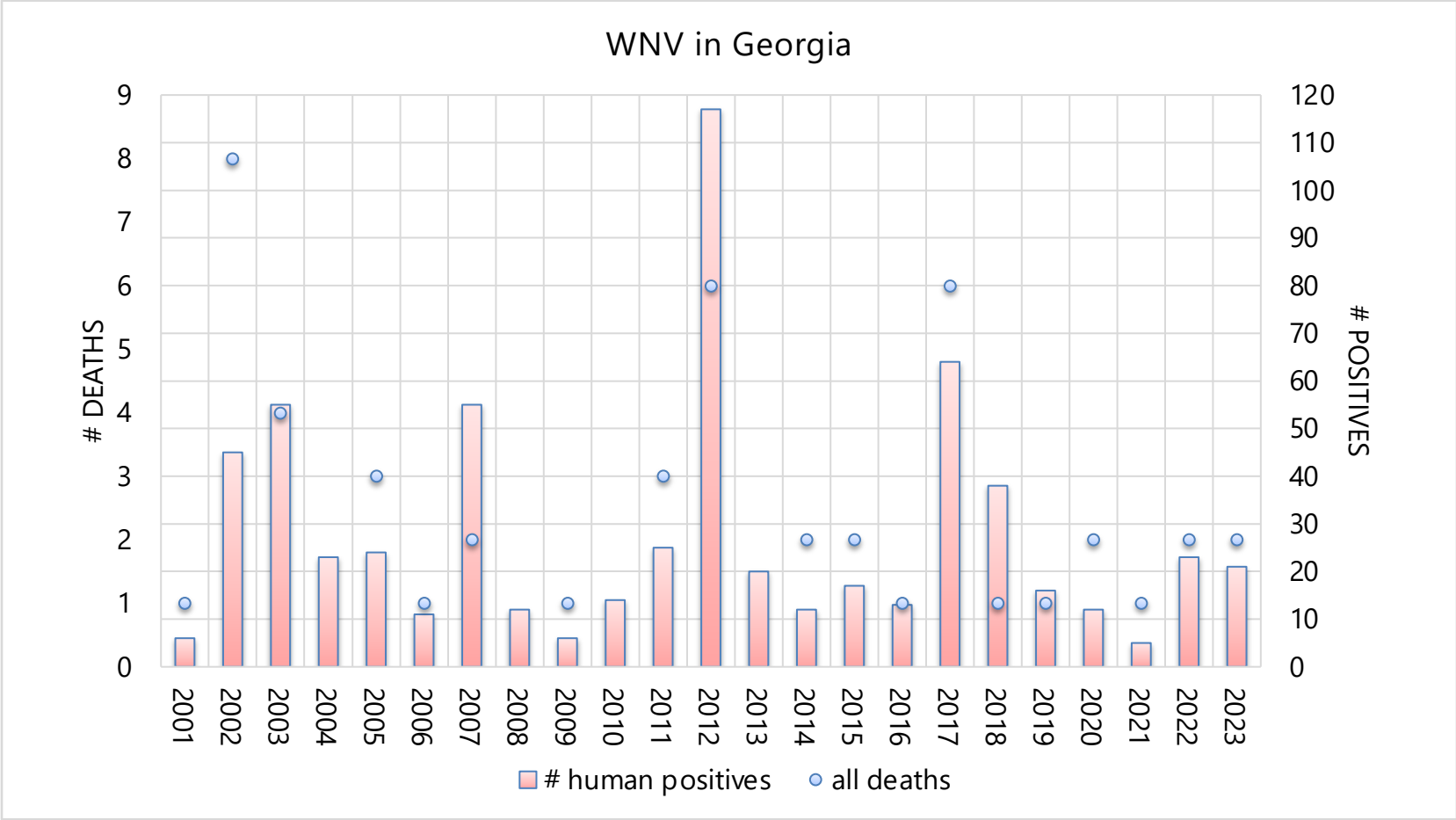
*to date

The effect of funding, 2001-2023

Georgia Mosquito Surveillance



WNV+ Humans 2001-2023



mean = 28

Arboviral Surveillance – Human Positives

District	EEE	WNV
1-1		
1-2		1
2-0		
3-(1,2,3,4,5)		10
4-0		1
5-1		
5-2		1
6-0		1
7-0		6
8-1		
8-2	1	1
9-1		
9-2		
10-0		
TOTAL	1	21

clinical	# cases	%
asymptomatic	5	24%
encephalitis/meningitis	9	43%
other neuroinvasive	5	24%
febrile illness	2	10%
unknown		0%
WNV		
Gender	# cases	%
male	16	76%
female	5	24%
unknown		0%

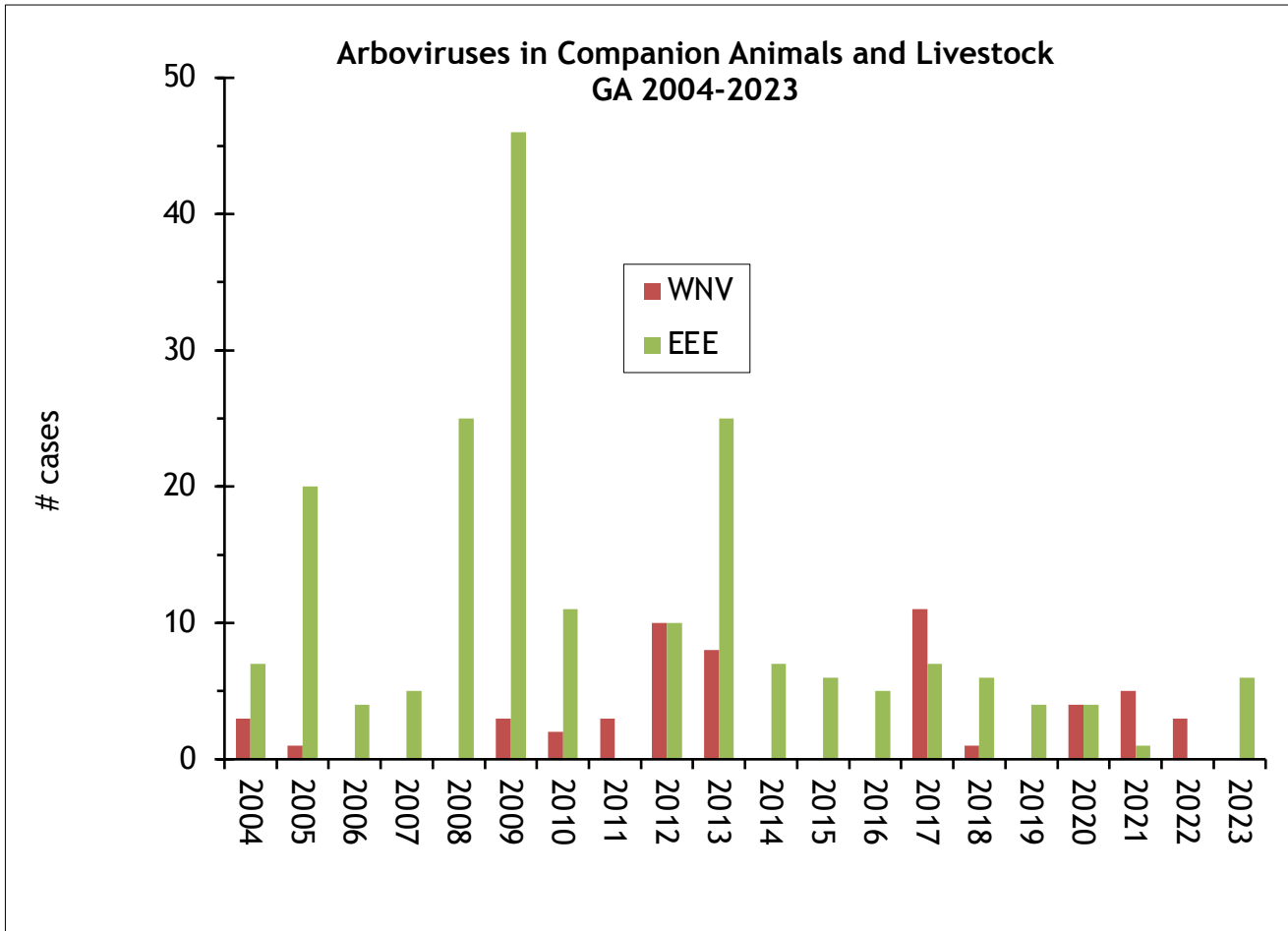
There were no positive birds reported in 2023.
There were 2 EEE+ and 1 WNV+ sentinel chicken reported in 2023.

Human WNV+, 2023
Georgia

Clinical Syndromes, 2023

Arbovirus	Month of Onset	County of Residence	Clinical Syndrome	Fatality	# positives	
EEE	September	Thomas	Other Neuroinvasive Presentation		1	
WNV	February	Clayton	Other Neuroinvasive Presentation		1	
	April	Decatur	Other Neuroinvasive Presentation		1	
	July		Cherokee	Febrile illness		1
			Houston	Asymptomatic		1
			Muscogee	Asymptomatic		1
				Encephalitis - Including Meningoencephalitis		1
	August		Cobb	Encephalitis - Including Meningoencephalitis	Yes	1
				Encephalitis - Including Meningoencephalitis		1
			DeKalb	Encephalitis - Including Meningoencephalitis		1
			Fulton	Encephalitis - Including Meningoencephalitis		4
			Muscogee	Asymptomatic		1
				Other Neuroinvasive Presentation	Yes	1
				Other Neuroinvasive Presentation		1
	Troup	Asymptomatic		1		
	September		DeKalb	Other Neuroinvasive Presentation		1
			Fulton	Febrile illness		1
			Muscogee	Asymptomatic		1
Richmond			Encephalitis - Including Meningoencephalitis		1	

Veterinary Arboviral Positives, 2023



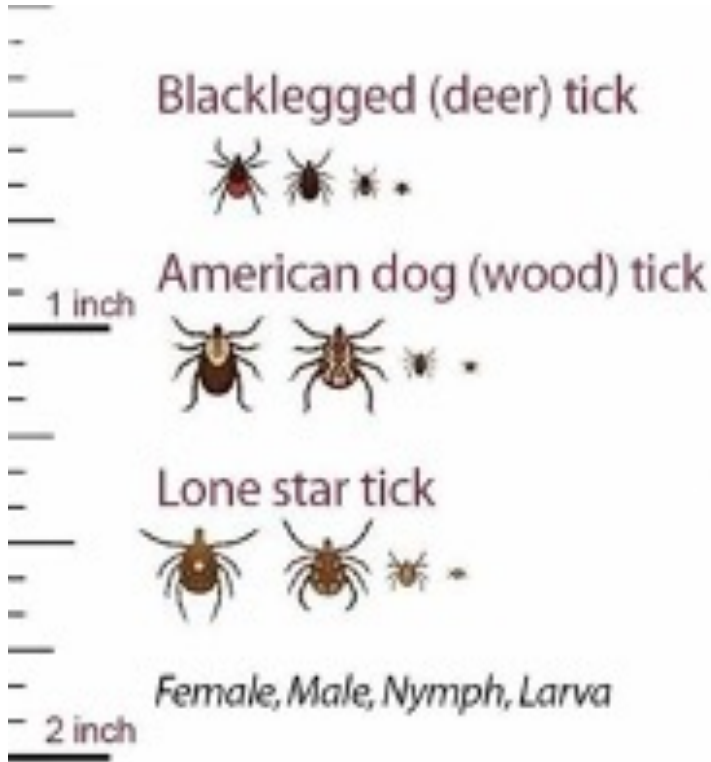
year	WNV	EEE
2001	64	
2002	175	1
2003	60	80
2004	3	7
2005	1	20
2006		4
2007		5
2008		25
2009	3	46
2010	2	11
2011	3	
2012	10	10
2013	8	25
2014		7
2015		6
2016		5
2017	11	7
2018	1	6
2019		4
2020	4	4
2021	5	1
2022	3	
2023		6

Pesticide Resistance Testing

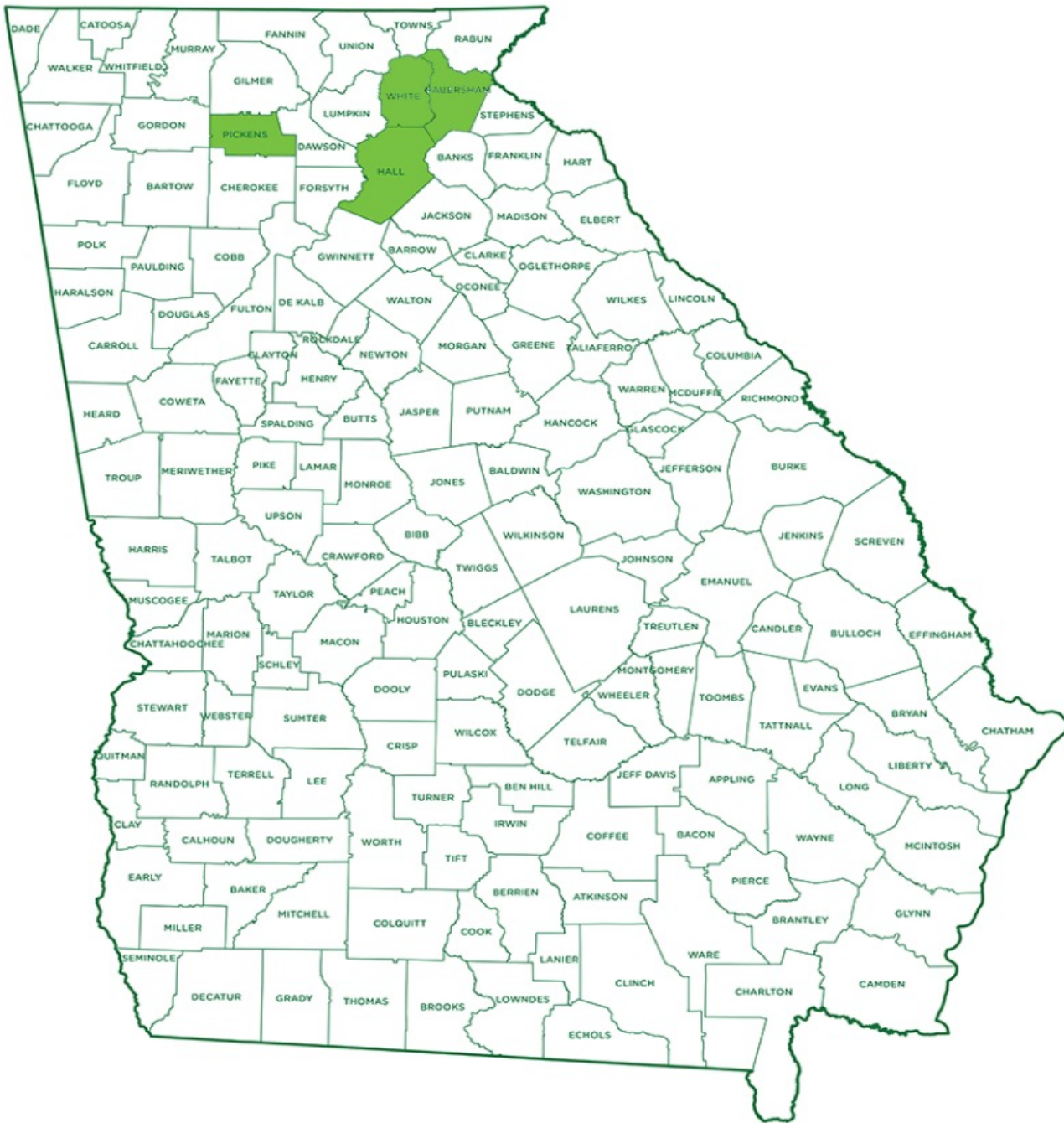
Pesticide resistance has been found to be a component of ineffective mosquito control.

- The state entomologists are tasked by the CDC, through the Hurricane Crisis CoAG grant, to conduct insecticide resistance testing in all high-risk urban regions of Georgia for the period of the grant.
 - Collaborators include:
 - Environmental Health Specialists around the state who conduct mosquito egg collections.
 - Mosquito control technicians from Chatham and Glynn counties who conduct their own resistance testing.
- The statewide pesticide resistance testing program is a major component in reducing the exposure of mosquito-borne disease risk to the public.

Common Ticks Found in Georgia



A. Lone star tick, female
B. American Dog tick, female
C. Blacklegged tick, female
D. Blacklegged tick, nymph



Tick Surveillance at Wildlife Management Areas

We also have a collaborative effort with the Georgia Department of Natural Resources (GA DNR) to collect ticks during quota hunts at the Wildlife Management Areas (WMAs).

- In 2020, we attended 9 quota hunts at 2 different WMAs to check deer brought in for tagging for ticks.
- In 2021, we attended 11 quota hunts at 5 different WMAs to check deer and bear brought in for tagging for ticks.
- In 2022, we attended 22 quota hunts at 15 different WMAs to check deer and bear brought in for tagging for ticks.



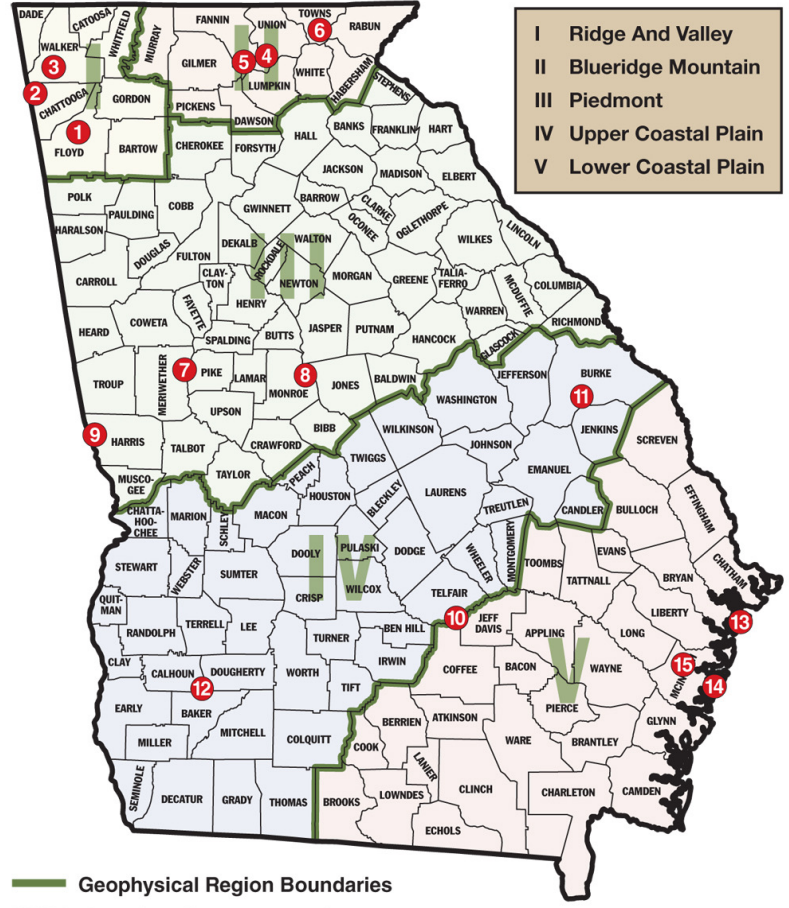
Tick Collections at WMA quota hunts

- 2020 - Cedar Creek and Clybel
- 2021 - BF Grant, Rum Creek, Oaky Woods, Clybel and Cedar Creek
- 2022 Chattahoochee/Chestatee, Lake Russell, Dawson Forest, Cooper's Creek, Blue Ridge, Lake Russell, Dawson Forest, Fort Yargo, Tugaloo State Park (SP), War Woman, Richard B Russell SP, Swallow Creek, BF Grant, Rum Creek, Oaky Woods, Clybel, and Cedar Creek
- We hope to expand our tick surveillance in 2023 to include a WMA in south Georgia.

Wildlife Management Areas (WMAs)

GEORGIA'S TOP WMAs

1 Best Bet WMAs For Whitetails*

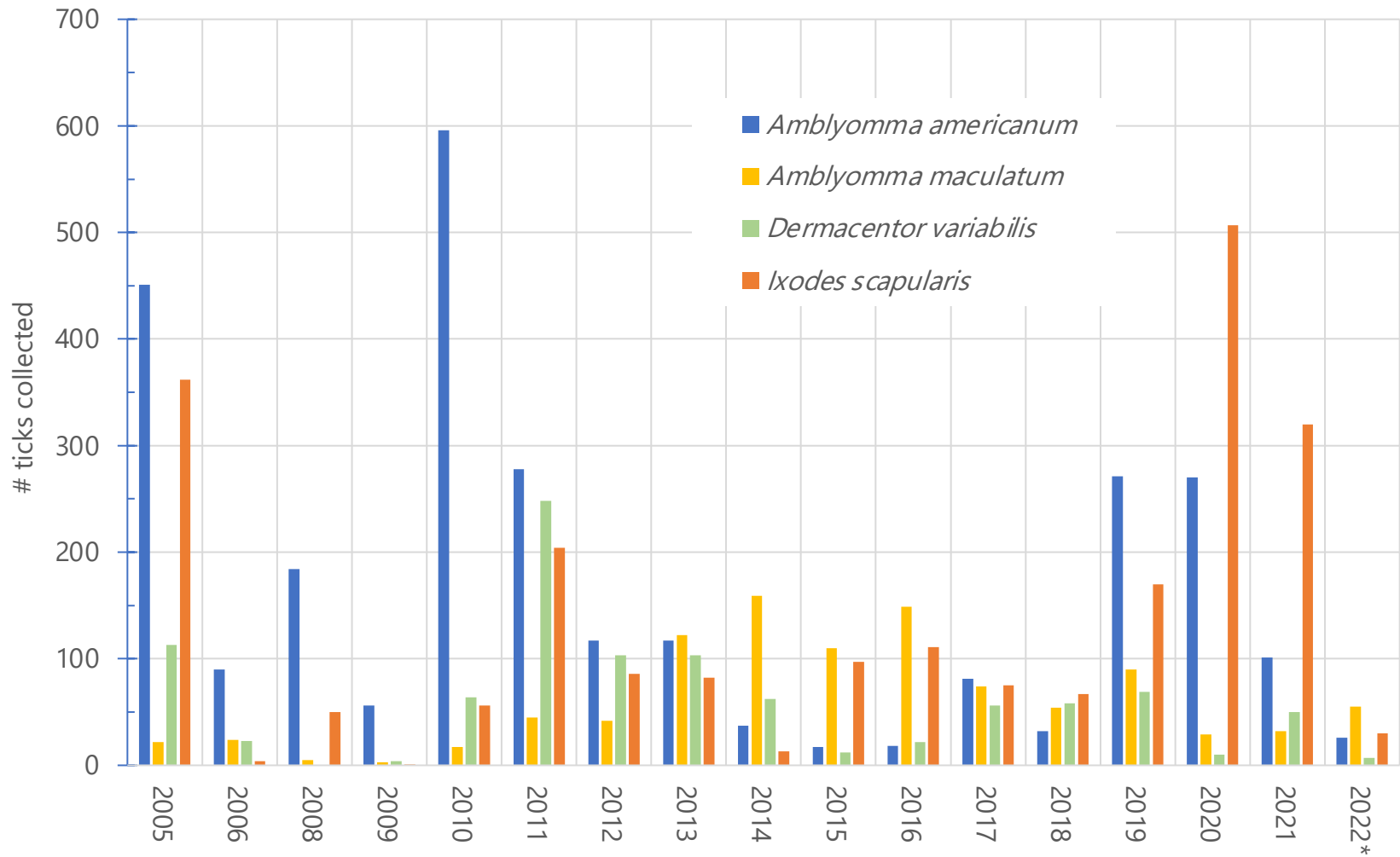


— Geophysical Region Boundaries
 *WMAs keyed to chart on opposite page

WMAs are special places, acquired and managed to: provide quality wildlife habitat; foster wildlife reproduction and survival; promote wildlife-dependent recreation and enjoyment-including hunting, trapping, wildlife observation and photography; and protect soil and water quality. Wildlife Management Areas provide and protect natural habitats that are particularly significant in their capacity to host unusual concentrations of one or more wildlife species; provide important resting and feeding areas for migratory birds or other wildlife; harbor rare, threatened, or endangered species; or provide significant value for wildlife or human enjoyment of wildlife.

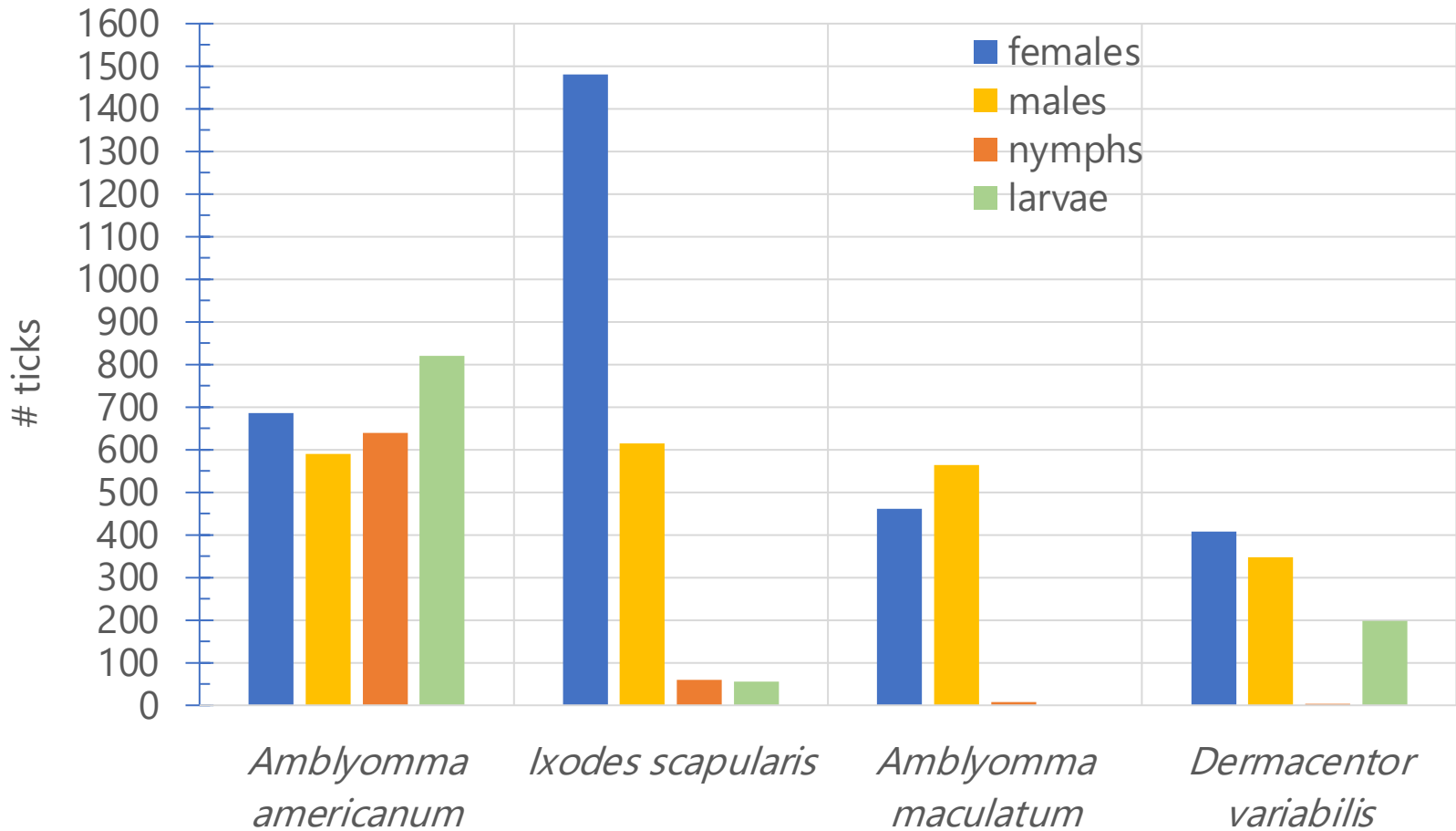
<https://georgiawildlife.com/allwmas>

Commonly Found Ticks by Species and Year - Georgia



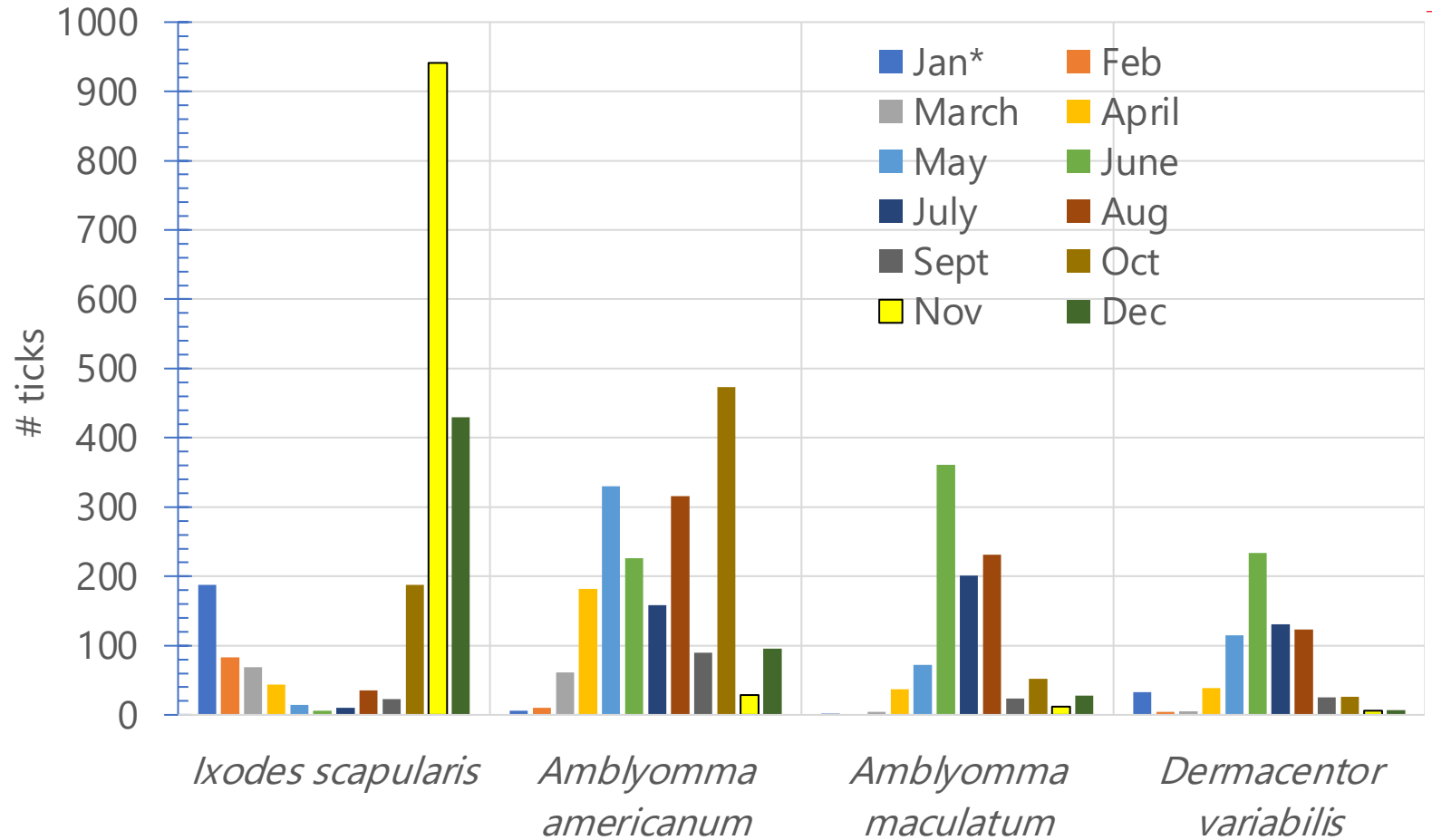
Does not include 2000 larval Ixodes scapularis found on one animal in 2012

Ticks by Life Stage, 2005-2022*



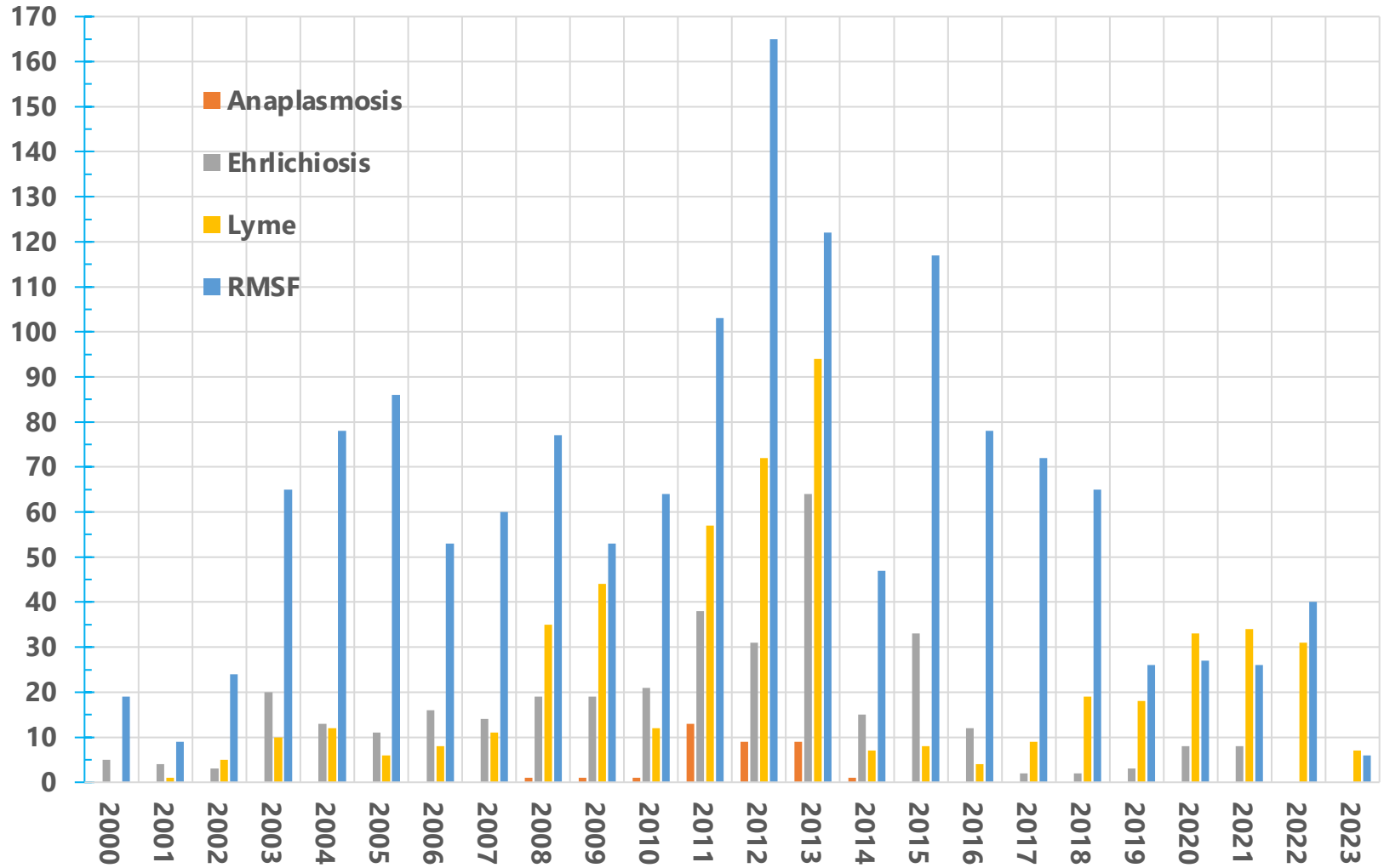
*does not include 2000 *I scapularis* larvae from one source

Ticks by Month, 2005-2022*



Does not include 2000 larval Ixodes scapularis found on one animal in Jan 2012

Tick-Borne Diseases, 2000-2023*



Some of Our Other Duties

Education/Outreach/Inservice Training

- bed bug education
- lice education
- scabies education
- education on any other arthropod (and other things) the public deems a pest

Web Sites

- Insects and Diseases: <https://dph.georgia.gov/environmental-health/insects-and-diseases>
- Georgia Mosquito Control Association: <http://www.gamosquito.org>

Upload data to the CDC ArboNET database

Mosquito and Tick ID training – discontinued due to funding loss

Board members for the GMCA and MAMCA

Resources

Arbovirus summaries are available monthly during mosquito season – if you want a copy sent to you, please send me an email at Rosmarie.Kelly@dph.ga.gov

A final arboviral summary has been put together for every year since 2002 and are available upon request

A mosquito surveillance summary has been put together every year since 2017; they are available at <http://www.gamosquito.org/mosquito.htm> or upon request

Tick surveillance summaries are put together every year and are available upon request

- There are 3 tick surveillance summaries currently available:
 - 2005-2019
 - 2020
 - 2021



ANY QUESTIONS???

<http://health.state.ga.us/epi/vbd/mosquito.asp>

<http://www.GAmosquito.org>