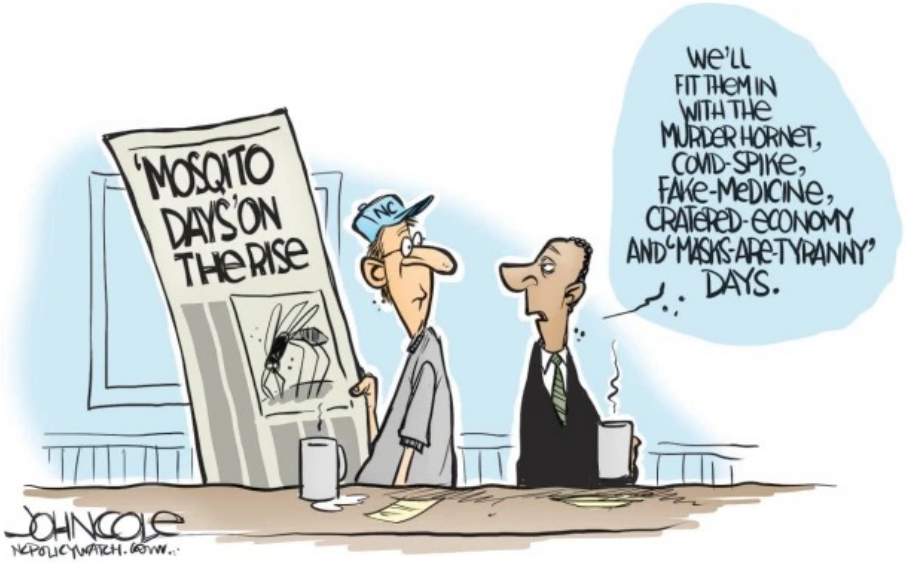
Mosquito Surveillance in Georgia in the Time of COVID – YEAR 2

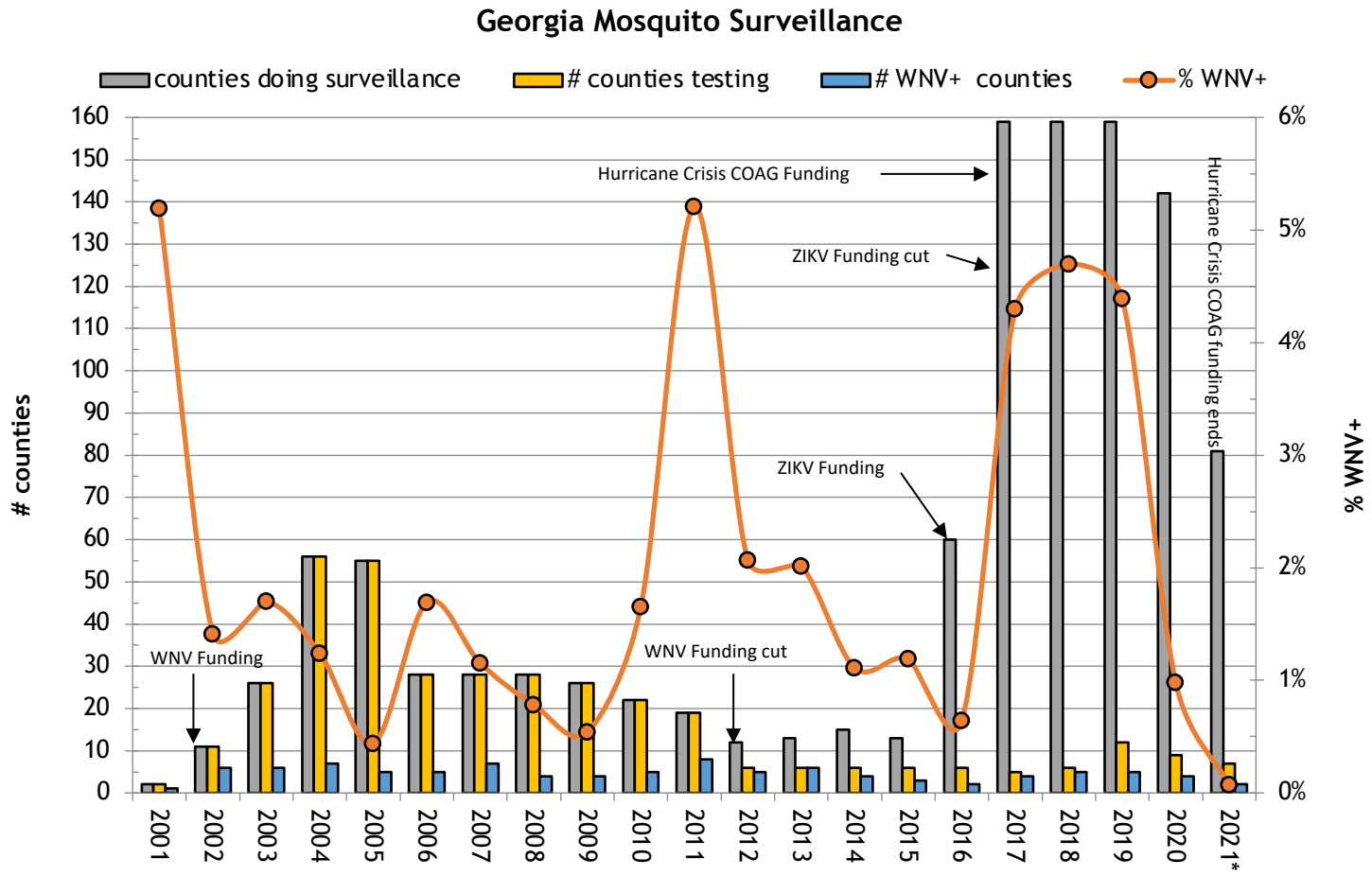
21 Oct 2021/ Rosmarie Kelly /GMCA Annual Meeting



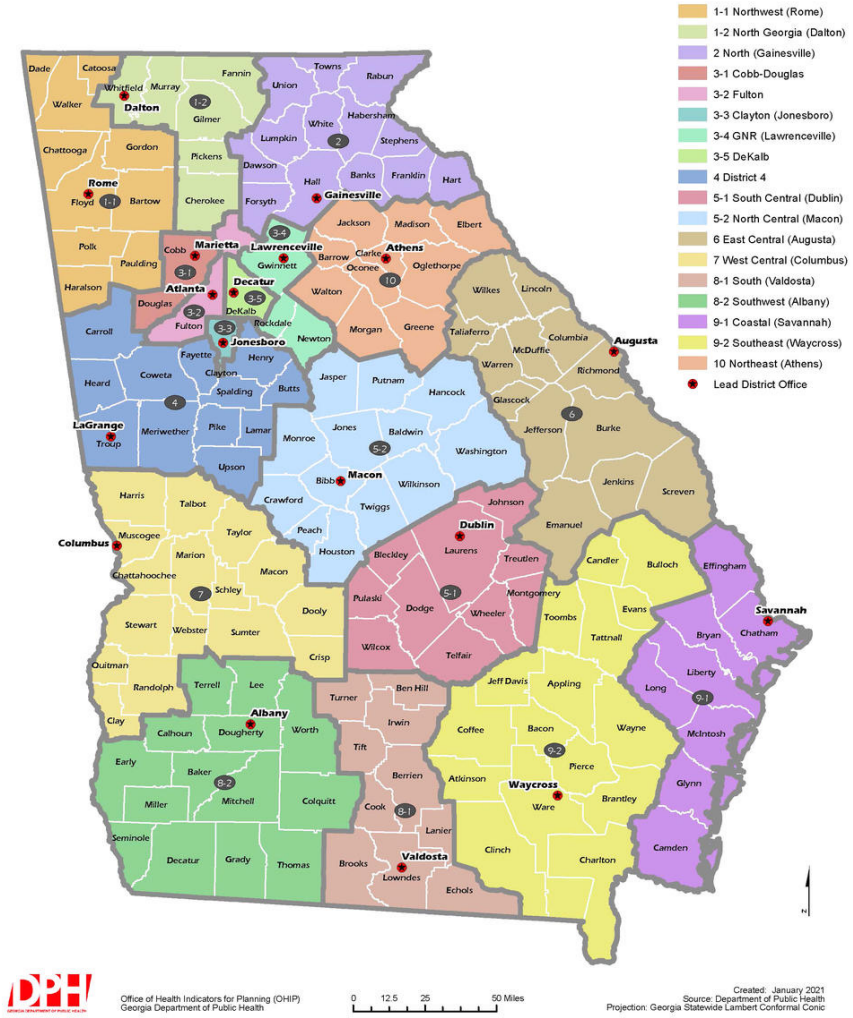
A Little Background

- Georgia is a big state with lots of counties.
- Mosquito season in the central and northern parts of Georgia typically begins in late April or early May, while the south Georgia mosquito season can be nearly year-round, depending on the weather.
- Several mosquito-borne viruses circulate in Georgia each year and are capable of causing disease in humans and other animals.
    - The most common mosquito- borne viruses in Georgia include West Nile virus (WNV), eastern equine encephalitis virus (EEE), and La Crosse encephalitis virus (LAC).
    - There is also a risk of exposure to emerging and re-emerging diseases as people move from areas of endemic or epidemic transmission to Georgia
- In 2002, due to the WNV outbreak, for the first time since well before Carter was Governor (1971-1975), the GDPH hired an entomologist.
- Five Vector Surveillance Coordinators were hired in 2016 in response to the threat of ZIKV in Georgia.
- In 2017, a second entomologist was hired to help with building the vector surveillance program.

Federal Grants are a Scary Way to Run a Program

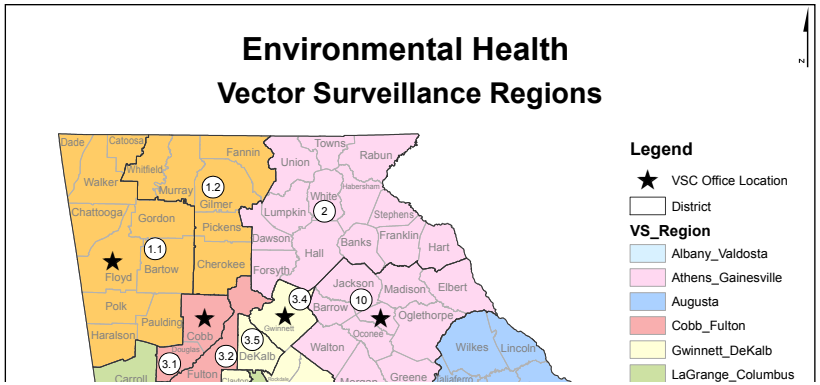


Georgia's Health Districts

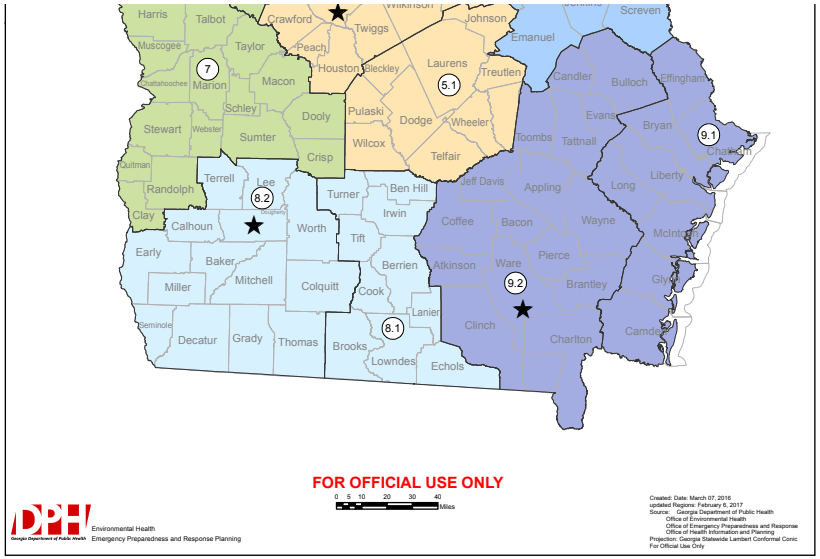


- The Georgia Department of Public Health (DPH) funds, and collaborates with, 18 separate public health districts throughout the state.
- The number of counties in a HD is based on populations and ranges from 1 – 16

Vector Surveillance Coordinators



This program was discontinued in August 2020 due to loss of funding



- VSCs were located in 10 Public Health Districts at highest risk for vector-borne disease transmission, with each VSC covering 2 Health Districts with varying numbers of counties.
  - Their primary responsibility was to conduct and coordinate mosquito surveillance for arboviral diseases.
  - They also were tasked with providing education and training and working with local mosquito control.
- In addition to mosquito surveillance, the VSCs were involved in:
  - Collecting mosquito eggs for statewide pesticide resistance testing
  - Distributing collection vials to area veterinarians as part of our collaborative effort with GDA to survey ticks attached to animals.

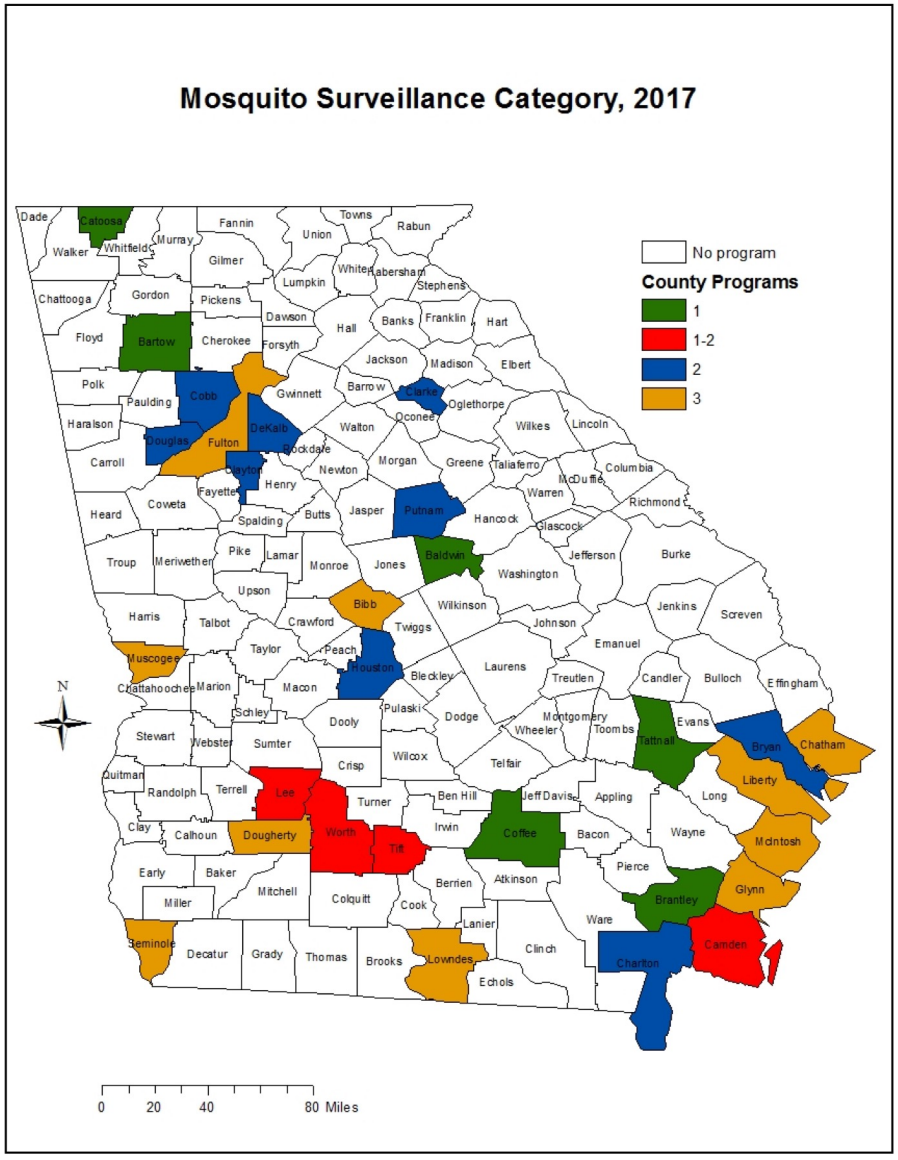
Non-VSC Districts

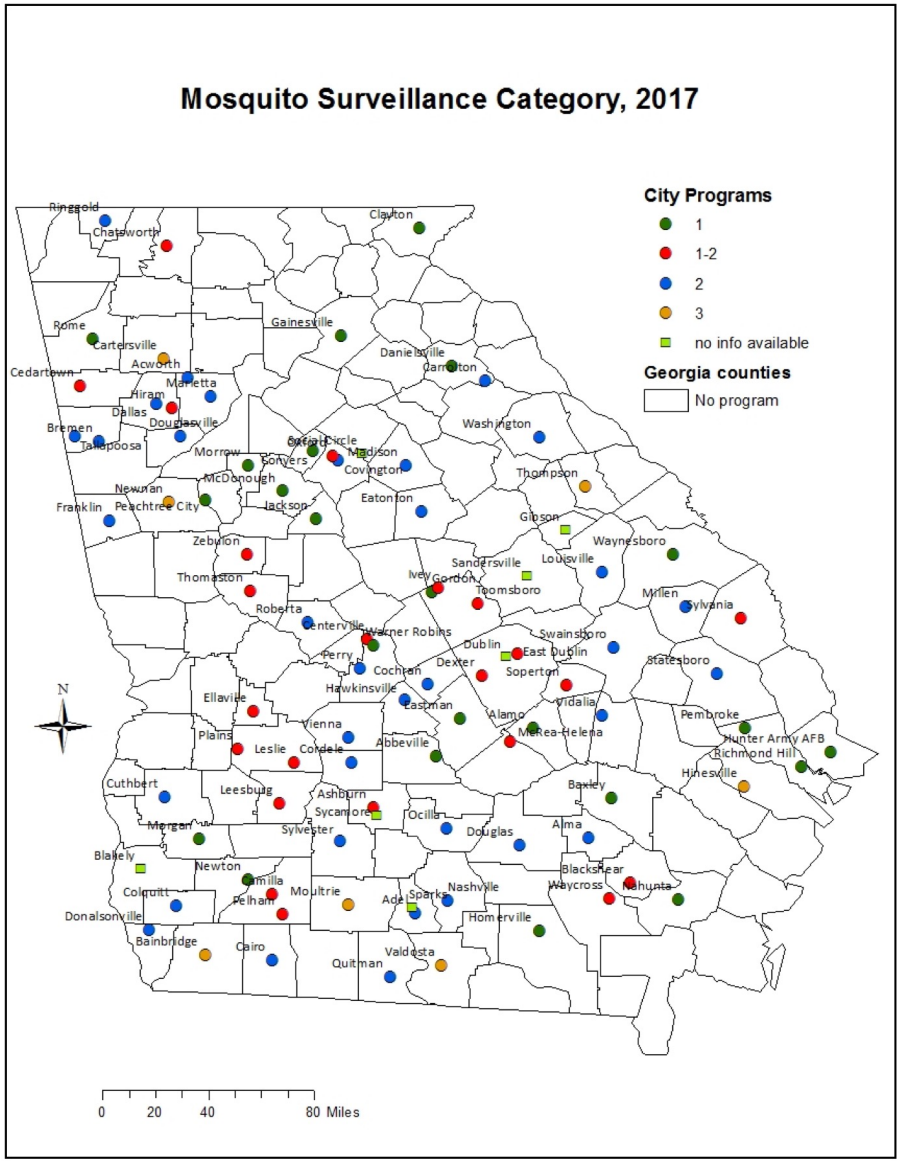
Not all Health Districts are assigned a VSC.

- These Districts were assigned to the State Entomologists, Dr. Thuy-vi Thi Nguyen and Dr. Rosmarie Kelly.
- However, most of these Districts already had in-house or contracted mosquito surveillance programs, and some of them had an Environmental Health Director or Environmental Health Specialists (EHS) who had an interest in doing mosquito surveillance within their District or County who we were able to support via Grant-in-Aid (GIA) using the Hurricane Crisis CoAG funding.
- VSCs and State Entomologists stepped in to assist as needed.

Collaborators

- Collaborators include counties holding independent contracts with SCWDS, or other labs, for testing;
  - 4 counties (Chatham, DeKalb, Richmond, Lowndes) sent mosquitoes to SCWDS for testing in 2020 and 2021.
  - Fulton County sent their mosquitoes for testing to a lab in Virginia in 2020 and tested their mosquitoes using the RAMP test in 2021.
  - Glynn sent mosquitoes to an outside lab in 2020 and both Camden and Glynn counties sent mosquitoes to an outside lab in 2021.
- Collaborators also include the DPH Epidemiology Section (human cases) and Georgia Department of Agriculture (horse cases/tick surveillance).





Type of Mosquito Control Program

- **Level 0**- No program
- **Level 1**-Public education, basic clean-up programs, informs media
- **Level 2**- Level 1 plus enhanced education, basic source reduction, larviciding or adulticiding, basic mosquito monitoring
- **Level 3**-Level 2 plus, dedicated staff, routine surveillance and ID of species and other monitoring programs, may submit for disease testing, active inspections and enhanced source reduction, spraying and larviciding, risk maps, enhanced public education

Center for PUBLIC HEALTH PRACTICE & RESEARCH
GEORGIA SOUTHERN UNIVERSITY
Jiann-Ping Hsu College of Public Health

Georgia Department of Public Health

Then came 2020: COVID-19 Impact

There were questions.

Can mosquitoes transmit COVID-19?

- Due to the current pandemic, a frequently asked question is if mosquitoes can transmit the COVID-19 virus. The WHO and the CDC have both answered this question, stating that there is no evidence to suggest that COVID-19 or any of the other known coronaviruses can be spread by mosquitoes or ticks.

What about mosquito control during the pandemic?

- Mosquito control is deemed an essential service, so if you have a mosquito control program in your county or town, they will likely be out working to reduce mosquito populations. Mosquito surveillance specialists will also be out setting mosquito traps at this time, so if you have a nuisance mosquito problem, please report it.

COVID-19 Impact

More questions.

You put a mosquito trap in my yard. How safe are the mosquito traps?

- Mosquito traps provide no possible source of any virus, especially if they are not handled by anyone but the person doing mosquito surveillance. If you have questions, rather than engage the person setting the traps in conversation , please visit the links listed below or call the State EH office.

Resources

- https://dph.georgia.gov/environmental-health
- http://www.gamosquito.org/index.htm
- https://dph.georgia.gov/EnvironmentalHealth
- https://www.cdc.gov/mosquitoes/
- http://www.gamosquito.org/resources/GA_Mosquito_Control_Programs2017.pdf

Mitigation Measures put in Place in 2020 to Reduce Exposure Risks among Surveillance Personnel and the General Public

Vector Surveillance Coordinators and Environmental Health Specialists that perform surveillance and complaint follow up should adhere to the following CDC Guidelines concerning protective equipment and social distancing:

- Handle all consumer requests by phone or email.
- Avoid contact with stakeholders by asking them to stay indoors when performing surveillance activities.
- Use door hangers to convey mosquito bite prevention strategies, do not knock on doors.
- Wear masks when setting traps and picking them up.
- Practice safe hygiene by not touching your face, and wash hands before eating.
- Maintain social distancing , at least 6 feet apart, if setting traps in close proximity to a public venue (parks, recreation areas, restaurants)
- When asked questions in the field, recommend they call or email their local County, District, or State Environmental Health Office.

The larger impact of COVID-19, 2020

- Funding for the Regional Vector Surveillance Coordinators through the Hurricane Crisis CoAG Grant ended on August 31, 2020.
  - We had no ELC funding for year 1 (2019-2020) of the current grant cycle because we were already receiving funding through the Hurricane Crisis CoAG grant.
  - Due to the Covid-19 response, ELC grant funding for year 2 of the current grant cycle was cut, so we did not get the funding we had counted on to continue the program.
  - We did get some ELC Disaster funding that could be used for travel, supplies, and equipment, BUT NOT personnel, that allowed us to extend some of our surveillance into 2021.
- GIA funding for Health Districts involved in mosquito surveillance was not continued through the ELC grant, but we were able to use the ELC Disaster funding to continue to support these collaborations.

Loss of programs, 2020

TICK SURVEILLANCE:

- Thankfully, from GDA: “We are working on some additional plans for surveillance, and I will ensure y’all are included so we can continue working collaboratively.”
- DNR also was willing to continue collaborating with us.
- Unfortunately, all plans we had for extending our tick surveillance using tick drags and providing education and outreach had to be postponed.

PESTICIDE RESISTANCE TESTING: We were able to get an extension on the Hurricane Crisis CoAG grant to be able to continue pesticide resistance testing until June 2021, although our ability to collect mosquito eggs in most of Georgia was effectively eliminated.

Loss of data, 2020

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	5.2%	6
2002	91		11	11	6	4032	1.4%	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	5.2%	25
2012	125	3	12	6	5	6042	2.1%	117
2013	166	1	13	6	6	7453	2.0%	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	6015	1.0%	12

COVID-19 Epidemic, Year 2

- Mosquito Surveillance
  - We still had collaborations with Camden, Chatham, DeKalb, Fulton, Glynn, Lowndes, and Richmond counties.
  - We were able to continue providing GIA to Health Districts 1-1, 1-2, 2-0, 6-0, 8-1, and 10-0 through an extension of the ELC Disaster funding until 6/30/21.
  - While we did get funding for personnel in the 3rd year of the ELC's current grant cycle, just about everything else we asked for was cut.
- Tick Surveillance
  - We got no funding to improve our tick surveillance in Georgia
  - Fortunately, we still are able to collaborate with GDA to share data and DNR to collect ticks off animals.

Funding From an Unexpected Source – The American Rescue Plan

- The American Rescue Plan Act of 2021 is a $1.9 trillion coronavirus rescue package designed to facilitate the United States' recovery from the devastating economic and health effects of the COVID-19 pandemic.
- In particular, funds may be used for payroll and covered benefits expenses for public safety, public health, health care, human services, and similar employees, including first responders, to the extent that the employee's time that is dedicated to responding to the COVID-19 public health emergency.
- These funds are to be used from July 1, 2021 - June 30, 2023. Half the money is to be spent by June 30, 2022.

https://www.naco.org/resources/featured/american-rescue-plan-act-funding-breakdown

Our Program Justification

One of the crucial roles of any vector surveillance/control staff is to leverage community ownership and engagement in public health. When we had a staff of Vector Surveillance Coordinators, from 2016-2020, they were located in high-risk surveillance regions and would work closely with the Environmental Health office in each of the counties, and at the Districts, for which they were responsible. There were several Health Districts that were able to, and wanted to, be part of the surveillance effort. These Districts were Valdosta, Augusta, Rome, Dalton, Gainesville, and Athens. Once our funding was over, all these positions and the support for the Districts were lost, as was our ability to do surveillance and respond to arboviral issues.

Funding From an Unexpected Source – The American Rescue Plan

Our Asks:

- GIA for 6 Health Districts for mosquito surveillance
- Funding for service/repairs
  - Microscopes
  - Emergency mosquito surveillance trailers
  - Mosquito surveillance traps
- Vector Surveillance Interns
  - 5 interns to be deployed throughout the state
  - Duties similar to that of the VSCs
  - Duration of 7 months per year (April-Oct) for 24 hours a week (672 total)
- Travel funding for pesticide resistance testing and surveillance
- Funding for dry ice
- Funding for additional equipment

Funding From an Unexpected Source – The American Rescue Plan

What we got:

- Vector Surveillance Interns
  - Someone condensed the 5 interns requested separately on to one line and forgot to multiply by 5, so we got 1 intern
  - We intend to use the funding to hire 2 interns for fewer hours and give them specific projects to work on instead of doing general surveillance
- Travel funding for pesticide resistance testing and surveillance
- Funding for dry ice
- GIA for 6 Health Districts for mosquito surveillance

Better than nothing!

In Summary

I gave a talk very similar to this is 2012 when WNV funding was cut. My conclusions then were:

- The future of arboviral surveillance in Georgia is far from guaranteed
- It may take some creativity, but we do have enough existing and historic data to help make somewhat informed decisions
- Some counties are better off than others, but their data can be used to help with the decision making in a wider area

This time, the CDC seems to be invested in our program, and the Covid-19 pandemic won't last forever, so we have hopes for funding in the future from the ELC. Until then, at least there are two entomologists, and we have a lot of support, even if it isn't financial.

Any Questions?

"Who picked 'I've Got You Under My Skin' to be our on-hold music?"