

MOSQUITO & ARBOVIRAL ACTIVITY DETECTED IN VIRGINIA, 2023

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Virginia's Human Infections from Endemic (locally occurring) Mosquito or Tickborne Arboviral Diseases in 2023

West Nile virus (WNV) - 12 WNV Cases (9 - neurological, 3 non-neurological)

6 Confirmed infections (5 - neurological, 1 non-neuro illness)

6 Probable infections (4 - neurological, 2 non-neuro illness).

St. Louis encephalitis (SLE) - None recorded.

La Crosse encephalitis (LAC) - 2 Confirmed infections (both neurological).

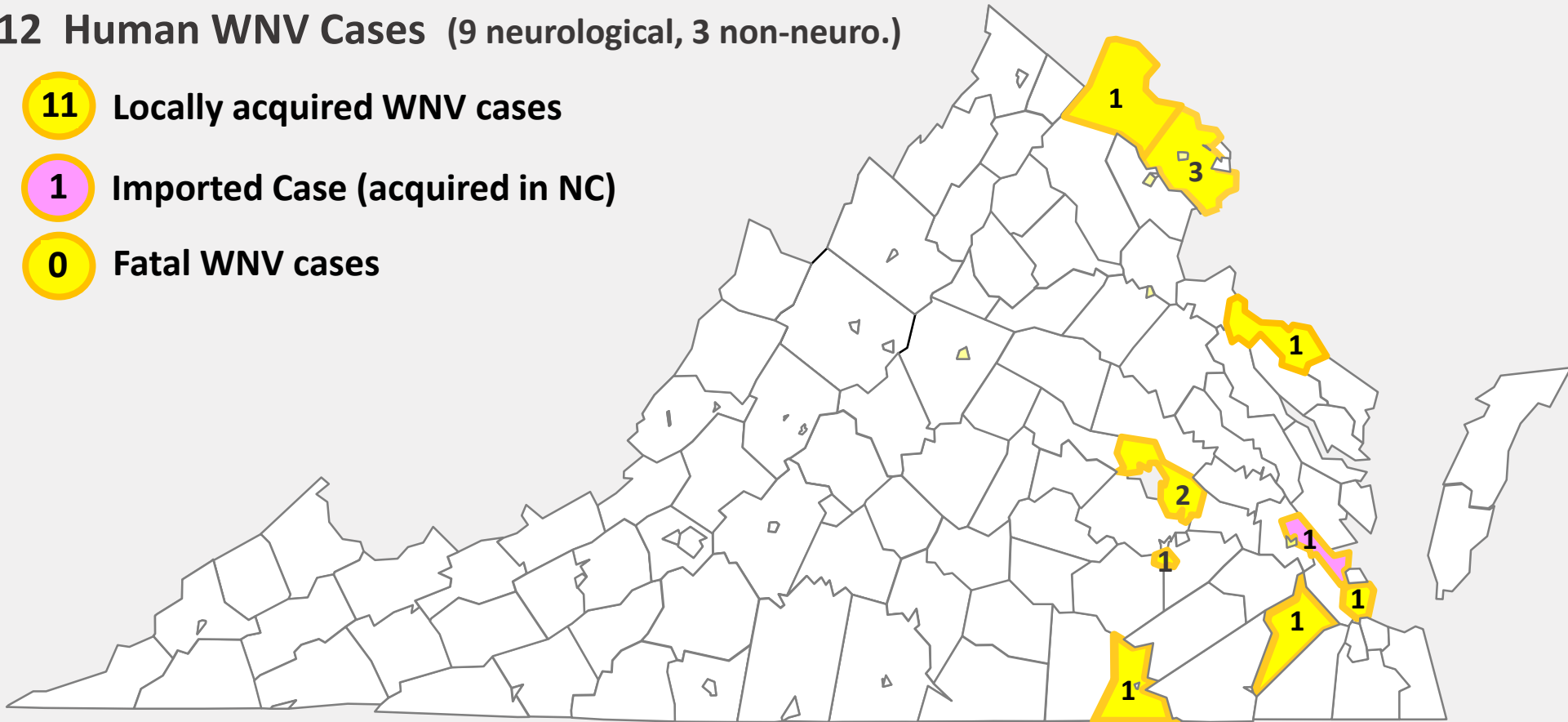
Eastern equine encephalitis (EEE) - None recorded.

Powassan - tick borne encephalitis (POW) - None recorded.

Human WNV Cases and other Zoonotic WNV Indicators Identified in Virginia in 2023

12 Human WNV Cases (9 neurological, 3 non-neuro.)

- 11 Locally acquired WNV cases
- 1 Imported Case (acquired in NC)
- 0 Fatal WNV cases



No WNV-positive equines, crows, or other animals were identified in Virginia in 2020

Surveillance for WNV in Pooled Mosquitoes in Virginia in 2023

Mosquito Surveillance for WNV in Virginia in 2023		
Jurisdiction	Cx. pipiens/restuans Pools Tested	WNV Positive pools
Fairfax Co./ City	2762	240
Prince William Co.	1507	35
Henrico Co.	62	3
York County	678	12
Norfolk City	513	3
Suffolk city	549	13
Chesapeake City	138	0
Virginia Beach	306	0

Mosquito surveillance for vectors of West Nile virus (WNV) in VA

The predominant vector of WNV in Virginia viruses are *Culex pipiens* mosquitoes, which tend to bite people. They often breed in containers of water that occur in suburban and rural settings.

Culex pipiens breeding habitats include water containers such as buckets, and tubs as well as puddles, and prefer water that contains organic matter such as tree leaves, cut grass, animal manure, or human sewage. In urban/suburban settings, they often breed in the rainfall puddles that form in underground storm sewer systems.

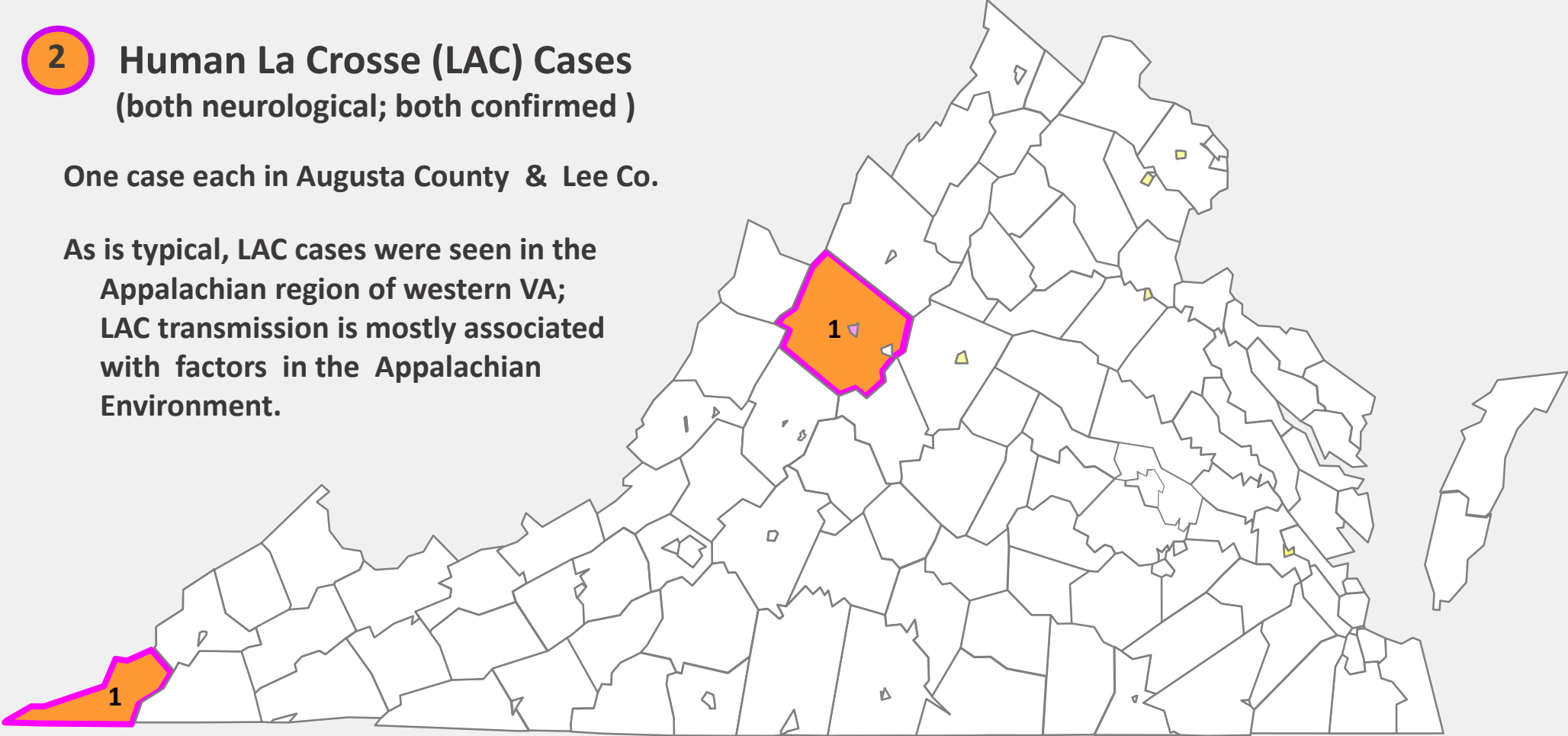
Culex pipiens often feed on birds, and American robins are one of the suburban bird species that they like to bite. American robins prefer suburban neighborhoods with trees shrubs and lawns and are an important reservoir host for WNV.

Human La Crosse Encephalitis Virus (LAC) Cases in Virginia in 2023

2 Human La Crosse (LAC) Cases
(both neurological; both confirmed)

One case each in Augusta County & Lee Co.

As is typical, LAC cases were seen in the Appalachian region of western VA; LAC transmission is mostly associated with factors in the Appalachian Environment.



La Crosse Encephalitis Virus (LAC) Transmission in Virginia

The predominant vector of LAC in Virginia are *Aedes triseriatus* “tree hole” mosquitoes, which will feed on people.

Aedes triseriatus tend to breed in water found in tree holes (knot holes) in forest environments in the Appalachian environment, but they will also breed in man-made containers of water mixed with tree leaves, that can be found around homes in forested rural and suburban settings.

Although *Ae. triseriatus* mosquitoes and LAC transmission is predominantly associated with the forested Appalachian Mountain regions of VA, a few cases have been counted in eastern VA.

Virginia's Human Infections from Imported Mosquito-borne Arboviral Diseases in 2023

Dengue Fever Virus (DEN)* - 24 imported DEN infections
8 Confirmed cases, 16 Probable cases

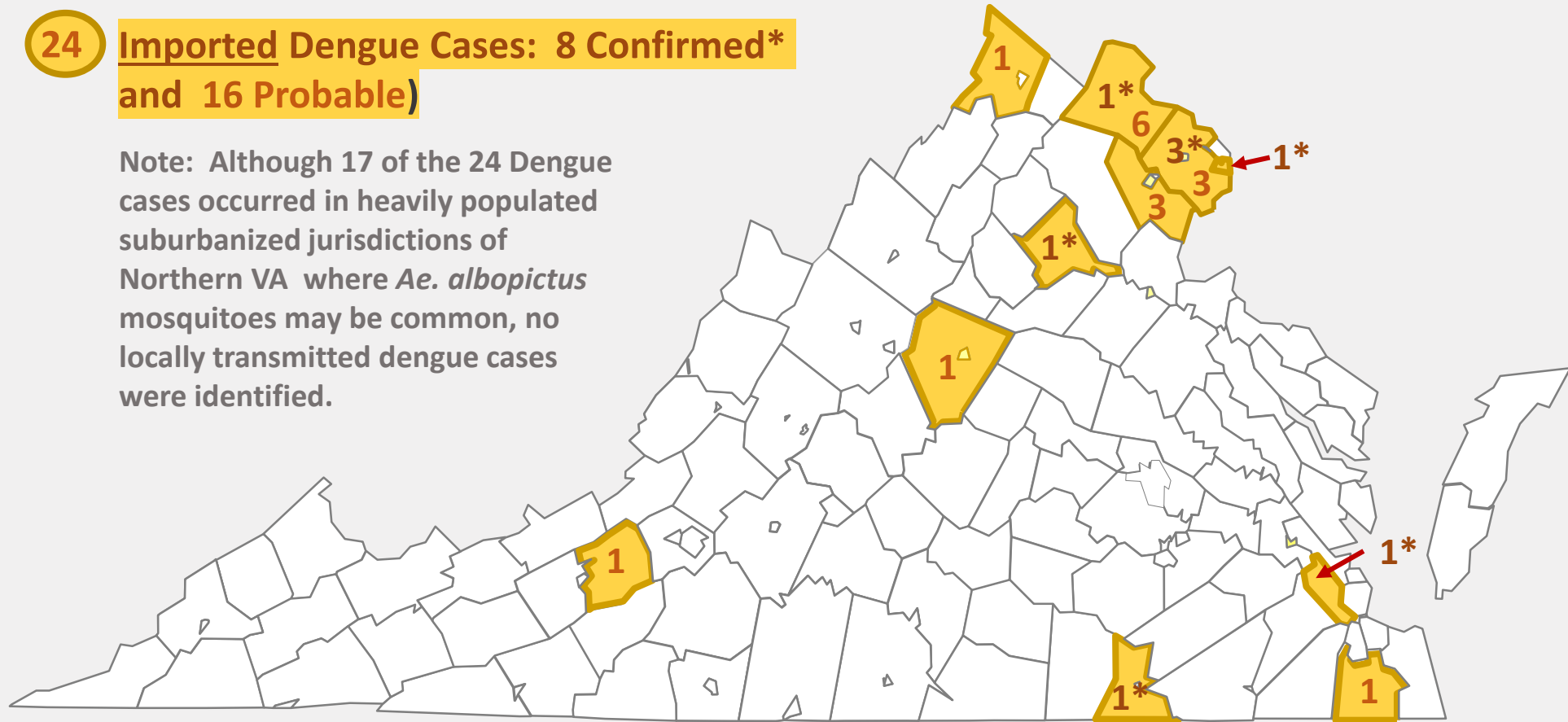
Chicungunya virus (CHIK)* - 4 Imported CHIK infections (all Probable cases)

Zika virus (ZIKA)* - No Imported ZIKA infections were identified in 2023

Virginia Counted an Unusually High Number of Imported Human Dengue Cases in 2023

24 Imported Dengue Cases: 8 Confirmed* and 16 Probable)

Note: Although 17 of the 24 Dengue cases occurred in heavily populated suburbanized jurisdictions of Northern VA where *Ae. albopictus* mosquitoes may be common, no locally transmitted dengue cases were identified.



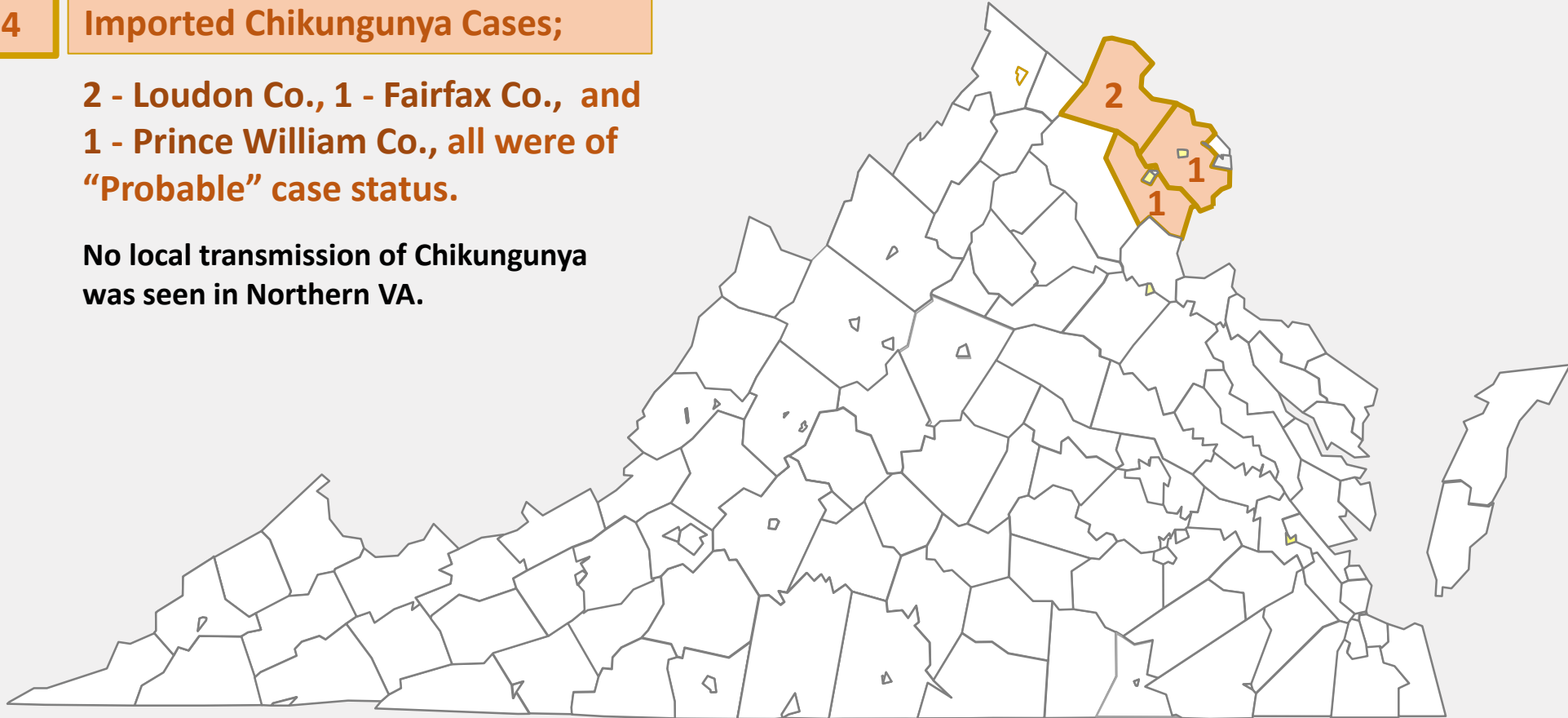
Virginia had Four Imported Human Chikungunya Cases in 2023

4

Imported Chikungunya Cases;

2 - Loudon Co., 1 - Fairfax Co., and
1 - Prince William Co., all were of
“Probable” case status.

No local transmission of Chikungunya
was seen in Northern VA.



Potential for local transmission of Dengue, Chikungunya or Zika viruses by mosquitoes in Virginia

The predominant vectors of these arboviruses are *Aedes aegypti* mosquitoes, which tend to feed mostly on people. Fortunately, *Ae. aegypti* is a tropical mosquito species that does not survive well in our northern latitudes.

Dengue, Chikungunya and Zika viruses can be acquired by *Aedes albopictus* from viremic patients that return from the tropics, and *Ae. albopictus* can transmit these viruses to other persons.* However, local transmission of these viruses is rare.

Fortunately, viremic people are not common in Virginia, and are likely to spend most of their time indoors when they are ill. Furthermore, an infected *Ae. albopictus* will feed mostly on readily available suburban animals such as dogs, cats, or other animals.

*An updated review of the invasive *Aedes albopictus* in the Americas; geographical distribution, host feeding patterns, arbovirus infection, and potential for vertical transmission of dengue virus. Garcia-Rejon et al.; *Insects* 2021 Nov.; 12 (11):

Mosquito surveillance for Eastern Equine Encephalitis in (EEE) in VA in 2023

The predominant vector of EEE in Virginia *Culiseta melanura* mosquitoes, which predominate in the swampy areas of the Coastal plain.

No human cases of EEE were identified in 2023, but collections of mosquitoes in swampy areas of the Coastal Plain yielded a few *Cs. melanura* to test for EEE.

Mosquito Surveillance for EEE in Virginia in 2023		
Jurisdiction	<i>Culiseta melanura</i> Pools Tested	EEE Positive pools
Suffolk city	549	2
Chesapeake City	138	0

