



# Mosquitoes and Mosquitoborne Diseases of Minnesota

Vectorborne Diseases Unit

Last Updated March 2024

# What is a mosquito-borne disease and why should you care about it?

- People can get a mosquito-borne disease when they are bitten by a mosquito that is infected with a disease agent
- Mosquito-borne diseases are a large threat to human health around the world and right here in Minnesota
- Personal protection methods can help keep you and your family safe from mosquito bites and the diseases they carry





# Goals of Presentation

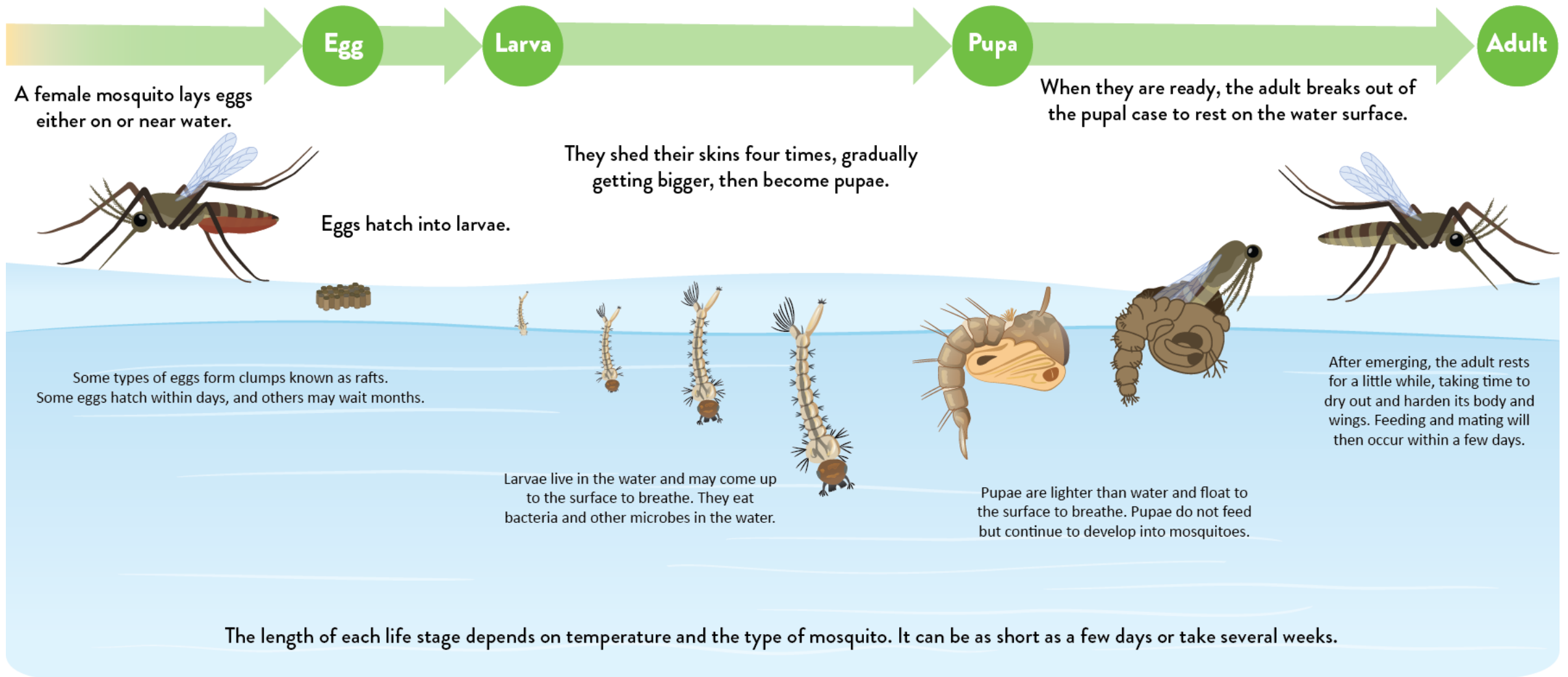
- Understand how mosquitoes live
- Be aware of the diseases spread by mosquitoes in Minnesota
- Recognize basic signs and symptoms
- Seek early diagnosis and treatment
- Know when and where mosquito-borne disease risk is highest
- Practice mosquito bite prevention methods
- Know who to contact for more information

# Mosquitoes in Minnesota

- MN is home to about 51 species of mosquitoes
  - Approximately half will feed on people
  - Only a few of these species are able to spread disease



# Mosquito Life Cycle



# What are the symptoms of a mosquito-borne disease?

- Most people have no symptoms at all
- For people who do become sick, mosquito-borne diseases have similar symptoms
- Symptoms usually show up within 1-2 weeks of being bitten by an infected mosquito
- Watch for symptoms like:
  - Fever
  - Headache
  - Stiff neck
  - Rash
  - Disorientation
  - Seizures



# How are mosquitoborne diseases diagnosed?

- If you think that you may have a mosquitoborne disease, contact your health care provider as soon as possible
- Your health care provider can determine if you have a mosquitoborne disease based on your:
  - History of being around mosquitoes or mosquito habitat
  - Physical examination
  - Laboratory tests



# Are mosquito-borne diseases treatable?

- Not exactly
  - Most illnesses go away on their own
  - Viruses are not treated with antibiotics so treatment involves supportive care
  - Some patients with more serious symptoms may require hospitalization



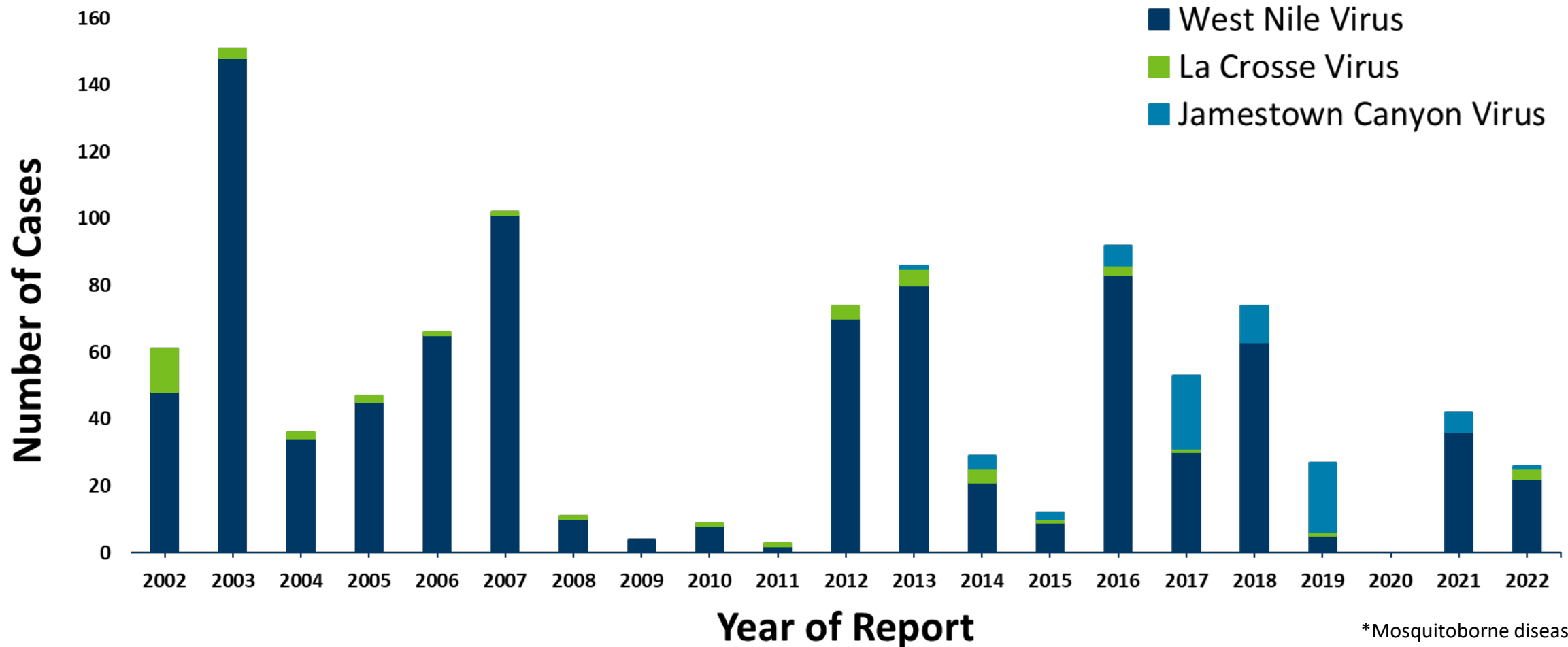


# Top 3 Mosquitoborne Diseases in Minnesota

- West Nile Virus Disease
- La Crosse Encephalitis
- Jamestown Canyon Virus Disease



# Reported Mosquitoborne Disease Cases in Minnesota, 2002-2022\*



\*Mosquitoborne disease case data is not available for 2020

# West Nile Virus Disease

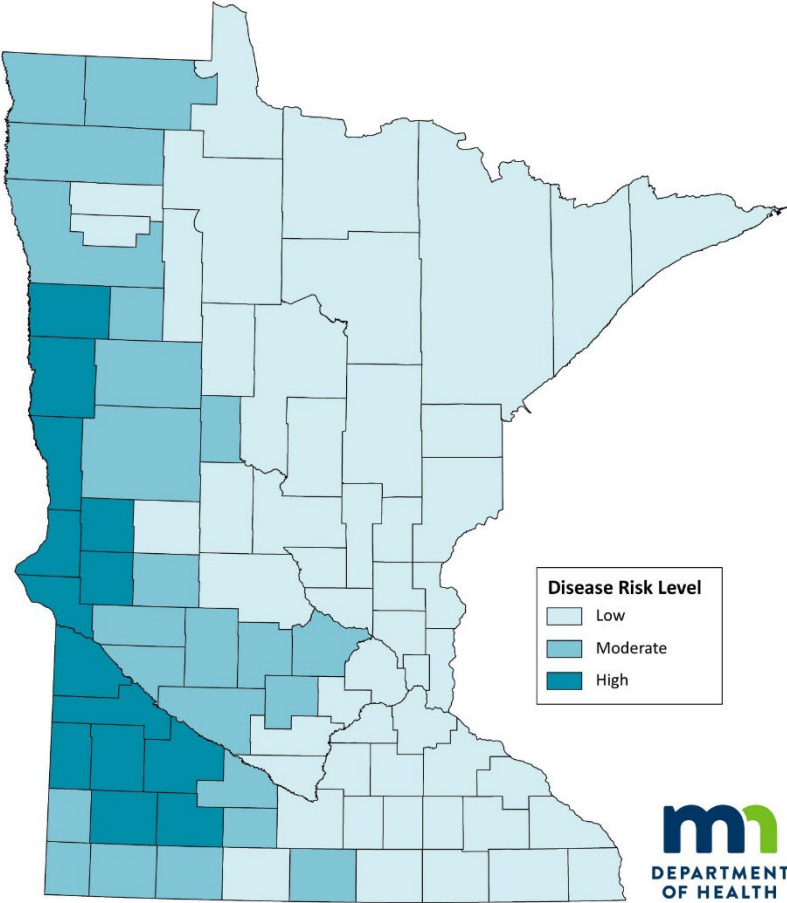
- First case identified in Minnesota in 2002
- *Culex tarsalis* is the main mosquito of concern
  - Its habitat includes open agricultural land and prairie
- Disease is most severe in elderly patients or those with weakened immune systems
- Most cases occur later in the summer



# West Nile Virus Disease Risk in Minnesota



Minnesota West Nile Virus Disease Risk



Source: Ecological Sections of Minnesota, Minnesota Department of Natural Resources (DNR)

# La Crosse Encephalitis

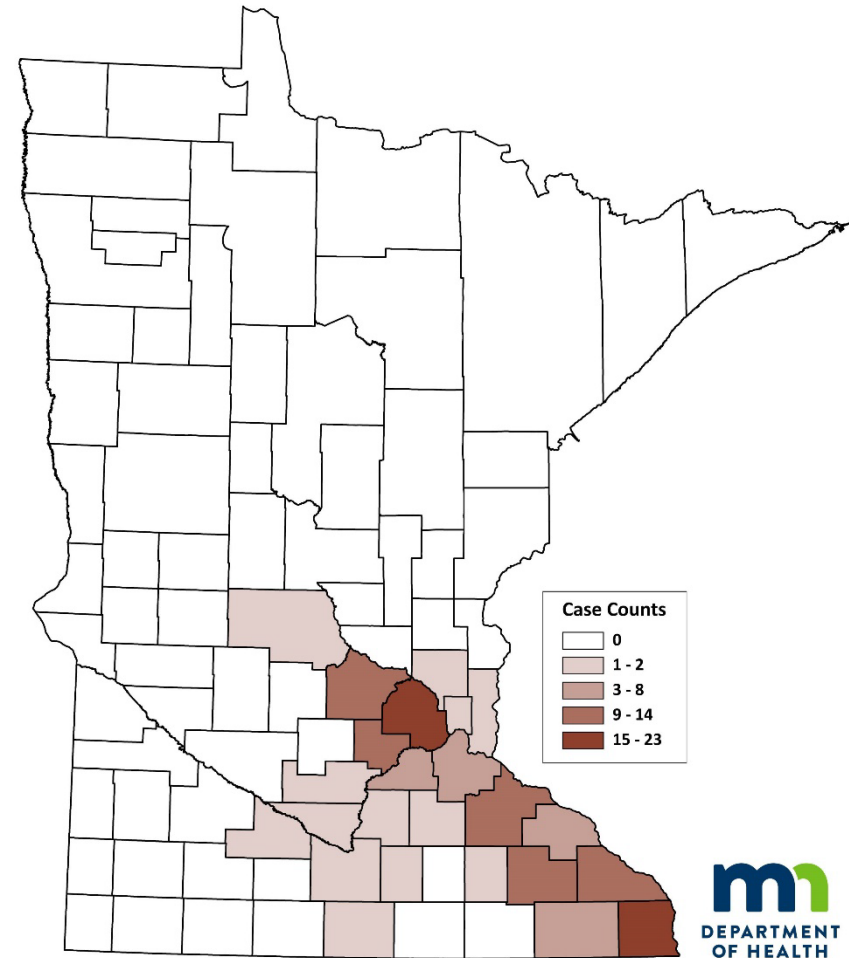
- Identified for the first time in 1964
- *Aedes triseriatus* is main mosquito species of concern in Minnesota
  - Its habitat includes treeholes and other water-holding containers in wooded or shaded areas
- The disease primarily affects children 16 years of age or younger
- Most cases occur later in the summer



# La Crosse Encephalitis Risk in Minnesota



Reported Cases of La Crosse Encephalitis  
by County of Residence, Minnesota, 1985-2022



# Jamestown Canyon Virus Disease

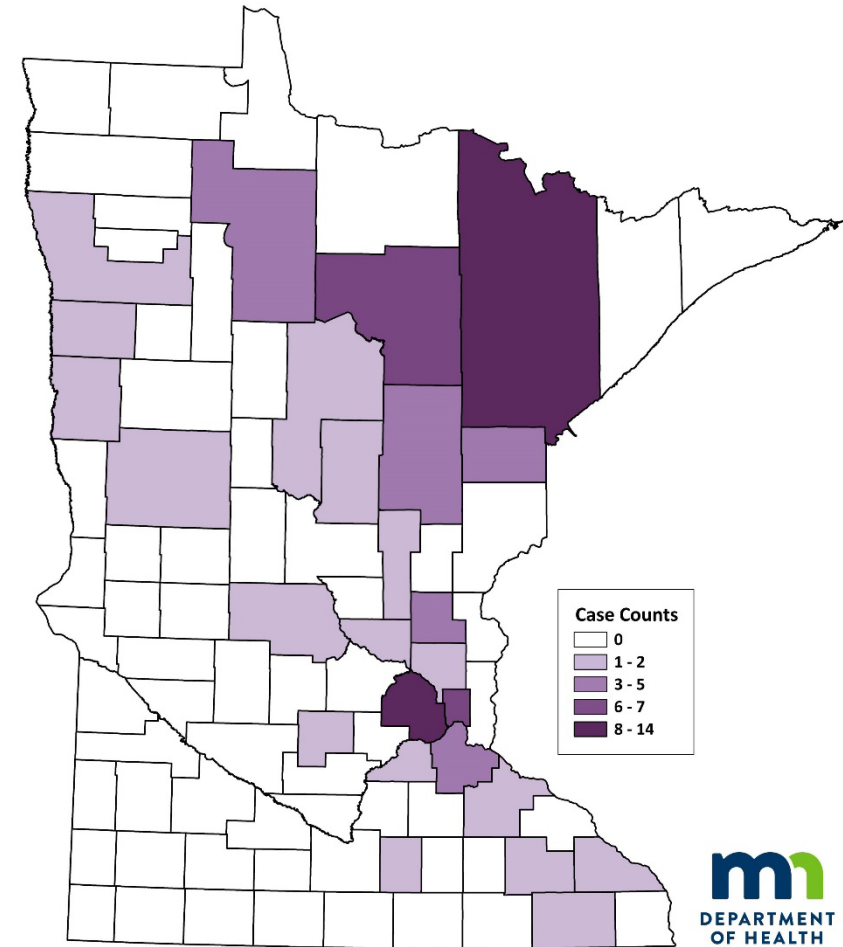
- The virus was first identified in Colorado in 1961
- Snowmelt *Aedes* mosquitoes are likely the main species of concern in Minnesota
  - Wooded and shaded areas provide the best habitat for these mosquitoes
- Persons of any age may become sick
  - More severe disease may occur in older patients or those with weakened immune systems
- Cases occur during warmer months of the year, from May through September



# Jamestown Canyon Virus Disease Risk in Minnesota



Reported Cases of Jamestown Canyon Virus Disease by County of Residence, Minnesota, 2013-2022



Source: Ecological Sections of Minnesota, Minnesota Department of Natural Resources (DNR)





# Other Potential Mosquitoborne Diseases in Minnesota

- Eastern Equine Encephalitis Virus
- St. Louis Encephalitis Virus
- Western Equine Encephalitis Virus



# Travel-Associated Mosquitoborne Diseases Affecting Minnesotans

- Chikungunya
- Dengue
- Malaria
- Yellow Fever
- Zika



# Protect Yourself from Mosquitoborne Diseases

## 1) Know when and where you're at risk

- Primarily July through September
- Open, agricultural areas – West Nile virus
- Wooded areas – La Crosse & Jamestown Canyon viruses

## 2) Wear EPA-registered bug spray

- DEET 20-30% on skin or clothing
- Permethrin 0.5% on clothing

## 3) Dress in appropriate clothing

- Wear loose-fitting, long-sleeved shirts and pants



# Protect Your Family from Mosquitoborne Diseases

## Remove mosquito breeding habitat

- Frequently empty or remove water holding containers like:
  - Flower pots
  - Bird baths
  - Fountains and kiddie pools
  - Tires
- Remove debris from gutters to prevent stagnant water
- Make sure tarps are tight to prevent pooling water





# Thank You!

Vectorborne Diseases Unit

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[www.health.state.mn.us/mosquitoes](http://www.health.state.mn.us/mosquitoes)

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