



## West Nile Virus and Ruffed Grouse Frequently Asked Questions - Wildlife Division September 2021

### **What is West Nile Virus (WNV)?**

WNV is a virus transmitted by mosquitoes that can cause inflammation of the brain and sometimes inflammation of the lining of the brain and spinal cord. Heart lesions can occur in infected birds and oftentimes these are not visible to the naked eye and are only seen on microscopic examination. The virus has been documented in over 250 species of birds and is spread mostly through the bite of an infected mosquito. Crows, blue jays, and ravens are the most susceptible to the disease while other birds may not develop the disease at all. More information can be found in the Wildlife Disease Manual, which can be found at [Michigan.gov/WildlifeDiseaseManual](http://Michigan.gov/WildlifeDiseaseManual).

### **How long has WNV been around?**

WNV was first detected in the USA in 1999 in New York and quickly spread across the country. The virus has been present in Michigan, Minnesota, and Wisconsin for about 20 years.

### **When has WNV been found in ruffed grouse?**

- Michigan – 2002 (1 grouse), 2017 (13 grouse), 2018 (10 grouse; 4 detections were hunter harvested submissions in cooperation with the multi-state WNV study), 2019 (1 hunter harvested grouse submission in cooperation with the multi-state WNV study)
  - Counties: Bay, Delta, Dickinson, Iosco, Iron, Missaukee, Ogemaw, Roscommon, and Schoolcraft
- Minnesota – early 2000s (1 grouse)
- Wisconsin – 2018 (5 grouse; 2 detections were hunter harvested submissions for the multi-state WNV study)

### **If WNV isn't new, why is it a big topic today?**

The DNR's Wildlife Disease Lab detected a higher than normal number of WNV-positive animals in 2017. Many locations within the Great Lakes Region had increased production of the mosquito that is primarily responsible for spreading WNV, *Culex species*. Across the region, preliminary fall season hunting reports were mixed, with some hunters reporting lower harvest and fewer ruffed grouse observed. Pennsylvania recently reported WNV may have contributed to a population decline in low habitat or areas with scarce habitat.

### **What physical symptoms of WNV do ruffed grouse display?**

Ruffed grouse that have contracted WNV can appear sick, thin and in poor condition. Erratic flying and abnormal behavior can also be viral symptoms. However, not all positive ruffed grouse that have WNV will show symptoms. The necropsy results of deceased birds indicated that WNV was not the lead cause of mortality in many cases, but the virus was present when tested for.

### **Can a human contract WNV from eating a WNV positive animal?**

Currently, there is no evidence of humans becoming infected by consuming properly cooked birds or by handling an infected bird. Hunters should wear gloves when cleaning wild game. It is recommended

that if the bird acted abnormal or is in poor physical condition that it be considered a sick bird and not be consumed. WNV is spread mostly through a bite of an infected mosquito.

#### **Does WNV cause human mortalities?**

Most people (about 80%) who become infected with WNV do not develop any symptoms. About 1 in 5 will develop a fever with other flu-like symptoms and recover, although fatigue can last weeks to months. Fewer than 1% of infected people can develop a serious illness that includes inflammation of the brain or the tissues surrounding the brain. People over 60 years of age or with certain medical conditions are at greater risk for serious illness. About 10% of people who develop a serious WNV illness die.

#### **Can a dog contract the virus from a WNV-positive animal?**

While dogs have been experimentally infected with WNV, they have not shown symptoms and were unable to transmit the virus to other animals and people. They are considered an end host for the virus and aren't believed to play a role in its transmission.

#### **Does WNV cause animal mortalities?**

Just like humans, many wild animals can be exposed to WNV and survive exposure. However, crows, blue jays, and ravens that are fatally infected with WNV will typically die within 3 weeks of infection.

#### **Was the decline in ruffed grouse harvested and observed in 2017 due to WNV?**

WNV could be partially responsible for population shifts, although other factors could also contribute such as weather and the quality of habitat available. Some areas reported record level rainfall in months when nesting and brood rearing occurred. These conditions can have detrimental effects on grouse populations.

#### **If I continue to hunt ruffed grouse, should I limit my harvest?**

Ruffed grouse hunting is a key fall outdoor activity and is not documented to negatively impact the population.

#### **How has WNV has been monitored in ruffed grouse in the Great Lakes Region?**

A multi-state, multi-year study in the Upper Great Lakes Region began in 2018. By monitoring birds at regional level, we will gain a better understanding of the prevalence and distribution of WNV in ruffed grouse. Michigan will be using hunters to aid in the collection of samples in four key WNV Surveillance Areas:

- Upper Peninsula: Dickinson, Iron, Marquette and Chippewa, Luce, Mackinaw
- Lower Peninsula: Alpena, Montmorency, Presque Isle and Missaukee, Ogemaw, Roscommon

Blood samples are analyzed for antibodies, indicating exposure to WNV, and heart tissue is tested for the presence of the virus. Over 700 samples are analyzed yearly from the region. Results listed by state below:

2019 Season	2018 Season
<p><b>Michigan:</b> 281 samples  20 (7%) positive for antibodies consistent with WNV exposure  7 (2%) confirmed WNV exposure  13 (5%) likely WNV exposure  1 (&lt;1%) positive for the virus</p>	<p><b>Michigan:</b> 213 samples  28 (13%) positive for antibodies consistent with WNV exposure  9 (4%) confirmed WNV exposure  19 (9%) likely WNV exposure  4 (&lt;2%) positive for the virus</p>
<p><b>Minnesota:</b> 317 samples  39 (12.3%) positive for antibodies consistent with WNV exposure  3 (0.9%) confirmed WNV exposure  36 (11.4%) likely WNV exposure  0 positive for the virus</p>	<p><b>Minnesota:</b> 273 samples  34 (12.5%) positive for antibodies consistent with WNV exposure  10 (3.7%) confirmed WNV exposure  24 (8.8%) likely WNV exposure  0 positive for the virus</p>
<p><b>Wisconsin:</b> 188 samples  37 (20%) positive for antibodies consistent with WNV exposure  17 (9%) confirmed WNV exposure  20 (11%) likely WNV exposure  0 (0%) positive for the virus</p>	<p><b>Wisconsin:</b> 235 samples  68 (29%) positive for antibodies consistent with WNV exposure  44 (19%) confirmed WNV exposure  24 (10%) likely WNV exposure  2 (&lt;1%) positive for the virus</p>

***This study was paused during the 2020 season due to budget and staffing restrictions caused by the COVID-19 pandemic. No data was collected during this time.***

**What can I do to help?**

- If you find a sick, abnormally thin, or dead grouse, please record the location and date, and contact your local DNR office to submit the bird for testing and diagnosis through the DNR Wildlife Disease Laboratory. You can also report sick or dead wildlife at: <https://secure1.state.mi.us/ors/Survey/4>.
- Continue to create and support timber management in your state. Young forests are created through intensive land management techniques such as timber harvest. High quality habitat availability will limit the effect other stressors, like WNV and weather, can have on populations.

For further information please contact the Wildlife Disease Lab at 517-336-5030.