ORBIVIRUS ACTIVITIES AT NVSL

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ACTING HEAD-EQUINE/OVINE VIRUSES SECTION
U.S. DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
VETERINARY SERVICES
OCTOBER 24, 2018
Topics

2017 Calendar Year
2018 Year-to-date
Bluetongue
Epizootic Hemorrhagic Disease
Testing at NVSL
Distribution of BT and Vectors

**U.S. BTV:** 1-3, 5, 6, 9-14, 17-19, 22, 24

**BTV:** 1-6, 8, 10-14, 17-19, 22, 24

- *C. sonorensis*
- *C. obsoletus*
- *C. imicola*
- *C. Brevitarsis* and others
# BTV Identifications 2017

### BTV-11

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>1</td>
<td>Sheep</td>
</tr>
<tr>
<td>IA</td>
<td>1</td>
<td>White-tailed deer</td>
</tr>
<tr>
<td>TX</td>
<td>1</td>
<td>Pronghorn</td>
</tr>
</tbody>
</table>

### BTV-13

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>3</td>
<td>Sheep</td>
</tr>
</tbody>
</table>

### BTV-17

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>4</td>
<td>Sheep</td>
</tr>
<tr>
<td>WY</td>
<td>3</td>
<td>White-tailed deer, Mule deer, Pronghorn</td>
</tr>
</tbody>
</table>

First detection of BTV-17 in Wyoming

### Detection of Endemic Strains vary from year to year
# BTV Identifications 2017

First detection of BTV-3 in Alabama

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AL</td>
<td>1</td>
<td>White-tailed deer</td>
</tr>
</tbody>
</table>

USDA Wildlife Services
## BTV Identifications 2018

### BTV-13

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ*</td>
<td>3</td>
<td>Mule deer</td>
</tr>
</tbody>
</table>

All three animals co-infected with EHDV-2, one also co-infected with BTV-17

### BTV-17

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>1</td>
<td>Mule deer</td>
</tr>
<tr>
<td>CA</td>
<td>5</td>
<td>Mule deer, Cattle, Sheep, Pronghorn</td>
</tr>
<tr>
<td>NE</td>
<td>1</td>
<td>Bighorn sheep</td>
</tr>
<tr>
<td>NV</td>
<td>2</td>
<td>Pronghorn</td>
</tr>
<tr>
<td>OR</td>
<td>6</td>
<td>Cattle, sheep, goat</td>
</tr>
<tr>
<td>WA</td>
<td>1</td>
<td>Sheep</td>
</tr>
</tbody>
</table>

Detection of Endemic Strains vary from year to year
NVSL Bluetongue Virus Identification (endemic serotypes)

1992-2018

* BTV-2 isolated and identified by UC Davis, CA
† BTV-10 WI - Cattle originated in ID

BTV isolate / PCR positive
17 BTV serotype identified

MAP: States shaded blue indicate BTV isolate or PCR positive results. States shaded light blue indicate a BTV serotype identified. States marked with an asterisk (*) indicate BTV-2 isolated and identified by UC Davis, CA. States marked with a dagger (†) indicate BTV-10 WI - Cattle originated in ID.
‘Exotic’ BT serotypes in U.S. by county (except Florida)

- **BTV-5**: 2003
- **BTV-6**: 2006, 2015
- **BTV-9**: 2008, 2012
- **BTV-14**: 2003, 2009
- **BTV-18**: 2014
- **BTV-19**: 2003, 2015
- **BTV-24**: 2007, 2015
Florida 1999-2016

BT serotype identifications by county (NVSL); data for 2017-2018 unavailable

- BTV-1: 10, 13, 16
- BTV-2: 99, 03, 05, 06, 13
- BTV-3: 99, 01, 02, 03, 13, 16
- BTV-5: 03
- BTV-6: 06, 15
- BTV-9: 08, 12
- BTV-10: 02, 03, 15
- BTV-11: 13
- BTV-12: 10, 12
- BTV-13: 99
- BTV-14: 03
- BTV-17: 99
- BTV-18: 14
- BTV-19: 03, 15
- BTV-22: 02, 05, 15, 16
- BTV-24: 07, 15
BTV In the Caribbean

### EHDV Identifications, 2017

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>WY</td>
<td>1</td>
<td>Pronghorn</td>
</tr>
</tbody>
</table>

First identification of EHDV-2 in WY

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>3</td>
<td>Mule deer</td>
</tr>
</tbody>
</table>

First identification of EHDV-6 in AZ
## EHDV Identifications, 2018 (Oct 9)

### EHD 1

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>6</td>
<td>Mule deer*</td>
</tr>
</tbody>
</table>

*First identification of EHDV-1 in AZ 4/5 co-infected with BTV

### EHD 2

<table>
<thead>
<tr>
<th>State</th>
<th>No.</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>AZ</td>
<td>1</td>
<td>White-tailed deer</td>
</tr>
<tr>
<td>IA</td>
<td>7†</td>
<td>White-tailed deer, Elk</td>
</tr>
<tr>
<td>MN</td>
<td>1</td>
<td>White-tailed deer</td>
</tr>
<tr>
<td>NV</td>
<td>1</td>
<td>Pronghorn*</td>
</tr>
<tr>
<td>OR</td>
<td>1</td>
<td>Cattle*</td>
</tr>
<tr>
<td>UT</td>
<td>2</td>
<td>Cattle*</td>
</tr>
</tbody>
</table>

*Part of larger outbreak in cervids-randomly selected samples
*First identification of EHDV-2 in NV, UT, and OR
Epizootic Hemorrhagic Disease virus (EHDV) identification

1992-2018

- **EHDV type unknown**
- **EHDV-2**
- **EHDV-1 and 2**
- **EHDV-6**
BTV and EHDV identification by state during 2017

The map above illustrates the states where BTV and EHDV were identified in 2017. Each state is marked with the number of identified cases:

- **BT** (Blue Turfgrassmosaic Virus)
- **EHD** (Epizootic Hemorrhagic Disease)

The numbers in the map correspond to the following states:

- **BT**: 6 cases in New Mexico, 3 cases in Arizona, 1 case in Maine, 1 case in Louisiana, 1 case in North Carolina, 1 case in New Jersey.
- **EHD**: 1 case in Oregon, 1 case in Idaho, 1 case in Montana, 1 case in California, 1 case in Colorado, 1 case in Utah, 1 case in Wyoming.

This visualization helps in understanding the distribution and concentration of these diseases across the United States during the specified year.
BTV and EHDV identification by state during 2018
Questions?
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Veterinary Services
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