Movi Carrier Classes defined by repeated sampling over 4 years, Lostine Oregon Hells Canyon

- **= Mycoplasma ovipneumoniae detected by PCR on nasal swab
- ** = Mycoplasma ovipneumoniae not detected by PCR on nasal swab

Plowright et al. 2017 Ecology Letters
Age of Movi positive sheep
Lostine Oregon, Hells Canyon

Plowright et al. 2017 Ecology Letters
Probability of maintaining status given test result for first sample

Lostine 27 ewes tested 2 – 7 times

- Positive
- Negative

2nd sample  | 3rd sample  | 4th or greater
---|---|---

- Graph legend:
  - Positive
  - Negative
Hells Canyon Bighorn Sheep Populations
## Movi status

### Hells Canyon Bighorn Sheep Populations

<table>
<thead>
<tr>
<th>Population</th>
<th>Last year tested</th>
<th>Last Movi positive test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lookout and Tucannon</td>
<td>2014/ 2019</td>
<td>Never</td>
</tr>
<tr>
<td>Asotin</td>
<td>2019</td>
<td>November 2014</td>
</tr>
<tr>
<td>Black Butte</td>
<td>2019</td>
<td>February 2015</td>
</tr>
<tr>
<td>Mountain View</td>
<td>2019</td>
<td>February 2015</td>
</tr>
<tr>
<td>Wenaha</td>
<td>2019</td>
<td>February 2017</td>
</tr>
<tr>
<td>Lower Imnaha</td>
<td>2019</td>
<td>February 2010</td>
</tr>
<tr>
<td>Big Canyon</td>
<td>2019</td>
<td>February 2015</td>
</tr>
<tr>
<td>Redbird</td>
<td>2020 (pending)</td>
<td>February 2018</td>
</tr>
<tr>
<td>Lower Hells Canyon</td>
<td>2020 (pending)</td>
<td>February 2018</td>
</tr>
<tr>
<td>Muir Creek, UHC-ID, UHC-OR</td>
<td>2020 (pending)</td>
<td>February 2010</td>
</tr>
<tr>
<td>Lostine</td>
<td>2019 - ongoing</td>
<td>February 2019</td>
</tr>
</tbody>
</table>
Movi status of bighorn sheep populations

- **Green** = No Movi detected
- **Brown** = Movi detected
- **White** = Unknown Movi status
Timeline of exposure:
Asotin antibodies to Movi
Pre and post 2011 - 12 outbreak
Population estimates
2008 - 2018

Wenaha/Mtn View
Asotin
Redbird

Removal Asotin
Lostine

9 chronic carrier ewes removed

2014 - 2017
Sinus tumor
Radiography/ XRay
Flat panel
and CT Scan

Euthanized
Lostine chronic carrier
Sinus CT Scan
Lostine Chronic Movi Carrier
A few things we have learned about “test and remove”

- Natural fade-out of disease was associated with removal of carriers in connected populations
- No rams were removed or identified as carriers
- Some populations increased quickly following Movi fadeout, others were slower to respond
- Patterns of carriage differ among populations - sinus tumors may be one factor

HUGE THANKS TO THE MANY PEOPLE WHO HELPED MAKE THIS PROJECT HAPPEN