The Efforts of the USDA National Rabies Management Program for Controlling Rabies on Public Land

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Global Rabies Statistics

- More than 70,000 people die each year worldwide from rabies (1 person every 7.5 minutes)
- >20 million people receive rabies prophylaxis annually
- Global rabies burden > $6 billion annually
- Hotspots: Africa and Asia


- 6,163 rabies cases (1 human)
- 92% of rabies cases were in wildlife
- Global rabies burden > $6 billion annually
- Up to 40,000 people exposed each year
- >$300 million annually

Rabies in the U.S.

- Major Animal Groups:
  - 1,981 raccoons (33%)
  - 1,627 skunks (27%)
  - 1,380 bats (23%)
  - 427 foxes (7%)
  - 65 cattle (1%)

Protecting People/Protecting Agriculture/Protecting Wildlife
Rabies in the U.S.
Managing Rabies at the Sources

- Multiple Variants
- Diverse Hosts
- Wide Open Spaces
- Economics......

Why Manage Rabies at its Source?
- Protect Human Health
- Protect Animal Health/Food Supply
- Protect Biodiversity/Rare Species
- Economics

Phase 1: Prevent spread of specific rabies variants in carnivores
Phase 2: Eliminate specific rabies variants

Contingency Actions
Enhanced Rabies Surveillance
Coordinated ORV

National Program Goals

Economics of Preventing the Spread of Raccoon Rabies (2013)

Modeling the negative impacts of the spread of raccoon rabies with REMI Model

- By 2035 the raccoon variant of rabies would stretch from central Wisconsin to the Texas-Louisiana border.
- The present value of the negative impact of rabies would be approximately $907 million (roughly $45 million per year)

- Livestock at risk ~ 20 million
- 2,757 years of employment lost

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2,757 years of employment lost
**Rabies Management Accomplishments (1997-2014)**

- No canine rabies in U.S. since 2004, declared free in 2007
- Only one case of gray fox rabies in Texas since May 2009
- No cases of bat-like virus in gray foxes near Flagstaff, AZ
- No appreciable spread of raccoon rabies to West
- Conducted broad-scale Field Trials in 5 states in a quest for the safest, most effective vaccine

**Enhanced Rabies Surveillance**

![Enhanced Surveillance Diagram]

- **Direct Rapid Immunohistochemistry Test**

<table>
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<tr>
<th>Year</th>
<th>Rabid by dRIT</th>
<th>Percent</th>
<th>Rabid by dRIT</th>
<th>Percent</th>
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<td>2005</td>
<td>2,848</td>
<td>59</td>
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<td>2006</td>
<td>6,072</td>
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<td>2007</td>
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<td>157</td>
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<td>2008</td>
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<td>2011</td>
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<td>2012</td>
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<td>2013</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>63,315</strong></td>
<td><strong>1,172</strong></td>
<td><strong>1.9%</strong></td>
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</tr>
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**Enhanced Surveillance: Sampling Emphasis**

- No human or pet exposure history
- Strange behaving animals
- Animals with suspect lesions
- Animals removed – “hot rabies focus”
- Road kills/other dead animals
- Nuisance control or hunter harvested
- Proximity to ORV zones

**Enhanced Surveillance: Sampling**

- Determines geographic distribution of specific rabies virus variants
- Complements public health surveillance
- Conducted in 24 states by WS (19 raccoon states)
Enhanced Surveillance: Basic Methods

Road kill collection → Record data → Brainstem sample → BRIT

Use of ORV to prevent the spread of rabies
Distribution in FY2013

Baits Distributed: 6,820,467
6.7 million on Private Land
Distance Flown: 213,957 km
Area Baited: 140,246 km²
84% Public Land
Hours of Flight: 906
Across 15 States

2013 ORV Operations Summary

Baits Distributed by Hand: 764,172 (11% of all baits)
Area Baited by Hand: 9,496 km² (7% of area baited)
Individually baited by Hand: 56

FY 2013 ORV Distribution in U.S. by Hand (Urban-Suburban)
Contingency Action Methods

- Enhanced rabies surveillance
- Oral rabies vaccination (75 or 150 baits/km²)
- Trap-vaccinate-release
- Local population reduction

Raccoon Program Monitoring (1997-2013)

- >120,000 mesocarnivores trapped and sampled in 20 states (10 K a year)
- Conducted >300 raccoon density studies in 17 states to index abundance by habitat
- Agreements in place to work on private land

Strategies for Raccoon Rabies Elimination

Questions?

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