The Need for Educating Wildlife Health Professionals

Evolving Veterinary Education for a Safer World
12-14 October 2009, Paris, France

Dr William B. Karesh
President, OIE Working Group on Wildlife Diseases
Vice President, Wildlife Conservation Society
Co-Chair, IUCN Wildlife Health Specialist Group
### Wildlife Defined

<table>
<thead>
<tr>
<th>Animals live under Human Supervision and Control</th>
<th>Phenotype Selected by Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

- Domestic Animal
- Captive Wildlife
- Feral Animal
- **Wildlife**

- Pathogens and diseases from all four groups must be reported
Growing Importance of Wildlife

- Pathogens as “Species Neutral” cross taxons of wild, domestic, & humans
- Increased recognition of economic, socio/cultural, recreational, & ecological value
- Societal concerns for welfare and well-being issues
- Implications of global wildlife trade
Some Zoonosis from Wildlife

- AIDS
- Rabies
- Hanta Viruses
- West Nile Virus
- Avian Influenza
- Chagas Disease
- Yellow Fever
- Leishmaniasis
- Brucellosis
- Tuberculosis (M. bovis)
- Leptospirosis
- Anthrax
- Plague
- Trichinellosis
- Nipah Virus
- Monkey Pox
<table>
<thead>
<tr>
<th>Pathogens of Wildlife and Livestock</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Anthrax</td>
</tr>
<tr>
<td>• Avian influenza</td>
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<tr>
<td>• Bovine Tuberculosis</td>
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<tr>
<td>• Foot and Mouth Dis</td>
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<tr>
<td>• Fowl Cholera</td>
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<tr>
<td>• Leptospirosis</td>
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<tr>
<td>• Newcastle Disease</td>
</tr>
<tr>
<td>• Rabies</td>
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<tr>
<td>• Myxomatosis</td>
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</tbody>
</table>

| • Classical Swine Fever            |
| • African Swine Fever              |
| • *Brucella melatensis*            |
| • *Brucella abortus*               |
| • West Nile Virus                  |
| • Venez. Encephalitis              |
| • Bluetongue                       |
| • Epiz. Hemorr. Disease            |
Some Pathogens Affecting Wildlife

- Plague – Prairie Dogs & B. F. Ferrets
- Chytrid Fungus – many amphibian species
- Avian Cholera - wild ducks
- Chronic Wasting Disease – cervids
- West Nile Virus – Greater Sage Grouse
- Avian Malaria – Hawaiian Native Birds
- Ebola – great apes
Some Human Pathogens Affecting Wildlife

- Human Tuberculosis – non-human primates
- Polio – chimpanzees
- Human Measles – gorillas
- Herpes simplex – new and old world primates
Toxins/Residues Affecting Wildlife

- Diclofenac – 98-99% loss of vulture pop’s
- Chlorinated biphenyls – whales, fish
- Chlorinated hydrocarbons – birds of prey
- Endocrine mimics – bird reproduction
- Lead shot and sinkers – waterfowl
- Intentional poisoning – carnivores, scavengers
## Country Level Approach

<table>
<thead>
<tr>
<th>Infectious Disease</th>
<th>Affects Wildlife</th>
<th>Affects Domestic Animals</th>
<th>Affects Humans Directly</th>
<th>Affects Human Livelihoods Indirectly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brucellosis</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Canine Parvovirus</td>
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<tr>
<td>Chagas</td>
<td>X</td>
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<tr>
<td>Distemper</td>
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<td>Foot and Mouth Disease</td>
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<td>Leishmania</td>
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<td>Leptospirosis</td>
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<td>Rabies</td>
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<tr>
<td>Scabies</td>
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<tr>
<td>Toxoplasmosis</td>
<td>X</td>
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One World, One Health®

29 September 2004
New York Symposium
“Building Interdisciplinary Bridges to Health in a ‘Globalized World’”

15 November 2004
Bangkok Workshop
“Beyond Zoonoses: The Threat of Emerging Diseases to Human Security and Conservation, and the Implications for Public Policy”

15–17 November 2005
China Workshop
“Beyond Zoonoses: The Threat of Emerging Diseases to Human Health, Agriculture and Conservation: Implications for Public Policy”

www.OneWorldOneHealth.org
1,000,000,000 Kg / Year
(Central Africa)
What do Wildlife Vets Do?

From Mazet, et al, JVME 33, 2006
Disease Investigations

Normal Skin

Abnormal Skin

*Batrachochytrium dendrobatidis*
Assessment & Monitoring
Where the Wild Things Are

The Link Between the Health of Humans, Animals, and the Environment

William B. Karesh
May 8, 2009

Summary -- How studying animal and human disease together could help prevent and treat the next pandemic.

WILLIAM B. KARESH is Vice President and Director of the Global Health Program and President of the Wildlife Conservation Society’s World Animal Health Organization (OIE) Working Group on Wildlife Diseases.

The rapid emergence of the H1N1 strain of influenza in North America and its subsequent global spread have reminded the
Disease distribution maps

Click on map to zoom in.
Specific tasks of the OIE Working Group on Wildlife diseases related to the training of focal points

OIE Mission:

• Reinforcement of the capacity of Members to improve the surveillance and notification of wildlife diseases.

• Deployment of focal points responsible for assisting each Delegate in this task.
Education – When & Where

• Required lectures for all students
• Elective / Optional courses
• Specialty tracks
• Post-graduate – Internships/Residencies/Masters/ PhD.
• Continuing Education