Safeguarding the health of animals, humans, and ecosystems

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Outline

- USDA/APHIS/WS National Wildlife Disease Program Overview
- HPAI surveillance in Florida
- Feral swine disease surveillance in Florida
- Future Challenges
Over 70% of human pathogens originate from animals!

Most of them originate in wildlife

Relative risk EID from zoonotic pathogen from non-wildlife

Relative risk EID from zoonotic pathogen from wildlife

Jones et al, Nature 21 Feb 2008
USDA/APHIS Wildlife Services
National Wildlife Disease Program

APHIS Programs Work Together for National Animal Health

Wildlife Services

- human-wildlife conflict
- Zoonotic diseases

Veterinary Services

- Domestic Animals

photo by Doug Wean
Goal

- To facilitate development and implementation of a nationally coordinated wildlife disease surveillance and emergency response system for the purpose of safeguarding
  - Wildlife populations
  - Agriculture
  - Human health and safety
USDA/APHIS/WS
National Wildlife Disease Program

WS  Wildlife Disease Biologist

Staff
Biologists/Admin

Asst.
Coordinators

Coordinator
Wildlife Disease Biologist

Liaison with:
- Veterinary Services
- State Natural Resources, Agriculture, and Health
- Other State, Tribal, and Federal agencies

Assist these agencies in accomplishing disease surveillance and control objectives

Conduct National level disease surveillance programs

Respond to disease outbreaks and other emergencies
Locations of Wildlife Disease Biologists
NWDP Services Provided

• Coordinate and Implement Wildlife Disease Programs
  • Monitoring and Surveillance Systems
  • Emergency Response Systems

• Work at diverse geographic scales
  • Local
  • Regional
  • National
  • Continental
NWDP Services Provided

Examples of Monitoring and Surveillance Activities

Plague
HPAI
Chronic wasting disease
E. Coli O157
Classical swine fever
West Nile virus
Japanese Encephalitis
Leptospirosis
Trichinella
Tularemia
Brucella suis
Bovine tuberculosis
Rabies
Pseudorabies
EHD/Blue Tongue
FMD
Toxoplasmosis
Swine Influenza
Emergency Response Services

- Requires:
  - dedicated personnel and equipment,
  - training,
  - interagency communication and cooperation
  - flexibility
Emergency Response Services

- Activities
  - Oil Spills
    - Deepwater Horizon
    - Enbridge Pipeline
    - Bayou Perot
    - Delaware River
    - New Orleans
  - Natural Disasters
    - Katrina, Rita, Emily, Ivan, Gustad, etc.
    - Iowa Floods
    - Thailand Tsunami

- Diseases
  - SD Plague
  - CA E. coli O157
  - Newcastle
  - Bovine TB
  - LPAI/HPAI
  - CWD
  - Rabies
HPAI surveillance in wild birds
Interagency Effort

Morbidity Mortality
Hunter killed
Live Wild birds
Agency Take
HPAI surveillance in wild birds

2006-2010
5,047 samples

No HPAI

If we hide maybe they won't sample us!

- Agency Harvested
- Hunter Harvest
- Live wild bird (released)
- Morbidity/Mortality Event
Feral Swine Disease Surveillance in Florida

- WS has been collecting surveillance and monitoring of various diseases in feral swine in Florida since 2007.
- Primary sources of funding for this monitoring: CSF, SIV
- Other diseases covered: SB, PRV, ASF, FMD, Toxo, Trich, SIV, HEV, PRRS, PCV2, Lepto
Sample collection
2007-present

1646 samples collected (Feb 2013)
Future Challenges

- Minimal Disease Surveillance in Wildlife
  - Critical in One Health approach to protecting humans and animals
    - Requires investment infrastructure
      - Field biologists and support staff
      - Diagnostic support for wildlife
      - Research Support for modeling and Risk Assessments
  - Data historically limited in geographic and temporal scales
    - Requires Nationally coordinated networks
      - HPAI Wild Bird Early Detection System
      - Sylvatic Plague and Tularemia Monitoring System
      - Feral Swine Comprehensive Disease Surveillance System
Future Challenges

• Much more interdisciplinary integration needed
  • Avoid duplication
  • Build on various partners Strengths

• Constantly Re-inventing the Wheel
  • Surveillance networks need to be flexible
    • Capable of sampling multiple species
    • Capable of sampling for multiple pathogens
  • Often dismantled when perception of risk decreases
    • HPAI
“One Health”

Merging Animal Health and Public Health