

# Surveillance of Rabies in Wild Animals

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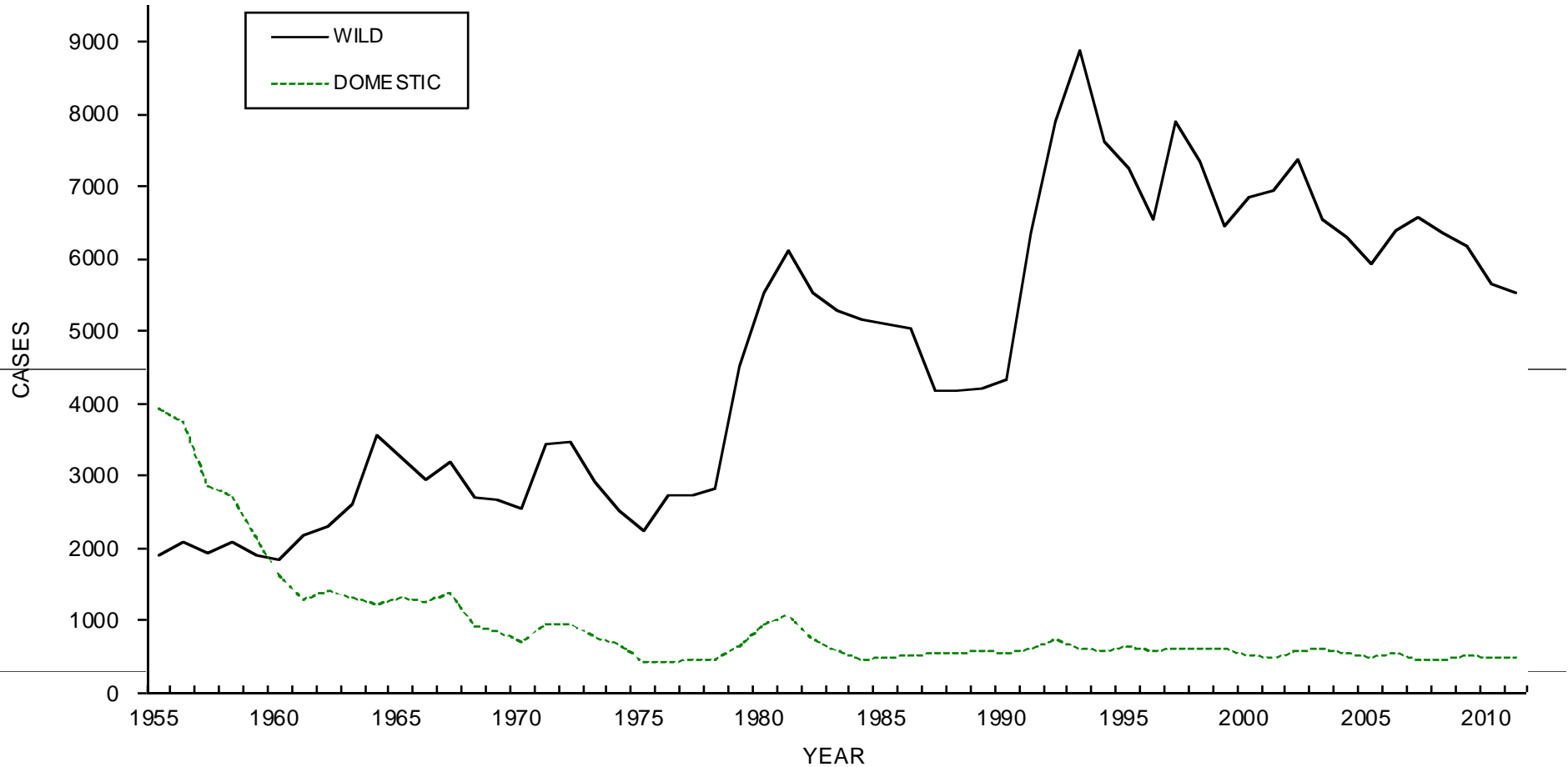
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REDIPRA  
September 16, 2015

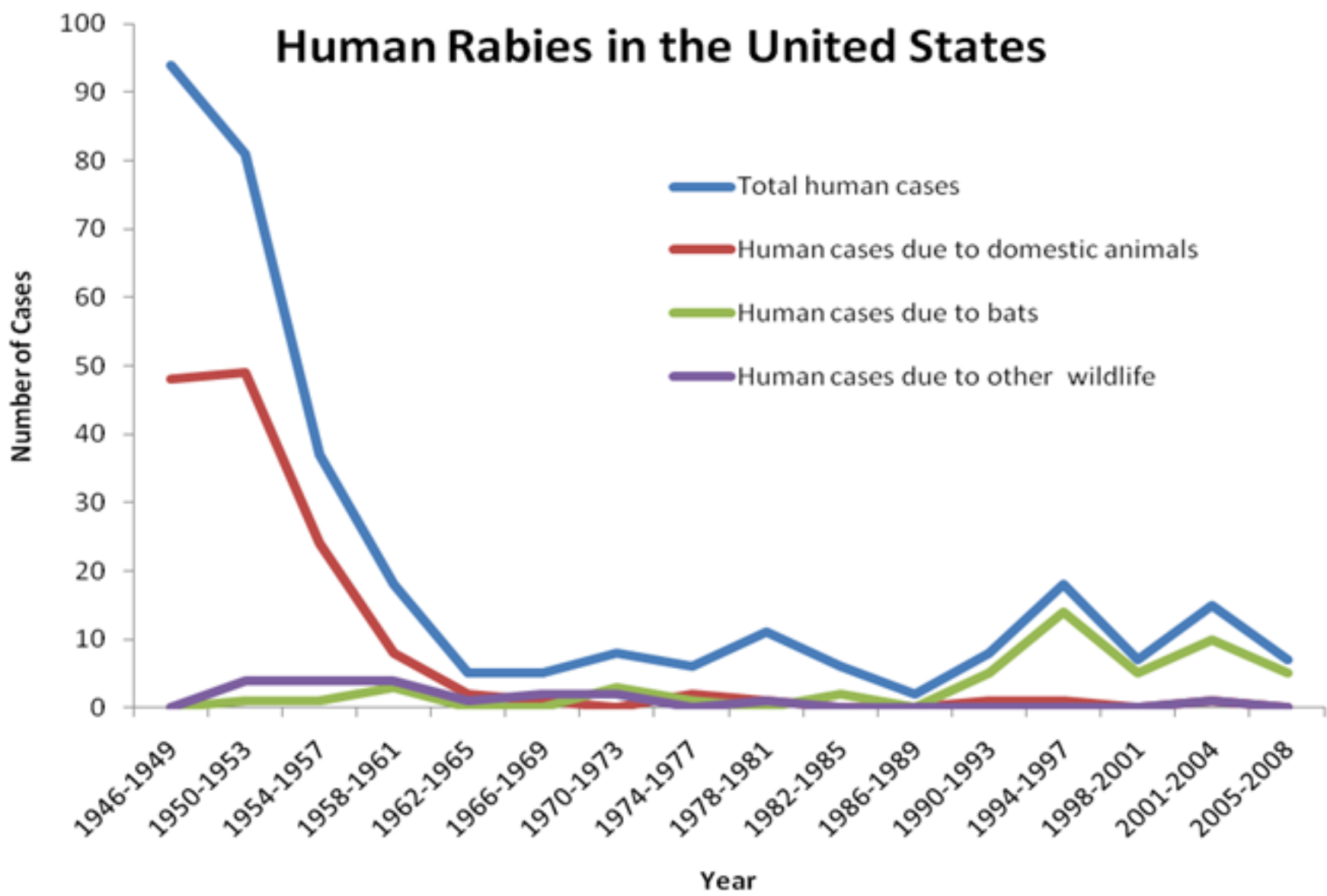
National Center for Emerging and Zoonotic Infectious Diseases  
Division of High-Consequence Pathogens and Pathology



# Rabies in Wild and Domestic Animals in the U.S., 1955-2011



# Human Rabies in the United States



# Rabies Surveillance in the U.S.

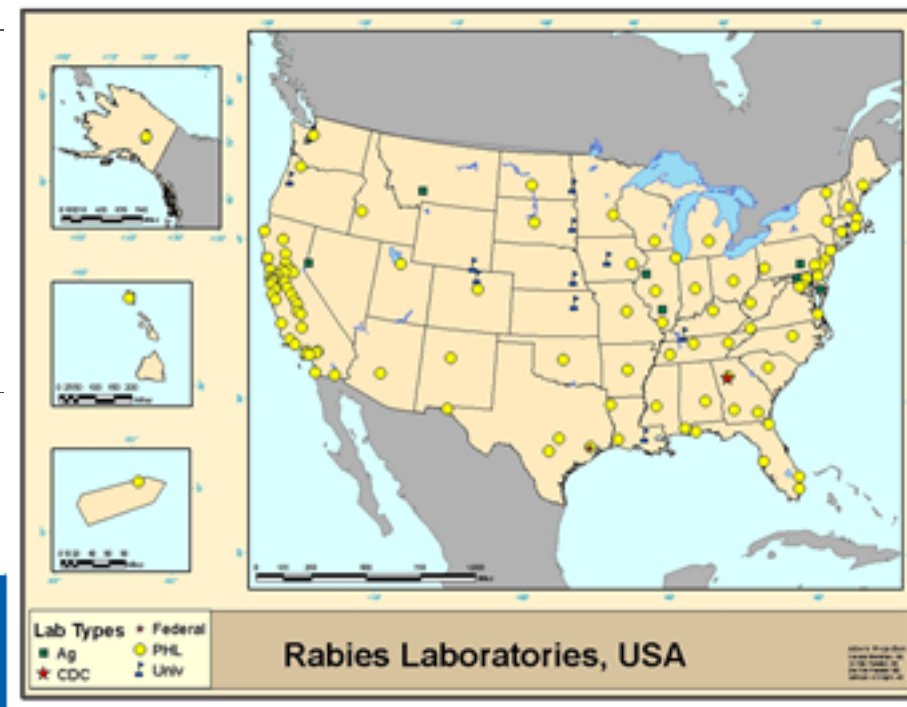
- ❑ Human rabies uncommon (1 to 4 cases per year);  
~20,000 to 40,000 human exposures per year
- ❑ Dog rabies transmission eliminated
- ❑ Wildlife hosts include bats, raccoons, skunks, foxes, and  
mongoose (Puerto Rico)
- ❑ >95,000 animals submitted for diagnosis annually
- ❑ Approximately 6,500 to 8,000 animal rabies cases  
diagnosed per year, ~95% wildlife species



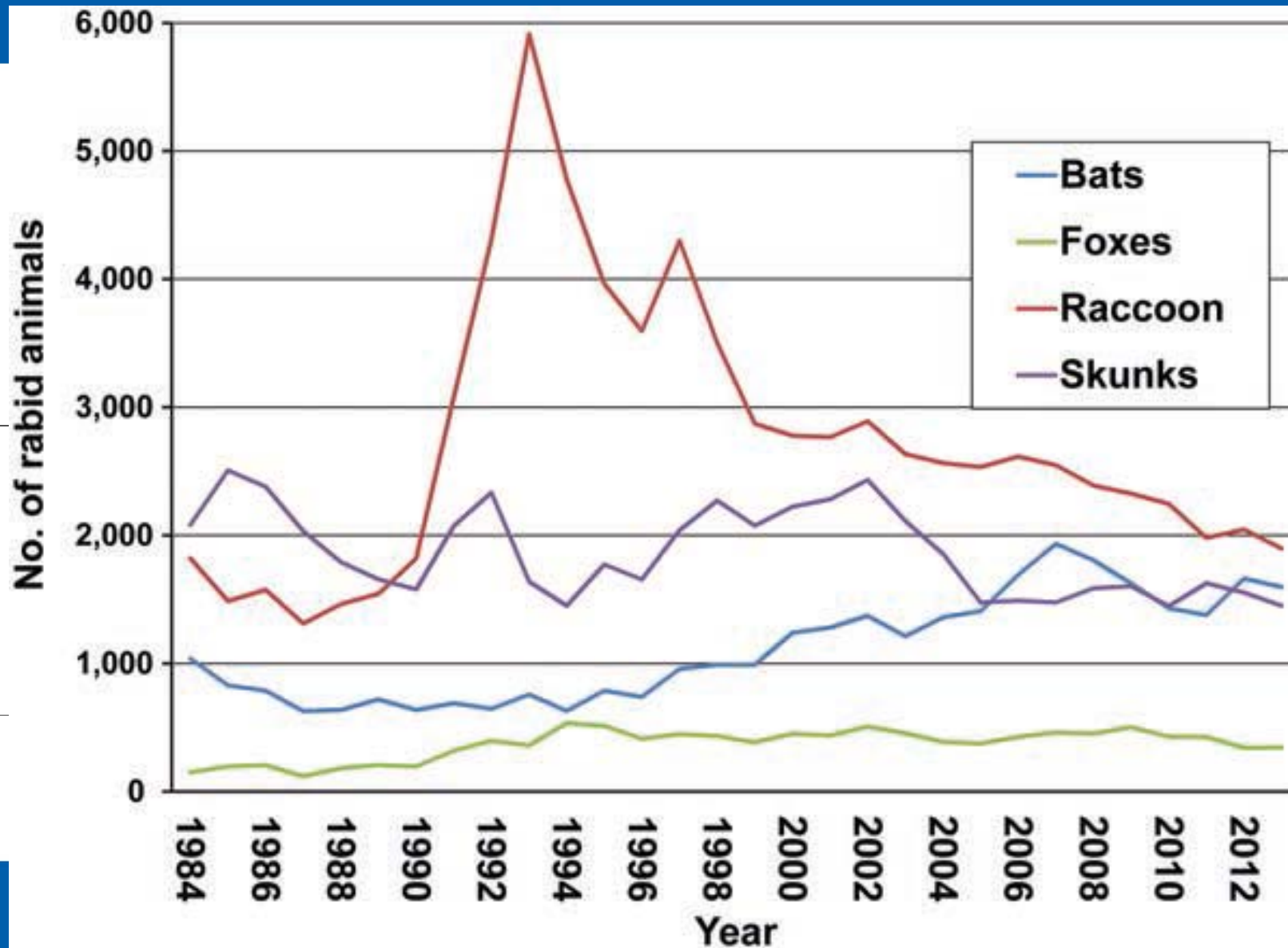
# U.S. National Rabies Surveillance System

## □ Lab-based system

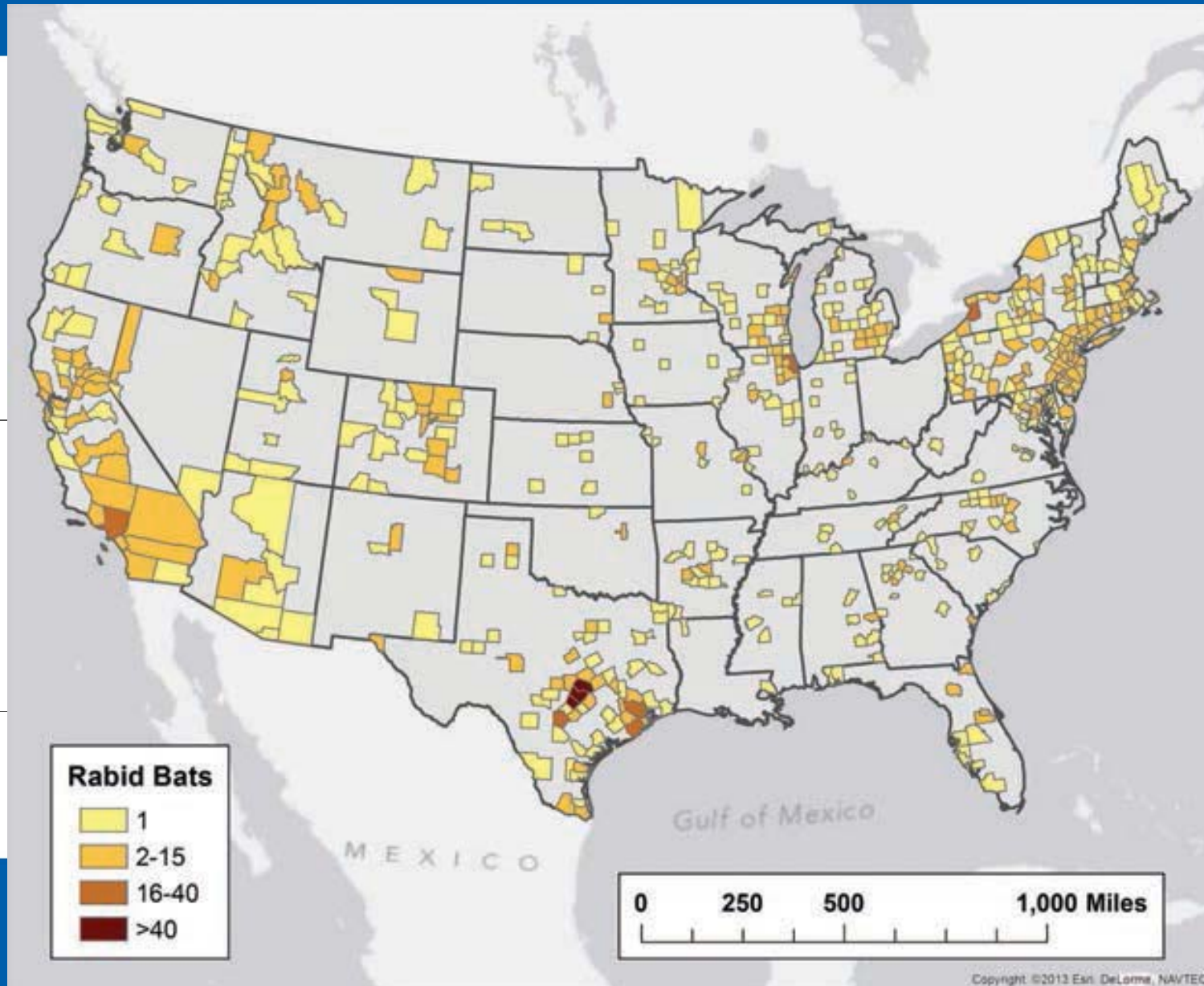
- Focus on decentralized access to laboratories that can perform rabies diagnosis on animals involved in potential exposures
- 126 laboratories performing DFA
- >25 USDA wildlife biologists performing DRIT



# Rabies Surveillance in the U.S.



# Reported cases of rabies involving bats, 2013



# Distribution of Rabies in the U.S.





# Oral Rabies Vaccination

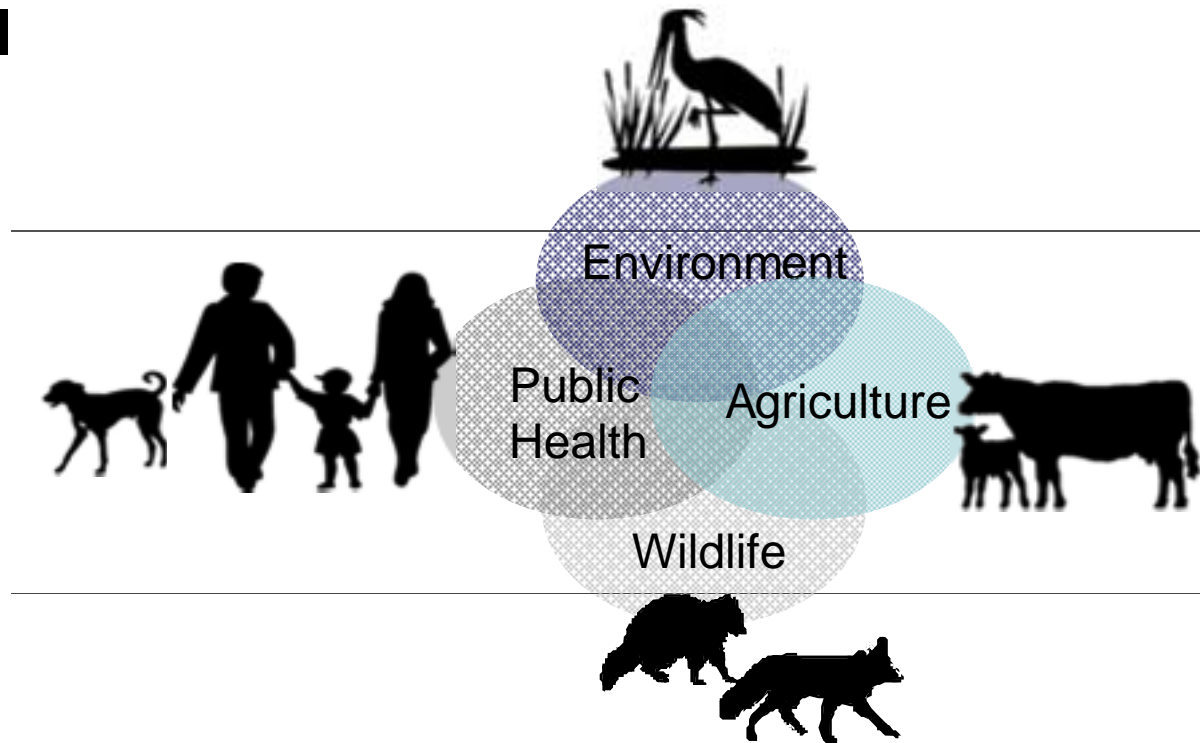
- ❑ Delivering a vaccine-bait to a target species for consumption to create herd immunity
- ❑ Canada, Europe, and the United States are primary users
  - 42,166,134 ORV doses in 2009
- ❑ Cost is a potential limiting factor (\$1.23/dose)
- ❑ Led to elimination of specific rabies variants at the landscape scale



# North American Rabies Management Plan

## International Collaboration and Coordination

- ❑ Information transfer
- ❑ Surveillance and monitoring
- ❑ Rabies control
- ❑ Research



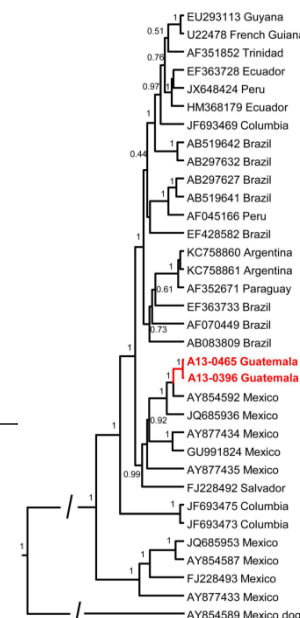
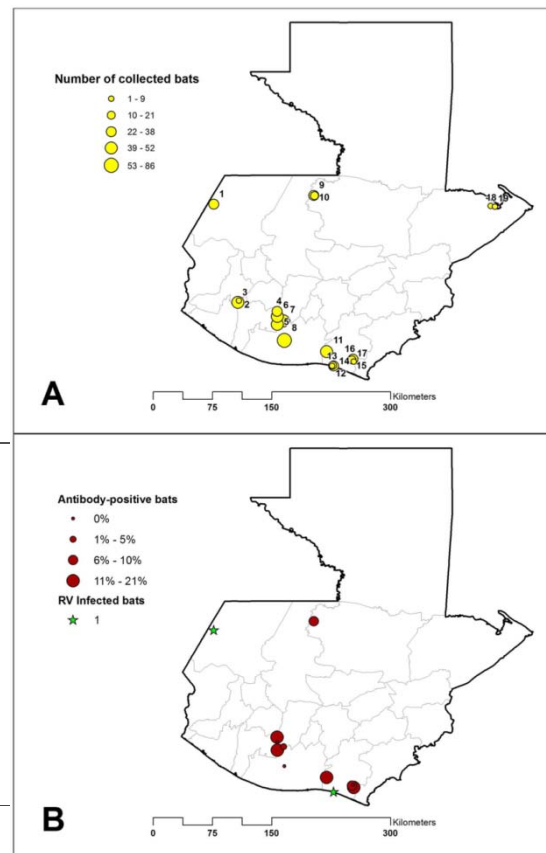
# Ferret Badger Rabies in Taiwan

- ❑ Assisted in investigation 2012
- ❑ Previously no rabies surveillance (considered rabies free)
- ❑ Retrospective analysis of samples indicated longstanding presence of circulating rabies virus
- ❑ Phylogenetic analysis suggested host shift from canine rabies virus variant prior to elimination in 1950s



# Bat Rabies in Guatemala and Peru

- First report and isolation of rabies virus from bats in Guatemala
- Documentation of human exposures to vampire bats in Peruvian amazon
- Identification of novel bat-associated pathogens (influenza A, bartonella spp., polyoma virus, microfilariae)





# Haiti Animal Rabies Surveillance Program (HARSP)

❑ Collaboration between CDC, MSPP, MARNDR, HSI, and CVM

❑ Problem

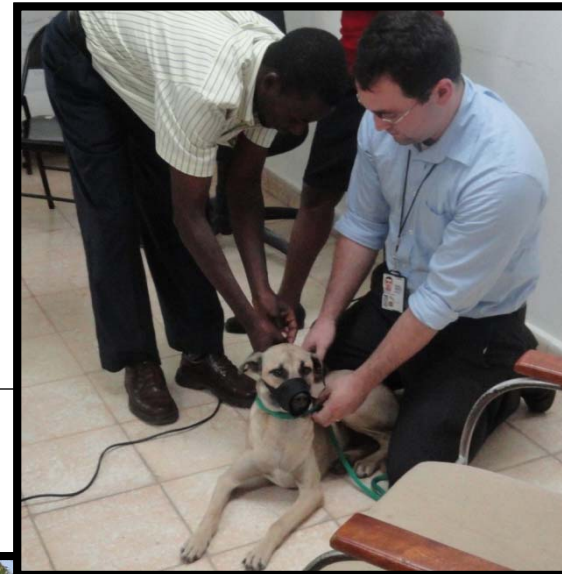
- Bite injuries
- Human rabies deaths

❑ Intervention

- Laboratory Capacity
- Trained Surveillance Workforce
- Humane & Safe Methods

❑ Goal

- Healthy Animals, Healthy People, Healthy Haiti

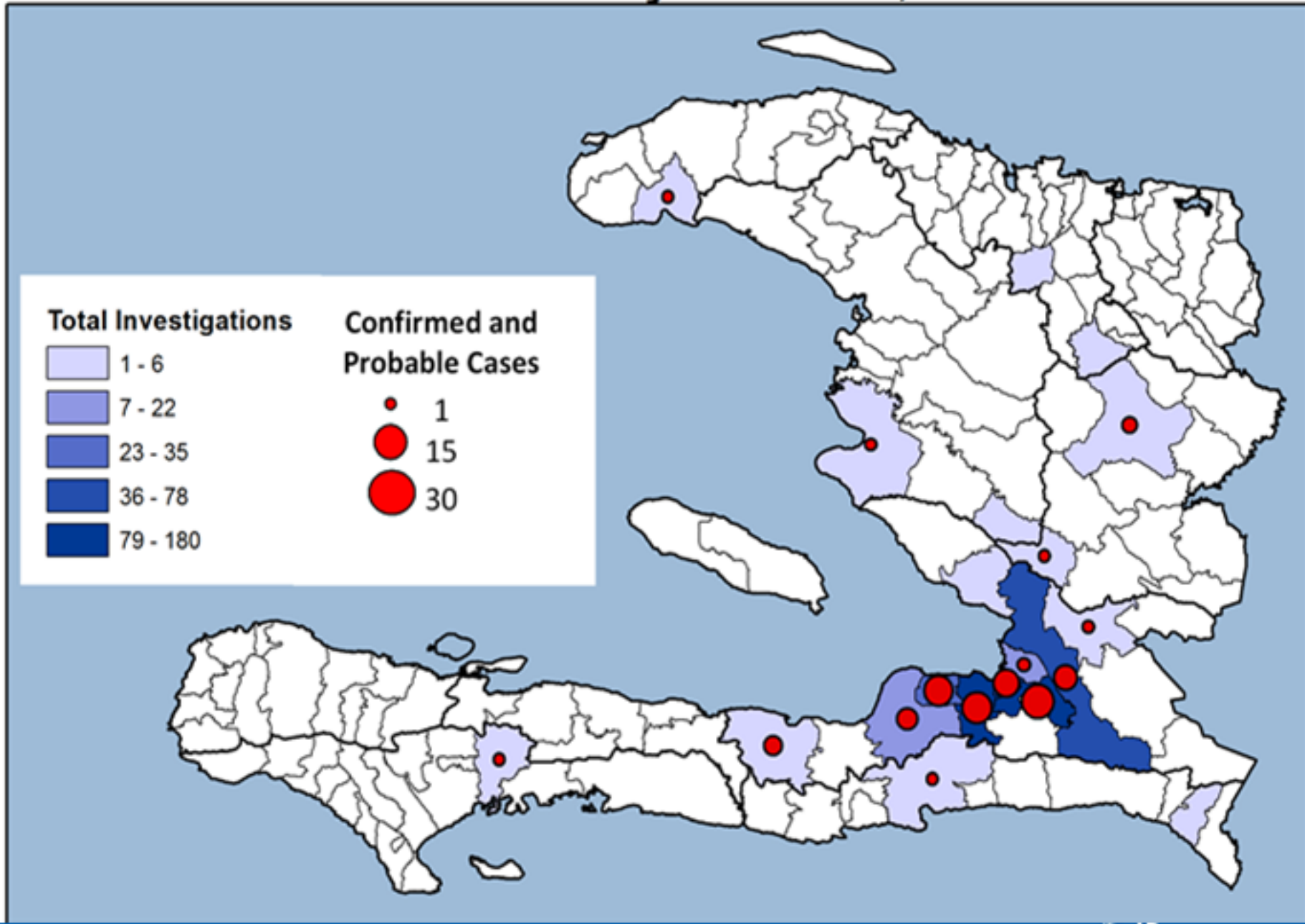


# Haiti Animal Rabies Surveillance Program (HARSP) Overview

- ❑ 10 HARSP Officers in 3 Departments
- ❑ Euthanized >50 suspect rabid dogs
  - Prevented inhumane deaths
  - Prevented further human exposures
- ❑ Quarantined more than 300 rabies suspect dogs
- ❑ Prevented more than 350 human rabies exposures
- ❑ Saved potentially more than 100 human lives

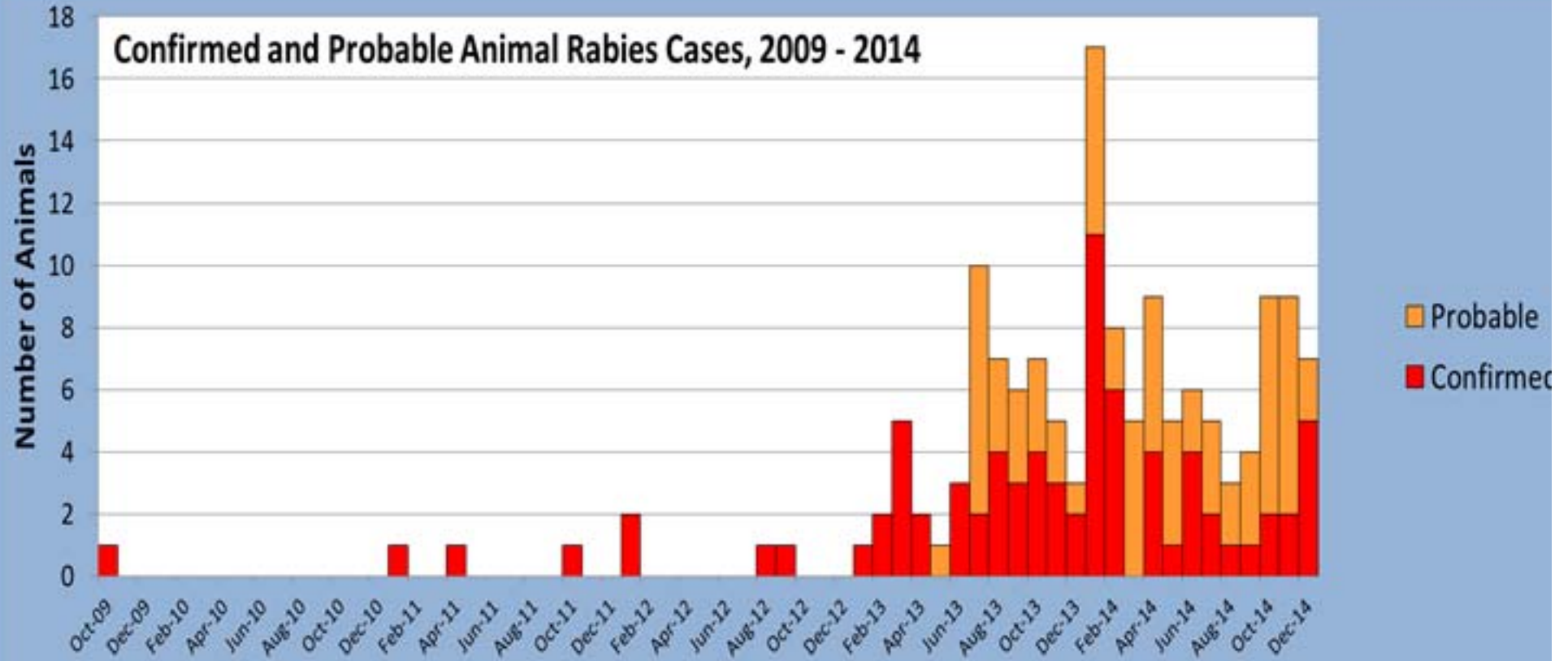


# Animal Rabies Activity in Haiti, 2009 - 2014





# HARSP: Increasing Recognition of Rabid Dogs





# Wild Animal Surveillance in Haiti

- ❑ 3 Ministry officials trained on mongoose and bat sampling methods
    - 9 mongoose captured in Jeremie, Haiti
    - 40 bats captured in Jeremie, Haiti
    - All samples collected were negative for rabies antibody

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  - ❑ Provided equipment and supplies to continue for 1 year
  - ❑ CDC will continue to provide technical support
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# Expansion to Ethiopia and Vietnam

- ❑ Global health security initiative providing funding
- ❑ Replicating Haiti rabies surveillance program as a zoonotic disease platform



# Questions?

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**Para más información contacte los Centros de Control y Prevención de Enfermedades**

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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