



# Preventing Wildlife Rabies Saves Lives and Money

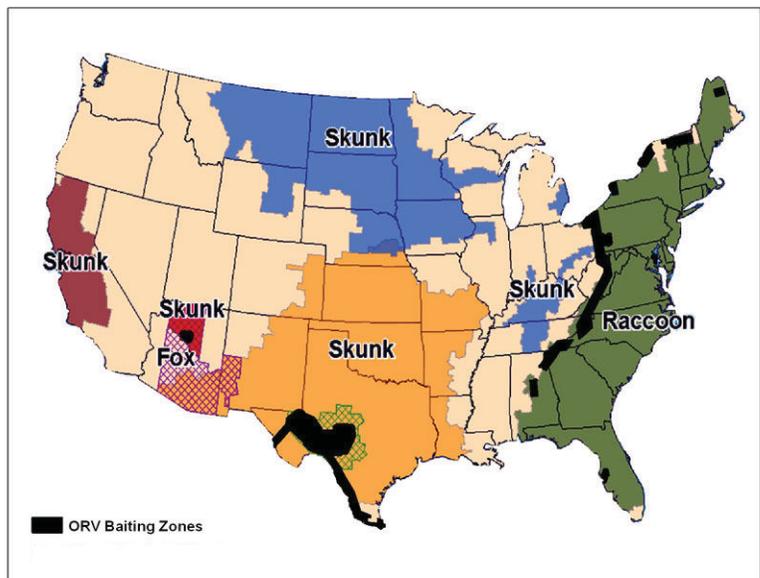
*Rabies is a deadly viral disease that affects the nervous system of mammals. Several different variants of the rabies virus exist in the United States. Each variant is spread predominantly by one wildlife species, but all variants are capable of infecting and killing mammals, including humans.*

*Every year, local, State, and Federal governments in the United States distribute more than 12 million oral rabies vaccine (ORV) baits in an effort to reduce rabies in wildlife and prevent possible transmission to humans, domestic animals, and pets. Economists at Wildlife Services (WS)—which is part of the U.S. Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS)—have conducted cost-benefit analyses of these efforts showing the elimination of rabies in wildlife not only saves lives, but also has the potential to save taxpayers millions of dollars each year.*

## PREVENTING RABIES

Approximately 90 percent of the reported rabies cases in the United States occur in wildlife. Raccoons and skunks account for the most reported cases, but bats, foxes, and coyotes are also among those commonly infected. Wildlife species that are often susceptible to rabies, such as raccoons, thrive in many environments and maintain the rabies virus either at low levels or spread the virus quickly during outbreaks.

Since 1995, the WS program has been working cooperatively with local, State, and Federal agencies, universities, and other partners to reduce rabies in wildlife. For example, each year WS and cooperators distribute about 6.5 million ORV baits in selected States to create a zone where raccoon rabies can be contained. This program is critical to national rabies prevention



Wildlife rabies reservoirs within the United States and the current baiting zones.

(Source: CDC and WS)



**USDA-APHIS-WS wildlife biologists work to reduce rabies in wildlife through oral rabies vaccination programs, as well as surveillance and monitoring efforts.**

as raccoon populations are present in all 48 States. While raccoon vaccination is the largest of WS' efforts, the program has also been involved in a cooperative ORV operation in Texas that targets canine rabies in coyotes and a unique variant of the disease in gray foxes. In Arizona, projects focus on foxes and on free-ranging dogs on Tribal lands.

### **ECONOMIC BENEFITS OF ORAL RABIES VACCINATION (ORV) PROGRAMS**

Costs associated with rabies outbreaks can be in the hundreds of millions of dollars due to the need for public health investigations, animal rabies tests, pre- or post-exposure prophylaxis (PEP) treatments, pet and livestock vaccinations, and public education efforts. Although the United States' rabies prevention network is effective,

approximately 38,000 people still receive PEP treatments annually, resulting in over \$150 million alone in health care costs.

A WS economic evaluation of a rabies prevention effort in Texas indicated that for every dollar spent on a coyote ORV program, between \$4 and \$13 were saved. From 1995–2006, south Texas implemented an ORV program to eliminate a rabies outbreak in domestic dogs and coyotes. The cost of the 10-year program was approximately \$26 million. However, an economic analysis estimated the program's overall savings ranged from \$89 to \$346 million in avoided damages.

In a similar study, WS economists collaborated with the California Department of Health Services to determine the direct and indirect

economic costs of human rabies exposure in two California counties. Results indicated that the average cost of a single suspected rabies exposure was approximately \$4,000 (2007 U.S. dollars). Using these identified costs, WS economists then assessed the potential benefits and costs of ORV baiting to eliminate or prevent the spread of skunk rabies in California. Results showed that for every dollar invested in wildlife rabies control and prevention, the return value in benefits could be as high as \$6.35.

Results from analyses such as these provide an economic basis for decisionmaking and serve as a guide for future ORV baiting campaigns in the United States and other countries. Today, State and Federal wildlife ORV programs are faced with declining resources. Ironically, as these resources shrink, societal and environmental changes are leading to increased opportunities for people and pets to be exposed to wildlife, particularly in urban and suburban environments. Progress has been made towards eliminating rabies in terrestrial wildlife, but continued coordinated efforts are still needed. The successful elimination of rabies from the United States relies on preventing the disease in wildlife.



**Oral rabies vaccination bait, like that pictured above, is distributed each year to prevent rabies in wildlife, such as raccoons, coyotes, and foxes.**

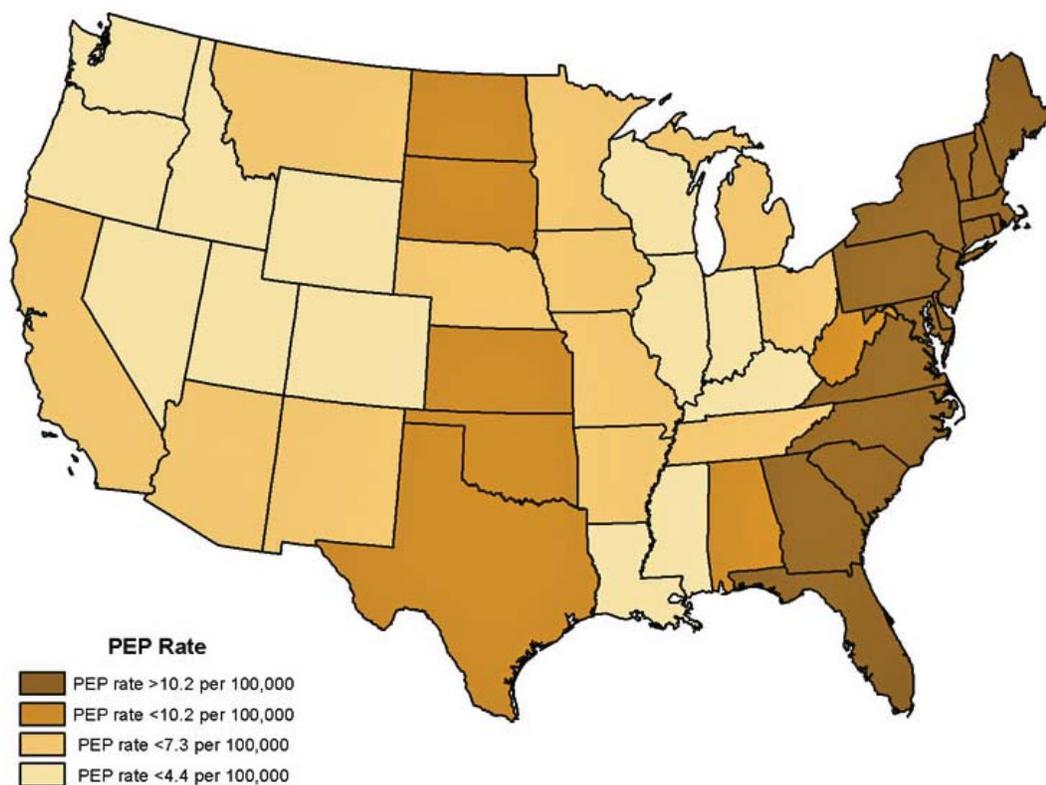
## Recent ORV Successes

- The domestic dog-coyote variant of rabies was successfully eliminated from the United States in 2008, in part, as a result of an ORV baiting program in Texas, suggesting that ORV for wildlife can successfully manage terrestrial rabies.
- A gray fox ORV program in the southwest United States stopped the expansion of a rabies outbreak and reduced the original treatment zone by 50 percent.

- A raccoon ORV program in the eastern United States is creating a barrier against the westward spread of raccoon rabies into native raccoon populations beyond the Appalachian Mountains.

ORV programs reduce:

- Human losses, exposure, and PEP costs
- Epizootic-related pet and livestock vaccination, quarantine, and euthanasia
- Burden on State services for animal diagnostic tests
- Livestock losses
- Wildlife losses



Average rate of pre- and post-exposure (PEP) treatment to prevent rabies in people by State in 2006. (Source: CDC and WS)

## **Rabies and ONE HEALTH**

The ONE HEALTH concept is a worldwide strategy for expanding interdisciplinary collaborations and communications in all aspects of health care for humans, animals, and the environment. By combining the expertise of human health care providers, veterinarians, and wildlife professionals, rabies management

programs can improve the health and well-being of all species impacted by this disease, and these partnerships make the management of rabies a premier example of the ONE HEALTH concept. To learn more, please visit [www.onehealthinitiative.com](http://www.onehealthinitiative.com).

### **Additional Information**

**For more information, please contact:**

#### **National Rabies Management Program**

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#### **National Wildlife Research Center**

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**The successful elimination of rabies from the United States relies on preventing the disease in wildlife.**