WS employees take samples from an anesthetized raccoon. Results of tests on the tissues will reveal whether or not this animal ingested enough rabies vaccine to be protected.

Future

WS' NWRC in Fort Collins, CO, is a key component of the National Rabies Management Program. NWRC scientists investigate raccoon behavior, develop biomarkers and alternative vaccines, and research vaccination rates. NWRC researchers are also working on better baits to use for delivery of the oral rabies vaccine in raccoons. NWRC personnel are performing field studies in five States to evaluate the effectiveness of these experimental baits.

In collaboration with various universities, WS scientists are also conducting research on raccoon and skunk ecology in urban and rural settings and on gray fox ecology in Texas. Investigators are also working to develop better techniques to estimate raccoon density and to assess the effects of density and target-population distribution on the placement of vaccine baits. Studies will soon be underway to evaluate the persistence of the protective rabies antibody once an animal has been vaccinated.

Field studies and research continue to be crucial to the accomplishments of the program. Success in south Texas with the canine variant of rabies has shown that elimination is possible. With the combined benefits of ongoing research and committed staff and cooperators, WS continues to reach milestones that bring the program closer to its ultimate rabies management goals.

Mention of companies or commercial products does not imply recommendation or endorsement by the U.S. Department of Agriculture over others not mentioned. USDA neither guarantees nor warrants the standard of any product mentioned. Product names are mentioned solely to report factually on available data and to provide specific information.

Photo credits: The raccoon pictures on the front cover and the image of employees working with an anesthetized raccoon were taken by APHIS photographer R. Anson Eaglin. Inside the leaflet, the pictures of the gray fox and the coyote came from the APHIS photo collection. The pictures of the skunk and the raccoon are from Getty Images. WS employees John Forbes took all three pictures of baits. APHIS public affairs specialist Brienne German took the image of WS employees loading boxes of baits onto a plane for aerial bait-drop activities and the airplane picture on the cover.
A vaccination zone has been established stretching from Maine to Alabama to involve the use of oral rabies vaccination (ORV) of wildlife.

ORV Efforts

Since 1995, WS has been working cooperatively with local, State, and Federal governments, universities, and other partners to address this public health problem by distributing ORV baits in targeted areas. While raccoon vaccination is the largest of WS’ efforts, the program has been involved in a cooperative ORV operation in Texas that targets canine raccoons in coyotes and a unique variant of the disease in gray foxes. Scientists at WS’ National Wildlife Research Center (NWRC) are conducting research in Arizona to learn more about the use of ORV in skunks and feral dogs.

At this time, the raccoon rabies variant is found only in the Eastern United States. A vaccination zone has been established stretching from Maine to Alabama to prevent the westward spread of the virus that causes raccoon rabies.

Annually, WS and cooperators distribute about 6.5 million baits in selected States to create a zone where raccoon rabies can be contained. In setting up that zone, WS wildlife biologists made sure to incorporate features of the natural landscape that can help the containment effort (e.g., mountain ranges and large bodies of water that can act as natural barriers). For instance, the densely forested habitats at high elevations of the Appalachian Mountains limit raccoon movements and help slow the spread of raccoon rabies virus west of this mountain range.

In 2006, the program shifted the Appalachian Ridge ORV zone 5 miles to the east, an important step toward the longrange goal of eliminating raccoon rabies. The goal is to continue shifting the zone eastward until raccoon rabies has been eliminated all the way to the east coast.

Raccoon movements in the Northeastern United States are a concern as well. Since the year 2000, cooperative efforts between the United States and Canada have maintained a zone to contain raccoon rabies within its present boundaries. The northeastern part of WS’ program includes New York, Vermont, New Hampshire, and Maine. Baits are distributed along the border to prevent the northward spread of raccoon rabies into Canada.

Distributing the Vaccine

The ORV baits, developed and manufactured by Merial Inc., in Athens, GA, consist of a sachet, or plastic packet, containing the Raboral V-RG rabies vaccine. To make the baits attractive, the sachets containing vaccine are sprinkled with fishmeal coating or encased inside hard fishmeal-polymer blocks about the size of a matchbox. As other private companies work to develop and license effective vaccines, WS may integrate these baits into the program as well.

When a raccoon finds a bait and bites into it, the sachet ruptures, allowing the animal to swallow the vaccine. Raccoons that swallow an adequate dose of the vaccine develop immunity to rabies. As the proportion of vaccinated animals in the population increases, they act as a buffer to stop the spread of the disease to other wildlife, domestic animals, and people.

Field crews distribute the ORV baits by air or ground baiting. Fixed-wing aircraft are the most effective means for distributing large numbers of the ORV baits. Hand-baiting is important for reaching urban areas, where there may be safety risks associated with distributing baits from planes, and for lessening the likelihood that people and domestic animals will contact the baits.

Background

Raccoons are one of the most recognizable wildlife species. Whether you have seen raccoons on television or in your backyard, rummaging through a trashcan, they are easily identified by their black face mask and ringed tail. Although you might view them as cute and cuddly, raccoons are one of the species most often responsible for transmitting rabies and should be left alone.

Rabies is caused by a virus that affects the central nervous system in mammals, including humans. Raccoons and skunks account for the most reported cases, but bats, foxes, and coyotes are also among the commonly infected wildlife species. The cost of living with raccoons in America is high and growing, exceeding $300 million per year. Although raccoon vaccinations have been available for domestic animals for many years, until recently no such preventive measure existed to control rabies in wildlife.

Since 1995, WS has been working cooperatively with local, State, and Federal governments, universities, and other partners to address this public health problem by distributing ORV baits in targeted areas. While raccoon vaccination is the largest of WS’ efforts, the program has been involved in a cooperative ORV operation in Texas that targets canine raccoons in coyotes and a unique variant of the disease in gray foxes. Scientists at WS’ National Wildlife Research Center (NWRC) are conducting research in Arizona to learn more about the use of ORV in skunks and feral dogs.

At this time, the raccoon rabies variant is found only in the Eastern United States. A vaccination zone has been established stretching from Maine to Alabama to prevent the westward spread of the virus that causes raccoon rabies.

Annually, WS and cooperators distribute about 6.5 million baits in selected States to create a zone where raccoon rabies can be contained. In setting up that zone, WS wildlife biologists made sure to incorporate features of the natural landscape that can help the containment effort (e.g., mountain ranges and large bodies of water that can act as natural barriers). For instance, the densely forested habitats at high elevations of the Appalachian Mountains limit raccoon movements and help slow the spread of raccoon rabies virus west of this mountain range.

In 2006, the program shifted the Appalachian Ridge ORV zone 5 miles to the east, an important step toward the longrange goal of eliminating raccoon rabies. The goal is to continue shifting the zone eastward until raccoon rabies has been eliminated all the way to the east coast.

Raccoon movements in the Northeastern United States are a concern as well. Since the year 2000, cooperative efforts between the United States and Canada have maintained a zone to contain raccoon rabies within its present boundaries. The northeastern part of WS’ program includes New York, Vermont, New Hampshire, and Maine. Baits are distributed along the border to prevent the northward spread of raccoon rabies into Canada.

A vaccination zone has been established stretching from Maine to Alabama to prevent the westward spread of the virus that causes raccoon rabies.