

# Hanford Wildlife



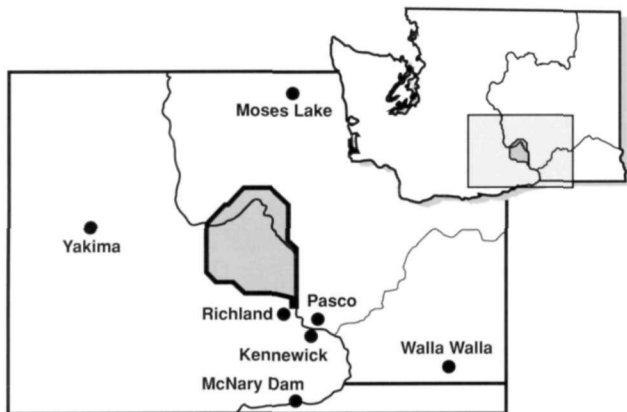
## National Environmental Research Park and Arid Lands Ecology Reserve

A 310-square-kilometer (120-square-mile) portion of the Hanford site is designated as the Arid Lands Ecology (ALE) Reserve. ALE is an outdoor laboratory for ecological research on a variety of plants and animals.

As with many Department of Energy sites, Hanford is a National Environmental Research Park (NERP).

The natural habitat of many animals, birds and fish has been shrinking worldwide because of expanding human activities. However, ALE, protected from the ecological damage normally associated with human intrusion, has been preserved in a nearly undisturbed state for almost 50 years.

Ironically, the Hanford site, sometimes characterized as a threat to the environment, has become a refuge and sanctuary for plants and animals.



Covering 1,456 square kilometers (560 square miles) of shrub-steppe along the Columbia River in southeastern Washington, is the U.S. Department of Energy's Hanford site. The site has become a refuge for various species of plants and animals.



Not all wildlife at Hanford are native to the area. These elk are members of a herd that began when a few individuals from a visiting herd took up residence in 1972.

### Elk in the Desert?

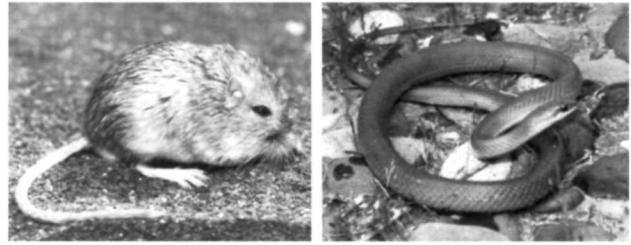
While the Hanford environment is not considered normal habitat for elk, they have taken up residence at the site. Scientists believe a few animals came onto the ALE Reserve from wintering herds located many miles to the northwest. Some remained, establishing a herd that now numbers more than 100.

Between 1972 and 1986, the undisturbed elk herd increased at one of the fastest rates observed for this species in North America. Studies of body and antler growth showed that the Hanford herd is one of the most productive and healthy elk herds in North America.

These elk provide scientists a unique opportunity to study adaptive behavior as they adjust to the dry, hot, shrub-steppe climate. The elk seek out the shadow zones of gullies and ravines during the heat of the day and limit their foraging to the cooler morning and evening hours.



*(top) The Swainson's hawk is one of the predatory birds found at Hanford. The burrowing owl nests in holes in the ground (lower left). Several hundred mule deer forage the Hanford range (lower right).*



*(top left) The pocket mouse is one of Hanford's small mammals. The racer competes with rattlesnakes and whip snakes for food (top right). The predatory coyote helps maintain a natural balance in wildlife populations at the site (bottom).*

## **A Variety of Animal Life, Large and Small**

In addition to elk, several hundred mule deer roam the Hanford site. Hanford scientists use deer and other animal populations to help evaluate radiological conditions onsite.

Hanford is also home to a variety of insects, small mammals and birds. The tiny pocket mouse scurries among the tall grasses and sagebrush, keeping an eye out for raptorial (birds) and other predators that make Hanford their home.

Predatory birds are not the only threat to Hanford's smaller residents. Snakes are also common. The rattlesnake, bull snake and whip snake are accomplished hunters and help maintain a natural balance in rodent and insect populations.

One of the most accomplished predators at Hanford is the coyote. Coyotes are well adapted to the desert terrain and climate, and Hanford is home to several hundred of them.

Among Hanford's nesting birds is the Swainson's hawk, a majestic hunter that has one of the longest known migration routes of any hawk—from Hanford to South America and back each year.

In addition, the burrowing owl and common barn owl reside at Hanford and prey on small mammals.

A variety of waterfowl also live in or migrate to the Hanford region. The Columbia River, designated as having excellent water quality by the State of Washington, forms the eastern and northern boundaries of the site and provides habitat for many wildfowl species.

The great blue heron is native to the region and nests in tall trees along the shoreline. Four rookeries can be seen easily from the river shoreline.

The Canada goose nests on islands in the Columbia River. Each year, Hanford biologists count the nests and tag some of the goslings. Migrating geese come in great numbers during the spring and fall, their familiar vee formations filling the sky.

Many species of ducks also visit the Columbia River and associated wetlands. Scientific studies carried out in this undisturbed environment contribute significantly to our understanding of these birds.

The long-billed curlew nests in dryland areas of the Hanford site. This bird has a long, curving bill that is particularly well suited to foraging for food.

## **Fish**

Up to 48 species of fish and numerous invertebrates, such as the freshwater limpet, inhabit the Hanford Reach of the Columbia River. Chinook salmon return from the Pacific Ocean to the Hanford Reach each year and create thousands of spawning nests called redds. Huge sturgeon also inhabit these waters. Some scientists believe that sturgeon once migrated to the ocean, like salmon, and returned to their home streams to spawn. However, Hanford sturgeon are now physically constrained to the portion of the river between dams.

Salmon, which die after spawning, wash ashore and become food for another regular Hanford visitor, the bald eagle. Some Hanford scientists believe that eagles may establish nests at Hanford in the future.



*The migrating long-billed curlew returns to Hanford each spring.*



*Several hundred Canada geese nest on islands in the Columbia River each year.*



*The Hanford Reach is the last main stem spawning ground on the Columbia River for Chinook salmon.*

## Diverse and Unique Species

The mix of wildlife at Hanford includes unique species such as the poorwill. This cousin of the more familiar whippoorwill, is the only bird known to hibernate.

The spadefoot toad, so-called because of the special digging spur on its rear legs, is another example of the unique species of animal life that thrives at Hanford.

The darkling beetle, one of Hanford's most prolific insects, seems to have been particularly successful at carving out a niche in the Hanford environment. Scientists estimate that if all the darkling beetles at Hanford were collected and weighed, they would exceed the combined weight of all other animals.

## Scientific Importance

Long-term studies at Hanford contribute important scientific information to our understanding of how these species live and what they need to survive, especially in an undisturbed environment. By comparing studies of Hanford's wildlife populations with studies of similar populations in unprotected areas, we may learn how to reduce the destructive impact of human activity on animal habitats.

Detecting changes in eating, nesting or migratory patterns of some species of birds, for example, may aid researchers in identifying changing weather patterns or other environmental factors important to effective planning and regulation to protect wildlife habitats.

These studies also provide useful information to evaluate the effects of prolonged exposure to low levels of radiation.



*The Sagebrush lizard is a favorite food of snakes and hawks. This small reptile is found only in the very sandy areas of the site.*



*Darkling beetles (left), along with various moths and butterflies (right), are part of a vast insect population.*



*Hundreds of Canada geese are born at Hanford each year. Some of the young birds are tagged by scientists to track their movement.*



*(Left to right) Bald eagles spend the winter at the site. Mule deer graze in the shadow of Hanford reactors.*

## **More than Science**

Seeing and hearing hundreds of Canada geese on an autumn morning, watching bald eagles along the Hanford Reach of the Columbia River, recognizing elk roaming free across this unique ecological laboratory—all remind us of what is at risk from human activities. Contact with undisturbed nature also reaffirms our sense of purpose and responsibility as stewards of the land.

**For further information on Hanford's wildlife programs or other aspects of environmental monitoring at Hanford, contact:**

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*Cover Photo: Nestled in southeastern Washington is the U. S. Department of Energy's Hanford site—a 1,456-square-kilometer (560-square-mile), shrub-steppe region that has been the location of nuclear and other activities since 1943.*