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Elk: Arkansas' Largest Wild Mammal

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Wild, free-ranging elk have been roaming the Ozark Mountains of northwest Arkansas since the early 1980s. This fact sheet is intended to provide information about elk and elk management. We hope it will enhance your appreciation and enjoyment of Arkansas' largest native wild mammal.

Reintroducing Elk

It is surprising to some people to hear that elk are native to Arkansas. Elk were probably fairly common in the northern part of what was to become Arkansas until the 1840s. They disappeared along with buffalo, black bear, prairie chicken and ruffed grouse as European settlers immigrated into the state. Elk were likely eliminated as a result of over-hunting, habitat destruction and competition with domestic livestock.

A single species of elk occurs in North America, *Cervus elaphus* (Figure 1). Some scientists recognize six subspecies of elk in North America; others recognize only two. The subspecies that most likely occurred in Arkansas prior to the mid-19th century was the Eastern elk (now extinct). The elk reintroduced into Arkansas in the early 1980s were the subspecies called Rocky Mountain elk. Because Rocky Mountain elk are the most numerous of the subspecies of elk in North America today, they have been reintroduced in several eastern states, including Michigan, Oklahoma, Wisconsin, Pennsylvania, Kentucky and Tennessee. A total of 112 elk were obtained from southwestern Colorado (105 elk) and western Nebraska (7 elk) from 1981 to 1985 and released in Newton County in the vicinity of the Buffalo National River.

Elk were reintroduced to Arkansas for at least a couple of reasons after a 140-year absence. First, they are part of our native fauna. Elk are as natural to the Natural State as white-tailed deer, wild turkeys and black bears. Elk are large herbivores that influence the occurrence and distribution of other animals, such as ground and shrub-nesting birds. They also influence the occurrence and distribution of many plant species, especially grasses and sedges. In other words, elk play important roles in the function of natural ecosystems. Elk were returned to Arkansas so they could resume the important role they play in nature.

Second, elk were reintroduced because of their recreational value. There are approximately 500 free-ranging elk in Arkansas. The

Figure 1. Elk are the largest native mammal in Arkansas. Adult males weigh about 700 pounds; adult females weigh about 500 pounds. *(Photo by Arkansas Game and Fish Commission)*

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Arkansas Game and Fish Commission has allowed limited elk hunting each fall since 1998; over 200 elk have been harvested (Figure 2). Wildlife watching is also a popular recreational pastime in Arkansas. The 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, published by the U.S. Fish and Wildlife Service, reports 43 percent of all Arkansans traveled more than a mile from home in 2005 to watch wildlife. Year-round elk viewing is a very popular activity in Buffalo River country.

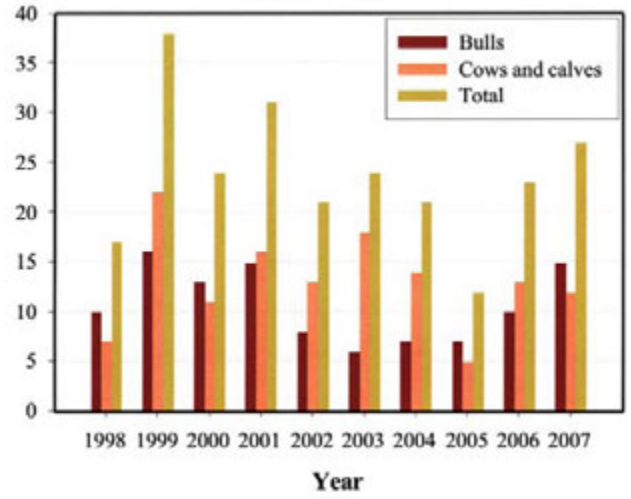

Figure 2. Number of bulls and antlerless elk (cows/calves) legally harvested in Arkansas from 1998 to 2007. A total of 238 elk were legally harvested during this ten-year time period.

Biology and Habits

Elk occur in portions of six counties in Arkansas: Boone, Carroll, Madison, Marion, Newton and Searcy (Figure 3). Most are found within or near the Buffalo National River in Newton and Searcy counties. Elk sightings have been documented in 14 counties since 1981; however, sightings outside the six-county region are probably transient animals. Currently, there is little evidence that a resident breeding population has been established in areas of the state outside the six-county region.

Elk eat a wide variety of grasses, legumes and broad-leaved plants in spring and summer and grass, legumes, shrubs and acorns in autumn and winter. Adult bulls weigh about 700 pounds, and adult cows weigh about 500 pounds. They can live more than 20 years.

Elk have several interesting characteristics, some of which uniquely adapt them to their habitat. Elk have four toes on each foot, but they walk only on the middle two toes. The other two toes are called dew-claws. Elk can see in almost every direction because their eyes are widely spaced on the sides of their heads. This makes it difficult for predators to sneak up on them. They have long necks to help them reach the upper portion of shrubs and trees for leaves and twigs. When they walk, joints in their legs make cracking noises that sound like knuckles cracking. It is thought elk use these cracking sounds as a form of

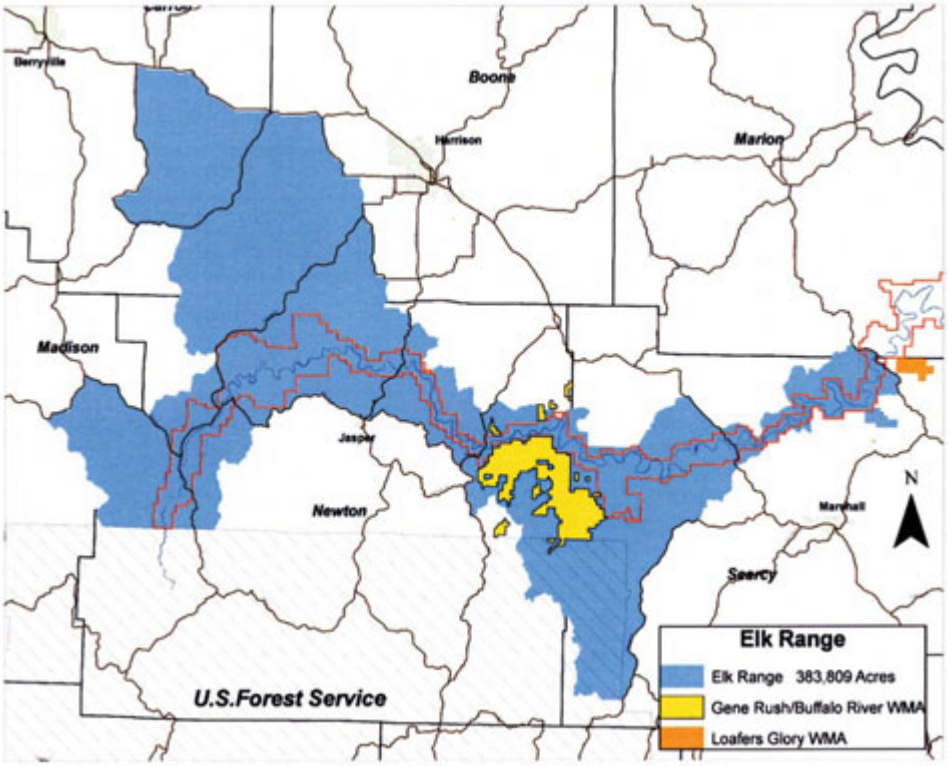

Figure 3. Distribution map of elk in northwestern Arkansas. Most elk are found in Newton and Searcy counties. The red line shows the boundary of the Buffalo National River, a park administered by the National Park Service. The Buffalo River is shown as a dark blue crooked line.

communication between herd members. Elk shed their heavy winter coats in spring for a lighter, cooler coat in summer and then grow their heavy winter coats again in autumn.

Like white-tailed bucks, bull elk grow antlers in spring and shed them in late winter. Elk antlers can grow as much as an inch per day. A set of full-grown antlers on an adult bull can weigh 40 pounds (Figure 4). A 6x6 bull (a bull with six antler points on each side) is called a Royal bull. A 7x7 bull, like the one in Figure 4, is called an Imperial bull. An 8x8 bull is called a Monarch.

Figure 4. Antlers of a bull elk are huge and can weigh 40 pounds. *(Photo by Arkansas Game and Fish Commission)*

During mating season in September and October, bull elk stage their own outdoor drama by bugling and sparring with other bulls for breeding privileges. The sound of an elk's bugle in the wild is a unique, surprising and distinctive sound that begins deep and resonant then becomes a high-pitched squeal before ending in a succession of grunts.

Adult bull elk round up a "harem" of cows during the breeding season (Figure 5). The number of cows in a harem depends upon several factors: 1) the number of adult cows available, 2) the number of mature bulls in the population and 3) a bull's ability to herd a harem of cows. Bulls have various levels of experience in herding. A herd bull is clearly in command.

Figure 5. Bull elk chasing a cow during mating season in October. *(Photo by Don White)*

There may be other competitors circling his harem nearby, but they can't compete with the herd bull's intimidating display of antlers and his bellowing bugle. Bulls with broken antlers – the result of competitive battles between bulls – are not uncommon.

By mid-November, mating season ends. Most cow elk (about 75 percent) are bred the first two weeks of October, and most calves are born the first two weeks of June after a 247-day pregnancy period. They give birth to a single calf weighing 25 to 40 pounds (Figure 6).

Figure 6. Cow elk give birth to a single calf in late May or June. Twin calves are very rare. *(Photo by National Park Service)*

Habitat and Management

Elk are large herbivores that require large areas of land to satisfy their biological needs. Current research indicates that adult bull elk use areas as large as 60,000 acres. As the elk herd in Arkansas expanded numerically and spatially in the late 1980s and early 1990s, conflicts between private landowners and elk increased. A carefully regulated hunting program was implemented in 1998 to achieve several objectives: 1) control elk numbers on private lands to help reduce elk damage, 2) maintain an elk population on public lands that is in tune with existing habitat conditions, 3) provide recreational opportunities, such as hunting and elk watching, for Arkansans and their guests and 4) collect much-needed elk population information.

Elk numbers are monitored using late winter helicopter counts (Figure 7), field observations and periodic aerial surveys using thermal infrared sensing equipment. Other methods include maintaining records on elk mortalities (Figure 8) and elk damage problems. Problems include fence damage, consumption of landscape and garden plantings, consumption of pasture and hay meadow grasses intended for livestock and vehicle collisions. Vehicle collisions have averaged about two per year over the past ten years.

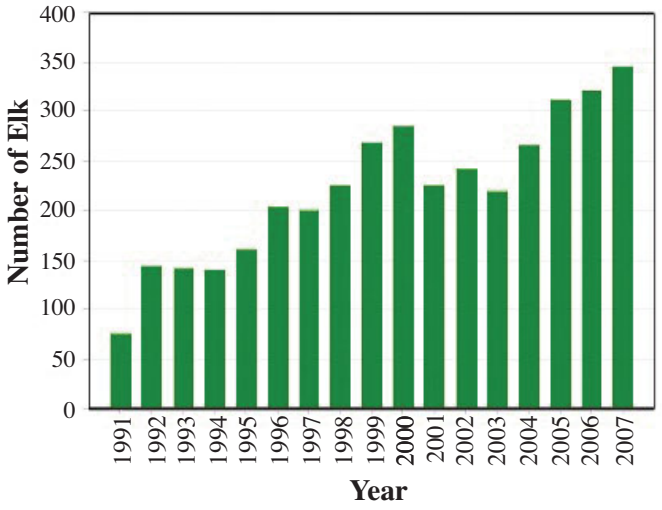

Figure 7. Based upon helicopter counts conducted in late February and early March each year from 1991 to 2007, the elk population in Arkansas has gradually increased.

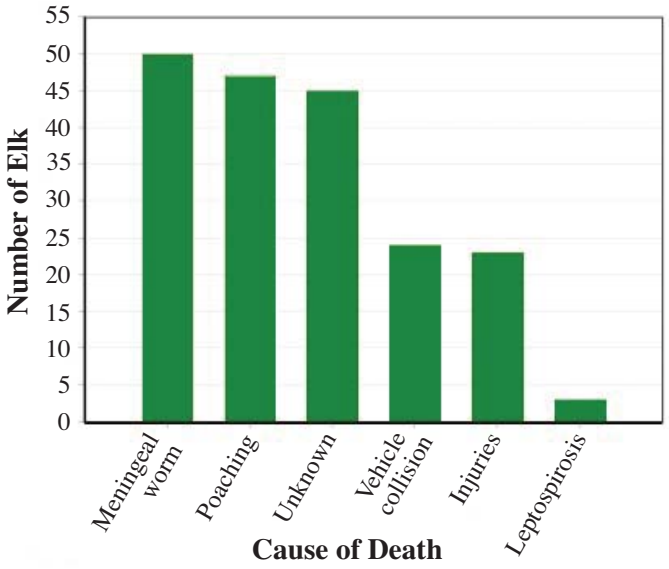

Figure 8. Causes of death (non-hunting) of elk in Arkansas from 1983 to 2006. The total number of known deaths = 192. There are so many unknown causes of death because elk carcasses are eaten quickly by scavengers. They leave little evidence of cause of death. Leptospirosis is a bacterial infection.

Current elk management efforts involve using hunting to control herd size to minimize elk problems on private lands. More elk permits are issued for hunting on private lands than public lands to help control elk herd sizes in these areas. To lure elk away from private lands, biologists use habitat improvement techniques to maintain elk on large tracts of public land. These efforts are intended to hold as many elk as possible on public lands and minimize problems with elk on private land.

The Arkansas Game and Fish Commission, National Park Service, Rocky Mountain Elk Foundation and U.S. Forest Service are cooperating to improve habitat for elk and other wildlife on public lands within elk range. Elk habitat management includes creating wildlife openings and planting and maintaining within them cool-season grasses and legumes such as winter wheat, orchardgrass and a variety of clovers. Other important work includes prescribed burning, planting native warm-season grasses, construction and maintenance of water sources, timber management (including harvest) and restoration and maintenance of old field habitats.

Funding is available for landowners interested in improving elk habitat on their property. The Natural Resources Conservation Service (NRCS) administers a Farm Bill program called the Wildlife Habitat Incentives Program (WHIP). WHIP is a voluntary program for landowners who want to develop and improve wildlife habitat on their property. The program provides both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP agreements generally last five to ten years from the date the agreement is signed. Contact your local NRCS office or a private lands biologist with the Arkansas Game and Fish Commission for details. Moreover, the Arkansas Game and Fish Commission has recently implemented a new private lands elk management program that includes several options for assisting private landowners who may have problems with elk on their land. Contact the Arkansas Game and Fish Commission for information on the new program.

Elk and Livestock

Some diseases can be transmitted from elk to livestock. Likewise, some diseases of livestock can be transmitted to elk. Arkansas Game and Fish Commission biologists, in cooperation with scientists at the Arkansas Livestock and Poultry Commission, the Southeastern Cooperative Wildlife Disease Study Unit (Athens, Georgia) and the University of Arkansas Agricultural Experiment Station, have been closely monitoring disease in elk since the early 1980s. Extensive annual testing indicates little incidence of disease in Arkansas' wild elk herd. There is an exception, however. An internal parasite called a meningeal (or brain) worm has been detected in some elk in Arkansas.

Meningeal worms are common in white-tailed deer throughout much of eastern North America, including Arkansas. They cause little or no ill effects in white-tailed deer. (They don't affect the palatability of deer meat either.) Research indicates the parasite does not cause problems in most domestic livestock. Sheep, goats and llamas can have problems with brain worm, but problems are rare. Meningeal worms can kill elk. The life cycle of the worm requires the availability of terrestrial snails or slugs within which the worm larvae develop. Deer, elk and other ruminant hosts are infected when they incidentally ingest snails and/or slugs containing meningeal worm larvae while feeding.

Currently, there is no cure for meningeal worm infections in wild, free-ranging elk. Arkansas Game and Fish Commission biologists occasionally find an elk in the field that has died due to a meningeal worm infection (Figure 8). Interestingly, some individual elk can tolerate infection. Perhaps that is evidence elk are evolving resistance to brain worm infections. Although we lose a few elk every year to brain worm infections, the number of losses is not considered high enough to result in a significant decrease in the elk population. Currently, there is no way to treat elk in the wild to reduce the impacts of the parasite.

Figure 9. Elk will jump fences to consume pasture and hay meadow grasses. *(Photo by Don White)*

Elk Viewing

Elk are very keen on "personal space." In other words, they're happier (and you are safer) if you keep your distance. Use binoculars or a telephoto lens to get a close-up view. If your presence causes the elk to move away or change its behavior in any way, you are too close.

Elk watching is best in cool weather. Winter is ideal because leaves are off the trees making elk more visible. During the fall rut, elk are distracted and less fearful of people. The best times of day to observe elk are during early morning and late evening hours.

For easy elk watching without a lot of hiking, there are two good locations. One is Boxley Valley near Ponca, and the other is Highway 123 around the Carver Bridge south of Hasty. Other good spots are the Erby campground area west of Pruitt and the Gene Rush Wildlife Management Area. For more information about elk viewing opportunities, contact the Ponca Elk Education Center (870-861-2432) or the Hillary Jones Wildlife Museum and Elk Information Center (870-446-6180).

The Future of Elk in Arkansas

The future continues to look bright for elk in Arkansas. Elk provide unique wildlife viewing and hunting opportunities, and those who come to see and hunt them provide important revenue for state and local economies. Human conflicts with elk, however, are inevitable. The Arkansas Game and Fish Commission and partnering agencies and organizations will continue to work with landowners experiencing problems with elk to find solutions mutually beneficial to all stakeholders.

Guidance for elk management in Arkansas comes from a statewide elk management plan approved by the Arkansas Game and Fish Commission in 2001. The plan can be viewed or downloaded from the Arkansas Game and Fish Commission web site (http://www.agfc.com/data-facts-maps/species-mgt-plans.aspx). An Arkansas Elk Committee, which consists of biologists from the Arkansas Game and Fish Commission, the National Park Service and the U.S. Forest Service, along with a representative from the Rocky Mountain Elk Foundation, work together to develop elk management plans and recommendations for the Arkansas Game and Fish Commission.

Some objectives for elk management in Arkansas are to: 1) maintain a viable (breeding) population of elk primarily on public lands, 2) limit the number of elk on private lands, 3) conduct elk research and monitoring projects, 4) reduce poaching losses through education and law enforcement activities, 5) minimize nuisance elk problems on private lands, 6) manage elk habitat on public lands, 7) purchase or lease land for elk management and 8) educate the public about elk and elk management. The current elk management plan will be revised in the near future and will incorporate public involvement.

Many biologists believe it is possible to have a larger elk population and increase elk hunting opportunities in Arkansas. Appropriate types and amounts

Figure 10. Researchers have used GPS receivers to monitor elk populations along the Buffalo River. *(Photo by Don White)*

of habitats and strong public support, however, are required. Large amounts of year-round elk habitat would have to be created and maintained on public land. There are sufficient types and amounts of elk habitat on private lands for a much larger elk population, especially in the Ozark and Ouachita Mountains. Private landowner support for elk on private lands, however, is low at this time, especially in the Ozarks. Elk populations will increase only with strong public support and adequate funding for habitat management on public lands.

Elk Resources

- The Arkansas Game and Fish Commission provides information about elk and elk management, including harvest and survey reports, at the following web site address: (http://www.agfc.com/wildlife-conservation/mammals/elk-mammals.aspx).

- The Ponca Elk Education Center (870-861-2432; http://www.agfc.com/education-class/agfc-edu-nature-centers/education-centers/ponca-elk.aspx) and the Hillary Jones Wildlife Museum and Elk Information Center (870-446-6180; http://www.agfc.com) feature educational exhibits, gift shops and lots of elk viewing information.

- The Buffalo River Elk Festival, an annual event typically held in late June, celebrates the successful reintroduction of elk to Newton County. The festival features arts and craft exhibits, special events, as well as an elk calling contest. Contact the Jasper/Newton County Chamber of Commerce (870-446-2455; http://theozarkmountains.com/) for more information.

- The Rocky Mountain Elk Foundation is a private, nonprofit conservation organization supporting the future of elk and other wildlife and their habitats (800-225-5355; http://www.rmef.org/).

- "Wild About Elk" is a Project Learning Tree teacher's guide. Teachers and environmental educators can contact the Arkansas Game and Fish Commission, Project Wild Coordinator (800-364-4263), for more information.

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