



To read more about these projects refer to the July 2007 issue of *Game News*. Study results will be published in *Game News*.

In the winter of 2009, the PGC began to evaluate yearling survival and dispersal. For elk—and deer alike—yearling animals undergo a significant transition from depending on their mothers to developing more independence. As a result, large movements and higher mortality rates may be observed. To better understand this important time period for our elk population, we began capturing and radio-collaring elk less than 2 years of age in 2010. We also supplemented our winter captures with newborn calves and yearlings in 2010. We continued to capture and monitor calves and yearlings this past winter and will again next spring to determine their fates and their movements as they reach three years of age.

#### PUBLIC VIEWING

Elk are majestic animals that attract visitors from hundreds of miles away. The PGC and DCNR, with help from other organizations, have established public viewing areas to provide visitors with safe, simple opportunities to see elk in natural settings. One of the best places for viewing elk is at the viewing area along Winslow Hill Road, 3½ miles north of Benezette. Other suggested sites are listed and mapped in *Wildlife Watching in Elk Country*, a brochure that can be obtained by calling or writing your local Game Commission, State Park or State Forest office. It is also available online at [www.pgc.state.pa.us](http://www.pgc.state.pa.us).

Visitors are most likely to see elk at dawn and dusk. The most popular time of year for elk viewing is September and October, during mating season. Winter and early spring, however, are also good times to see elk.

It is important to understand that elk are wild animals and that they can be dangerous. Bulls can be especially dangerous during the mating season. Elk should always be viewed from a safe distance; never approach one. If venturing away from a viewing area to search for elk, please respect the rights and privacy of private landowners. Do not walk through private yards or park in private driveways. Always ask permission before venturing onto private lands. Do not stop in the middle of roads to view elk. Rather, find a safe place to pull off.

Visitors should also be aware that Pennsylvania law prohibits the feeding of elk. Feeding is illegal because it encourages elk to invade residential settings and, under certain conditions, approach people for food. Encouraging elk to visit areas they would normally avoid almost always leads to problems and public safety issues, and elk that become habituated to humans have a higher mortality rate than wild elk.

On October 17, 2000, an amphitheater was dedicated at the Winslow Hill viewing area. The covered, open-air building is used to deliver multi-media presentations for students, tourists and other visitors in a comfortable setting. Presentations are offered most Friday, Saturday and Sunday evenings at dusk. A program schedule is posted on-site.

The new Elk Country Visitor Center opened in 2010. Situated on 245 acres within the heart of Pennsylvania's elk range and within the Elk State Forest, the Elk Country Visitor Center will be a premier elk watching and conservation education facility. Just a short distance from the small village of Benezette, the center provides a needed focal point for elk watching tourists and admission is free. State-of-art interpretive and interactive exhibits inform and educate the public about elk, wildlife conservation and green building design. The facility hosts school field trips and family vacationers alike. For more information visit [www.dcnr.state.pa.us/elkcenter](http://www.dcnr.state.pa.us/elkcenter).

#### CONSERVATION PARTNERS

The Game Commission's elk management program has benefited from the generosity and cooperation of many partners. The Rocky Mountain Elk Foundation is an international organization dedicated to ensuring the future of elk and other wildlife and their habitat. In Pennsylvania RMEF has provided funds to aid in habitat enhancement, land acquisition, public viewing area construction and fencing projects. The National Wild Turkey Federation, Safari Club International, Dominion Transmission, Pennsylvania Wildlife Habitat Unlimited, Sinnamahoning Sportsmen's Association and many other organizations and individuals have also worked hard to bring elk back to Pennsylvania in numbers unimaginable just a couple decades ago.

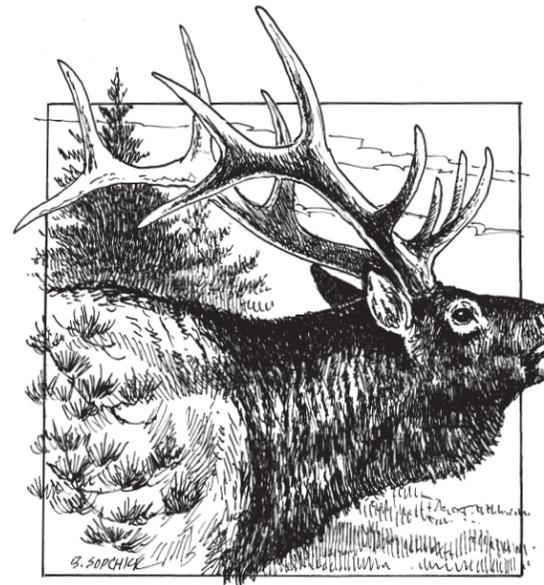
#### CONCLUSION

In the mid-1970s, only a few dozen elk remained in Pennsylvania. Today, there are more elk in more areas of the state than there have been in more than 100 years. Thanks to concerted research, habitat management and public outreach efforts, the future of Pennsylvania's elk population looks bright. The dedicated citizens of the commonwealth have ensured that another previously extirpated wildlife species has been successfully restored to our landscape.



For more information on Pennsylvania elk and other species, visit the Game Commission at [www.pgc.state.pa.us](http://www.pgc.state.pa.us), or write: Pennsylvania Game Commission, Department MS, 2001 Elmerton Avenue, Harrisburg, PA 17110-9797.

Also explore: Pennsylvania Rocky Mountain Elk Foundation at [www.pennsylvaniarmef.org](http://www.pennsylvaniarmef.org) and the Department of Conservation and Natural Resources at [www.dcnr.state.pa.us](http://www.dcnr.state.pa.us).



# 2011 ELK —in— PENNSYLVANIA Past, Present & Future

#### HISTORY OF PENNSYLVANIA ELK

Through the early 1800s, elk (*Cervus elaphus*) inhabited much of Pennsylvania. In the mid-1800s, as human settlements increased, the elk population declined. By the late 1800s, elk had been totally eliminated from their last stronghold in areas around Elk County.

In 1913, the Pennsylvania Game Commission (PGC) began reintroducing elk. Elk from Yellowstone National Park, South Dakota, and a private preserve in Pennsylvania were released until 1926. During this time, 177 elk were released into the central and northeastern parts of Pennsylvania, but only the northcentral population survived. From 1923 to 1931 a hunting season took place. Hunters took 98 bulls; another 78 elk were killed illegally or for crop damage. The season was closed in 1932 due to dwindling numbers of elk. The elk roaming the mountains of Northcentral Pennsylvania today are the progeny of the animals that remained.

Today, Pennsylvania is home to 700 - 800 elk — the largest herd in northeast United States. Elk can be found in parts of Elk, Cameron, Clearfield, Clinton and Potter counties, inhabiting more than 800 square miles.

#### NATURAL HISTORY

Elk are the largest member of the deer family in Pennsylvania. A mature bull weighs 600 to 1,000 pounds, and cows weigh 400 to 600 pounds. Sexes look alike — tan with a dark brown neck, chest and legs, and a buff colored rump.

Cows and calves usually congregate in family units comprised of a mature cow, her calf and her female offspring from previous years. Elk are social animals; the only time a cow will seek solitude is during calving, in late May and early June. Occasionally, several family groups band together, led by an older cow. Adult bulls live either by themselves or in small groups with other males, except during the mating season, which runs through September and October. At this time, bulls take up harems, joining groups of cows and calves.

#### ELK POPULATION

Within the elk management area in northcentral Pennsylvania, the Game Commission manages elk and habitat to ensure a healthy and sustainable elk population that can coexist with humans with minimal conflicts. Specific objectives include increasing elk populations in areas with suitable habitat on public lands, reducing elk populations in areas where elk-human conflicts occur, and maintaining an elk population with a mature age structure.

Game Commission personnel monitor the abundance and age structure of the elk population annually using ground surveys. Each winter, biologists take advantage of radio-collared elk to conduct the ground survey. Radio collars send out signals that allow biologist to locate groups of elk and monitor their movements throughout the year. By tracking and locating radio-collared elk, biologists can identify and count the number of elk that exist in individual groups of elk. By adding up the number of elk in each group of elk, a minimum count of the entire elk population is possible.

In addition to radio collars, ear tags may also be observed on elk. Both radio collars and ear tags are part of the Game Commissions ongoing elk research and monitoring program. Although nearly all ear tags will be white, a variety of radio-collars may be seen on elk depending on the research and monitoring objectives. Some collars will be brown in color. Others will be yellow with letters and numbers on them. Some radio collars even use satellites to record elk locations for a year at a time.



Radio collars also allow biologists to tell if an elk dies. A sensor in the radio collar will engage a mortality signal if the elk dies. By homing in on this signal biologists can locate a dead elk and attempt to identify the cause of death. Known elk deaths – including elk not marked with radio collars – are recorded each year. Mortalities are recorded by cause, date of death, and sex, age and location for each elk. Necropsies are performed on dead elk in the field, or when appropriate, by the Pennsylvania State University Animal Diagnostics Laboratory. The number of elk that die each year varies. Over the past decade, anywhere from 66 to 113 known elk mortalities were recorded each year. Leading causes of death include hunting, highways, and crop damage kills. Even trains account for one or two elk deaths each year.

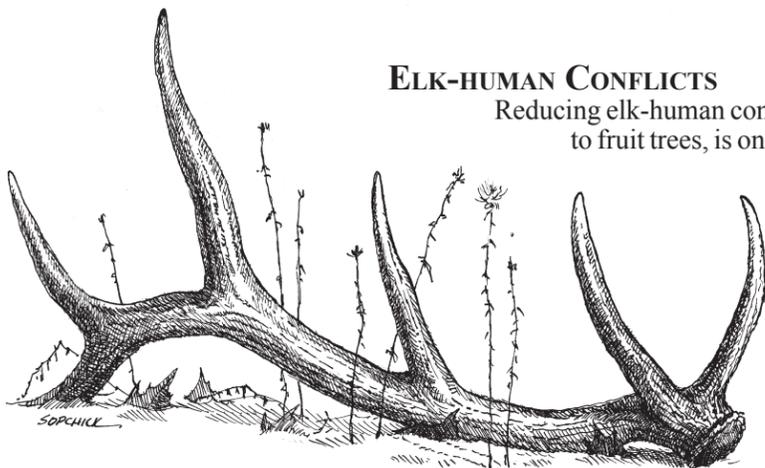
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Grand Total
LEGAL HARVEST	27	61	68	34	35	35	35	42	44	41	38	422
ACCIDENTAL	2	2	5	4	2	3	5	3	2	1	3	32
BRAINWORM	3	1	1	3	5	8	1	1	3	1	4	31
CROP DAMAGE	7	17	11	7	7	6	4	13	2	2	5	81
ILLEGAL	7	7	3	4	5	6	4	3	3	1	1	44
OTHER		2		2	2		1	1	3	4	8	23
HIGHWAY	12	9	5	5	13	17	6	15	8	11	6	107
TRAINS	1	5	1	1							1	9
UNDETERMINED	10	9	2	6	3	6	10	9	16	9	10	90
<b>TOTAL</b>	<b>69</b>	<b>113</b>	<b>96</b>	<b>66</b>	<b>72</b>	<b>81</b>	<b>66</b>	<b>87</b>	<b>81</b>	<b>70</b>	<b>38</b>	<b>839</b>
<b>NON-HUNTING MORTALITY</b>	<b>42</b>	<b>52</b>	<b>28</b>	<b>32</b>	<b>37</b>	<b>46</b>	<b>31</b>	<b>45</b>	<b>37</b>	<b>29</b>	<b>38</b>	<b>417</b>

## ELK HABITAT

Elk are grazers that feed primarily in forest openings on forbs, legumes and grasses; they will, however, eat twigs, buds and bark from trees and shrubs mainly in the winter months. Elk feed in natural and man-made openings year-round. Most openings in the heavily forested elk range consist of forest clearcuts, revegetated strip mines, openings maintained for wildlife, grassy meadows, and open wetlands or stream bottoms.

Today, the elk management area contains more than 2,000 acres of actively managed wildlife openings. These openings are planted with combinations of clovers, grasses, bird's-foot trefoil, timothy, oats, rye and winter wheat to provide high quality forage for elk and other wildlife on public lands. Annual mowing by PGC Food and Cover crews is an important part of maintaining many portions of these herbaceous openings, along with replanting, fertilizing and liming when required. Deer, turkeys, grassland songbirds and small mammals also benefit from these openings.

Beginning in 2001, many wildlife openings were created as part of the Elk Habitat Initiative. This effort was designed to improve and increase the amount of wildlife openings on public lands throughout the elk range. The Game Commission, Department of Conservation and Natural Resources' (DCNR) Bureau of Forestry and Bureau of State Parks, and the Rocky Mountain Elk Foundation (RMEF) partnered to accomplish these objectives. Funding comes from three main sources: elk license drawing fees (PGC); lease fees from utility companies for right-of ways (DCNR); and donations from various conservation groups, sportsmen's groups, and individuals. More than 600 acres of wildlife openings were created during the first five years of the initiative. Today, most work focuses on maintaining those sites. These new habitats have been very successful in attracting elk and other wildlife to new areas of state forest and state game lands.



## ELK-HUMAN CONFLICTS

Reducing elk-human conflicts, such as crop damage, garden damage, and damage to fruit trees, is one of the goals of the elk management program. The Game Commission recommends and uses several methods to reduce conflicts.

Elk-human conflicts often arise when elk are attracted by a food source such as artificial feeding. It is illegal to feed elk in Pennsylvania. Without artificial feeding, elk typically spend only a few days in an area before moving on. Where artificial feeding occurs, however, elk will remain until the food source is exhausted, increasing the likelihood of conflict, roadkill, and disease transmission. During 2009, two elk were killed by artificial feeding. For more information on

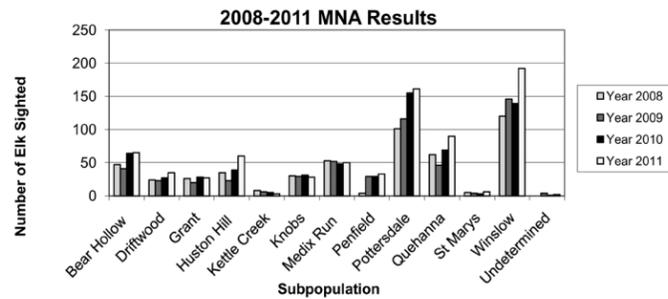


Figure 1. A breakdown of the elk population by subpopulation.

Figure 2. Known elk mortalities from 2001 to August 2011 in Pennsylvania

the detrimental effects of the artificial feeding of wildlife, please refer to the PGC brochures entitled *Please Don't Feed the Deer* and *Please Don't Feed the Elk*; at [www.pgc.state.pa.us](http://www.pgc.state.pa.us).

Hunting is used to manage Pennsylvania's elk herd. By focusing hunter effort in specific areas, the Game Commission can address elk-human conflicts by reducing the number of elk in conflict areas.

Also, the Game Commission has provided, on a cost-share basis, permanent fencing for individuals with elk damage to farm crops, fruit orchards or commercial tree nurseries. The fencing program has been effective in controlling elk damage—as well as deer and bear damage—to croplands and orchards. The Rocky Mountain Elk Foundation, Safari Club International and other sportsmen's groups have helped to fund fencing projects. The fencing program is currently suspended due to agency budgetary constraints.



## ELK HUNTING

Hunting is the most practical method of managing elk populations. In November 2001 the Game Commission held Pennsylvania's first elk season in 70 years. This limited hunt was designed to reduce the number of elk where conflicts were occurring and to direct the expansion of the elk population into more suitable areas. Hunts in other states have shown that hunted elk are more wary of humans—that, in itself, could reduce the number of elk-human conflicts. From 2001 to 2010, hunters harvested 422 elk. Hunting has successfully reduced elk densities in many areas with elk-human conflicts while allowing the population to increase in suitable areas.

Successful hunters must bring their elk to a check station, where biological information and samples for disease testing are collected. Overall, hunters have had an 81 percent success rate, 94 percent for antlered and 73 percent for antlerless elk. The heaviest bull and cow harvested through the 2010 seasons weighed, respectively,

887 lbs and 587 lbs (estimated live weight). The overall median age of harvested antlered and antlerless elk is about 5.5 years. The oldest elk harvested was a 20.5-year-old cow—long past her reproductive years. Pennsylvania has produced the thirteenth largest nontypical bull elk in the world. The 6.5-year-old bull, harvested in 2006, scored 441 6/8 inches nontypical category Boone and Crockett—eleventh on the all-time list. In 2009, a hunter harvested a bull that scored 423 6/8 nontypical category, if submitted to Boone and Crockett, it will make the Top 20 list. Pennsylvania's largest scored typical bull is 387 7/8 Boone and Crockett (2010).

Each year, thousands of hunters apply for the limited number of elk licenses. In 2011, 56 licenses were available for the November season. In addition, one bull license—called the Special Elk Conservation tag—is auctioned each year by a conservation organization. Eighty percent of the monies generated from the auctioned tag are earmarked for elk management. The remaining twenty percent go to the conservation organization auctioning the tag. In 2011, the Safari Club International auctioned the special tag for \$29,000. In just its third year, the Governor's tag has generated more than \$80,000 for elk management activities in Pennsylvania.

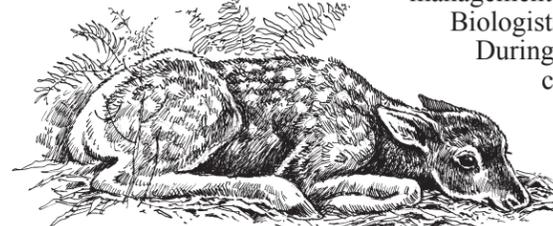
For more information on elk hunting or to obtain an application for the elk license drawing, please refer to your hunting digest or visit [www.pgc.state.pa.us](http://www.pgc.state.pa.us).

## ELK RESEARCH

The PGC supports an active elk research program. Recently, the Game Commission, in cooperation with Indiana University of Pennsylvania, RMEF, and DCNR conducted three research projects to increase knowledge of elk calf survival, habitat use, and food preferences.

For the calf survival study, biologists caught newborn calves and placed radio collars around their necks. The radio collars allow biologists to track the calves' movements and survival. During the four years of the study, 93 newborn calves were captured. Of those, 15 have died due to hunter harvest, illegal kills (mistake kills and poaching), roadkills, pneumonia and artificial feeding. The average weight of captured calves was 41 pounds, ranging from 23 to 65. Overall, survival from birth to one year of age was 82 percent. For more information about this project refer to the November 2007 issue of *Game News* or the Elk Calf Survival video available at [www.pgc.state.pa.us](http://www.pgc.state.pa.us). Also, look for a *Game News* article sometime next year for the results of this study.

In an effort to improve the effectiveness of and evaluate the success of elk habitat management, the Game Commission, in cooperation with Indiana University of Pennsylvania, researched what habitats are important to elk throughout the year and what types of food elk eat as they travel through the elk range. The results are enabling biologists to better tailor habitat management to elk preferences and needs.



Biologists have learned that elk eat at least 75 different plants throughout the year. During spring and summer, their diet is largely comprised of grasses such as orchardgrass, Kentucky bluegrass, timothy and wheat. During fall and winter, their diet contains large amounts of both grasses and browse. Trees including willows, quaking aspen and flowering dogwood are among their favorite browse items. These results highlight the importance of early successional habitats such as meadows and aspen stands that benefit elk and other species such as grouse, woodcock, and many songbirds.