



2017

HABITAT REPORT

YOUNG FOREST



Nesting hen turkey - Jacob Dingel

Executive Director's Message

There are no shortcuts when managing wildlife habitat.

The Pennsylvania Game Commission's skilled team of habitat professionals continues to expand the amount of good quality wildlife habitat across 1.5 million acres of state game lands and 2.5 million acres of Hunter Access properties. These professionals represent diverse backgrounds including wildlife biologists, foresters, land management officers, and wildlife habitat management crews. Rooted in science, yet brought to reality by sheer hard work, the quality of wildlife habitat management produced by these professionals is unmatched by any other state wildlife agency in the country.

Pennsylvania citizens are lucky to have these professionals on the ground working for and developing habitat for the commonwealth's 480 wildlife species, from ruffed grouse, wild turkey, and white-tailed deer, to golden-winged warblers and red-headed woodpeckers.

Enhancing habitat takes time, expertise, and application of the latest and best science.

We all benefit from their job well done.

Sincerely,

Bryan J. Burhans
Executive Director,
Pennsylvania Game Commission



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 A .pdf of this document is available at www.pgc.pa.gov. Links to films viewable at www.youtube.com/pagamecommission are included where this symbol is located throughout the report.



Aspen stand - Hal Korber

The Game Commission Forestry Program & Young Forest Habitat

The Game Commission forestry program is driven by the habitat needs of wildlife. And with more than 1.3 million of the state game lands system's 1.5 million acres classified as forests, managing our forests is imperative to managing habitat for wildlife.

Not all game lands have the same potential for forest and habitat management. Some territory is too steep and rocky to access, while others are too wet and swampy to run equipment. Buffer zones are maintained along streams, rivers, and wetlands to protect water resources. Utility lines, roads, parking lots, shooting ranges, and other features take up space on game lands. About half of state game lands acreage is considered *conventionally manageable forestland*, where timber harvesting operations can take place. This portion of the landscape is where the Game Commission focuses commercial forestry efforts.

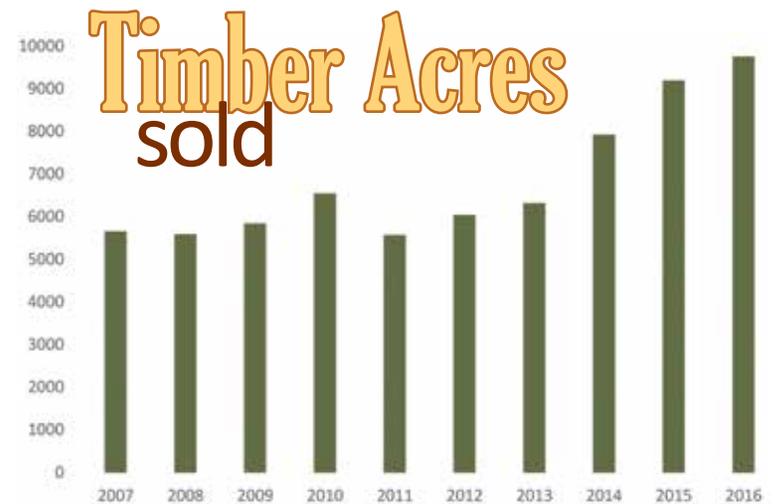
The best overall habitat conditions for the widest variety of wildlife occur where there is a good balance of forest age classes—young forest (0 to 20 years old) through older forest (80 to 100 years old, and older). Forest age classes need to be interspersed on the landscape to provide the many habitat conditions that wildlife require. By providing a good balance of forest age classes, everything from browse and brood cover to old cavity trees and acorn-producing mature oak is available in adequate amounts for many wildlife species.

The state game lands system is not unlike the rest of the commonwealth's forestlands. Pennsylvania has very little young forest and a whole lot of old forest. Only about 7 percent of the state's forestland is less than 20 years old, while 62 percent of Pennsylvania forests are older than 80 years. This is not an optimum distribution of age classes to meet wildlife habitat goals. Young forest habitats rapidly grow beyond the dense tree sapling and shrub stage needed by wildlife such as grouse, woodcock, deer, bear, turkey, Appalachian cottontail, golden-winged warblers, and an entire community of declining songbirds. Other well-known and well-loved species such as the Eastern whip-poor-will, prairie warbler, and snowshoe hare rely upon the same patchy mosaic of young forest. Thus, active management, following science-based best management practices continues to be an agency priority.

To achieve a more balanced distribution of age classes on state game lands forests, harvesting efforts must be increased to roughly 13,500 acres per year. This is a significant increase from harvesting levels of the last 20 years, when average timber harvests hovered around 6,000 acres per year. Since 2011, the Game Commission forestry program has increased outputs every year to an annual harvest of nearly 10,000 acres in 2016. Plans are in motion to grow outputs even more. On the current trajectory, the target of 17 percent of forests being in the 0- to 20-year age class will be reached in 25 years.



Healthy Habitats; 2:14





State Game Lands Comprehensive Management Plans

Forests mature over time, making landscape-level planning necessary to ensure at least 17 percent of the landscape remains in young forest habitat. There are several methods to regenerate forest habitat, not all are suitable for every forest type or situation. Desired stand composition and vegetation structure is considered before forest-management techniques are prescribed.

Each state game lands is managed using a comprehensive plan developed specifically for that game lands. Individual plans are created using the collaborative efforts of the local staff members: land management group supervisor, habitat management crew supervisor, forester, and wildlife biologist. Plans are reviewed and approved at both the region office and Harrisburg headquarters.

Young forest - Hal Korber

Controlled Burn acres statewide

Native plant life is rejuvenated after a controlled burn on State Game Lands 65 - Hal Korber



Controlled Burns

Many plant and animal species respond favorably when burning is introduced to their habitat. The controlled use of fire, under the direction of skilled resource managers, promotes healthy forests for wildlife. During 2016, trained personnel used controlled burns to manage habitat on 10,570 acres—an increase of roughly 4,000 acres from the year prior.

Controlled burns are crucial to maintaining oak forests, scrub oak-pitch pine communities, various barrens, savannas, open woodlands, and native grass communities. Burns improve wildlife habitat and hunting opportunity by increasing soft-mast production in shrubs such as blueberry, huckleberry, and blackberry and by rejuvenating native grasses, wildflowers, and succulent browse plants preferred by deer and elk. Fire promotes oak habitats and their vitally important acorns, and maintains grasses and broadleaf plants sought by brooding turkeys and grouse. Fire-dependent habitats can support rare animals and insects.

Land managers employ burns in controlled situations to encourage healthy natural systems. A series of low-intensity burns can thin crowded forests, resulting in less-severe outbreaks of diseases and pests. Controlled burns also reduce leaf litter and woody fuels that increase wildfire intensity.

Burns benefit upland oak-hickory forests, woodlands, and pine-oak savannas by increasing the amount of sunlight reaching the ground to promote seed germination. Periodic burns reduce competition of fire-intolerant species such as maples, beech, and white pine. Unless this competition is reduced, upland oaks and pines gradually disappear from the landscape. Historical records indicate some plants and animals that are difficult to find in the Appalachians today were once common. When burns are reintroduced, plants sometimes reappear where they have not been recorded in decades.



Controlled burn on state game lands - Hal Korber



Aspen Regeneration

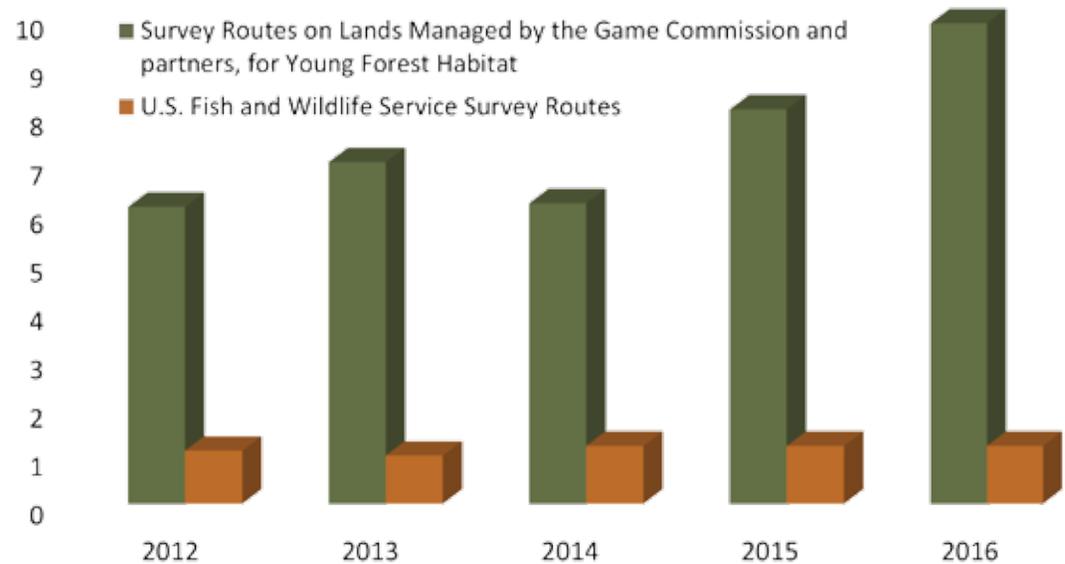
Aspen provides a high density of stem cover when it is young and older aspen trees offer high-protein buds, a winter food valuable to many species. Due to its importance to ruffed grouse, aspen stands and remnant clones are promoted and retained by forestry practices. The most effective practice is cutting. Aspen does not compete well when among northern hardwoods past about 40 years of age. Instead of allowing clones to die out of mixed stands, managers regenerate these stands by cutting them to remove competing tree species and allow aspen to persist. For small individual clones, cutting all standing mature aspen and all surrounding trees out to a diameter of one to two tree lengths will encourage renewal of aspen clones. Winter cuts are recommended when managing aspen because their root systems are sensitive to soil disturbance and compaction.

Game Commission land managers focus on short-rotation management to provide a continual, well-interspersed class of 5- to 20-year-old aspen on the landscape at all times. Managers may also notice aspen saplings creeping into herbaceous openings and refrain from moving the areas to allow the clones to expand.

Young aspen - Hal Korber



Average number of woodcock heard peenting on **federal survey routes** vs. **routes on managed PA habitat**



The American woodcock prefers young timber stands with a dense understory, especially along moist valleys and lowlands. Moist soils harbor earthworms and other invertebrates that support this well-known migratory bird species. The woodcock has experienced population declines in recent decades and is considered a Pennsylvania species of greatest conservation need. Counts of singing males conducted by the U.S. Fish and Wildlife Service show a decrease of more than 40 percent since 1970. Significant losses in the amount of young, high-stem-density forests in northeastern U.S. have occurred during the same time. But the Game Commission's habitat work is making a difference for woodcock.

The graph above shows data from singing surveys conducted on U.S. Fish and Wildlife Service survey routes compared to routes on lands managed by the Pennsylvania Game Commission and partners. These results suggest that the thick young forest the Game Commission has created is proving beneficial to woodcock and other game and nongame species.

Grouse Habitat Components

The key to managing young forests for ruffed grouse is to provide diverse food sources and thick protective cover for drumming, nesting, feeding, raising young, and over-wintering. Individual grouse must overcome many challenges. Successful reproduction, survival of first year birds into the breeding population, successful fall dispersal, and annual survival determine year-to-year grouse abundance.

The greatest degree of overstory removal provides the greatest benefit to ruffed grouse. Grouse will use the resulting thick protective ground cover in every season—for escaping predators, feeding, nesting, drumming, and brood rearing.

In Pennsylvania's northern and western forests, a shelterwood sequence culminating in overstory removal regenerates numerous species desirable for ruffed grouse. Pennsylvania's highest grouse populations occur in these stands.

In the state's southern and eastern mixed oak forests, shelterwood cuts or controlled burns ensure that mast-producing oak remain on the landscape to provide food.

Low-quality stands that cannot be economically converted to desirable species can be managed for young forests. These sites can serve as 'life preservers' for grouse while commercial treatments are preformed nearby.



Grouse **nesting sites** often are located at the base of a tree, stump, or log. Mixed hardwood stands of 40 years or older typically provide quality grouse **nesting habitat**. - Ben Jones



An abundant herbaceous understory provides good grouse **winter cover** and protein-rich invertebrates for summer food. Pictured here is a closed-canopy stand the summer following an April controlled burn. - Ben Jones

Grouse **drumming sites** are characterized by a log or other platform surrounded by dense midstory cover of young trees or shrubs. A rich herbaceous layer and midstory stems are key grouse **brood habitat** components. - Jacob Dingel

Grouse need diverse **food resources** throughout the seasons. Beechnuts like these and other mast, as well as fruits, buds, and leaves provide sustenance in the fall. - Hal Korber





Ruffed grouse have been identified as one of Pennsylvania's species of greatest conservation need. The loss of young forest is the most critical driver in grouse declines. West Nile virus is a fairly recent risk that acts together with habitat loss to depress populations. Game Commission research revealed this problem, and a combination of additional research and habitat management will be needed to combat grouse declines. By incorporating new disease research findings into habitat management planning, the Game Commission and partners can focus habitat management efforts in areas where grouse populations have the best chance of responding. With this collaborative approach between population research and habitat management, the deck is stacked in favor of our state bird once again.

Ruffed grouse - Hal Korber

Ruffed Grouse and West Nile Virus

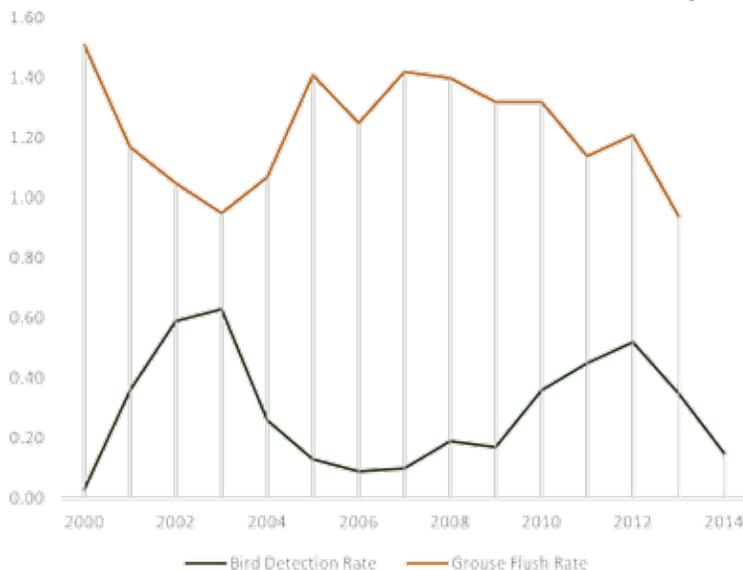
Pennsylvania's state bird, the ruffed grouse, is struggling in the commonwealth. The grouse population is at its lowest in more than 50 years of monitoring. Grouse and many other species of greatest conservation need depend on young forests. During the past 30 years, the range of grouse within Pennsylvania has contracted dramatically and shifted northward. Surveys show that 25 percent of the area inhabited by grouse in the 1980s no longer is occupied, with the population declining 30 to 50 percent across all habitats. In addition to the loss of young forests, there is evidence that an infectious disease is contributing to grouse declines.

West Nile virus, a mosquito-transmitted virus native to Africa, affects many bird species and was first identified in the United States in New York during the summer of 1999. West Nile virus reached a statewide status in Pennsylvania during 2002. Grouse populations declined precipitously from 2002 to 2005, and no sustained population recovery has followed. The Game Commission began studying the impact of West Nile virus on grouse abundance in 2015. Working with the Ruffed Grouse Society and collaborators in Pennsylvania, New York, Canada, Colorado, and Idaho, wild-collected grouse chicks were inoculated with West Nile virus in a laboratory to assess the lethality of the virus to grouse. Results indicate that West Nile virus can produce fatal infections in grouse with population-level effects.

In 2016, a collaborative data analysis conducted by the Game Commission and Penn State University confirmed that young forest habitat and West Nile virus may be equally important in determining where grouse populations rise and fall across the landscape. In response to this new information, the Game Commission organized a Grouse Management Coordination Conference in 2016 to address ongoing declines in ruffed grouse populations. This was the first multi-state, grouse-focused meeting held in more than 15 years within the eastern United States. It was attended by 40 biologists from 22 state agencies, universities, and non-governmental organizations. Mission-critical priorities identified include: aggressive and targeted habitat management, public outreach, a better understanding of the role of West Nile virus in grouse declines, and a landscape analysis of changing grouse population dynamics in order to identify population strongholds and those areas of highest vulnerability. From 2015 through 2017 the Game Commission enlisted Pennsylvania grouse hunters to submit blood samples from harvested grouse to investigate the level of West Nile virus exposure in our wild grouse. During two grouse seasons, hunters submitted more than 400 blood samples from harvested grouse. The study confirmed that wild grouse are exposed to the virus in all regions of the commonwealth. This large-scale grouse sampling effort was the first of its kind in the nation and could not have been accomplished without ongoing support from Pennsylvania's passionate grouse hunters.

This graph shows the mirrored relationship between the detection of West Nile virus in dead birds and number of grouse flushed by hunters in the fall.

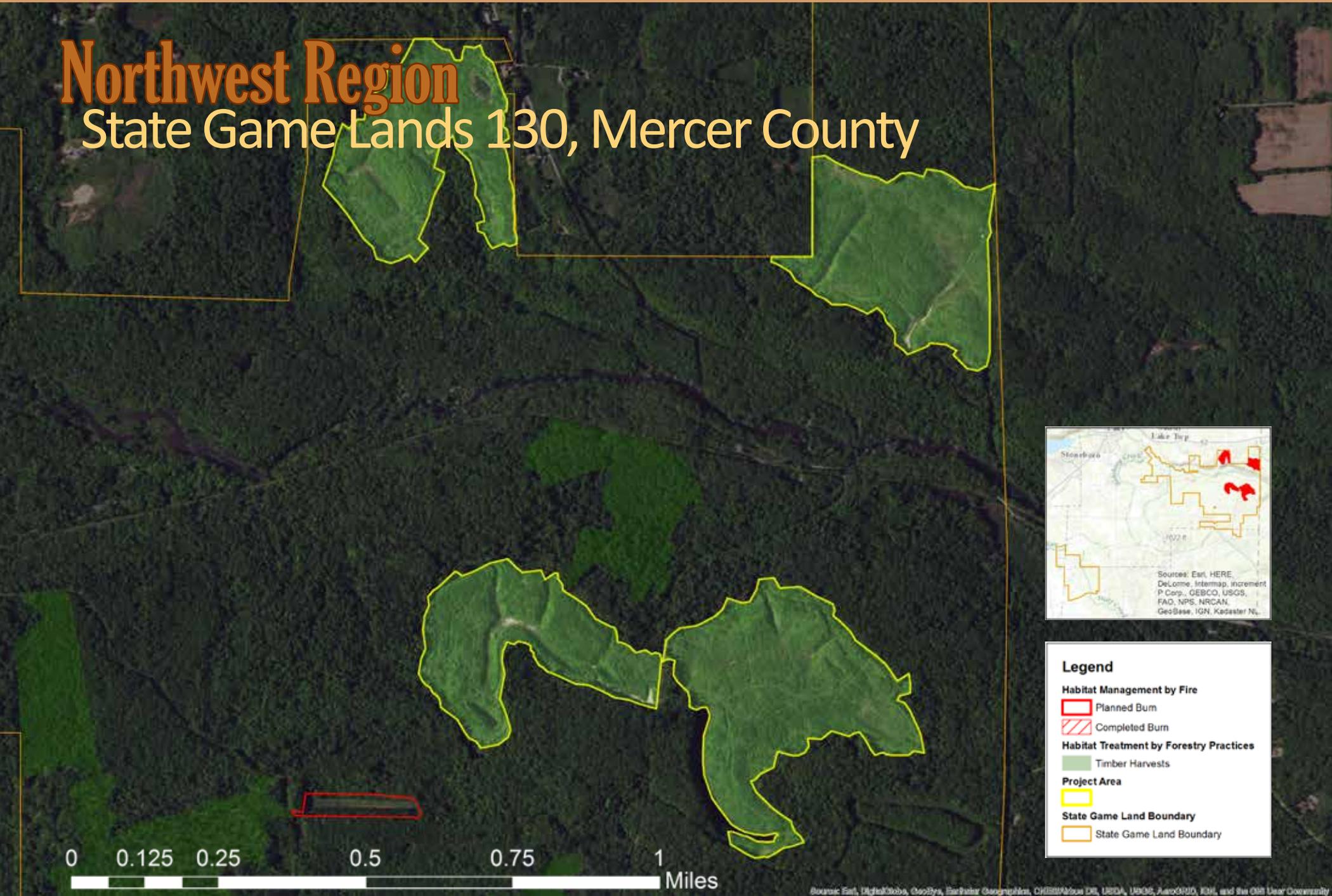
More West Nile : fewer grouse.



Biologist Lisa Williams tracking radio-collared grouse - Hal Korber

Northwest Region

State Game Lands 130, Mercer County



State Game Lands 130, Mercer County

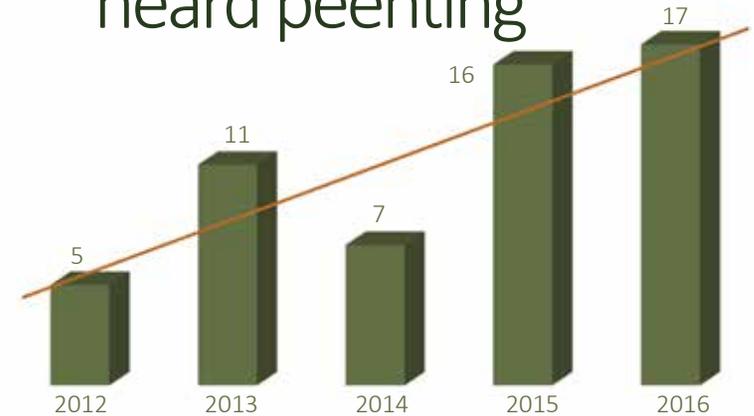
State Game Lands 130 comprises more than 3,000 acres in Mercer County. Several acres of the game lands were treated in recent years to create young forest.

Mature aspen in the project area shown on the previous page had grown to a point where they no longer provided much benefit to wildlife. Prior to timber harvest activities, invasive plant species that had become established in the area were removed using herbicide. This allowed regenerating aspen to be free from competition with non-native invasive plants, which have little value for wildlife.

A 210-acre timber harvest was conducted in 2011 and 2012. Felled material was removed from the site to maximize sunlight reaching the ground and encourage aspen regeneration. The vegetative response was outstanding and an early successional aspen stand is now providing habitat for many wildlife species.

Singing surveys document an increase in American woodcock on the game lands since the habitat improvement.

State Game Lands 130 Male Woodcock heard peenting



April 2011

November 2011

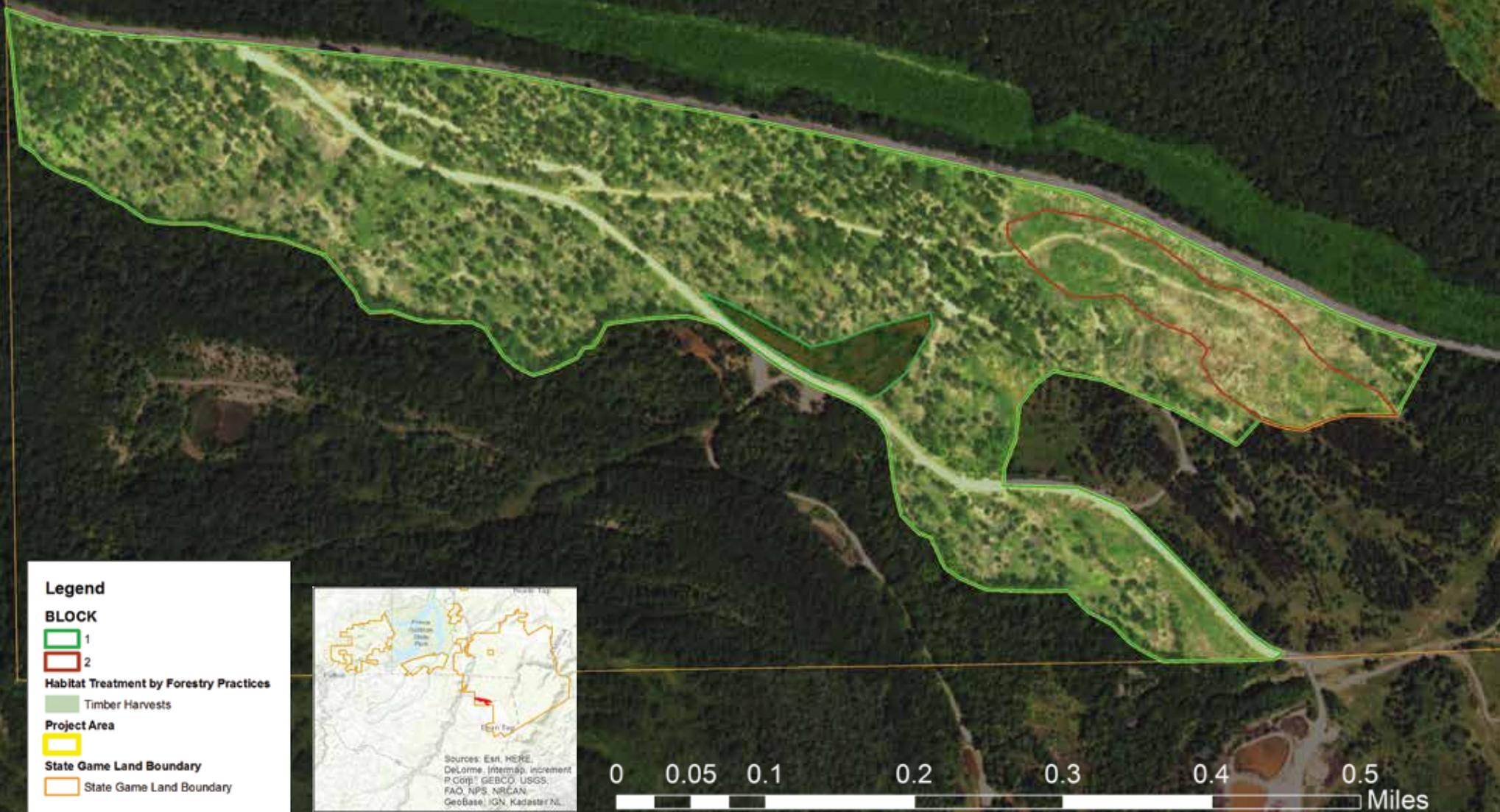


April 2017



Southwest Region

State Game Lands 108, Cambria & Blair Counties



State Game Lands 108, Cambria County

State Game Lands 108 encompasses 23,131 acres in parts of Chest, Clearfield, Dean, Reade, and White townships in Cambria County, and Anits Township in Blair County. This project area, shown on the previous page, is 85 percent forested, primarily with oak. Wildlife benefits from the mix of forest age classes this game lands provides. Habitat enhancement is the primary focus of timber harvests and there is a persistent need to create young forest habitat.

In 2015, a timber harvest near Brubaker Run increased the amount of young forest by setting back the successional stage of the project area to encourage growth of forbs, grasses, seedlings, and small shrubs. Older oak and hickory forest stands were preserved to produce mast as a source of food.

While marketable pulpwood stands on the project area were harvested, commercial revenue was minimal, though some infrastructure improvements were gained in stone and gravel for roads and reseeding of some areas.

Today, the area has a diversity of young saplings, providing optimum habitat conditions for a variety of wildlife.

August 2015



May 2017



A photo from 2015 shows where a block of timber was harvested on State Game Lands 108. Two years later aspen is regenerating on the landscape providing food and cover for a variety of wildlife species that depend on this type of habitat.



White-tailed deer thrive in young forest habitat - Hal Korber

Northcentral Region

State Game Lands 100, Centre County

Legend

Timber_Block

SALE_NAME

-  Pine Glen Salvage
-  Oakley hollow
-  poleline

Habitat Management by Fire

-  Planned Burn
-  Completed Burn

Habitat Treatment by Forestry Practices

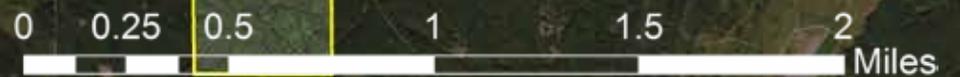
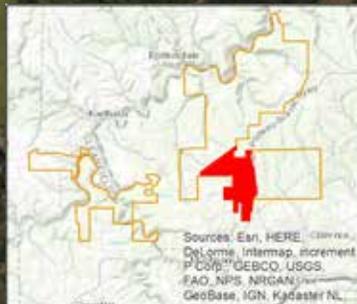
-  Timber Harvests

Project Area

-  Project Area

State Game Land Boundary

-  State Game Land Boundary



Routes: Esri, DigitalGlobe, GeoEye, Earthstar (Google), CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

State Game Lands 100, Center & Clearfield Counties

State Game Lands 100 is comprised of more than 20,200 acres in Centre and Clearfield counties. The majority of the forestland in the project area shown on the previous page is dominated by oak species that prefer drier conditions (chestnut, scarlet, and some white) with a laurel understory.

Roughly half of the forestland is steep and inaccessible to conventional forest management; these lands were left to grow old. The rest is managed for a mix of age classes, using timber harvests and controlled burns with a goal of maintaining 10 to 20 percent of the area in age classes less than 20 years old. Both commercial and non-commercial harvests were used to meet this goal.

In some areas, during 2006 and 2007, Game Commission habitat crews removed red maple, birch, and sassafras that were shading out the oaks and inhibiting acorn germination and oak seedling development. In other areas, shading species will be removed using controlled burns.

In 2008 and 2009, gypsy moth infestation resulted in high mortality of overstory oaks and several commercial salvage clearcuts were conducted. From 2009 through 2013, the entire overstory was removed on more than 500 acres with the exception of selected trees left to provide mast for food, cavities for shelter, and diversity of tree species. Uncut islands and corridors, and uneven-shaped harvests also promote species diversity.

As young forest stands age into stands of pole timber, management will be necessary to maintain a mix of forest age classes. Longterm planning and treatments designed to increase oak regeneration will be important to ensure future young forest stands.

Elk have become established on State Game Lands 100 - Jacob Dingel



Untreated stand with dead oak and minimal regeneration

Regenerated forest with uncut travel corridor in background

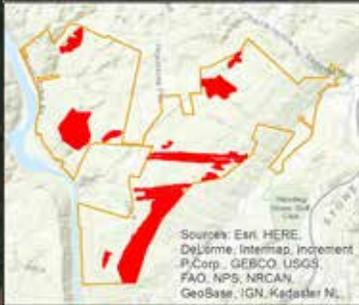


Trail used by deer and elk — evidence of their use of new young forest habitat



Southcentral Region

State Game Lands 322, Huntingdon County



Legend

Habitat Management by Fire

- Planned Burn
- Completed Burn

Habitat Treatment by Forestry Practices

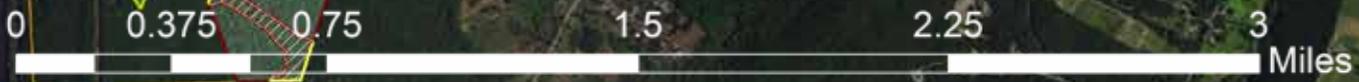
- Timber Harvests

Project Area

- Project Area

State Game Land Boundary

- State Game Land Boundary



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNRS/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

State Game Lands 322, Huntingdon County

State Game Lands 322 consists of more than 3,000 acres in Huntingdon County, in two parcels connected by a small corridor. Beginning in 2008 and continuing through 2017, several timber harvest operations and controlled burns have created a mosaic of young forests on the project area mapped on the previous page.

In 2008, a 106-acre timber harvest promoted an existing understory of scrub oak and provided for scrub oak expansion into neighboring stands. Scrub oak not only provides dense escape cover, but also produces an abundance of acorns as early as three to five years after establishment, making it exceptionally valuable for wildlife.

In 2010, an 11-acre clearcut was administered to regenerate aspen stands. The area had been treated with herbicide several years before the cut to control invasive and competing species. Young aspen stands provide high-stem-density escape cover from predators like hawks and owls, are a highly preferred browse for deer and elk, and their buds provide important winter food for birds. A 50-acre timber harvest in 2013 provided similar benefits.

Controlled burns took place on two sites in 2015, reducing fuels; maintaining and rejuvenating native vegetation such as little blue stem and Indian grass, low-bush blueberry, pitch pine, and scrub oak; and removing competing vegetation such as birch and red maple, which have less wildlife value.

A 189-acre timber harvest was completed in 2017. Thirty-eight acres of reserve islands and corridors were set aside and 151 acres were cut to expand habitat for golden-winged warblers and restore the native scrub oak barrens community.

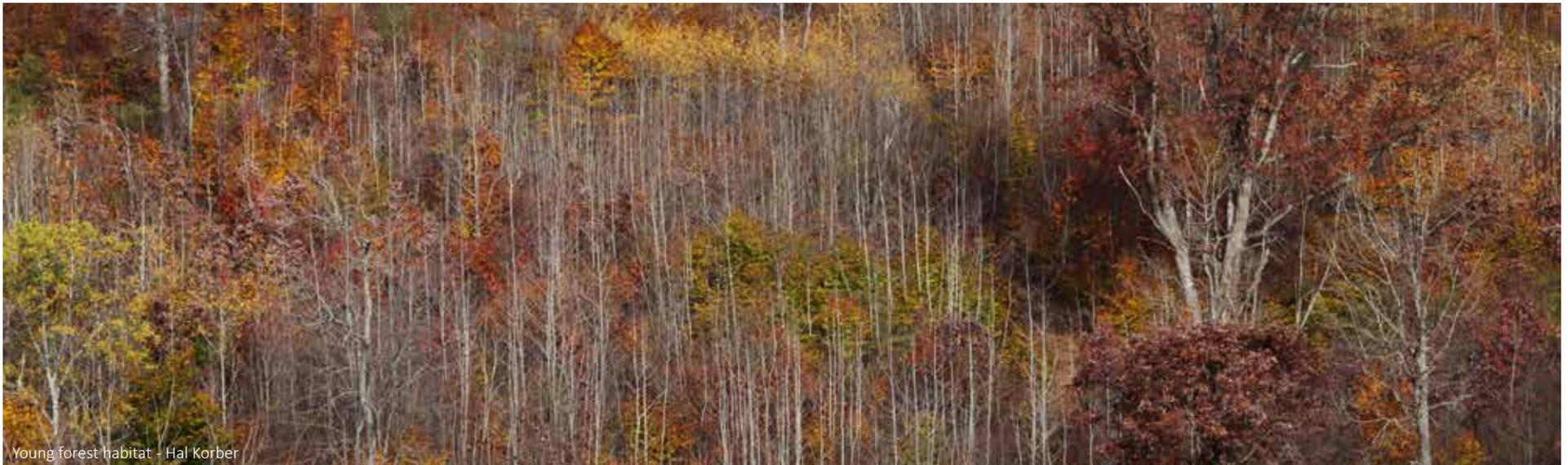
Also during 2017, 12 acres on an 82-acre timber harvest was reserved as a buffer around two vernal pools to protect endangered species. The harvest established or advanced stands of aspen, poplar, and oak.

In the future, portions of the project area will be regenerated at varying time intervals to maintain a mosaic of young-forest age classes and controlled burns will help maintain the scrub oak barrens.



Hal Korber

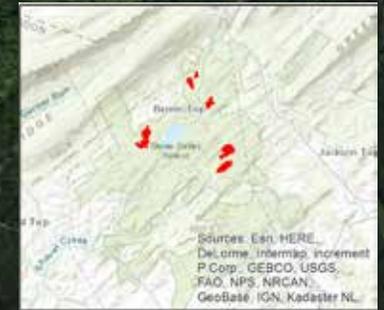
Golden-winged warblers, a Pennsylvania species of greatest conservation need, prefer a mosaic of herbaceous patches and shrubby thickets located along a forest edge; they are found increasingly in higher elevation bogs and forested wetlands.



Young forest habitat - Hal Korber

Southcentral Region

Stone Valley Forest, Huntingdon County



Legend

Habitat Management by Fire

- Planned Burn
- Completed Burn

Habitat Treatment by Forestry Practices

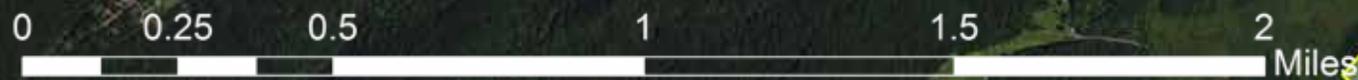
- Timber Harvests

Project Area

- Project Area

State Game Land Boundary

- State Game Land Boundary



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Stone Valley Forest—a Hunter Access Project, Huntingdon County

The Stone Valley Forest, located in central Pennsylvania, has long been a haven for wildlife that require young forest habitat. Although the property is now owned and managed by Penn State University, a century ago, it was a patchwork of small farms, woodlots, forested ridges, and wetlands. The Great Depression resulted in the abandonment of the farms and the consolidation and transfer of properties to the university. As farming ceased on the fields and pastures, young trees and shrubs began to grow in these areas, creating excellent habitat for a variety of young-forest wildlife species such as eastern cottontails, ruffed grouse, indigo buntings, and golden-winged warblers. The site's interspersed wet meadows, reverting fields, shrublands, young forest, and mature forest was ideal for American woodcock.

At the turn of the 21st century, the habitats were aging into mature forests and no longer contained dense vegetation. Non-native invasive plant species with little food and cover value for wildlife were taking hold. Species that depend on young forests were in decline.

Beginning in 2014, the Game Commission and several conservation partners implemented young forest habitat improvements on 180 acres on the Stone Valley Forest to reverse this trend. Improvements were conducted in nine areas ranging in size from six to 30 acres with the goal of interspersing young forest habitats across the landscape. The treatments included herbicide use to control invasive plants and mechanical mowing or felling of trees to set back succession. Patches of native shrubs were retained to provide a food and seed source. In areas where native shrubs were lacking, native shrubs were planted.

By 2017, many young-forest habitat species are using these areas again. An increase in the number of male woodcock breeding territories has been documented.

The young forest habitat work conducted on Stone Valley Forest largely was funded by the Game Commission through Pittman-Robertson funds. The project is a collaborative partnership with Penn State University, U.S. Fish and Wildlife Partners for Wildlife, Habitat Forever, Ruffed Grouse Society, and Wildlife Management Institute.



Hal Korber

American woodcock, a Pennsylvania species of greatest conservation need, prefers a mix of habitats, including small, scattered openings and dense stands of shrubs and young trees on moist soils.



Large equipment is used to mechanically fell and mulch trees and invasive shrub species. Following the mechanical treatment, selective herbicide use controls invasive species and encourages regeneration of native grasses, forbs, and shrubs.

Just after treatment



After one growing season



Northeast Region

State Game Lands 141, Carbon County

Legend

Habitat Management by Fire

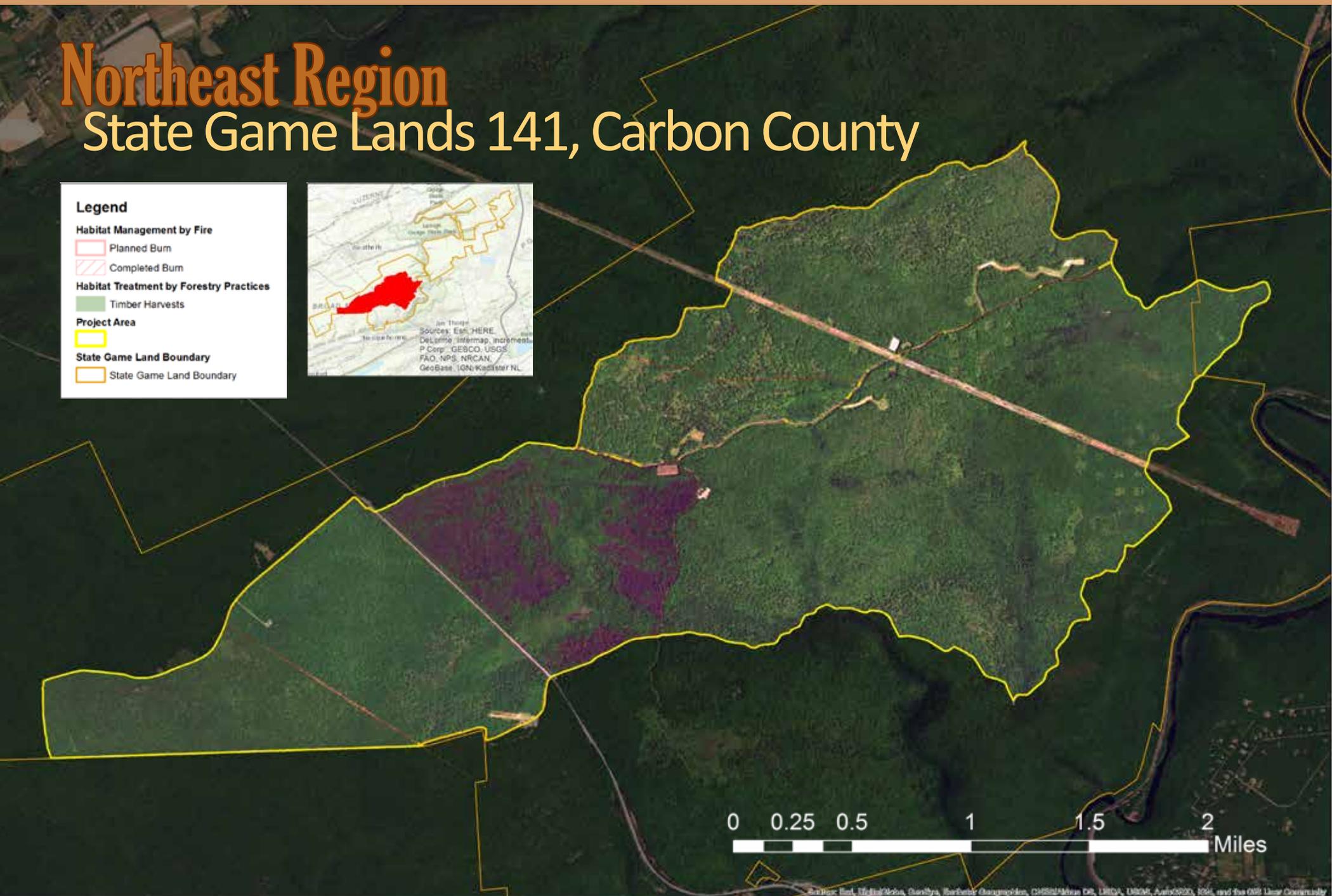
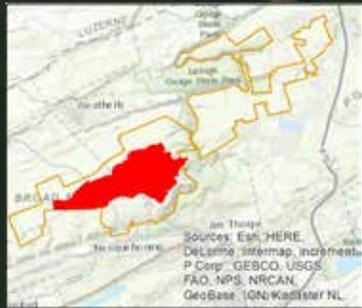
- Planned Burn
- Completed Burn

Habitat Treatment by Forestry Practices

- Timber Harvests

Project Area

- State Game Land Boundary





Some species benefiting from controlled burns

Game species such as
 White-tailed deer
 Black bear
 Ruffed grouse
 American woodcock
 Snowshoe hare

Nongame species such as
 Several bat species
 Golden-winged warbler
 Prairie warbler
 Red-headed woodpecker
 Eastern whip-poor-will

State Game Lands 141, Carbon County

State Game Lands 141 totals more than 17,000 acres in Carbon County. Roughly 95 percent of the game lands is forested, predominately with scrub oak.

The scrub oak barrens in this project area were maintained for thousands of years by lightning-induced and Native American-set fires, which promoted oak regeneration. Statewide suppression ended fire's influence on these barrens and other habitats about 75 years ago. In the absence of fire, trees that were minor components in healthy barrens habitat expanded, changing the structure of the landscape from a young forest to a forest with a closed canopy. Scrub oak barrens depend on frequent disturbance to maintain their unique habitat qualities.

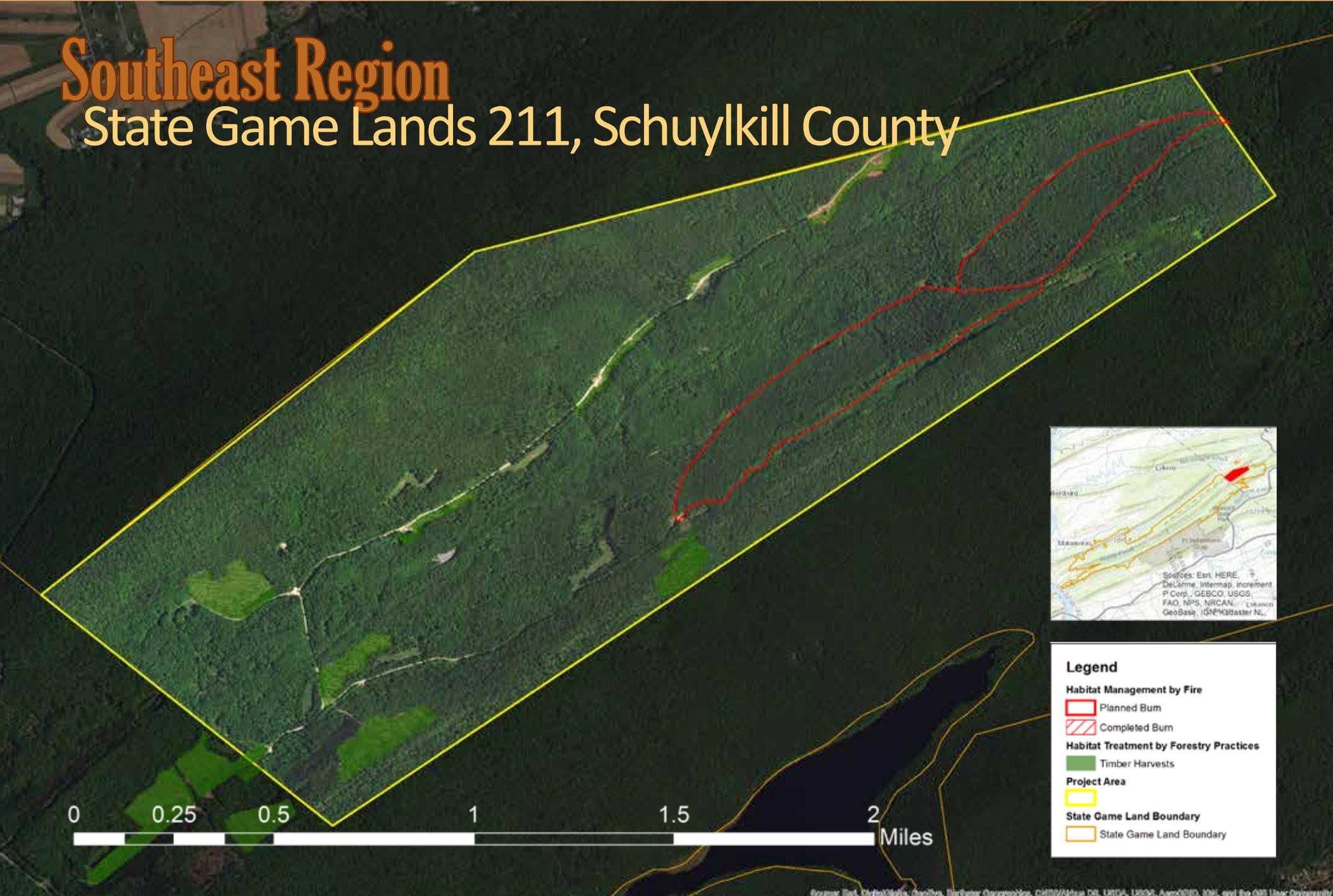
Management of barrens habitat in Pennsylvania involves restoration of the area's oak component and maintenance of early successional habitat. A thick layer of accumulated leaves has created a barrier on the forest floor, making it difficult for acorn roots to become established in the soil. Controlled burning has been the primary management tool for scrub oak barrens in the Northeast Region, with more than 3,000 acres treated on State Game Lands 141 from 2012 through 2016, and 805 acres scheduled for treatment during 2017.



Red-headed woodpecker - Jacob Dingel

Southeast Region

State Game Lands 211, Schuylkill County



The Schydel Tract on State Game Lands 211, Schuylkill County

The Schydel Tract on State Game Lands 211, in Tremont Township, Schuylkill County, was identified as having a need for intensive ruffed grouse management. Grouse and other species dependent on young forests benefit most during the first 5 to 15 years after forest habitat improvement occurs, and improvements in recent years have established a mixture of forest age classes in this project area.

Due to funding issues plaguing the Game Commission for many years, partnerships have become crucial to set projects in motion. The agency routinely works with other conservation organizations to accomplish habitat goals. Habitat improvements in this project area are possible due to funding from the Ruffed Grouse Society's Drummer Fund.

The project began with Game Commission staff members evaluating the area to identify where good grouse habitat components were lacking. Specific strategies for improvement were recommended, treatment areas were identified, and various forestry techniques were selected.

Blocks of aspen trees have been targeted for a harvest that will be left on the ground to provide woody debris and protective cover from predators. This cutting method promotes vigorous new aspen growth beneficial to numerous bird and mammal species. Subsequent cuttings will promote growth and development of oak species, ensuring future mast-crop production as a food source. Other cuttings will remove undesirable species and encourage growth of trees and shrubs beneficial to wildlife such as mixed oaks, blueberry, witch hazel, and mapleleaf viburnum.

Funding received from the Ruffed Grouse Society will pay for the felling of more than 86,000 trees, in 22 units, encompassing 129 acres. Game Commission habitat management staff members will apply herbicides and conduct controlled burns to inhibit invasive plant growth and promote native species. Agency crews will also plant a mosaic of native shrubs and conifers to benefit birds and mammals of the young forest.

The Schydel Tract habitat improvements will benefit many wildlife species for decades to come. This cooperative effort is a wonderful example of how the agency, hunters, and sportsmen across the commonwealth remain the champions of Pennsylvania's wildlife resources.



Whip-poor-will - Jacob Dingel



American woodcock - Jacob Dingel

Golden-winged warbler - Jacob Dingel



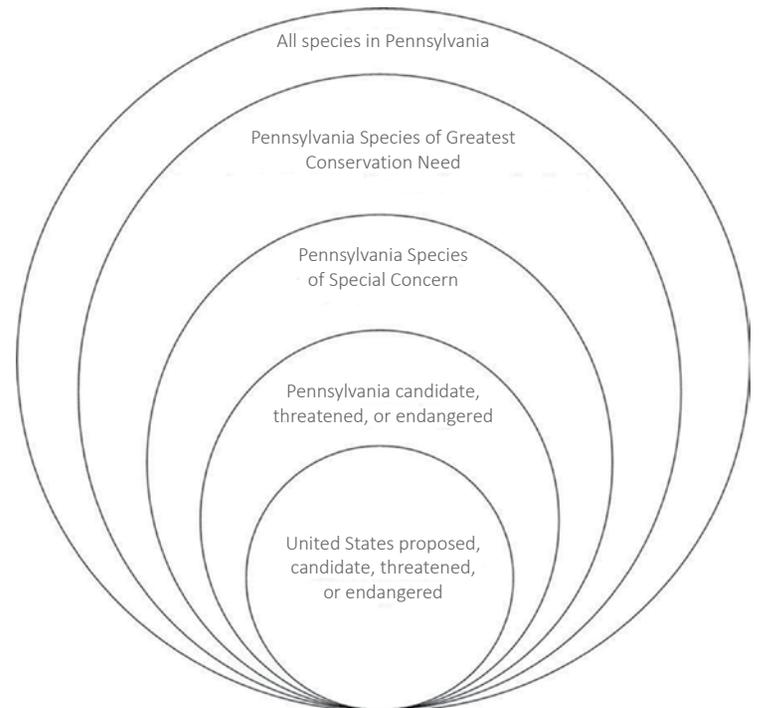


Ruffed grouse - Hal Korber

Species of Greatest Conservation Need

Some wildlife species are considered to have the greatest conservation need. These species are targeted for conservation action and are included in the 2015-2025 Pennsylvania Wildlife Action Plan. The Wildlife Action Plan is a non-regulatory, proactive conservation blueprint to prevent species from becoming endangered. This approach helps reduce the costs of wildlife management by decreasing expensive recoveries of species in need of critical care. Pennsylvania's natural resources are the foundation of our state's beauty and cultural heritage, and the Pennsylvania Wildlife Action Plan provides the framework to secure these resources for future generations. In addition to fish, reptiles, amphibians, and invertebrates, the current Pennsylvania plan identifies 90 birds and 19 mammals as species in greatest need of conservation.

A U.S. Fish and Wildlife Service-approved Wildlife Action Plan maintains Pennsylvania's eligibility for federal State & Tribal Wildlife Grants funding. These funds help implement conservation actions recommended in the Wildlife Action Plan.



The Species of Greatest Conservation Need list is the most inclusive of the different lists used to describe species conservation statuses. Already-imperiled species are included, as well as those for which Pennsylvania has a stewardship responsibility.

Credits - Just a few of the Game Commission experts and talents who contributed to this document.

Region staff members - habitat project planning, implementation, and reporting

Lisa Williams - game bird biology

Ben Jones and Mark Niessner - forestry and cartography

Jacob Dingel, Tracy Graziano, Hal Korber, and Ben Jones - photography and film

Cathy Haffner - Wildlife Action Plan; species of greatest conservation need



Stand Diversity

Maintaining a diversity of food-bearing species in a stand while providing a diversity of age classes across the landscape is a manager's over-arching goal when managing many wildlife species.



Your state wildlife agency:
Managing wild birds,
wild mammals, and their
habitats for current and
future generations.

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