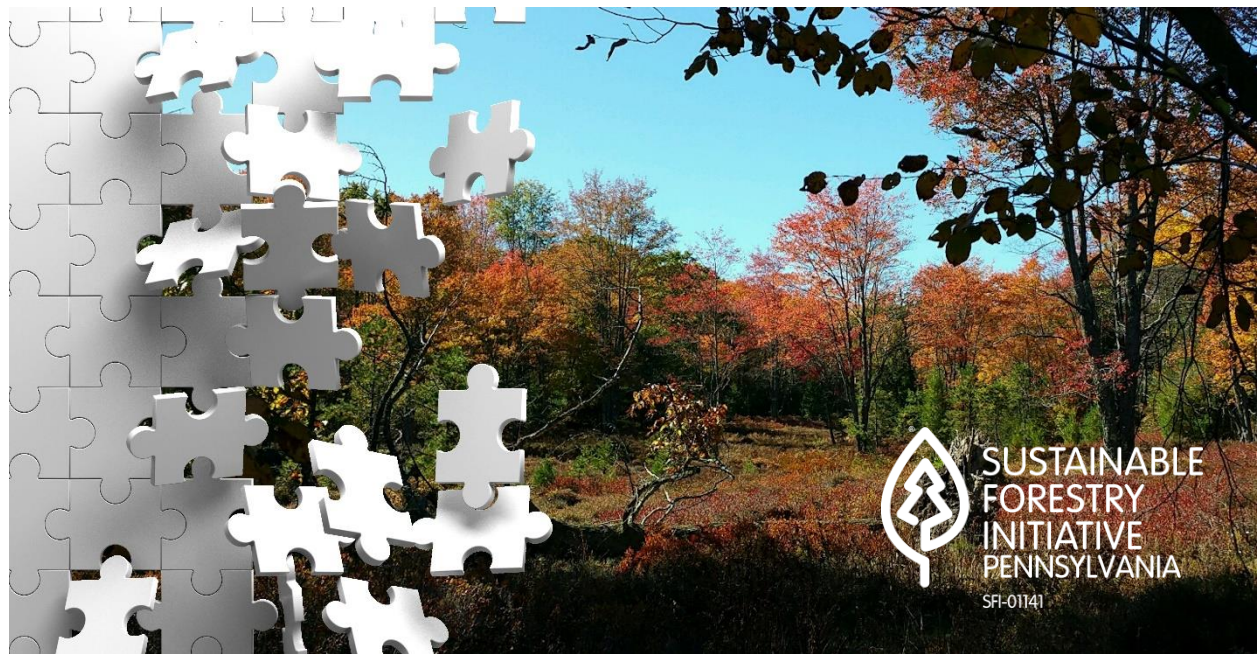


BIODIVERSITY AND FORESTS WITH EXCEPTIONAL CONSERVATION VALUE

Pennsylvania SFI Implementation Committee



Protecting forests while also utilizing them sustainably is a complex balancing act, and in Pennsylvania, where forests cover over 58% of the land area, the importance of responsible forest management cannot be overstated.

The Sustainable Forestry Initiative's (SFI) certification standards take a practical and scientific approach to defining what sustainable forestry means. Those practices are extended beyond SFI certified forestlands through the SFI Fiber Sourcing Standard, which requires certificate holders to bolster responsible forestry on non-certified lands through a commitment to educational outreach. In particular, SFI's 2022 Fiber Sourcing Standards place an increased emphasis on Biodiversity and Forests with Exceptional Conservation Value (FECV). The Standards related to FECVs are designed to identify and protect areas within forests that hold particular ecological significance. By doing so, the Standards help to maintain biodiversity, preserve critical habitats, and safeguard species that are most in need of protection and management interventions to ensure their survival.

Forest landowners, foresters, and loggers play an important role in conserving the biodiversity of our forests. Biodiversity simply refers to the variety of life in a particular place. If we think of all the trees, people, animals, plants, fungi, and even microorganisms like bacteria in our forests as pieces to a complex and intricate puzzle, then we can begin to understand how they all work together to create the larger picture of an interconnected ecosystem working to sustain life on earth. Each species plays a unique role, much like each puzzle piece contributes to the overall image. Some species serve as pollinators, facilitating the reproduction of flowering plants, while others act as predators, helping to control populations of prey species. Still, others are decomposers, breaking down organic matter and recycling nutrients back into the ecosystem.

And yet, we need to think even deeper about this since biodiversity is usually considered at three levels: genetic, species, and ecosystem. At the risk of stretching our puzzle analogy a bit too far here, we could maybe think of species diversity as the individual puzzle pieces. Just as each puzzle piece has its own shape and place in the puzzle, each species occupies a specific niche within its ecosystem, playing a distinct role in the web of life. Genetic diversity, perhaps akin to the unique patterns and colors of individual puzzle pieces, refers to the variation within species at the genetic level. Just as individual puzzle pieces may have intricate patterns and varying hues, genetic diversity encompasses the differences in DNA sequences among individuals within a species. Ecosystem diversity might be represented by larger interlocking sections of the puzzle, each one representing a distinct habitat or ecosystem type. Just as puzzle sections fit together to create a larger picture, ecosystems are interconnected and interdependent, forming a mosaic of habitats across landscapes.

In the same way that removing pieces from a puzzle can disrupt the image and make it incomplete, the loss of a species or diversity can have far-reaching consequences for an ecosystem. When biodiversity is reduced due to habitat fragmentation or destruction, pollution, invasive species, climate change, or other human activities, the intricate balance of relationships among species is disrupted, leading to ecological instability and loss of resilience. Moreover, like a puzzle with missing pieces, ecosystems with reduced biodiversity may struggle to function properly. They may become more vulnerable to invasive species, diseases, and other disturbances, making them less able to adapt to changing environmental conditions.

Conversely, when biodiversity is preserved and enhanced, ecosystems become more resilient and capable of sustaining life in the face of challenges. Just as adding pieces to a puzzle can enrich the overall image and make it more vibrant and complete, efforts to conserve and restore biodiversity contribute to the health and vitality of ecosystems, ensuring their continued functioning.

Forests are incredibly diverse ecosystems, home to a myriad of plant and animal species. Forests with Exceptional Conservation Value are those that support puzzle pieces at significant risk of being lost – rare plants, animals, or ecological communities (i.e., groups of species that are commonly found together). These species and communities are classified as imperiled or critically imperiled. SFI's FECV standards help ensure that areas that house imperiled, and critically imperiled species and ecological communities are identified and protected within forest management plans and operations.

“Critically imperiled” (G1) or “imperiled” (G2) species or ecological communities are globally rare or, because of certain factors, especially vulnerable to extinction or elimination. Nongovernmental organizations such as NatureServe and Natural Heritage Programs, or the World Conservation Organization (IUCN) designate G1 and G2 species or communities. These status ranks are used to prioritize conservation and protection

Considering FECVs in forestry practices requires a collaborative effort among landowners, foresters, loggers, and other conservation professionals. Landowners play a crucial role in identifying and designating FECV areas within their properties. Foresters bring their expertise to assess the ecological significance of these areas and develop management plans that prioritize their conservation. Loggers, in turn, implement harvesting techniques that minimize disturbance to FECV areas and adhere to sustainable forestry practices.

The SFI Standards help conserve biodiversity, protecting species and communities, while also enhancing the long-term health and resilience of our forests. These sustainable forestry practices not only ensure the continued viability of Pennsylvania's forest products industry but also safeguard the ecological integrity of our forests for generations to come.

PA NATURAL HERITAGE PROGRAM

The Pennsylvania Natural Heritage Program (PNHP) gathers and provides information on the location and status of imperiled and critically imperiled ecological resources in Pennsylvania.



The PNHP is a partnership between the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Fish and Boat Commission (PFBC), the Pennsylvania Game Commission (PGC), and the Western Pennsylvania Conservancy (WPC) in cooperation with the U.S. Fish and Wildlife Service (USFWS). Each PNHP partner agency is responsible for managing specific taxonomic groups of rare, threatened, and endangered species, as well as species of concern and rare natural features.

At the federal level, the USFWS is responsible for the administration of the Endangered Species Act for federally listed Threatened and Endangered Species. At the state level, species protection is divided among the three state agencies (DCNR, PFBC, and PGC), also called jurisdictional agencies. DCNR is responsible for wild plants; PFBC is responsible for fish, amphibians, and reptiles; and PGC is responsible for birds and mammals.

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PNDI AND PA CONSERVATION EXPLORER

The PNHP maintains an integrated data management system of site-specific information related to important ecological resources known as the Pennsylvania Natural Diversity Inventory (PNDI). The online PNDI Environmental Review Tool (ER Tool) allows the public to pre-screen timber harvesting and vegetation management projects for potential impacts to imperiled and critically imperiled species and other rare and significant ecological features in Pennsylvania. This tool is accessed through the Pennsylvania Conservation Explorer.

<https://conservationexplorer.dcnr.pa.gov/>

The environmental review process includes specific screening for timber harvesting and vegetation management projects and produces a PNDI “receipt” with conservation or enhancement measures, avoidance measures or next steps for further review. While there is a \$40 charge for screening the project and generating a PNDI receipt, the resulting receipt will provide documentation of any potential conflicts with a known location of a species of concern and identifies the respective jurisdictional agency (or agencies).

HOW TO CHECK FOR POTENTIAL IMPACTS TO IMPERILED AND CRITICALLY IMPERILED SPECIES IN PENNSYLVANIA

The PNDI Environmental Review Tool within the Pennsylvania Conservation Explorer enables the public to screen for potential harmful impacts to local biodiversity.

1. Create new account and login
2. Click the MAP menu to navigate to the map
3. Navigate to your forest management project area (you can double-click on the map, drag on the map, and/or use the zoom bar). Note you can change the background map by clicking on SWITCH BASEMAP.
4. Areas containing rare, threatened and endangered species can be seen by simply checking and unchecking the various map layers listed under Environmental Review. Use the IDENTIFY tool to bring up additional details on specific polygons.
5. Click on CREATE PROJECT to conduct an Environmental Review
6. Choose the appropriate Project Type
7. Draw (Polygon, line, point) or upload a screening area of interest. Click ACCEPT.
8. Fill out project information and click SUBMIT FOR PREANALYSIS. You may be asked questions if additional information is required. Answer them and click SUBMIT.
9. Click SAVE DRAFT PROJECT. A convenience charge of \$40 will need to be paid to complete the analysis and generate a receipt.
10. When the PNDI analysis is complete, an email message will be sent to you, prompting you to visit MY PROJECTS to view the receipt. The PNDI receipt indicates if there are potential impacts, which agency(ies) they are with, and includes instructions on how to proceed with your project.

For additional help: <https://help.natureserve.org/ert/pa/>

The PNDI system contains only those known occurrences of threatened and endangered species, special concern species and rare and significant ecological features. Therefore, the absence of a record in the PNDI system does not mean that there are not threatened or endangered, or special concern species, or rare or significant ecological features on any particular site.

Pennsylvania's Sustainable Forestry Initiative (SFI) Implementation Committee encourages forest management activities that conserve native biodiversity. Please visit our website for additional information: www.sfi of pa.org/FECV & <https://sfi of pa.org/pages/wildlife-habitat/>

Strategies for Conserving Forest Biodiversity

It's important to note that imperiled and critically imperiled species can thrive in managed forests. In fact, active management is necessary for the survival of some species. It's up to landowners, foresters, and loggers to take the necessary steps to identify and conserve these species and communities.

The following strategies can help maintain or perhaps increase biodiversity in forest ecosystems. Consider incorporating these strategies into your forest management activities.

- Check for impacts: Utilize the Pennsylvania Natural Heritage Program's Environmental Review Tool to check for any potential impacts to local biodiversity prior to conducting forest management activities. <https://conservationexplorer.dcnr.pa.gov/>
- Protect habitat: Provide and protect a variety of habitats for plants and animals. Diverse habitat types ensure the potential for a wide range of plants and animals.
- Reduce fragmentation: When a large habitat is broken into smaller fragments, certain plant and animal species cannot spread easily. Three species groups affected by habitat fragmentation are:
 - species with large home ranges (e.g., bears and large carnivores)
 - species unable to disperse easily (e.g., many amphibian and reptile species)
 - habitat-interior species (e.g., forest songbirds)

Some species easily survive habitat fragmentation. For example, deer and raccoon are generalists and often benefit from fragmentation.

- Control exotic invasive animals or plants: Exotic invasive species may outcompete native species and have detrimental effects on the forest ecosystem. Japanese stiltgrass is an example of an exotic invasive species.
- Reduce pollution: Pollution has negative effects on forest ecosystem productivity and may make certain species more prone to damage from insects and disease.
- Use sustainable harvesting practices: Sustainable harvesting practices protect the environment by conserving soil, controlling stream sedimentation, protecting residual trees from damage, and promoting desired regeneration.

Keeping Common Species Common

While we tend to focus a lot on sustaining and growing the abundance of rare and threatened species, it is also important to make room for "keeping common species common." This is a conservation principle aimed at preserving the abundance and diversity of native plants and animals that are widespread within an ecosystem.

The concept underscores the importance of maintaining the populations of species that are not currently threatened or endangered but play crucial roles in ecosystem functions and services. By focusing efforts on conserving these common species, conservationists and land managers can help prevent their decline and ensure the overall health and resilience of ecosystems. This approach recognizes that even though common species may not be at immediate risk, their populations can still be vulnerable to habitat loss, degradation, and other human-induced pressures. Therefore, proactive conservation measures are essential to sustain these species and the ecosystems they inhabit for future generations.