



Natural Lands Trust



Prescribed Fire

a land management tool for promoting native ecosystems

Prescribed fire is the controlled application of fire to achieve specific conservation or land management goals. This technique is accepted within the scientific and natural resource management communities as a means to perpetuate a natural and historic influence on local ecology. Natural Lands Trust is one of the leaders in the use of prescribed fire in Pennsylvania, with a dedicated, professionally trained and certified fire management team.

HISTORY

Fire has played an important part in shaping local plant and animal communities for thousands of years. Fire was a frequent occurrence within woodlands (following major perturbations such as wind events or insect defoliation), native grasslands and on open barrens (serpentine and pine barrens) scattered throughout the region. Before European settlement, wildfires set by lightning and/or Native Americans were frequent and widespread. Native Americans used fire for many reasons, including driving game and rejuvenating food resources such as berry patches and pasture for game species.

Today, of course, fires are put out. Fire suppression over the last century has modified the plant composition of forest, grassland and barren communities, threatening important historic natural ecosystems and allowing potentially dangerous build-up of organic fuels.



APPLICATIONS

Natural Lands Trust currently uses prescribed fire at six of our preserves in Pennsylvania, conducting approximately 15 burns each year for a total of a few hundred acres. The most common specific applications are:

Grasslands



Fire plays an important role in maintaining open grasslands of native warm-season (summer-growing) grasses and wildflowers. Without periodic fire to remove shrub and tree saplings, grasslands rapidly succeed to shrubland (often of undesirable species such as multiflora rose and autumn olive) and woodland. Prescribed burns, typically conducted in early spring, also kill or set back early-growing non-native and/or invasive species such as thistle, multiflora rose, Oriental bitter-sweet and Japanese honeysuckle, which displace native species and homogenize wildlife habitat. In addition to removing competitive species, fire also improves soil nutrition and stimulates seed production and germination for some native species.

Serpentine Barrens

An unusual geologic feature of Chester and Delaware counties, serpentine barrens are named for outcroppings of the magnesium-rich mineral serpentinite. The surface-level serpentinite creates challenging growing



The globally rare fameflower reemerged after prescribed burning on serpentine barrens on an Natural Lands Trust preserve.

conditions that favor specialized plant communities. In the absence of fire, organic litter builds up over the serpentinite, altering soil chemistry and allowing woody vegetation to establish itself. We use prescribed fire on our preserves to remove the invasives and maintain the unique serpentine community.

Oak-Hickory Forest

Eastern forests are now in transition from an oak/hickory-dominated canopy to a fire-sensitive maple, beech, and tulip tree canopy. Oaks, hickories and a few other trees grow a thick bark that protects them from fire. Prescribed burning can be used to promote regeneration of the historic oak/hickory forest and discourage displacement by other species.



Fire Prevention

In the absence of regularly occurring fire, brush, dead wood and leaf litter builds up on the forest floor, creating the potential for much larger and more destructive fires. Prescribed fire is often used, ironically, to burn accumulated fuels, thus reducing the risk of uncontrolled forest fires.



PROCESS

At **pre-burn meetings** (*below*), the team reviews individual assignments, weather conditions, fuels and other elements of the burn.



The crew begins by lighting a **test fire** (*right*), to ensure that the fire conditions are within the required parameters for safety. If the test fire does not perform within these parameters, the burn is postponed.



Crew members may use **strip-firing** (*below*) techniques, where fire is lit in strips 5–20 feet apart, allowing fire intensity and rate of spread to be carefully controlled. Wind and weather conditions are constantly monitored to ensure that burn conditions remain safe and that the objectives are being met.



After the burn (*below*), crew members carefully mop up the area to ensure that the fire does not re-ignite after the crew departs. The exposed soil—blackened and fertilized by the fire—will help native grasses and wildflowers germinate more quickly (soil temperatures will rise by about 10°) and grow more vigorously.



SAFETY

Safety is the number one concern and our highest priority. Natural Lands Trust prescribed burns are conducted by thoroughly trained fire management professionals. We have three levels of fire staff: a fire management coordinator, burn boss and 15 staff fire crew members. All levels of staff are trained to the highest U.S. federal standards and are required to do annual physical fitness training. Our equipment is modern and well-maintained.

For each preserve where we burn, we create a Site Fire Management Plan that addresses overall justification and management goals for using fire, tentative 5-year schedule, description and maps of all burn units at the preserve, smoke map, neighbors list and wildfire plan. We also create a Prescribed Fire Burn Plan for each individual unit burned. This includes a weather prescription and parameters (wind direction and speed, temperature, humidity), unit/ignition and smoke maps, required manpower and equipment, radio communication needs, and all local contact numbers (e.g., fire company, police, ambulance, Bureau of Forestry, county fire dispatch).

Safety considerations and planning even take wildlife safety into consideration. Most animals are adapted to fire, with many simply leaving the area during a fire. Our spring burns are timed to end before meadow birds begin nesting each year.

RESULTS



Prescribed fire encourages healthy native habitat for a wide variety of species: (clockwise from the left) the Eastern Meadowlark requires large grasslands for nesting; big bluestem is a native warm-season grass; goldenrod blooms in late summer offering critical late-season nectar for migrating monarch butterflies; Indian paintbrush benefits from spring burning; serpentine aster flourishes on serpentine barrens maintained by periodic prescribed fire.



ABOUT NATURAL LANDS TRUST

Natural Lands Trust is the region's largest and most effective conservation organization, saving thousands of acres of forests, fields, streams and wetlands each year. Since 1953, we have worked to preserve and promote healthy habitats for native plants and animals, clean watersheds for people and wildlife, unspoiled areas for public enjoyment, and the aesthetic beauty of our region's natural lands for generations still to come. Currently Natural Lands Trust owns and manages 43 nature preserves totaling over 21,000 acres.

Our land stewardship staff is recognized nationally for its expertise in the restoration and management of natural lands. Prescribed fire is just one of many techniques we employ to encourage native ecosystems.

In addition to land stewardship, Natural Lands Trust also focuses on protecting critical landscapes from development, helping municipalities manage their land use, and connecting people to the beauty and importance of natural open space.

For more information, please contact:

Darin Groff, Fire Management Coordinator
610-827-0156, dgroff@natlands.org