

Unlike mowing and brushcutting, which have a uniform impact over the managed area, fire produces a patchwork of burned and unburned habitats due to the variability in its temperature, intensity and rate of spread. As a result, older, unburned plants are distributed within newly-burned habitat, thereby creating a mix of cover and forage conditions that benefit many species of wildlife.



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Prescribed Burning on Nantucket



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Fire is an often misunderstood management practice that most people consider destructive to property, habitat and wildlife. However, fire is actually a natural process that has been a part of the environment for thousands of years and is still used under controlled circumstances to produce desirable ecological goals and prevent catastrophic wildfires. This brochure will explain why Nantucket's open space managers conduct prescribed burns, the precautions that are taken to ensure that they are done in a safe and controlled manner, and the benefits of utilizing this management technique.

Why is prescribed fire used?

Fire is an important natural process that maintains habitats for many species of plants and animals. Historically, lightning caused fires, and Native Americans burned areas to clear them for agriculture, improve forage for game species, and stimulate berry and acorn production. Many native plants and animals, some of which are quite rare, are dependent on periodic fires for their reproduction, growth and survival.

Throughout much of the country, the development of town and roads and effective fire suppression have stopped fire from moving across the land as it once did. Prescribed burning is now used to return fire to certain areas in a controlled fashion so that it may continue its vital role. Prescribed burning also reduces buildup of dead wood and other debris thereby decreasing the likelihood of catastrophic wildfires that can threaten public safety and result in serious property damage.

What is a prescribed burn?

A prescribed burn is the controlled application of fire to the land to accomplish specific conservation and/or land management goals.

Who conducts the prescribed burn?

Prescribed burns are conducted by "burn bosses" (trained fire professionals) who have studied and practiced fire behavior and fire control techniques to ensure the safety of the burn crew, nearby residents and private property. In Massachusetts, burn professionals are associated with a number of organizations and agencies, including, but not limited to, the National Park Service, The Nature Conservancy, the University of Massachusetts, the Nantucket Conservation Foundation, the Nantucket Islands Land Bank Commission and the Massachusetts Division of Fisheries & Wildlife. Prescribed burns are conducted in cooperation with federal, state and local fire management agencies.

What is a burn prescription?

The key to a safe and effective burn is planning. Before fire is applied to the land, a rigorous planning process is undertaken to determine the acceptable conditions under which the burn will be conducted. These conditions are contained in a document called a "prescription" that describes expected fire behavior based on an acceptable range of conditions such as relative humidity, wind speed and direction, air temperature, and dryness of



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the vegetation, along with a plan describing how the fire will be ignited and contained. If any of these conditions are unacceptable on the day of a planned burn, they are considered to be “out of prescription,” and the burn will be postponed. The prescription planning process ensures that the burn is approved by the local fire control authorities and all burning permits have been obtained. By following a prescription, fire managers are able to accomplish the objective of the burn and provide for public safety.

How is the fire kept under control?



Fire breaks, which surround the area to be burned, are used to prevent the fire from moving onto adjacent land. A fire break may be a road or trail, a mowed or plowed line, a natural feature such as a pond or a recently burned area. Water or fire retardant foam may also be used to create a fire break. During the burn, fire breaks are constantly patrolled by burn

crew members who use specialized fire tools, backpack water sprayers and water-carrying pump trucks to ensure that the fire does not cross the fire break. Crew members wear special fire resistant clothing, helmets, gloves and eye protection during the burn.

What about the smoke?

Controlling where the smoke will go is an important part of every prescribed burn. Before each burn, fire managers look carefully at the proximity of the burn site to houses, roads, the airport and other smoke sensitive areas. This information is incorporated into the burn prescription so that the burn will only be conducted when winds will move the smoke up and away from populated areas, highways, runways, etc. Periodic prescribed burns prevent heavy brush accumulation which would send greater amounts of smoke into the air if a wildfire was to occur.

Where are prescribed burns conducted?

Each year, prescribed burns are conducted in New England at a variety of sites by many government agencies and private organizations. Burns can range in size from over 100 acres in remote locations to small burns of just a few acres in more urban landscapes. In southeastern New England, burns are regularly conducted on the south coast, Cape Cod, the Elizabeth Islands, Martha’s Vineyard

and Nantucket in order to perpetuate habitats for rare plants and animals unique to this region.



How do prescribed burns benefit the land?

Nantucket’s sandplain grasslands and heathlands provide habitat for many rare and endangered species of plants and animals. Plants such as bushy rockrose, St. Andrew’s cross, eastern silvery aster, New England blazing star, sandplain flax and broom crowberry do best growing in nutrient-poor, sandy soils that receive full sun. Periodic disturbance, to which most of these species are adapted, keeps taller shrubs and trees from becoming established, shading and out-competing these plants. Endangered birds of prey such as the northern harrier utilize the island’s open grasslands to hunt their preferred prey species, the meadow vole.

Grasslands and heathlands are largely

the result of human activities. They were created by centuries of human land use practices that include burning by Native Americans, harvesting wood for home building, ship construction and fuel, clearing land for agriculture and many years of continuous grazing by sheep and other livestock. Virtually all of these activities have ceased over the last century, allowing scrub oak, pitch pine and other tall shrub species to encroach upon Nantucket’s grasslands and heathlands. If left unchecked, this process will result in the loss of rare species due to lack of habitat.

Fire is a natural and effective means of managing grasslands and heathlands. Many heath species bloom profusely following burns, and some actually require fire to reproduce. Grasses, sedges and perennial wildflowers are able to survive burns because they have extensive below ground root systems. Although most shrubs are capable of re-sprouting after a fire, this management practice ‘top-kills’ them, thereby preventing them from out-shading and overtaking grassland and heathland plants.

Birds and large animals such as rabbits and deer can easily outdistance the flames and find cover in adjacent unburned areas. Smaller animals, such as mice, voles and shrews, seek shelter in underground burrows where they can avoid heat. Burns are timed to avoid periods when young animals are likely to be vulnerable.