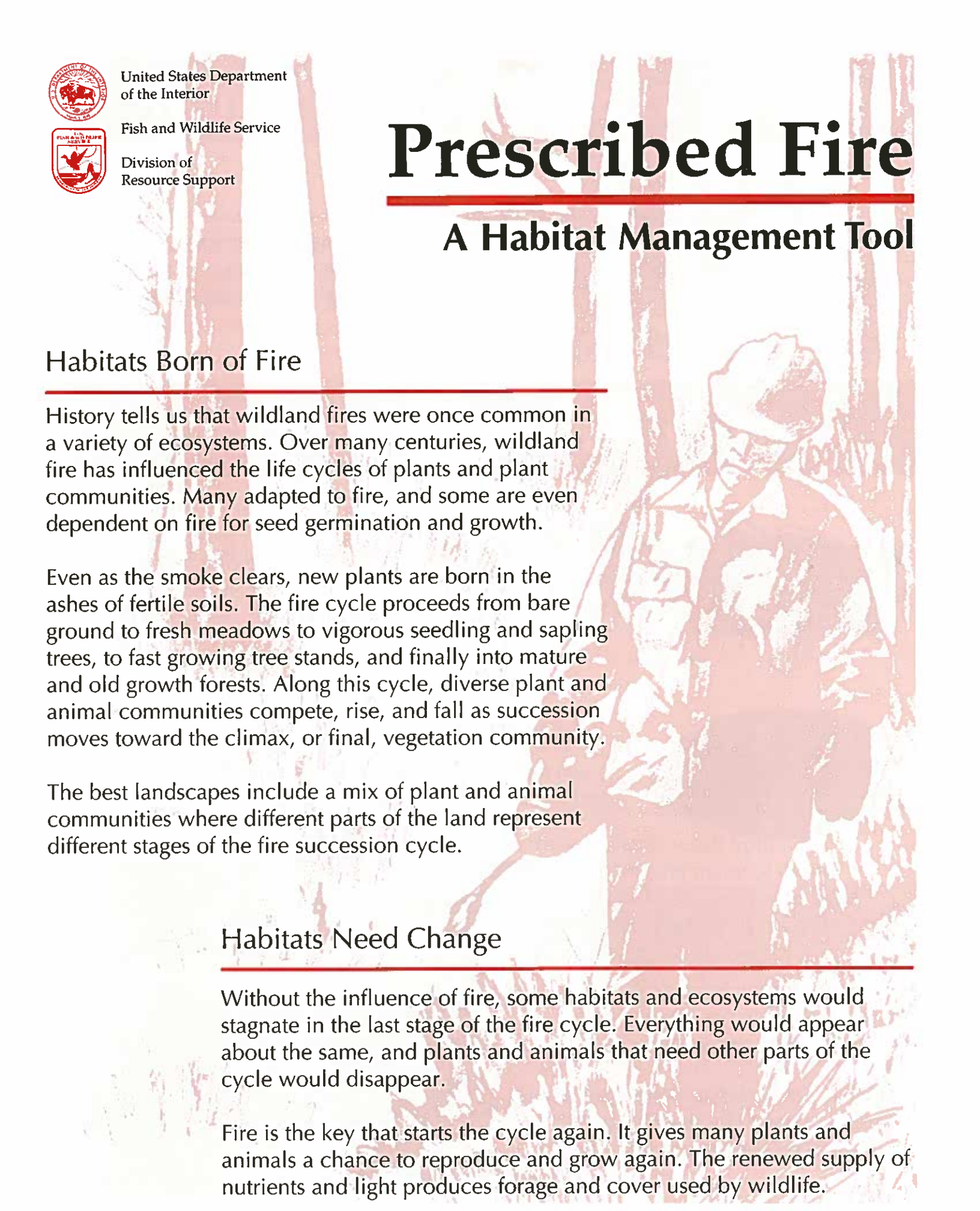
United States Department of the Interior

Fish and Wildlife Service

Division of Resource Support

Prescribed Fire

A Habitat Management Tool



Habitats Born of Fire

History tells us that wildland fires were once common in a variety of ecosystems. Over many centuries, wildland fire has influenced the life cycles of plants and plant communities. Many adapted to fire, and some are even dependent on fire for seed germination and growth.

Even as the smoke clears, new plants are born in the ashes of fertile soils. The fire cycle proceeds from bare ground to fresh meadows to vigorous seedling and sapling trees, to fast growing tree stands, and finally into mature and old growth forests. Along this cycle, diverse plant and animal communities compete, rise, and fall as succession moves toward the climax, or final, vegetation community.

The best landscapes include a mix of plant and animal communities where different parts of the land represent different stages of the fire succession cycle.

Habitats Need Change

Without the influence of fire, some habitats and ecosystems would stagnate in the last stage of the fire cycle. Everything would appear about the same, and plants and animals that need other parts of the cycle would disappear.

Fire is the key that starts the cycle again. It gives many plants and animals a chance to reproduce and grow again. The renewed supply of nutrients and light produces forage and cover used by wildlife.

fire works to rid an area of insects and disease. It also returns the nutrients in dead foliage to the soil, where they work with light and water to produce a new generation of plants. Prescribed fire is a valuable tool used to manage many ecosystems.

Maintaining Diversity

No Fire In the absence of fire, fuel (twigs, branches, dead grasses) would build up from natural accumulation, setting the stage for a catastrophic wildfire.

Wildfire When wildfire does occur, it can take many years to restore the soil, plants, and natural beauty of the landscape.

Prescribed Fire

Through the proper use of prescribed fire, fuels can be maintained at safe levels, and the ecosystem can be managed in a diverse, healthy, and vigorous state.

Should a wildfire follow a prescribed burn, the damage would be much less and the fire would be easier to control.

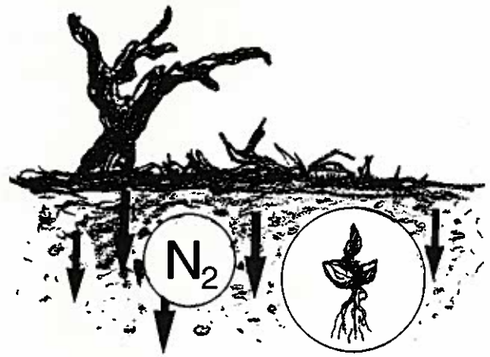
Some Positive Effects of Fire

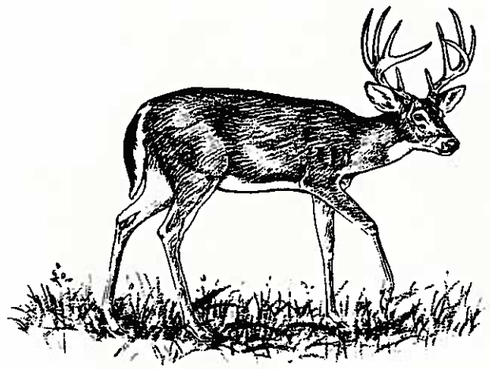
Reduces Fuel Buildup

Dead wood, dead grasses, and twigs accumulate on the soil and increase the chances for devastating fires.

Prepares the Land for New Growth

By burning the dead or dying plants, nitrogen and other nutrients are released into the soil — providing nourishment for new plants. Fire also removes part of the litter, or duff layer, exposing the soil so that germinating seeds can take root.





Encourages a Variety of Plants and Creates Diversity Needed by Wildlife

A variety of plants result from fire. Wildlife depends on many of these plants for food. Many kinds of wildlife also use the meadows and meadow edges created or maintained by fire.

Enhances Growth

Some plants require heat to reproduce. In the absence of naturally occurring wildland fire, prescribed fire is used to help nature's cycle.

how we *burn*

FROM THE SKY

PING-PONG BALLS – a machine is attached to a helicopter that drops small ping-pong-like balls which are ignited by an internal chemical reaction. The machine is controlled from inside the helicopter.

HELITORCH – A large torch is suspended beneath a helicopter which dispenses burning gelled gasoline onto the fuels below. Ignition is controlled from the helicopter cockpit.

ON THE GROUND

DRIP TORCH – A hand-held fuel tank from which burning fuel is dispensed through a metal tube with a drip nozzle end.

FUSEES – A solid fuel ignition device similar to a railroad flare.

TERRA TORCH – A vehicle mounted flame thrower which dispenses burning gelled gasoline onto the fuels to be burned.

Fire specialists begin by reviewing the Management Plan to make sure the proposed burn is consistent with standards and guidelines.

Two basic types of burns are used to reduce fire hazard:

BROADCAST, where fire is spread in a predefined area by experts and allowed to burn at proper intensities in a predictable manner.

PILE BURNS, where burnable fuels are concentrated into "slash piles" and later burned.

Aspects of the Prescribed Burn Plan

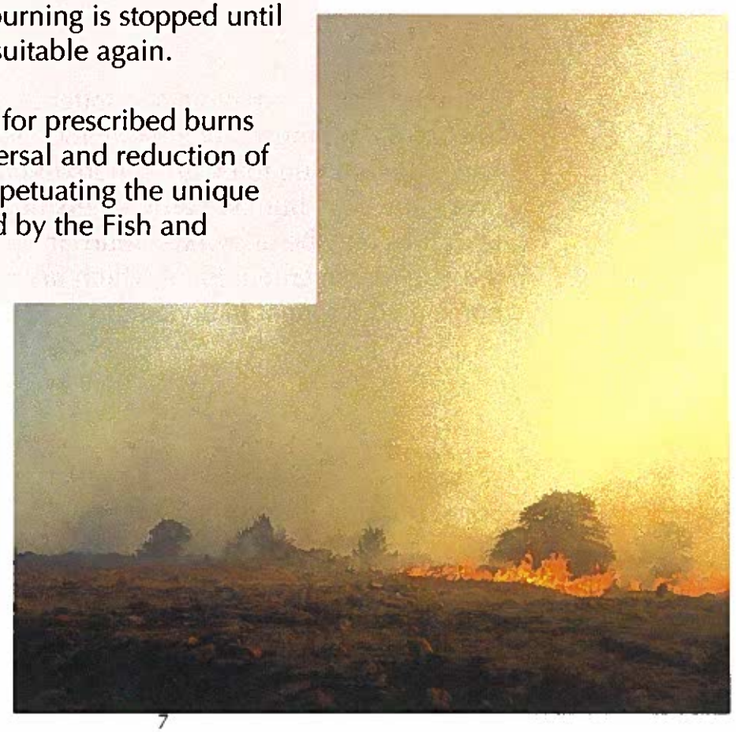
1. The *objective* of the burn.
2. A *description* of the project, its location, type of fuel to be burned, and habitat conditions.
3. *Special considerations* describe such things as archaeological sites, smoke sensitive areas, and special wildlife trees to be protected.
4. The *burning prescription* outlines the range of weather conditions including relative humidity, fuel moisture, temperature, wind speed, and direction under which the burn will be conducted.
5. *Firing methods* describes the ignition pattern to be used. The area is divided into blocks or compartments of appropriate sizes so the fire can be easily stopped if there is a change in the weather.
6. The *holding plan* outlines the firefighting forces needed to keep the fire within predetermined blocks.
7. The *mop up, monitoring, and containment plan* is activated when firing is completed in a block. Firefighters check the fire for several days to make sure it stays within the block. They cool hot spots and begin evaluating how well the burn met the planned objectives. This part of the plan also determines how burning material will be extinguished to reduce the amount of smoke that is produced.
8. An *escaped fire contingency* outlines the actions that will be taken if the prescribed fire threatens to or actually does escape control.
9. A *smoke management plan* identifies smoke sensitive areas and the environmental conditions that will minimize smoke intrusion. This plan also specifies when and how to shut down the burn if conditions change and unacceptable impacts would result.
10. *Public information and contacts* describes how the public will be informed about the burn and its purposes.

Smoke

With our use of fire as a management tool, smoke management has become important to the fire manager. Fires produce varying quantities of smoke, an elusive by-product that can be a major concern. Therefore, smoke management must be considered in every prescribed fire plan. Fire and the resulting smoke is an integral part of many ecosystems and cannot be separated from these ecosystems without consequences.

Weather, especially wind speed, direction, and the stability of the air mass, plays an important role in smoke dispersal. Unfortunately, these conditions cannot always be accurately predicted. When the weather changes and creates a situation where smoke lingers over an area, burning is stopped until weather conditions become suitable again.

The prescriptions used today for prescribed burns provide for rapid smoke dispersal and reduction of lingering haze, as well as perpetuating the unique and diverse habitats managed by the Fish and Wildlife Service.



When We Burn

Winter

Winter burning is usually done either to remove debris that has been cleared and piled, or to broadcast burn some ecosystem types such as prairie grasslands or coastal marsh. Materials that have been machine or hand piled can be burned with better control because wetter conditions help keep the fire from spreading. Broadcast burning of grasslands during late winter controls woody vegetation that competes with the grasses and forbs that are critical for grazing animals such as elk, buffalo, and bighorn sheep.

Spring

In spring, soil moistures are high from winter snow melt or rain, but fuels that carry a fire are still relatively dry and grasses and forbs have not turned green. Burning in the early spring is usually done to reduce hazardous accumulations of fuel that may cause an uncontrollable wildfire during late spring or summer. Spring burning is also used to encourage plant species that resprout best when soil moistures are high.

Summer

Summer months are typically hotter and drier, so fires can be difficult to control and must be carefully monitored. Even though fire has been and will continue to be an important part of habitat management, wildfires caused by human carelessness need to be prevented. Some wildland fires may be allowed to burn in specific areas if authorized under the Fire Management Plan, which permits some wildland fires to become a component of an area's ecology.

Fall

Some burning is accomplished in fall. Weather conditions are best for low burning, prescribed fires that remove fuels from the forest floor, while protecting live trees within the burn. Large wildland fires starting in the summer may burn into the fall season. Fires may be allowed to continue burning so long as they meet objectives found in the Fire Management Plan.