

Landscape of the Past: Prairie Management at Herbert Hoover National Historic Site

By Steve Robinson

Over a quarter of a million people each year are drawn to West Branch, Iowa, the birthplace of the first president born west of the Mississippi. Here, visitors to the Herbert Hoover National Historic Site can walk through the two-room cottage where the president was born and lived his first five years. They can visit the Herbert Hoover Presidential Library-Museum, the Quaker Meetinghouse where the family worshipped, the first one-room schoolhouse built in West Branch, and, during the summer, can watch a blacksmith at work in the Jesse Hoover Blacksmith Shop.

But there are other resources of a different nature within the park that also played an important role in Hoover's early years in Iowa. The park includes a 76-acre tract of reestablished native Iowa prairie – one of the largest areas of reestablished prairie in the state. Hoover recalled his boyhood in the 1870s, playing in small areas of virgin prairie along the Wapsinonoc Creek and the Burlington track – remnants of the days when more than 85 percent of Iowa was prairie. He spent the summer of 1882 in Sioux County, Iowa with an uncle who was breaking in a prairie farm, and one of his most vivid boyhood recollections was riding the lead horse of the team that pulled the plow through that virgin prairie sod.

The goal of NPS at Hoover NHS is to restore the Hoover prairie to its appearance of 200 years ago, before European settlers arrived in the area. Until 1971, the area had been under cultivation. In accordance with the park's master plan, the 76-acre tract was seeded with five different species of native prairie grass – big bluestem, little bluestem, sideoats gramma, switchgrass and Indian grass. A variety of prairie forbs were introduced later in some parts of the prairie. The grasses soon became very well established, so much so that they crowded out most of the forbs. Over the years, however, one vital element of the prairie's ecology was omitted – fire. Even though a well-established stand of grasses was present, there was nothing to prevent the gradual encroachment of woody species and noxious weeds.

The seeding effort in 1971 was the beginning of a long series of management techniques that have been employed over the past 14 years. By 1976, those areas of the prairie with the heaviest concentrations of weeds were mowed each fall, and crews of Youth Conservation Corps (YCC) workers would hand-clip individual thistle plants throughout the rest of the prairie. This was done in an effort to eliminate the thistle seed source, reduce the thistle population, and give an edge to the grasses and forbs the following spring. The problem continued to worsen, however, and a more aggressive course of action became necessary.

In line with the NPS-developed Integrated Pest Management policy, the use of chemical pesticides at Park System sites is carefully controlled. The variety of pest management techniques preferred includes mechanical methods (mowing, hand-clipping, fire) and biological methods (host-specific insects, for example) for controlling pest infestations. These may be used in combination with the approved limited use of chemicals. As the occurrence of noxious weeds is reduced and the grasses and forbs become more



The Hoover Prairie stretches away like a golden ocean around the Isaac Miles farm at Herbert Hoover NHS.

vigorous, pest control is maintained by the prairie's own self-perpetuating ecosystem. However, that ecosystem, to be complete, must include fire.

In 1981, the park staff wrote a Natural Resources Management Plan that addressed, in detail, the existing problems in the prairie and suggested alternative courses of action. The plan called for the carefully controlled and limited use of chemical pesticides in order to gain control over the spread of noxious weeds and the reintroduction of fire to the prairie. The park staff worked closely with experts in the field in developing a prairie rehabilitation plan aimed at restoring the natural prairie ecology – a plan aimed at restoring the prairie's ability to take care of itself. Dr. Paul Christiansen, biology professor at Cornell College, Mt. Vernon, Iowa, working with NPS Resource Management Specialist Bill Wilcox, has conducted an inventory of all plant species in the prairie. Other consultants included Jeff Joens, a wildlife management assistant with the Iowa Conservation Commission; Bob Dayton of the Soil Conservation Service; and Ben Holmes and Gary Willson of the NPS Midwest Regional Office. These experts all agreed on the use of fire as an effective management tool in restoring the Hoover prairie.

The absence of fire, probably more than any other single factor, has led to the establishment and maintenance of undesirable species in the prairie. In fact, had it not been for the recurring incidences of natural and man-caused fires in Iowa's grasslands, the soil and climatic conditions would have given rise to forests. Fires through the years have naturally eradicated the woody species before they could establish a stronghold; fire also has perpetuated the native grasses, whose root systems survive the fires and allow for a surge of new growth after the burn.

The Resource Management Plan was approved in 1982. Efforts were continued to remove the seed source of noxious weeds – this time with direct application of a chemical herbicide on the thistles along with hand-clipping of individual plants. At the same time, a prescribed burning plan was developed and preparations were made to implement it.

The reintroduction of fire to the Hoover prairie was accomplished through a prescribed burn in the spring



Scientific input into the Herbert Hoover NHS prairie management program is provided by Dr. Paul Christiansen, professor of biology at Cornell College, Mt. Vernon, Iowa.

Prairie Management

Continued

of 1984. The 76-acre tract was divided into five "prairie management units." Three units totaling 46 acres were burned and two units were left unburned to provide a sanctuary for the prairie wildlife and to provide a base for "before and after" comparisons.

The burn prescription had the following objectives:

1. To burn back the trees, shrubs and noxious weeds that generally start their growth earlier in the spring than prairie grasses and forbs.
2. To remove the excess accumulation of litter in the prairie, thus allowing sunlight to heat the earth and encourage the growth of warm-season prairie grasses. (Much of this organic matter, when burned, would be released into the soil to nourish new growth.)
3. To increase and improve habitat for prairie wildlife species.

Following the burn, the areas most heavily infested with weeds were plowed and planted with a rich seed mixture of prairie grasses and forbs. Dr. Peter Schramm of Knox College in Galesburg, Ill., was contracted to provide the native plant seeds and to do the actual planting. He used a Nisbet seed drill, which has proven an effective device for planting native grass seed.

Six months later, a dramatic difference could be seen between the burned and unburned sections of the prairie. The native grasses in the burned area have come back with renewed vigor, standing six to eight feet high in some areas. The Canada thistle, though still present, has been reduced substantially. Dr. Christiansen's post-burn prairie inventory showed the percent cover of Canada thistle in the burned portions of the prairie down from 30.9 percent in 1982 to 16.3 percent in 1984. The plowed areas, as would be expected, have been invaded by a variety of weeds and non-native foxtail grasses. According to Dr. Christiansen, these species should give way to the native grasses and forbs this coming year.

At the same time, Dr. Laura Sweets, a plant

pathologist from Iowa State University, has been doing research on certain Canada thistle plants in the prairie that have stunted growth characteristics and are whitish in appearance. These plants are suspected of having a bacterial-like disease known as *apical chlorosis*, which has been found in Canada thistle in very few other areas of the state. Research continues into the implications this may have on noxious weed control.

As for the future, the Park Service plans to continue its prescribed burn program in light of the apparent success of the 1984 efforts. The prairie burned again

in April 1985, under the supervision of Chief Ranger Kurt Topham and this practice will continue periodically as part of the natural prairie ecology. In addition, native forbs will continue to be introduced, both through seeding and manual transplanting, to increase the variety of plant species in the prairie ecosystem. The condition of the prairie will be monitored closely and the working relationship with the expert consultants will be maintained.

Robinson, who was a park technician at Herbert Hoover NHS, has been promoted to Supervisory Park Technician at Mesa Verde NP in Colorado.



Fires, both natural and man-caused, have perpetuated the prairie grasses over the years and halted the encroachment of woody species at Herbert Hoover NHS.