



notes from abroad

Editor's Note: Grassland and prairie management in the United States and England, similarities and differences in approach, is the subject of this issue's Notes from Abroad. Dr. Jackson, Professor of Biology at Missouri Southern State College in Joplin, spent a year's sabbatical as Visiting Scholar at Wolfson College, Oxford University. Hearn is Adviser on Nature Conservation with the Estates Advisers Office, The National Trust, Cirencester, Gloucestershire, England. Jackson is a Cooperative Researcher and has done limestone glades prairie research for the NPS at Wilson's Creek National Battlefield in Missouri.

**By James R. Jackson
and Katherine A. Hearn**

After working separately for over 10 years on grassland management at historic sites for the Midwest Region of the National Park Service in the U.S. and for the National Trust in England, we now are working together on grassland management in England. We have realized that there are some interesting similarities and differences in our approach to grassland management. The areas most interesting for comparison are: threats to the grasslands, serious management problems, differences in management practices, areas needing more research, and the development of management objectives for grasslands.

In the United States and in England the most important threat to grasslands is their loss to agricultural practices. This problem is more acute in England than in the U.S. for several reasons. England is a small country by U.S. standards and there are not vast proportions of the country that have historically been grassland. Also, during the Second World War and until Britain became part of the European Economic Community, agricultural self-sufficiency was an important political goal: farmers were encouraged to convert grassland to arable land. Because of this, 97 percent of lowland grassland existing in England before the war has been lost to farming practices such as plowing, reseeding, and fertilization.

Lastly, unlike the U.S., land in England has historically been in private ownership so when valuable grassland is discovered, it has to be purchased or a cooperative management plan has to be developed in order to protect that area. In the U.S., most protected native grasslands are owned by state, federal, or local government while in England the National Trust is the biggest landowner. The National Trust is a private charity which is committed to preserving the natural and cultural history of England.

The most serious management problems on managed or owned grasslands differ somewhat between England and the U.S. Until recently, the naturally occurring rabbit population in England has been kept in check by density-dependent diseases. However, the rabbit population has developed immunity to the most serious of these diseases in the past few years, causing it to increase at an alarming rate and destroy a significant amount of valuable grassland. Generally, rabbits are not a serious problem in U.S. grasslands. In the U.S., the invasion of exotic herbaceous plants such as thistle and cheatgrass, is a serious threat to even well managed prairies. In England this is not a significant problem.

In both the United States and in England the protection of rare and endangered species is a serious management concern and both countries are significantly

involved in this process. A difference in the approach to this management problem is the location and identification of rare and endangered species. Often in areas managed by the National Park Service the occurrence of an important species comes to light only secondarily in the course of unrelated surveys or analysis. In England the National Trust conducts an intensive survey of all of its landholdings every 12 years. The goal of this survey is to document what is present and to identify important species.

Visitor impact is a much more serious problem in England than it is in the U.S. England has over 60 million people in an area roughly the size of Oregon so the impact of factors like trail erosion and dog fouling is uniformly at a high level that is rarely seen in the U.S.

Invasion of grassland areas by encroaching woody scrub is a serious problem in parts of the U.S. and in England. This problem came about in the U.S. by the suppression of fire and the cessation of grazing by large herbivores. The source of the problem in England is a series of political changes over the last several hundred years that affected sheep grazing. Cheap cotton from England's colonies reduced the demand for wool. Most of the grassland was common land and was lost due to a series of enclosure acts, designed to convert grassland to more lucrative arable land in the 17th, 18th, and 19th centuries. This left a remnant patchwork array of grasslands that were not accessible or large enough to support sheep production. This disused grassland rapidly became overgrown with encroaching woody species.

The grassland management practices used in the U.S. and England are similar but with some exceptions. Hay cutting and scrub removal are examples of similar management practices, but even scrub removal has some different approaches. In the tallgrass prairie of the U.S., scrub encroachment is controlled by grazing, burning, and physical removal, but herbicides are rarely used. The NPS used of herbicides in all its management areas is allowed by special permission only, and then only when the problem is severe and no alternative is available; whereas the National Trust in England, among its other herbicide recommendations, suggests that wick-applied herbicides be used consistently with brush cutting.

Burning is used to control large tracts of encroaching heather, bracken, and gorse in English moorland grassland, but it is rarely suggested as a method of control for promoting native species and inhibiting exotics as it is in the American prairies. The obvious reason for this difference is that fire was never a natural phenomenon in English grassland while native U.S. prairie grasses evolved in a fire-frequent environment.

Grazing is the most valuable grassland management tool in England. This is because English grasslands have had at least 2,000 years of adaptation to sheep grazing. Herds of ancient breeds of sheep are now being established for the sole purpose of maintaining and restoring grassland vegetation composition.

Reseeding is not part of the English philosophy of grassland management. Genetically similar strains of native tall grass prairie plants are routinely planted to restore the natural species composition in National Park prairies of the U.S. The English believe that reseeding addresses the symptoms but not the problems of grassland restoration. They also feel that reseeding can forever upset the competitive and successional balance that grassland ecosystems require

for stability and stress resistance.

Additional research in grassland management is a pressing need in both countries for most aspects of grassland management but three areas are of particular importance. In both countries there has been a large number of specific management programs on grassland, but the results of many of these individual case studies have not been published or collected into a single accessible source. If this source included case studies from both countries, it would be of tremendous value. A second area of urgent research need is increased autecological studies (studies of the response of individual plants to their environments and management schemes). The third area, being vigorously addressed by both countries, is the effect of global climate change on grasslands.

An interesting difference between grassland management in U.S. historic sites and in England is the development of management objectives. In the U.S. the objective usually centers around the reestablishment of pre-settlement vegetation. The U.S. has a well-documented idea of a stable natural vegetation that existed before the influence of European settlers. High density population and significant agricultural influence has been part of the English landscape for more than 3,000 years, so there is no pristine pre-agrarian natural landscape to use as a management objective goal. The English Natural Trust can only use preservation of what exists as a management goal. Survey and assessment for each site will determine what aspects of the natural and cultural environment are precious for that specific area. The management goal will then usually center around the conservation of those aspects in an integrated manner.