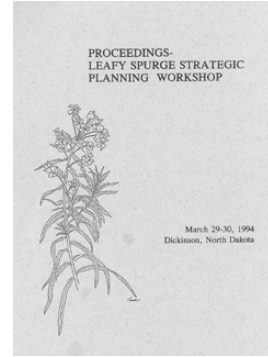


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Preface

Leafy spurge was brought into North Dakota by homesteading Eastern Europeans. This exotic plant has infested the Little Missouri National Grasslands and intermingled private lands that surround Theodore Roosevelt National Park since the 1930s. Over the past two decades, the detrimental consequences of leafy spurge have become very apparent in the park. The rapid invasion and expansion of leafy spurge, due to the absence of natural enemies, has disrupted the complex and delicate badlands ecosystem. This aggressive invasion has displaced many native plant species including some rare species. In addition to destroying the rich species diversity unique to the badlands, habitat loss for the park's ungulate species is a major concern. Heaviest concentrations of leafy spurge can be found along streambeds, drainages, and wooded draws. Leafy spurge is unpalatable to most native species and thus lowers the availability of forage for wildlife. Intensive management is required to reduce and contain these infestations while comprehensive and integrated approaches are needed to restore this important habitat.

In 1970, park managers estimated that there were 32 acres infested with spurge, divided into 103 separate patches. The park has been engaged in a limited herbicide application program aimed at containing leafy spurge since 1975. The program had very limited success because of magnitude of the infestations, poor mapping, limited funding for control, and difficult access. Leafy spurge has continued to show exponential growth by rapidly colonizing non-disturbed sites in the badlands. Data currently indicates that a minimum of 1,735 acres, or 3.7% of the park's landscape are infested. Exotic plant management continues to be the highest priority in the park's resource management program.

A Leafy Spurge Strategic Planning Workshop and Scientific Advisory Panel was held in Dickinson, North Dakota, on March 29 and 30, 1994. The workshop was prompted by rapid expansion of leafy spurge within the park and the immediate need to develop an effective integrated pest management (IPM) approach that could be incorporated into the park's overall management plan. The workshop brought together experts on the biology and physiology of leafy spurge, biological and chemical control of leafy spurge, and remote sensing and geographic information systems (GIS). The purpose was to provide the most current information on tools available to assess and quantify the current status of leafy spurge in the park and methods to control and manage its expansion.

There were some 90 state and federal natural resource managers, scientists, ranchers, farmers and other interested persons that attended the workshop. This proceedings consists of papers on the historical account of land use practices and biological diversity in the Little Missouri Badlands. It also contains current technologies and strategies for the integration of biological controls (insects and pathogens), cultural controls (grazing and mowing), herbicide treatments and prescribed fire for managing leafy spurge.

A scientific advisory panel also participated in the workshop to receive current information and to develop a leafy spurge management plan for the park. The interdisciplinary experts included scientists from the fields of animal and range sciences, crop and weed sciences, ecology, fire ecology, plant physiology and entomology. The panel was asked to evaluate management alternatives and to provide recommendations for implementing a long-term management program to control leafy spurge that were consistent with Na-

tional Park Service and Forest Service management policies, guidelines and legal mandates. Alternatives were evaluated based on environmental sensitivity, safety, and effective IPM techniques. Previous research in the park and management actions were evaluated. In October 1994, the findings of the Advisory Panel were published in the Recommendations for the Management of Leafy Spurge in Theodore Roosevelt National Park. The recommendations of the panel have applications for the park and adjacent public and private lands. How successful the plan will be depends on funding, staffing, and local cooperation.

This noxious weed knows no jurisdictional boundaries. Through joint cooperative efforts a strategy can be developed for managing different levels of infestation within identified watershed basins. It does no good to manage noxious weeds on your own land and not coordinate efforts with all neighboring landowners – private, state and federal.

It is important to recognize that the technology associated with control of pest species such as leafy spurge is ever changing and the management plan developed must be dynamic and evolve over time as the technology changes and as the need within the park is altered through human manipulations and natural ecological processes.