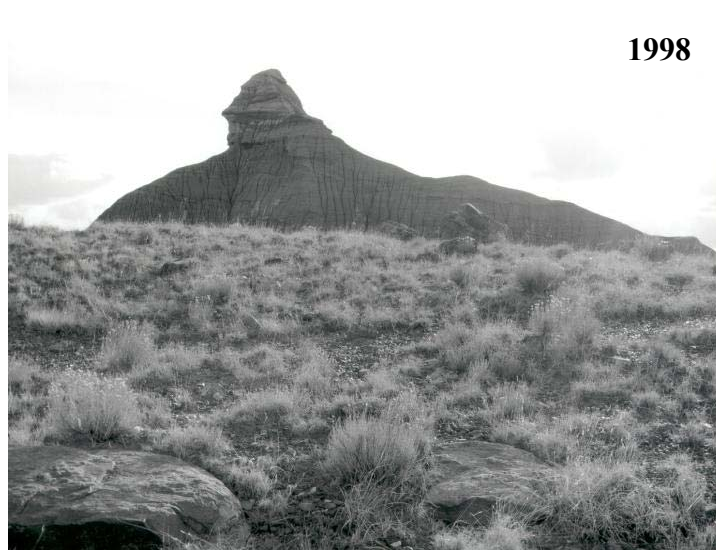


VEGETATION OF PETRIFIED FOREST NATIONAL PARK, ARIZONA

King's Throne



Acknowledgments

A number of people participated in collecting field data at Petrified Forest National Park for this project. Without their participation and attention to detail this project would not have been possible. Our thanks to Karen Wright, Luis Rodriguez, Patty West, and Jon Helleison of the Colorado Plateau Field Station and to Petrified Forest National Park for providing several interns that assisted with the field data collection. Thanks to Jim Thorne for taking the repeat photography.

Mark DePoy, formerly Natural Resources Specialist of Petrified Forest National Park, initiated this study. During the course of the study we received much help from the park staff including Mickey Hellickson, Park Superintendent; Pat Quinn, Chief of Natural Resources; Karen Beppler, Natural Resources Specialist; Bill Grether; Pat Thompson; Lisa Marie Dale, and Marene Sweeny.

The curator and staff at the Deaver Herbarium at Northern Arizona University provided valuable assistance. We also extend our thanks to Dr. Tina Ayers, Curator; David Hammond; Suzanne Rhodes; and Suzie Vogel.

Introduction

Informed vegetation management relies upon adequate baseline information of vegetation distribution and dynamics. Petrified Forest National Park (Petrified Forest NP) has identified the need for a vegetation management plan. The park asked the US Geological Survey (USGS) to conduct a series of studies to provide more information on vegetation distribution and dynamics in the park. The initial objectives of studies included in Part I of this report were to:

- Develop digital vegetation map products with appropriate metadata,
- Describe vegetation alliances (composition, structure, and ecological properties),
- Make recommendations for a long-term monitoring plan,
- Examine and interpret the relationship between land use history and vegetation response, and
- Make recommendations for vegetation management.

Two additional objectives were added during the course of the study:

- Prepare a summary of land use history at the park (Part I, Appendix B), and
- Prepare a revision of the flora checklist (Part II).

The work, initiated in spring 1996, was conducted through a cooperative agreement between Petrified Forest NP and Northern Arizona University, Flagstaff, Arizona. The land use summary and the checklist flora revision were added as project goals in subsequent years.

Previous vegetation studies

Previous vegetation studies at the park are limited. The park was initiated as a Monument in 1905 for the preservation of its geologic features. Attention to its biologic resources was initiated in the 1970's. Ranger George Johnson began a study on vegetation recovery on six transects on two sites in an area included in the park in 1972 (Johnson 1972). Previously both plots had been subjected to heavy grazing. Repeat measurements were made in 1974, 1976, 1978, 1982, 1984 and by Rowlands in 1992 (Rowlands, pers. comm.).

The Applied Remote Sensing Program, Office of Arid Lands, University of Arizona was contracted to conduct a remote sensing analysis and literature survey on vegetation in the park. The project produced mapping of park vegetation using 1:24,000 color aerial photography with vegetation units labeled using a classification system adapted from Kuchler, Lowe and Poulton (Miller et al. 1977). This mapping was originally produced on mylar sheets at a scale of 1:24,000 and 1:64,000. The mylar sheeting was digitized at a later date. An eleven page historical overview of the park was developed with an accompanying annotated bibliography of 233 citations.

Kierstead (1981) compiled an initial park flora, which has been updated in Part II of this report.

Deliverables

This report is accompanied by a CD that contains a three Adobe Acrobat .pdf files of the report (PEFO_VegIntroduction, Part I_Veg, PartII_Flora), two Access databases (the checklist flora and the field releve data), metadata for the Access files, and .jpegs of all photos from the repeat photography study.

Consideration to the following statement should be taken for use of this technical report:

"The report and accompanying databases have not received Director's approval and as such are provisional and subject to revision. The data are released on the condition that neither the USGS nor the United States Government may be held liable for any damages resulting from its authorized or unauthorized use."