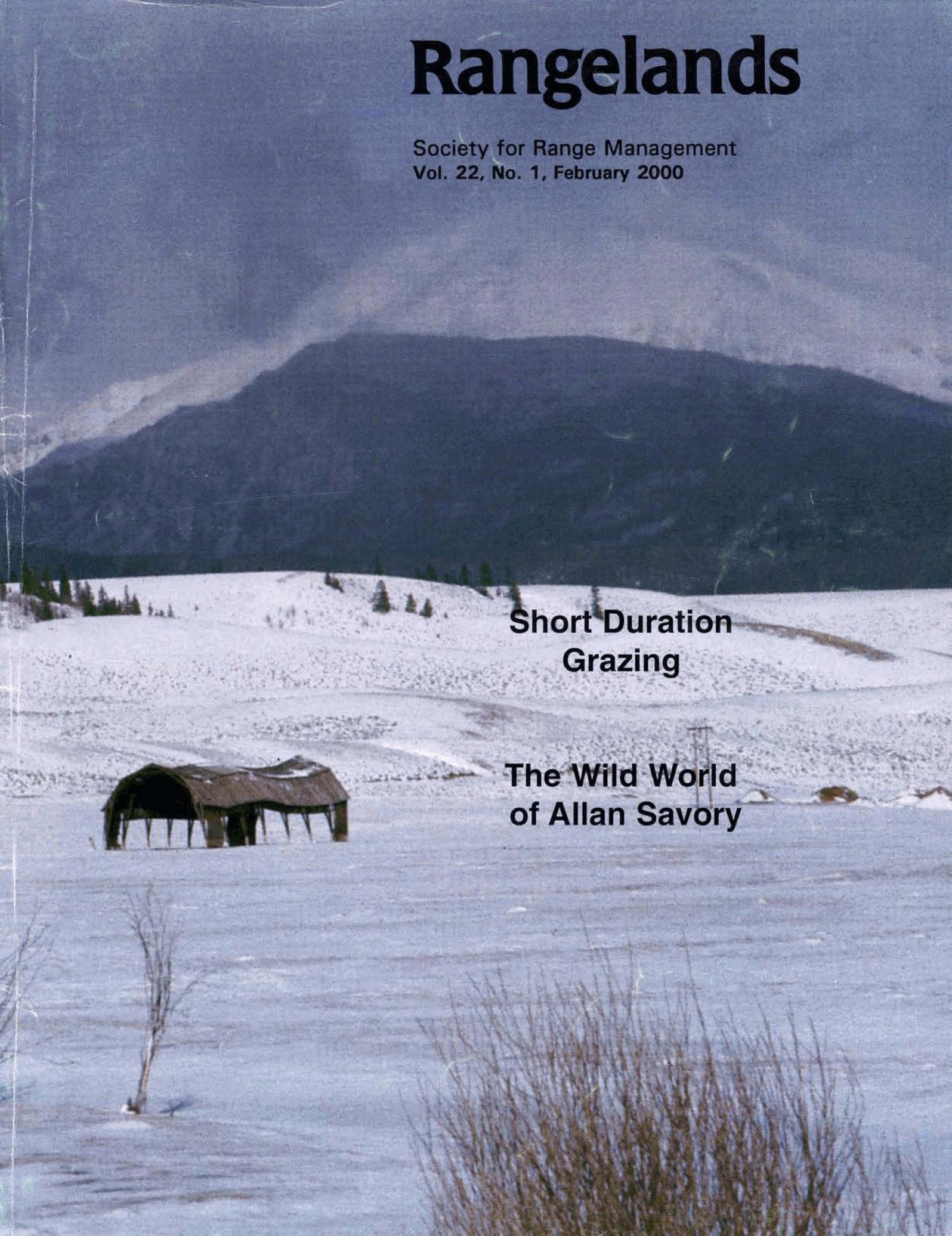


# Rangelands

Society for Range Management  
Vol. 22, No. 1, February 2000

A photograph of a snowy mountain landscape. In the foreground, there is a small, dark, arched wooden structure, possibly a shelter or a small building, partially covered in snow. The middle ground shows rolling hills covered in snow, with some evergreen trees scattered across the slopes. In the background, a large, dark mountain range is visible under a cloudy sky. The overall scene is a winter or high-altitude landscape.

**Short Duration  
Grazing**

**The Wild World  
of Allan Savory**



# Rangelands

**Volume 22 No. 1**  
**February 2000**

Published bimonthly—February, April, June, August, October, December  
Copyright 2000 by the Society for Range Management

**Managing Editor**

J.C. "Craig" Whittekiend  
445 Union Blvd., Suite 230  
Lakewood, Colorado 80228  
(303) 986-3309  
FAX: (303) 986-3892  
E-Mail: srmnden@ix.netcom.com

**Technical Editor**

GARY FRASIER

**Copy Editor**

JO FRASIER  
7820 Stag Hollow  
Loveland, Colorado 80538  
(970) 498-4232

**Production Editor**

PATTY RICH  
445 Union Blvd., Suite 230  
Lakewood, Colorado 80228  
(303) 986-3309  
E-Mail: prich@ix.netcom.com

**Editorial Board**

**1998-2000**

RANDEL DONGES, Boise City, Oklahoma  
MICHAEL R. FRISINA, Butte, Montana  
SHERRI HAVER, Holbrook, Arizona  
BRUCE HEALY, Plant City, Florida

**1999-2001**

JAMES BRUNNER, Medford, Oregon  
DAN ROBINETTE, Tucson, Arizona  
MARILYN J. SAMUEL, Lehigh Acres, Florida  
JAN WIEDEMANN, Vernon, Texas

**2000-2002**

LYNN HUNTSINGER, El Cerrito, California  
JOHN MITCHELL, Fort Collins, Colorado  
KIETH SEVERSON, Isle, Minnesota  
AMY SMITH, Burns, Oregon

INDIVIDUAL SUBSCRIPTION is by membership in the Society for Range Management.

LIBRARY or other INSTITUTIONAL SUBSCRIPTIONS, on a calendar year basis, are \$50.00 in the United States, \$67.00 in all other countries. Payments from outside the United States should be remitted in US dollars by international money order or draft on a New York bank.

BUSINESS CORRESPONDENCE, concerning subscriptions, advertising, back issues, and related matters, should be addressed to the Managing Editor, 445 Union Blvd., Suite 230, Lakewood, Colorado 80228, Phone 303-986-3309.

EDITORIAL CORRESPONDENCE, concerning manuscripts or other edited matters, should be addressed to the Technical Editor, 7820 Stag Hollow Road Loveland, Colorado 80538.

RANGELANDS (ISSN-0190-0528) is published six times yearly (February, April, June, August, October, and December) by the Society for Range Management, 445 Union Blvd., Suite 230, Lakewood, Colorado 80228, Phone 303-986-3309. PERIODICALS POSTAGE paid at Denver, Colorado and additional offices.

POSTMASTER: Return entire journal with address change—RETURN POSTAGE GUARANTEE—to Society for Range Management, 445 Union Blvd., Suite 230, Lakewood, Colorado 80228.

## FEATURE ARTICLES

Was the High Plains a Pine-Spruce Forest?  
by Stephen A. Hall ..... 3

The Wild Life of Allan Savory  
by C.J. Hadley ..... 6

Tamarisk...Maybe Not Invincible  
by Lee E. Hughes ..... 11

Antelope Bitterbrush Seedling Transplant Survival  
by Charlie D. Clements and James A. Young ..... 15

Short-Duration Grazing: The Facts in 1999  
by Jerry L. Holechek, Hilton Gomes, Francisco Molinar, Dee Galt,  
and Raul Valdez ..... 18

A Range Condition Dilemma  
by Michael G. Willoughby and Michael J. Alexander ..... 23

Book Review—Let the Cowboy Ride: Cattle Ranching in the  
American West.  
Richard L. Knight ..... 27

## DEPARTMENTS

2 EVP's Report  
32 Browsing the Literature  
34 Membership Application

29 Interpretative Summaries  
33 View from the Valley of Virginia

## COVER

FRONT COVER: The cover is a picture of Mt. Massive in Colorado and a barn .

PRINTED IN THE USA



**President**

JOHN L. MCLAIN  
340 N. Minnesota St.  
Carson City, Nevada 89703-4152

**1st Vice-President**

Jim O'Rourke  
Chadron State College  
61 Country Club Rd.  
Chadron, Nebraska 69337-7323

**2nd Vice-President**

Rodney K. Hertschmidt  
USDA-ARS  
Fl. Keogh LARRL  
Rt 1, Box 2021  
Miles City, Montana 59301-9801

**Executive Vice-President**

J.C. "CRAIG" WHITTEKIEND  
Society for Range Management  
445 Union Blvd., Suite 230  
Lakewood, Colorado 80228  
(303)986-3309

**Directors****1998-2000**

PATRICK L. SHAVER  
2510 Meadow Lane  
Woodburn, Oregon 97071-3727

CAROLYN HULL SIEG  
Forest & Range Experiment Station  
501 E. Saint Joseph Street  
School of Mines Campus  
Rapid City, South Dakota 57701-3901

**1999-2001**

JAMES A. LINEBAUGH  
3 Yhyona Dr.  
Carson City, Nevada 89706-7717

**GLEN SECRIST**

Idaho Dept. of Agriculture  
3818 S. Varian Ave.  
Boise, Idaho 83709-4703

**2000-2002**

RICHARD H. Hart  
USDA-ARS  
High Plains Grasslands Station  
8408 Hildreth Rd.  
Cheyenne, Wyoming 82009-8809

**DON KIRBY**

North Dakota State University  
Animal & Range Science  
Fargo, North Dakota 58105

The term of office of all elected officers and directors begins in February of each year during the Society's annual meeting.

SRM Office Staff, 445 Union Blvd., Suite 230, Lakewood, Colorado 80228; Telephone (303) 986-3309; Fax (303) 986-3892; e-mail address: srmden@ix.netcom.com; home page <http://srn.org>

JEFF BURWELL—Public Affairs/Certification Manager  
ANN HARRIS—Director of Administration/Programs  
HELEN HALL—Membership Services Director  
SVETLANA OREKHOV—Office Service Manager  
PATTY RICH—Production Editor  
KIRSTEN TARDY—Director of Accounting & Sales

## The Society for Range Management

The Society for Range Management founded in 1948 as the *American Society of Range Management*, is a nonprofit association incorporated under the laws of the State of Wyoming. It is recognized exempt from Federal income tax, as a scientific and educational organization, under the provisions of Section 501(c) (3) of the Internal Revenue Code, and also is classed as a public foundation as described in Section 509 (a) (2) of the Code. The name of the Society was changed in 1971 by amendment of the Articles of Incorporation.

The objectives for which the corporation is established are:

—to properly take care of the basic rangeland resources of soil, plants and water;

—to develop an understanding of range ecosystems and of the principles applicable to the management of range resources;

—to assist all who work with range resources to keep abreast of new findings and techniques in the science and art of range management;

—to improve the effectiveness of range management or obtain from range resources the products and values necessary for man's welfare;

—to create a public appreciation of the economic and social benefits to be obtained from the range environment;

—to promote professional development of its members.

Membership in the Society for Range Management is open to anyone engaged in or interested in any aspect of the study, management, or use of rangelands. Please contact the Executive Vice-President for details.

## Rangelands

*Rangelands* serves as a forum for the presentation and discussion of facts, ideas, and philosophies pertaining to the study, management, and use of rangelands and their several resources. Accordingly, all material published herein is signed and reflects the individual views of the authors and is not necessarily an official position of the Society. Manuscripts from any source—nonmembers as well as members—are welcome and will be given every consideration by the editors.

***Rangelands*** is the nontechnical counterpart of the ***Journal of Range Management***; therefore, manuscripts and news items submitted for publication in ***Rangelands*** should be in nontechnical nature and germane to the broad field of range management. Editorial comment by an individual is also welcome and, subject to acceptance by the editor, will be published as a "Viewpoint."

## Contribution Policy:

The Society for Range Management may accept donations of real and/or personal property subject to limitations set forth by State and Federal law. All donations shall be subject to management by the Executive Vice President as directed by the Board of Directors and their discretion in establishing and maintaining trust, memorials, scholarships or other types of funds. Individual endowments for designated purposes can be established according to Society policies. Gifts, bequests, legacies, devises, or donations not intended for establishing designated endowments will be deposited into the SRM Endowment Fund. Donations or request for information on Society policies can be directed to the Society for Range Management, Executive Vice President, 445 Union Blvd., Suite 230, Lakewood, Colorado 80228. We recommend that donors consult Tax Advisors in regard to any tax consideration that may result from any donation.

## Executive Vice-President's Comments

As is customary in the February issue each year, I would like to summarize some of the SRM activities in 1999. This serves as a form of "annual report" for those members unable to participate in the Annual Meeting.

It was a significant year for the Denver staff in terms of personnel activity. I use the term significant because of the importance of some of the actions we took. Our first move was to hire Deen Boe as our Washington D. C. Representative. The position had been vacant for almost a year. Deen has been working to catch up on our contact activities in that area. Having Deen on the job has made a big difference in our participation in national activities. Our next action was to hire Helen Hall to cover office services and production assistant duties. For almost two months we were up to full staffing but as usual it never seems to last. Matt Wirt resigned to relocate to Alabama, leaving our membership position vacant. Helen Hall was promoted into this position and the job was somewhat redesigned to include membership recruitment and retention duties, along with managing the membership database. Svetlana Orekhov was hired in the office service/production assistant position. Most recently, Jeff Burwell has come to our staff filling a newly created position covering public affairs and professional certification. Jeff is on loan from the Natural Resource Conservation Service and will work with SRM for the next three years. For the present, we have a very capable staff in place to carry out the Denver office programs.

Membership continues to be a topic that occupies the energy of the organization, and I'm pleased to report that it feels as if the tide is turning. While there is a slight decrease in membership through December 31, January memberships will more than make that up. Also there are indications that things are becoming more stable. Members are paying renewals more timely than in the past, we had a high number of new members in 1999, over 500, and the innovative ideas of our membership committee and Helen Hall, our membership manager, seem to be having an effect. I would say that communications between the members, Denver staff, membership committee, and Board of Directors is as good as it's been in a long time, and is having positive results. I'm optimistic that we will continue to improve in 2000.

Dues for the regular member category have been changed for 2000. The Board of Directors did this after careful consideration of the results of the three level structures, compared to the concerns expressed by both members and potential members with the income level system. Dues will be \$50.00 plus \$5.00 section dues. I appreciate the simplified structure. I am however, concerned that the income will not be adequate for our needs. It is obvious that more will need to be done on this question in the coming year.

A huge undertaking this year for the Denver staff and myself was the sale of the building and relocation of our office. As I reported previously, the Board of Directors made a decision to list the property for sale in the fall of 1998. The building was listed in early 1999, and an offer was accepted in August. Closing was September 3, and relocation to leased office space was completed shortly after. Sale price was \$535,000.00. Proceeds at closing were 489,495.37. At that time outstanding notes with 1999 interest, totaled

\$47080.00. These notes and interest were paid off in December. The remaining balance has been invested in a building trust account, and is providing income to partially offset the cost of our current space. We are now located in a suite of offices in a professional office building. The space is proving to be very efficient and adequate for our needs. The appearance of the office is good and provides a very professional presence for SRM. The location is somewhat strategic in that many members work nearby, and visits have increased noticeably.

A certification program for rangeland professionals was initiated in 1999. This is a concept that has been discussed and debated for a long time. In fact I have seen file information going back almost 30 years on this issue. This is a culmination of several years' work by the professional affairs committee, which presented their final recommendations to the Board of Directors at the Annual Meeting in Omaha. The recommendations were accepted and a task group appointed to work on implementation. The entire program was published in the November 1999 *Trail Boss News*. Interest is building and applications for certification are coming in. Jeff Burwell can provide you additional information on this program.

If there were one theme that describes our activities in 1999, it would be our Journey to Change. Many of the issues and problems that have occupied our time and energy for quite some time have been the result of the changing world around us. It is becoming increasingly clear that a vast majority of people in this country have little exposure to the production of raw products from rangelands, and the importance of the rangeland resource to economies and cultures. Instead, there is a rather obvious trend toward the value of the many amenities available from this land. This trend has caused great discomfort and debate within our profession, and up to this point we have had little opportunity to effectively deal with it as an organization. Beginning in 1999, this is changing. Under the leadership of our President, Kendall Johnson, SRM took the first steps to deal with the complex subject of change in our profession, and especially in our professional society. The first step occurred in August prior to our summer Board meeting in Ft. Collins, Colorado. A two-day workshop was facilitated by Work-Span, a consulting firm specializing in assisting professional societies deal with change. A group representing a cross-section of our membership and officers participated in this first effort. Information developed by this first group of participants has been evaluated by the Board, and will figure prominently in future planning and actions. The next step will be taking place about the time this edition reaches you, during our annual meeting in Boise. Two more groups will be exposed to the concept of dialog, a concept important to formulating our future. This next exercise will allow the discussion to be moved to the sections, which is where the real actions on change will take place.

In considering the year ahead, I remain optimistic that we will stabilize our numbers, and bring valuable information and educational opportunities to our membership.—**Craig Whittekiend**, EVP

# WAS THE HIGH PLAINS A PINE-SPRUCE FOREST?

Stephen A. Hall

## Introduction

Twenty thousand years ago a sheet of ice more than a mile thick mantled the Northern Plains, the Midwest, and most of Canada. The ice sheet, called the Laurentide, was the last of several Ice Age glaciers that plowed through the north (Fig. 1). The cold climate that spawned the ice sheet also changed the distribution of plants and animals everywhere in the world. Ecologists speculated that the Great Plains prairies may have disappeared entirely, replaced by forests.

Far from the ice sheet, the Llano Estacado or High Plains of

comes from studying fossil pollen grains in peat bogs and lakes. Plants produce tremendous amounts of pollen. In the High Plains grasslands, range plants produce more than 120 billion pollen grains per acre every year (Hall 1990). Some pollen grains fall in playa lakes where they are entombed in mud. By recovering fossil pollen that was deposited thousands of years ago, it is possible to tell what plants were growing in the vicinity and what range conditions were like.

Between 1957 and 1959, an innovative project was sponsored by the Museum of New Mexico, Santa Fe, to determine the environmental history of the southern High Plains. Geologists examined sand dunes and playa lakes, and paleontologists studied fossil bones and snails and even fossilized remains of algae from the lake muds left behind in the Ice Age playas. During the project, studies of fossil pollen from the ancient and now-dry playas turned out to be of unexpected importance, destined to be cited for decades to come.

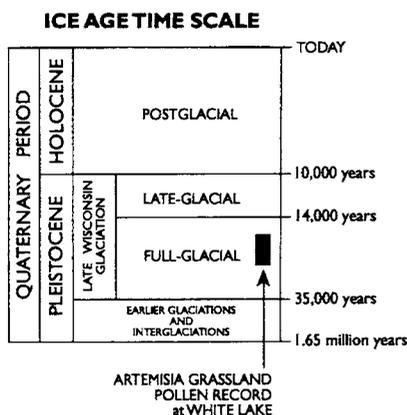


Fig. 1. Time scale of the Quaternary Period or Ice Age extending back 1.65 million years; the Laurentide ice sheet reached its maximum about 18,000 to 20,000 years ago.

Texas and eastern New Mexico was home to a dozen species of giant horses and bison, all extinct today and known only from their fossilized bones. Looking at their teeth, which are little different from the teeth of their modern descendants, we know that these extinct animals were grazers. It almost goes without saying that grazers and grasslands go together, yet for many years, despite the evidence from fossil Ice Age horses and bison, ecologists have believed that the High Plains was not rangeland but instead was a forest composed of pine and spruce trees.

In the 1950s and 1960s, the Ice Age history of North America was of special interest to ecologists because of the dramatic changes that had taken place. During the period of cooler glacial climate that prevailed over the continent, plant and animal communities in the north were displaced hundreds of miles by the Laurentide ice sheet (Fig. 2). While early ideas suggested wholesale southward movement of more-or-less intact forests, it was soon realized that Ice Age plant communities were very different from those that we see today. Now it is also recognized that, during periods of environmental change and stress, plant and animal species alike migrate independently of each other, not in groups or associations. As a consequence, the make-up of today's modern plant communities and biomes may have come about only recently.

Most of our information on Ice Age plant biogeography

## "Pine-Spruce Forest"

The lake muds contained high percentages of pine and spruce pollen. The ecologist who studied the pollen stated, "the most probable interpretation of the high pine pollen values...is that the pine formed an open forest with a very scanty field vegetation" (Hafsten 1961, p. 84, his emphasis). In a later paper, he interpreted it as "a cold and wet period with open boreal woodlands of pine and spruce..." (Hafsten 1964, p. 414).

Although the interpretation of a "pine-spruce forest" on the High Plains had been accepted by scientists and range specialists, the original work left two unanswered questions.

1. The high percentages of pine pollen in the lake muds were too high; some of the mud contained 85 to 100% pine. Modern pine forests generally produce only 60% pine pollen, the remaining 40% represented by other trees, understory shrubs, and ground plants. The ecologist was aware of this, and worried about the lack of pollen from herbs, stating simply that there was "...a very poor field vegetation covering the Southern High Plains" (Hafsten 1961, p. 85).

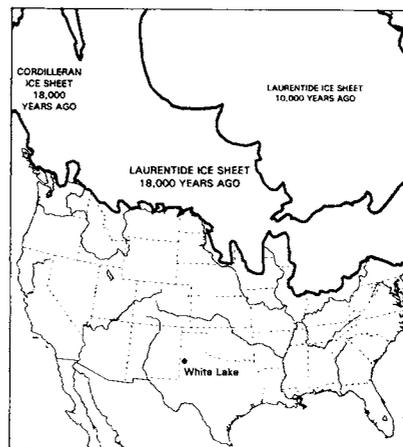


Fig. 2. Location of Ice Age playa deposits at White Lake, Texas, in relation to the Laurentide ice sheet.





































































