



Foraging Behavior: Managing to Survive in a World of Change



**Behavioral Principles for
Human, Animal, Vegetation,
and Ecosystem Management**



Frederick D. Provenza

Acknowledgments

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The animal drawings on the front and back cover are based on Paleolithic paintings in the caves of Lascaux (Dordogne, France,) and Niaux (Ariège, France), dating from 15,000 B.C.

Illustrations by Mary Donahue

Photo Credits: Front Cover - Mary Donahue (rock art, cattle)

Back Cover - Mary Donahue (rock art), Jeff Henry (bison), File Photo (horse), Fred Provenza (goat)



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About the Author

Dr. Frederick D. Provenza was born in Colorado Springs, Colorado, and began his career working with cattle, sheep, alfalfa, and grain on a ranch near Salida, Colorado. After earning his B.S. in Wildlife Biology in 1973 from Colorado State University, he became ranch manager. As a research assistant and technician at Utah State University, he earned his M.S. and Ph.D. in Range Science. He joined the faculty there in 1982 and is currently a professor in the Department of Forest, Range, and Wildlife Sciences. He has been recognized for his accomplishments in research and service as a mentor for students. In 1999, Dr. Provenza received the W.R. Chapline Research Award from the Society for Range Management for exceptional research accomplishments that enhance management of rangelands. The same year, he also received the University Outstanding Graduate Mentor award from Utah State University. In 1994, he received an Outstanding Achievement Award from the Society for Range Management. He was named Professor of the Year for the College of Natural Resources at Utah State University in 1989 and 2003.

Dr. Provenza's research focuses on understanding behavioral processes, and using that understanding to inform management. For the past two decades, his emphasis has been on the role of learning in food and habitat selection by herbivores. He has been senior or co-author of over 120 papers in peer-reviewed journals and an invited speaker at national and international conferences. In October 2001, he received a \$4 million grant to establish a consortium that includes Utah State University, University of Arizona, University of Idaho, and Montana State University. Its goal is to increase the ability of producers, land managers, extension agents, and technical assistance personnel to use behavioral knowledge to better reconcile the ecological, economic, and social facets of management.



Gary Neuenswander

Preface

Why would anyone want to read *Foraging Behavior: Managing to Survive in a World of Change*?

It is filled with new discoveries about the age-old topic of grazing animals and forage resource management. Cattle producers, dairy farmers, sheep producers, wildlife biologists, and anyone challenged with managing livestock, forages, wildlife, and natural resources can use the principles contained in this book.

Sheep eat what sheep eat because sheep are sheep, right? Well, not entirely, sheep as well as other animals learn what to eat in many different ways. They learn from their mothers before and after they are born. They learn from other sheep. They learn through trial and error.

Do all cows eat the same plants? Will cows from Florida know what to eat if taken to a South Texas ranch and surrounded by brush species? Can ranchers use livestock behavioral knowledge to select a herd that forages in different locations and on different plants? Can knowledge of foraging behavior improve animal performance? Do these things matter to the producer or the natural resource manager?

Read this booklet from cover to cover or read segments that seem to interest you, watch the companion video, then read it again. Put it aside and read it again in a few days. Think about what you have seen on your farm or ranch or someone else's place. You have seen things you couldn't explain, didn't understand, or simply didn't think about; things that can make a difference, if you understand how to manage them.

The principles in this booklet will provide you with a new understanding of why animals eat what they eat, why they forage where they forage, and why they act the way they act. The principles in this book, once understood, can make a difference in how you manage your land and animals or how you advise others to do so. These principles, when applied, can make a difference in animal performance, natural resource conditions, and farm and ranch profitability.

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