













































taining a diverse forage base. Dollahite et al. (1966) suggested supplementing calcium hydroxide at 10% of total intake as a preventative measure. Calcium hydroxide seems to prohibit tannin absorption by forming insoluble complexes. Other alternatives include denying cattle access to shinnery-dominated range for the first 30 days of oak foliation, removing cattle if frost blackens oak leaves, or supplementing high-energy and high-protein feeds. Poisoned animals should be given a mild laxative and adequate access to food and water until recovery is complete.

Cattle will not consume toxic levels of oak if desirable forage is in ample supply. However, during drought conditions, careful herd monitoring and preventative management are recommended. Animal performance is affected long before visible symptoms become apparent. Oak poisoning is largely a symptom of overstocking and poor range condition. Additional preventative measures include deferment of spring grazing and supplementation with calcium hydroxide.

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# SRM Awards

Presented at the Society's 54<sup>th</sup> Annual Meeting in Kona, Hawaii on February 21, 2001.

## Frederic G. Renner Award

*The Frederic G. Renner Award is the highest award bestowed by the Society for Range Management. The award is named for one of SRM's founding fathers and second president.*



**Dr. James A. Young**

**Dr. James A. Young** is recognized by the Society for Range Management because of his collective accomplishments as a research scientist, educator, writer and historian. Dr. Young's extensive research on the restoration of sagebrush, bitterbrush and salt desert shrub rangelands has added tremendously to the scientific knowledge based used by natural resource managers and ecologists in the Great Basin and Intermountain West. This contribution has resulted, in large part, from a problem solving approach that melds current scientific knowledge with social, cultural and political history. Dr. Young's positive influence on the art and science of range management arises from his recognition that current ecological concepts are best understood and applied when research results are integrated with the cultural and social history of the landscape. The accolades for his book *Cattle in the Cold Desert* by both ecologists and historians is ample demonstration of his ability to communicate the complexity of rangeland ecosystems to a diverse audience.

Born and raised on a northern California ranch and educated at Cal State-Chico, North Dakota State University and Oregon State University Dr. Young has authored or coauthored over 700 scientific publications. The caliber of his research effort is reflected in the application of his findings to the disciplines of wildlife management, livestock production, plant ecology, plant physiology, restoration ecology, conservation biology and the settlement history of the western states. His influence on Range Management has also been felt through his continuous service in both the Nevada Section and the parent Society for the past 36 years.

## W.R. Chapline Research Award

*The W.R. Chapline Research Award was established in 1986 to provide recognition to members of SRM for exceptional research accomplishments in range science and related disciplines.*



**Gary W. Frasier**

During his research career, **Gary Frasier** has earned regional, national and worldwide recognition for his work on the conservation and efficient use of rangeland water supplies and, specifically, in the design and installation of water-harvesting systems for livestock, wildlife and human consumption. Furthermore, Gary has built on his knowledge of water harvesting techniques to perform much needed research on the water-soil-plant linkages within the short-grass ecosystem. From experience gained in this arena he has moved on to studying the dynamics of the soil-water continuum in montane riparian zones. Gary's 100+ technical publication record is remarkable in the face of his responsibilities as the lead scientist on the 15,000-acre USDA-ARS Central Plains Experiment Station. Even though Gary Frasier's research contribution to the field of Range Science warrants recognition, it is his overall contribution to the range management profession that brings him here today.

Gary Frasier may be best known by the Society's membership as the Editor and Champion of *Rangelands*. He has also contributed 1,000s of hours to development and implementation of the editorial policy for the *Journal of Range Management*. To occupy the rest of his spare time Gary was awarded Affiliate Faculty status in the Rangeland Ecosystem Sciences Department at Colorado State University. In this capacity he has co-advised 8 Masters level and 5 PhD students since 1994. Through his service with the Agricultural Research Service, the Society for Range Management and the Soil and Water Conservation Society Gary has been recognized as a Fellow of the Society for Range Management (1988) and the Soil and Water Conservation Society (1989), given the Outstanding Service Award by the Arizona Section of the Society for Range Management and granted the Society of Range Management's Outstanding Achievement Award in 1996.

## W.R. Chapline Stewardship Award

*The W.R. Chapline Stewardship Award was created in 1986 to provide recognition to members of SRM for exceptional accomplishments and contributions to the art and science of range management through specific rangeland entities.*



**Jack Maddux**

Through his efforts to make his livestock operation part of the Nebraska rangeland ecosystem **Jack Maddux** has become a knowledgeable spokesman for proper range management. Jack utilizes interseeding, high intensity-low frequency grazing and annual range monitoring to improve and maintain the overall condition of his rangeland. He has also installed many miles of water pipeline and cross-fencing to facilitate his grazing system and breeding program. Because of the increasing productivity of his rangeland he has begun the development of a composite cattle breed that will perform well on grass without requiring extensive supplementation. While these accomplishments speak highly of Jack's stewardship, his most notable achievement is his effort to teach young people how to manage our natural resources.

Each year Mr. Maddux hires several high school students to help him in his monitoring effort. These students have the opportunity to work side-by-side with Jack and his employees to learn all aspects of a working ranch, including planning and monitoring the outcome of range and livestock management efforts. Many times Jack has helped finance the advanced education of one of his student "helpers".

Jack Maddux has served agriculture and conservation interests through contributions of his time, knowledge and resources. He served as a 4-H and Boy Scout Leader, as President of the Nebraska Stockgrowers, a Board Member of the University of Nebraska Foundation, as a member of the Platte River Whooping Crane Trust and as mayor of Wauneta, Nebraska. In each of these capacities Jack has been a promoter of sound management and continuing education.

## Outstanding Achievement Award

*The Outstanding Achievement Award is presented to individuals or groups for eminently noteworthy contributions in advancing the science and art of range management.*



**Dr. Barbara Allen-Diaz**

**Dr. Allen-Diaz** exemplifies the qualities of a faculty member in a land grant institution. She is committed to developing and conducting a research program that addresses the problems and concerns of the people of California. Not content with simply solving problems she has also been active in sharing her research results with ranchers, land managers, wildlife enthusiasts, conservationists and her fellow scientists. Building upon her experience in oak woodland and montane meadow ecology she has made significant contributions to the management of California's annual grasslands. Her expertise and reputation for objectivity has led her to be named team leader for the Sierra Ecosystem Assessment project and as a member of the National Research Council's review committee on large ungulate grazing in Yellowstone National Park.

Dr. Allen-Diaz's ability to synthesize and analyze information from a variety of sources has made her an effective teacher in whether in the classroom or as a specialist in outreach and continuing education efforts. She has published articles in the *Journal of Range Management*, *Ecological Applications*, the *Journal of Soil and Water Conservation* and contributed to numerous Cooperative Extension publications.



**Dr. Terry Bidwell**

During his tenure as Oklahoma Range Management Specialist **Dr. Terry Bidwell** has developed a reputation for outstanding leadership in the promotion of rangeland principles and the application of a conservation ethic to management issues. Unique among a variety of talents is his ability to address nontraditional audiences interested in nontraditional uses of rangelands. A brief sampling of his instructional efforts over the last 10 years indicates 400 presentations to over 25,000 people, 8 journal articles, 7 proceedings and one book chapter. In addition to his publication effort he has established contacts with a broad spectrum of agencies and organizations. Through these contacts he has developed working relationships outside the sphere of most range managers. For example, he has been an invited instructor at the National Advanced Resource Technology Center and routinely works with personnel from the US Fish and Wildlife Service. Regardless of the venue Dr. Bidwell continues to communicate rangeland management principles to students and agency personnel alike.

Even though Dr. Bidwell has a 100% Cooperative Extension appointment, he contributes to Oklahoma State University's range science teaching mission. Terry routinely teaches undergraduate and graduate courses on rangeland ecology and management and is the instructor/course coordinator in three national-level programs on prescribed burning. He has also successfully completed a full revision of the National Range Judging Contest. His success as an instructor comes, in large part, from the knowledge gained through his applied research on the effects of fire on wildlife and livestock.



**Dr. Wayne C. Leininger**

**Wayne Leininger** is a strong supporter of the interactive role between research and education in the land grant university system. He has developed and maintained a series of undergraduate and graduate courses in range and natural resource management that are highly regarded by students and their employers alike. His efforts are all the more remarkable because he has advised over 30 graduate students and 100 undergraduates while delivering a high quality instruction program. Wayne's knowledge of rangeland principles and dedication to the professional development of his students is reflected in his success as the coach of the Undergraduate Range Management Exam Team since 1984. Wayne is an effective instructor because of his talents as a teacher and because of the information he shares from his own research.

Significant improvements in the understanding and management of western riparian ecosystems have resulted from Dr. Leininger's research effort. He and associates like Dr. Joseph Trlica and Gary Frazier have elucidated the avenues through which livestock grazing alters riparian vegetation, soils and hydrologic properties. This information has then been crafted into a series of management strategies that can be used to maintain riparian function under economic grazing levels. He has also provided some of the fundamental information on the linkage between grazed stubble height and sediment filtration from stream flow. All of this information has been shared with fellow researchers and land managers through the *Journal of Range Management*, *Rangelands*, 17 popular press articles and 7 extension publications.



**Dr. Charles A. (Butch) Taylor**

For over a quarter of a century **Dr. Taylor** has conducted research on a broad span of range related topics at the Sonora Research Station. Because of his recognition for the need for diverse kinds of information his research efforts have addressed topics like grazing management, range animal nutrition, wildlife management, prescribed burning and watershed management. The quality of this work has been of the highest order because of his abilities and his capacity to seek out and then foster cooperative research projects with other institutions. While Dr. Taylor's research results have been highly regarded by fellow researchers, it has been the numerous station reports and tours of the Sonora Station that have brought him the respect of Central Texas ranchers and land managers. He has extended the productivity of the Sonora Station even further during his tenure as Station Director.

During a period of declining state support Dr. Taylor was able to expand the capacity of the Sonora Station for conducting range, watershed and wildlife research by creating collaborative research opportunities and with innovative revenue generating programs, like fee hunting. The outcome of leadership and research endeavor has been the enhancement of Texas rangelands through enlightened land stewardship.



**Dwight A. Tober**

**Dwight Tober** has played a significant role in the advancement of range and pasture management programs in the Northern Great Plains. Through scientific inquiry, commensurate skills and hard work Dwight has contributed to the evaluation of 2,000 accessions of grasses, forbs, shrubs and trees for use in the Northern Great Plains. The identification of superior strains has enhanced the productivity and nutritional quality of rangeland, pastures and hayland. In addition to these benefits many of the cultivars have also proved valuable for restoration of wildlife habitat, erosion control and the protection of water quality. Recently Dwight has turned his considerable skills to the development of technologies for prairie restoration and the use of native plants for low-care landscaping. Much of Dwight's productivity has arisen from his talent for working with other scientists and land managers in cooperative research projects.

Dwight has worked with US Fish and Wildlife Service, National Park Service, North Dakota Game and Fish Department, Soil Conservation Districts, US Bureau of Reclamation, US Office of Surface Mining, US Army Corps of Engineers and Ducks Unlimited to enhance wildlife habitat, forage production, erosion control, watershed protection, wetland values and landscape aesthetics. He is widely recognized for his editorial skills and has been especially helpful in the review of agency documents, Extension Service publications, state agricultural experiment station reports and USDA-ARS publications.



**Dr. Darrell Ueckert**

Beginning in 1995 **Drs. Ueckert and McGinty** set out to develop a program that would help Texas landowners deal with brush encroachment problems in a cost-effective

and environmentally safe manner. While brush control technologies had been available for a long time the majority of methods had become unacceptable because of escalating costs, urban development, reduction in land parcel size and lack of species selectivity. Limited application of brush control had increasingly

negative effects on rangelands, wildlife habitat and recreational opportunities. This challenge led McGinty and Ueckert to develop a program that emphasized the use of commonly available spray application equipment that maximized worker efficiency and fostered minimal herbicide use.



**Dr. Allan McGinty**

Their initial efforts focused on the establishment of a series of large-scale test plots in west central Texas. Over 100 workshops/seminars were held to showcase the outcome from the demonstrations. Titled Brush Busters the program's impact was broadened through dissemination of leaflets, videos, CD-ROM and the web. Through Ueckert and McGinty's efforts over 1.5 million acres of Texas rangeland has been treated for mesquite since 1997. Mesquite reduction has saved Texas ranchers about \$18 million, reduced the threat to non-target species through a 19% reduction in herbicide use and conserved between 300 and 600 billion gallons of water. The broad appeal of the Brush Brush Busters training program and the significant improvements gained through its application has led the Natural Resources Conservation Service and several major agri-products companies to adopted the Brush Busters approach for controlling unwanted plants.



**Jack and Merry Vandervalk**

**Jack and Merry Vandervalk** share a common view of rangeland stewardship, "leave the land in a more productive state than we found it." Because of this attitude they fenced their riparian areas and established specific grazing criteria for these fragile areas 30 years before riparian grazing was an issue. While visionary in their management of riparian areas, they have not neglected the rest of their ranch. Using a combination of native range, tame pastures and flood irrigation they have made significant strides in "drought-proofing" their ranch. Their determination to operate their ranch in an environmentally friendly manner has led to recent efforts to minimize fossil fuel use and preserve trees and shrubs throughout their ranch.

The Vandervalks have shared their philosophy and experience with hundreds of ranchers, land managers and students from Alberta and Montana through their service on International Mountain Section Boards and Committees, the Foothills Forage Association and the establishment of the Stockman's Range Management Course. As a member of the 54,000-acre Waldron Ranching Co-op Jack has been instrumental in assuring that the 20,000 aums harvested from the ranch each year do not impair the sustainability of the rangeland ecosystem. While many profess a love of wild places and the people who make their living from the land, few have put their belief into action as successfully as have Jack and Merry Vandervalk. Because of their land ethic the International Section of the Society for Range Management recognized the Vandervalks in 1990 (Outstanding Rangeman) and again in 1997 (Excellence in Grazing).

### Fellow

*The Fellow Award is bestowed upon members of the SRM in recognition of exceptional service to the Society and its programs.*



**Dr. Val Jo Anderson**

**Dr. Val Jo Anderson** is an outstanding example of why the Society of Range Management was created. As an undergraduate Dr. Anderson was encouraged to continue his professional training through involvement in the Student Conclave, the Utah State University Plant Judging Team and in the Graduate Student Presentation Competition. His dedication to his education and involvement in Utah Section affairs earned him the L.A. Stoddart Scholarship. Following completion of his PhD Dr. Anderson began to give back to the Society through service on the Student Affairs Committee, Chair of the Undergraduate Student Paper Session, President of the Utah Section and General Chairman for the Annual SRM Meeting in Salt Lake City. He has been the coach of both the Plant and URME teams at BYU since 1990. During this time his students have consistently placed as high individual competitors or been members of the top finishing teams.

Val Jo has also demonstrated how Sections and the parent SRM Society can be used to foster better understanding and management of rangelands. By working with SRM members who were employed by the US Forest Service and the Utah Division of Wildlife Resources Dr. Anderson was able to develop a cooperative investigation of cattle and elk interaction in Utah's high elevation parklands. Val Jo's professional contribution to this project earned him the Centennial Partnership Award from the Uinta National Forest.



**Dr. Merwyn "Mort" Kothmann**

**Dr. Mort Kothmann** has been active in and has provided exemplary service to the Society for Range Management since 1959. He has supported the growth of the Society through leadership roles, committee service, annual meeting organization and student recruitment for 40+ years. During the same period he has made significant contributions to the "art and science" of Range Management through quality research and the transfer of new technologies through computer software packages. While his service and research activity has been noteworthy, Dr. Kothmann's most enduring contribution to the range profession has been his long and distinguished career as a professor of range management at Texas A&M University. Ever since 1971 Dr. Kothmann has taught 1 to 2 courses each semester on topics as diverse as introductory range principles and range research methods. Most of all, his strength of character, professionalism and personal ethics have had a lasting influence on the professional careers of his undergraduate and graduate students.

Dr. Kothmann's productivity as a researcher and college professor were recognized by the Society for Range Management with an Outstanding Achievement Award in 1995.



**Paul Nyren**

**Paul Nyren** has distinguished himself as an outstanding range professional in a number of ways. As a researcher and later director at North Dakota State University's Central Grasslands Research Extension Center he has established a record of quality research and outreach education. Paul has conducted research on complementary grazing systems for the Northern Great Plains, range fertilization, interseeding, wildlife management and the use of remote sensing for determining range condition. Results from are shared annually through station field tours and the distribution of nearly 40,000 copies of *Central Grasslands Annual Review* to other land grant colleges and to researchers in Canada, Mexico, Africa, Russia and Australia. His efforts have not been confined to research and extension. He developed a grant in cooperation with the Chase Lake Foundation, the North Dakota Parks and Recreation, North Dakota Department of Transportation and the North Dakota Game and Fish Department to create a Prairie Interpretive Center. The consortium ultimately received \$65,000 from the South Central Regional Council to begin the project. Paul has also served on the Board of Directors of Prairie Public Broadcasting and was instrumental in bringing cohesiveness and fiscal stability to the network.

Through his work within the Northern Great Plains Section of the SRM and hundreds of North Dakota ranchers, land managers and wildlife biologists Paul was able to develop a successful legislative initiative that infused an additional \$500,000 into North Dakota rangeland research.



**Dr. Phil R. Ogden**

Through nearly fifty years of continuous professional activity **Dr. Phil Ogden** has maintained an unswerving commitment to the improvement of the range resource. Whether serving as a Range Science instructor at the University of Arizona, working with Federal land managers and permittees as a Range Extension Specialist, serving on Society of Range Management committees or providing advice and assistance on range improvement projects in Brazil, Niger, Ethiopia, Kenya, Chad and Iran, Dr. Ogden's energy and dedication to sound range management never lagged. His knowledge, skill and ethical behavior have won the respect of even his strongest critics. There has never been the slightest doubt in anyone's mind that Dr. Ogden's primary concern was the betterment of the range resource rather than the advancement of an agenda.

The elevated level of management on Arizona rangelands over the past 20 years can be attributed, in large part, to Phil's efforts as a Range Extension Specialist and his leadership roles in the Arizona Section. Dr. Ogden's productivity as a teacher and student advisor were recognized through the University of Arizona, College of Agriculture, Professor of the Year Awards in 1970 and 1993 and the Range Science Education Council's Outstanding Undergraduate Teaching Award in 1991.



**Dr. E. Lamar Smith**

**Dr. Smith** personifies the growth of the Society of Range Management from an under recognized, regional association of Federal land managers and ranchers to a dynamic leader in national and international natural resource issues. Enrolling as an undergraduate in Forestry and Range Management at Colorado State University in 1954 he became involved in Society affairs as Student Chapter President and as a member of the Plant Judging Team. After completion of his PhD, Lamar became the Forage and Crop Advisor for the University of Arizona's Brazilian program and eventually joined the faculty at the University of Arizona. His international experience continued with a second round of service in the Brazilian Forage and Range Project and as Visiting Scientist with CSIRO's Division of Wildlife and Rangeland Research in Australia. As Dr. Smith's professional experience grew so did his opportunities to serve the Society for Range Management.

Lamar has served the Arizona Section as President-elect, President and Past President, committee chairman, Board of Director member (3 times) and Newsletter Editor. He served on the National Range Science Education Council as Arizona's representative from 1980 to 1989 and as Chairman of the Task Group on Unity in Concepts and Terminology from 1988 to 1992. The highlight of his service to the Society came when he was elected as Second Vice-President and successfully fulfilled those responsibilities before moving on to First Vice-President and finally President in 1998. Following his tenure as President he has either chaired or co-chaired the SRM Certification Committee and Range Assessment and Monitoring Committee.

### Sustained Lifetime Achievement Award

*This award is presented to SRM members for long-time contributions to the art and science of range management and to the Society for Range Management.*



**James J. Butler**

During a career that spanned seven National Forests, four regional office positions and private consulting **James Butler** has designed and directed the restoration of thousands of acres of overgrazed and degraded rangeland. Long before the concept of integrated natural resource management was promoted Jim was using a combination of prescribed burning, range renovation, reseeding, contour furrowing and intensive grazing management to slow erosion and “jump-start” ecological succession. Through open communication, empathy and sound judgment Jim successfully negotiated stocking rate reductions as high as 40% to enhance the various range renovation practices he and his teams had implemented. In today’s environmentally sensitive society it is important to note that wildlife and recreationists benefited as much from his range and watershed improvement projects, as did livestock producers. In the mid 1960’s Jim’s range improvement experience was applied to the development and implementation of mined land reclamation standards for public lands in the West. Capitalizing on his knowledge of seedbed preparation, seeding rates and cultivar performance Jim began a successful consulting business after retirement from the Forest Service. As a consultant he developed reclamation plans for mine sites and power-line transmission corridors in Arizona, Colorado, New Mexico and Utah. Even though many of Jim’s recommendations met stiff opposition, the consistent improvements in disturbed land rehabilitation and watershed condition that occurred under his stewardship won many of his opponents over to his side. His record of accomplishments prompted Forest Service leaders to bring Jim out of retirement at 73 to plan and implement a sheep grazing program to control leafy spurge in a watershed that had been badly overgrazed by cattle.

Jim Butler’s long list of accomplishments is not lacking in service to the Society for Range Management. He has served as Utah Section President, on the Utah Section Board, on the organization committee for the 1984 Annual Meeting in Salt Lake City and was Chairman of the 1972 SRM Summer Tour of the Great Basin. Jim also worked closely with Joe Pechanec to erect a monument recognizing the efforts of Range Science Pioneer Arthur Sampson. Many of the professional hydrologists and range conservationists that worked for and with Jim Butler share a common belief, “He [is] a great mentor and communicator. Jim got the most out of everyone who worked him. He [is] truly a great manager.”

### Outstanding Young Range Professional Award

*The Outstanding Young Range Professional Award was inaugurated by SRM in 1988 to recognize the promise and potential of our younger members. One of the major criteria for this important award is the age of the nominees, who must have been less than 35 years old on January 1, 2001.*



**Dr. William E. Fox**

During the 10 years since graduation **Dr. William E. Fox** has demonstrated tremendous potential and promise as a range management professional. In this relatively short period Bill has published 7 articles, coached New Mexico State University’s plant judging and URME teams, taught a college level course and worked as a practicing range management consultant. As a result of his training and graduate research experience Dr. Fox has developed and published plant identification manuals for New Mexico and the south-central US. The south-central plant ID manual is currently being used to train technicians for wetland delineation throughout the South. Coupled with his work has been broad service within the Society for Range Management. Dr. Fox has served on the Texas Section membership and county awards committees, is currently chair-elect of the Youth Activities committee and serves on the Student and Youth and Accreditation

Committees for the Society for Range Management. His recent appointment as an Extension Associate with the Texas Agricultural Extension Service will give him many more opportunities to sharpen the talents and skills he has developed to date.

### RSEC Undergraduate Teacher Award



**Dr. Edward F. Redente**

**Dr. Edward F. Redente** is awarded the RSEC-Teaching Award. Dr. Redente has an extraordinary record of teaching and advising undergraduate students throughout his career. His teaching and advising on a one-on-one basis has changed the lives of many students. When it comes to working with undergraduate students, Ed has “made a difference.” In visits with the graduating seniors, Ed is singled out as a competent and caring teacher that has made a difference in their education and selection of a career path.

Dr. Redente’s innovation in the classroom has encouraged students to get involved in the learning process motivating them to dig deeper into the subject matter. He uses unique ways to involve students in the learning process. Experimental learning is part of the tool bag he uses to reach out to students. Students recognize that he is on the cutting edge of his discipline and they want to learn with him. In addition to working with undergraduates, Ed advises many graduate students, currently 13, and makes the time to inspire each one of them as well.

Ed is a superb “team” player. He actively participates in teaching sections of other classes. When teaching a section of Principles of Rangeland Management class, Ed weaves together a variety of topics in a clear and practical way that brings reality and principles into focus. Student reactions to his participation in my class indicate that they finally see how things fit together. The lights begin to turn on.

Dr Edward Redente is a man with the highest integrity. He has always dealt with people in an open and honest way. He is a gentleman.

# 2001 Annual Meeting Winners

## High School Youth Forum Winners



**1st Place:** *Joye Kreycik (Nebraska Section), and President John McLain.*



**4th Place:** *Abby Kirkbride (Wyoming Section), and President John McLain.*



**2nd Place:** *Dawn Rahn, (Nebraska Section) and President John McLain.*



**5th Place:** *Darcee Moldenhauer (Texas Section) and President John McLain.*



**3rd Place:** *Katie Johnson (Nevada Section) and President John McLain.*

4th Place Individual URME  
Sandy Jimenez, photo unavailable

## Undergraduate Range Management Exam Winners

### Team



**1st Place:** (University of Alberta) (Alphabetically) Alusia Book, Christine Boulton, Matthew Calfat, Chris Dallyn, **Mae Elsinger (3rd Place Individual)**, Brent Finnestad, Linda Hunt, Jennifer Joy, Amanda Joynt, Jason Machroy, Jody Metcalfe, Billie-Sue Schattle, Chris Stefner, and President John McLain.

### Individual



**1st Place USFS Award:** President John McLain, Kurtiss Schmidt (Texas A&M), and Ann Bartuska.



**2nd Place:** (University of Arizona) (Alphabetically) Rachel Meade, **Sandy Jimenez (4th individual, not pictured)**, Valerie Oriol, and President John McLain.



**2nd Place:** President John McLain, and Kate Hoffman (University of Idaho).



**3rd Place:** (Brigham Young University) (Alphabetically) Brady Allred, Rick Bank, Neal Bryan, Jeff Barnham, Danae Cann, Jennifer Coleman, Megan Ferguson, **Libbie Noall (5th Place Individual)**, Josh Rasmussen, Tim Royer, Amber Swanson, Danny Summers, Jeff Taylor, Kevin Wright, President John McLain.



**3rd Place:** President John McLain, and Mae Elsinger (University of Alberta)..

**Team**



**4th Place:** (Texas A&M) (Alphabetically) Brad Britton, Stephanie Doell, Michael Margo, Kurtiss Schmidt, Theresa Swihart, and President John McLain.

**Individual**



**5th Place Tie Award:** President John McLain and Libbie Noall (Brigham Young University).



**5th Place:** (University of Idaho) (Alphabetically) Leslie Furgeson, Amanda Helmer, Kate Hoffman (2nd Place Individual), Carl Ruddeen and President John McLain.



**5th Place Tie Award:** President John McLain, Valerie Oriol (University of Arizona).

**Undergraduate Public Speaking Contest**



**1st Place Award:** President John McLain and Jenny Fleer (University of Nebraska).



**2nd Place Award:** President John McLain and Tarah Sullivan (Colorado State).



**3rd Place Award:** President John McLain and Samantha Bartling (Colorado State University).

## Range Plant Identification Winners

### Team



**1st Place:** (University of Alberta) (Alphabetically) Christine Boulton, Alysia Book, Matthew Calfat, Chris Dallyn, **Mae Elsinger (1st Place Individual)**, Brent Finnestad, Linda Hunt, Jennifer Joy, Amanda Joynt, Jason Machroy, Jody Metcalfe, **Billie-Sue Schattle (5th Place Individual)**, Chris Stefner, and President John McLain.



**2nd Place:** (Universidad Autonoma Agraria Antonio Narro) (Alphabetically) **Abid Francisco Moo Cruz (Individual 2nd Place)**, **Catauna Cerecedo Cruz (3rd Place Individual)**, Luis Villegas Ortiz, Julian Cerano Paredes, Juan M. Martinez Reyna, **Edgar De Anda Villarreal (Individual 4th Place)**, and President John McLain.



**3rd Place:** (Brigham Young University) (Alphabetically) Brady Allred, Rick Baxter, Neal Bryan, Jeff Burnham, Danae Cann, Jennifer Coleman, Megan Ferguson, Libbie Noall, Josh Rasmusson, Tim Royer, Amber C. Swanson, Danny Summers, Jeff Taylor, Kevin Wright, and President John McLain.

### Individual



**1st Place BLM Award:** President John McLain, Mae Elsinger (University of Alberta), and John Fend.



**2nd Place Award:** President John McLain, and Abid Francisco Moo Cruz (Universidad Autonoma Agraria Antonio Narro).



**3rd Place Award:** President John McLain, and Catalina Cruz Cerecedo (Universidad Autonoma Agraria Antonio Narro).

**Team**

**Individual**



**4th Place:** (South Dakota State University) (Alphabetically) Chris Fischer, Chris Kopp, Lindsay Maras, Troy Oldert, Brian Pavel, Monte Steinbrecher, Levi Tibbs, Mike Wooters, and President John McLain.



**4th Place Award:** President John McLain, and Edgar Gerardo De Anda Villayreal (Universidad Autonoma Agraria Antonio Narro).



**5th Place:** (Utah State University) (Alphabetically) Dominic Bachman, Brant Hallows, Cindy Lu Heaton, Jared "Red" Redingtow, Josh Rydalch, Robin Wignall, Ada Williamson, and President John McLain.



**5th Place Award:** President John McLain, and Billie-Sue Schattle (University of Alberta).

**University Student Display Contest Winners**



**1st Place Award:** (Utah State University) (Alphabetically) Don Bachman, Esther Benson, Sandy Long (not shown), Robin Wignall and President John McLain.



**2nd Place Award:** (Oregon State University). (Alphabetically) Jody Martz, Kristine Miller, Amanda Wright, and President John McLain.



**3rd Place Award:** (Colorado State University) (Alphabetically) Julie Allen, Samantha Bartling, Carrie Kennedy, Tara Krebs, Lydia La Belle, Yasuko Matsuoka, Amy Randell, Tarah Sullivan, and President John McLain.

## High Combined Award Winners



**1st Place NRCS High Individual Award:** *President John McLain, Diane Gelburd, and Mae Elsinger (University of Alberta).*



**2nd Place Award:** *President John McLain and Billie-Sue Schattle (University of Alberta).*



**3rd Place Award:** *President John McLain and Libbie Noall (Brigham Young University).*

## Masonic Scholarship Winner



**4th Place Award:** *President John McLain and Chris Stefner (University of Alberta).*



**5th Place Award:** *President John McLain and Jeff Burnham (Brigham Young University).*



**Masonic Scholarship Award:** *President John McLain and Katie Johnson (Nevada Section).*

## Graduate Student Paper Award Winners

### Ph.D. category

**1st place:** *Steven L. Petersen, Oregon State University—Classification of willow species in eastern Oregon using high-resolution aerial photography. Steven L. Petersen, Tamzen Stringham, and Andrea Laliberte.*

**2nd place:** *Mark S. Thorne, Colorado State University—Soil loss effects on photosynthetic rates of western wheatgrass and blue grama. Mark S. Thorne, M.J. Trlica, W.C. Lenninger, and R. Dennis Child.*

### M.S. category—there is a tie for first place

**1st place:** *Christian J. Carleton, University of California Davis—Practical implementation of watershed calibration for the paired watershed study design.*

**1st place:** *Amy J. Hunt, Brigham Young University—Fecundity and genetic variability in isolated populations of Utah Juniper. Amy F. Hunt, Val J. Anderson, and Loreen Allphin-Woolstenhulme.*



# Sneek A Peek at the upcoming issue of Journal of Range Management

## Restoring Degraded Riparian Meadows: Biomass And Species Responses

David W. Martin And Jeanne C. Chambers

Riparian meadows in central Nevada utilized for livestock grazing, are often degraded resulting in altered species composition and decreased productivity. A 3-year study evaluated mesic meadow response to yearly nitrogen addition and clipping on grazing effects, and one-time aeration and revegetation to on restoration potential. Nitrogen addition alone and in combination with clipping increased biomass, but decreased rooting activity on these sites and may retard recovery; aeration did not affect biomass, but increased rooting activity and is a potential restoration treatment. A complexity of factors structure riparian meadows with water table significantly influencing both functional processes and recovery potential.

## Comparative Rumen And Fecal Diet Microhistological Determinations Of European Mouflon

Jean-Louis Chapuis, Patrick Boussès, Benoît Pisanu  
And Denis Réale

Every 2–5 years there is a massive winter mortality due to shortage of European mouflon on an island of the sub-Antarctic Kerguelen archipelago. Microhistological feces and rumen analysis were compared to develop an understanding of food resource utilization in relation to the population growth dynamics. Quantitative results were similar from both methods with regard to major constituents of the diet. The microhistological analysis of feces seems thus applicable to a long-term monitoring of diet variation in the mouflon population.

## Breeding Bird Responses To Juniper Woodland Expansion

Steven S. Rosenstock And Charles Van Riper III

We studied effects of juniper woodland expansion on breeding birds at 2 grassland sites in northern Arizona. Ground-nesting grassland passerines predominated in uninvaded grassland but declined dramatically with succession from grassland to juniper woodland; early successional and developing woodlands were dominated by tree-nesting and cavity-nesting species. Habitat suitability for grassland birds declined at densities of 10 juniper trees ha<sup>-1</sup>, an approximate threshold at which restoration treatments should be considered. Restoration of juniper-invaded Southwestern grasslands will benefit grassland-obligate birds and other wildlife.

## Antelope Bitterbrush Seed Production And Stand Age

Charlie D. Clements And James A. Young

Antelope bitterbrush is an important browse species to native ungulates and domestic livestock, but lack of seedling recruitment and livestock grazing on antelope bitterbrush seed production are major issues. We investigated seed production of antelope bitterbrush in grazed and ungrazed communities in California and Nevada during 1995 and 1996 using a system of seed traps to estimate seed production in relation to size, age, and grazing of various stands. Seed production was significantly greater at one ungrazed site, as this site was also significantly younger in age. Protection of older age class bitterbrush shrubs may not favor seed production.

## Forage Kochia Seed Germination Response To Storage Time And Temperature

Stanley G. Kitchen And Stephen B. Monsen

Forage kochia establishment is generally poor when planted with seed stored in typical warehouse conditions. In laboratory experiments, we examined the effects of storage time and temperature on viability and cold-temperature germination rate and related results to field germination and seedling establishment. Seed germination became significantly more rapid with time in warm-temperature storage, resulting in poor seedling establishment relative to cold-stored seed. Results suggest that cold, dry storage of forage kochia seed is required to conserve viability and the delayed, asynchronous germination pattern of recently harvested seed; a pattern conducive to seedling establishment in wildland settings.

## Species Composition On Reclaimed Ski Runs Compared With Unseeded Areas

Ron J. van Ommeren

Construction and reseeded of ski runs with non-native species may inhibit the re-establishment of native plants and cause the spread on non-native plants to adjacent undisturbed areas. The vegetative cover, plant species richness, and the proportion of native versus non-native species were compared between reclaimed ski runs and adjacent natural undisturbed areas. Results suggest that neither re-establishment of native species on ski runs nor invasion of non-native species on adjacent natural areas is occurring. Minimizing initial soil disturbance and preserving seed banks during ski run construction promotes the re-establishment of native plant communities.

### Remote Sensing Of Redberry Juniper In The Texas Rolling Plains

J.H. Everitt, C. Yang, B.J. Racher, C.M. Britton, And M.R. Davis

Redberry juniper is a noxious shrub or small tree that is invading rangelands in northwest Texas. Techniques were developed to quantify the extent of juniper infestations using computer analysis of color-infrared aerial photographs. An accuracy assessment of the classified image had a user's accuracy of 100% and a producer's accuracy of 94%. Aerial photographs provide a record that can be stored and examined for comparative purposes at any time and provide the highest resolution and capture the spatial essence of the scene with greater fidelity than any other procedure.

### Characteristics Of Nest Sites Of Northern Bobwhites In Western Oklahoma

Darrell E. Townsend II, Ronald E. Masters, Robert L. Lockmiller, David M. Leslie, Jr., Stephen J. DeMaso And Alan D. Peoples

Few scientists have analyzed cover and structural characteristics of vegetation associated with bobwhite nesting sites. In western Oklahoma nest sites were consistently associated with more structural complexity and were more concealed than random nests. However, vegetational species composition was not an important factor in determining reproductive success. Light to moderate cattle grazing usually maintains about 50% grass and 20–30% woody vegetation, which is required to sustain bobwhite populations in western Oklahoma.

### Drought and Grazing III: Root Dynamics And Germinable Seed Bank

A. Hild, M. G. Karl, M. R. Haferkamp, And R. H. Heitschmidt

Few controlled field experiments have documented below-ground responses to drought and grazing. A 4-year rainout shelter experiment employed minirhizotron root counts and seedbank collections to evaluate drought and grazing influences upon plant root distribution and germinable seed bank. Roots in A horizon were impacted more by grazing and B horizon roots responded to drought while seed of cool season annual grasses accumulated following drought. Complex below-ground responses may help to explain threshold transitions following a particular sequence of climatic and management events.

### Escape Protein and Weaning Effects on Calves Grazing Meadow Regrowth

Gregory P. Oardy, Don C. Adams, Terry J. Klopfenstein, Richard T. Clark And June Emerson

Protein in milk makes an important contribution to the metabolizable protein supply to the nursing calf. The effects of milk and supplemental undegraded intake protein (a source of metabolizable protein) on calf body weight gain and nutrient intake by weaned and nursing calves grazing subirrigated meadow were evaluated in the Nebraska Sandhills. For grazing calves, milk was an important source of metabolizable protein. During late lactation, milk and forage from subirrigated meadow regrowth may not provide enough metabolizable protein to support the growth potential of a young calf; therefore the calf may respond to supplemental undegraded intake protein.

### Activated Charcoal And Experience Affect Intake Of Juniper By Goats

Matthew G. Bisson, Cody B. Scott And Charles A. Taylor, Jr.

Goats consume juniper, but toxic terpenoids within the plant limit intake. A series of studies were conducted to determine if dosing animals with activated charcoal would improve intake of juniper. Activated charcoal did not affect long-term juniper intake, however dosing with activated charcoal did increase redberry juniper intake during initial exposures. With the goats increasing intake of juniper and apparently adapting to terpenoid levels over several days. Improving the acceptability of the plant through repeated feeding increases the likelihood of using goats as a biological control of juniper.

### The Nutritive Quality Of Cholla Cactus As Affected By Burning

J.E. Sawyer, L.A. Knox, G.B. Donart, and M.K. Petersen

Alternative feeds for livestock may be required when forage availability is decreased. The quality of cholla cactus as a feed alternative was examined when spines were removed by burning or left intact. Cholla is a readily fermentable energy source with adequate crude protein to reduce or eliminate supplemental protein needs; burning slightly improved the digestibility of the cactus. Accumulation of particular minerals may require alternative management, and the high moisture content of cholla would require large amounts to be fed to achieve acceptable levels of dry matter intake.

### Activity Budgets And Foraging Behavior Of Bison On Seeded Pastures

Bruce D. Rutley And Robert J. Hudsons

Wild ruminants alter their daily activity pattern in response to seasonal fluctuations in forage biomass and environmental temperature but there is little published information on annual foraging behavior and activity budgets of bison grazing seeded pasture. Forage selection and daily foraging, bedding and minor activity patterns were evaluated in northern British Columbia. Evident from changes in activity and forage selection patterns, farmed bison adjusted grazing behavior in relation to their seasonal nutritional requirements and pasture conditions. Provision of supplemental feed alters foraging behavior, therefore, managers must select a winter feeding program that is consistent with their overall management goals.

### Herbage Response To Precipitation In Central Alberta Boreal Grasslands

Edward W. Bork, Tamiko Thomas and Brent McDougall

Little information exists on the response of boreal grasslands to variation in inter-annual precipitation. Long-term precipitation and herbage yield data from uplands and lowland grasslands within Elk Island National Park were correlated with current and water year precipitation. Herbage yields on upland grasslands were positively and linearly related to current year precipitation while lowlands expressed a negative, curvilinear response to increasing water year precipitation. These results suggest that while uplands remain susceptible to summer drought, considerable redistribution of moisture occurs between uplands and lowlands, ultimately limiting the prediction of forage yield from precipitation data in these rangelands.

### Cattle Preference for Lambert Locoweed Over White Locoweed

Michael H. Ralphs, Gary Greathouse, Anthony P. Knight, And Lynn F. James

Since Lambert locoweed matures later in the summer, cattle may continue to graze it after white locoweed matures, and thus increase the critical period of poisoning when livestock graze areas infested by both species. A season-long grazing trial was conducted in 1998, and 4 intensive grazing trials were conducted throughout the summer in 1999, to compare the relative palatability and consumption of these two species growing together. Lambert locoweed was preferred over white locoweed and grazed throughout the summer. However, the toxic locoweed alkaloid swainsonine was not detected in this population of Lambert locoweed.

### Application of Non-equilibrium Ecology To Rangeland Riparian Zones

Tamzen K. Stringham, William C. Krueger, And David R. Thomas

Recent discussions within the ecological literature support the application of the theoretical concepts of multiple steady states and alternative pathways of plant community succession within rangeland ecosystems, however, scientific data supporting the non-equilibrium model within rangeland riparian areas is lacking. We utilized the relationships between depth to water table, soil moisture content and plant communities to determine the applicability of non-equilibrium ecological theory to semi-arid riparian zones. Results indicated that a state-and-transition model based on growing season soil water attributes was appropriate for the communities contained within the study area. Empirical data are critical for the verification of proposed theory.

### Canadian Bluejoint Response to Overutilization

William B. Collins, Earl F. Becker, And Alison B. Collins

Canadian bluejoint readily monopolizes cutover or burned boreal forest and often prevents establishment of hardwood and spruce seedlings. Heavy grazing was evaluated as a means of reducing the competitive vigor of the plant to allow for enhanced germination and survival of competing hardwoods, important for browse and cover for wildlife. In wet, disclimax bluejoint stands, heavy grazing maintained the plant in an early phenologic condition with seedhead production, seed weights, and seed viability about the same as in ungrazed stands. On wet sites, heavy grazing does not adequately reduce the vigor of this grass.

# Browsing The Literature

Jeff Mosley

This section reviews new publications available about the art and science of rangeland management. Personal copies of these publications can be obtained by contacting the respective publisher or senior author (addresses shown in parentheses). Suggestions are welcomed and encouraged for items to include in the future issues of *Rangelands*.

## *Animal Ecology*

**Effects of predation and hunting on adult sage grouse (*Centrocercus urophasianus*) in Idaho.** J.W. Connelly, A.D. Apa, R.B. Smith, and K.P. Reese. 2000. *Wildlife Biology* 6:227-232. (Idaho Dept. of Fish and Game, 1345 Barton Rd., Pocatello, ID 83204). Predation was the most common cause of death, accounting for 83% of deaths for adult males and 52% of deaths for adult females.

**Genetic and phenotypic parameters for dietary selection of mountain big sagebrush (*Artemisia tridentata* Nutt. ssp. *vaseyana* [Rydb] Beetle) in Rambouillet sheep.** G.D. Snowden, J.W. Walker, K.L. Launchbaugh, and L.D. VanVleck. 2001. *Journal of Animal Science* 79:486-492. (USDA-ARS, U.S. Sheep Experiment Station, HC 62, Box 2020, Dubois, ID 83423). Sheep dietary preference for big sagebrush appears to be moderately heritable.

**Geophagia in horses: A short note on 13 cases.** P.D. McGreevy, L.A. Hawson, T.C. Habermann, and S.R. Cattle. 2001. *Applied Animal Behaviour Science* 71:119-125. (Dept. of Animal Science, Univ. of Sydney, Sydney, NSW 2006, Australia). Larger concentrations of iron and copper in the soil apparently stimulated horses to eat soil (i.e., geophagia).

**Guidelines to manage sage grouse populations and their habitats.** J.W. Connelly, M.A. Schroeder, A.R. Sands, and C.E. Braun. 2000. *Wildlife Society Bulletin* 28:967-985. (Idaho Dept. of Fish and Game, 1345 Barton Rd., Pocatello, ID 83204). Presents the current sage grouse management guidelines from the Western Association of Fish and Wildlife Agencies.

**Mineral content of Sonoran pronghorn forage.** L.M. Fox, P.R. Krausman, M.L. Morrison, and T.H. Noon. 2000. *California Fish and Game* 86:159-174. (Yukon Charley Rivers Natural Preserve, P.O. Box 167, Eagle, AK 99738). Pronghorn diets appeared deficient in sodium, phosphorus, copper, zinc, and selenium in southwestern Arizona.

**Mourning dove numbers on different seral communities in the Chihuahuan Desert.** L. Saiwana, J.L. Holechek, R. Valdez, and M. Cardenas. 2001. *Western North American Naturalist* 61:50-56. (J. Holechek, Dept. of Animal and Range Sciences, New Mexico State Univ., Las Cruces, NM 88003). Grass, shrub, and shrub-grass mosaic plant communities in mid- or late-seral stages provided equally suitable habitat for mourning doves.

## *Grazing Management*

**Influences of livestock grazing on sage grouse habitat.** J.L. Beck and D.L. Mitchell. 2000. *Wildlife Society Bulletin* 28:993-1002. (Dept. of Fish and Wildlife Resources, Univ. of Idaho, Moscow, ID 83844). "Residual grass cover following grazing is essential to conceal sage grouse nests from predators."

**Performance of light vs. heavy steers grazing Plains Old World bluestem at three stocking rates.** C.J. Ackerman, H.T. Purvis, G.W. Horn, S.I. Paisley, R.R. Reuter, and T.N. Bodine. 2001. *Journal of Animal Science* 79:493-499. (G. Horn, Dept. of Animal Science, Oklahoma State Univ., Stillwater, OK 74078). Steer weight gains were either depressed or unaffected by increasing stocking rate from light to moderate to heavy.

## *Improvements*

**Combining mowing and fall-applied herbicides to control Canada thistle (*Cirsium arvense*).** K.G. Beck and J.R. Sebastian. 2000. *Weed Technology* 14:351-356. (Dept. of Bioagricultural Science and Pest Management, Colorado State Univ., Fort Collins, CO 80523). Mowing before spraying did not consistently improve Canada thistle control with picloram, picloram plus 2,4-D, chlorsulfuron, dicamba, or clopyralid plus 2,4-D.

**Responses of photosynthesis and water relations to rainfall in the desert shrub creosote bush (*Larrea tridentata*) as influenced by municipal biosolids.** S.G. Yan, C.G. Wan, R.E. Sosebee, D.B. Wester, E.B. Fish, and R.E. Zartman. 2000. *Journal of Arid Environments* 46:397-412. (C. Wan, Dept. of Range, Wildlife and Fisheries Management, Texas Tech Univ., Lubbock, TX 79409). Biosolids applied at high rates decreased the amount of soil water, which delayed and decreased photosynthesis after rainfall.

**Smoke exposure among firefighters at prescribed burns in the Pacific Northwest.** T.E. Reinhardt, R.D. Ottmar, and A. Hanneman. 2000. *USDA Forest Service Research Paper PNW-526*. (Publications Dept., Pacific Northwest Research Station, P.O. Box 3890, Portland, OR 97208). Some workers conducting prescribed burns were exposed to carbon monoxide and respiratory irritants that exceeded occupational exposure limits.

## *Management Planning*

**Making it work: Keys to successful collaboration in natural resource management.** M.A. Schuett, S.W. Selin, and D.S. Carr. 2001. *Environmental Management* 27:587-593. (Division of Forestry, West Virginia Univ., P.O. Box 6125, Morgantown, WV 26506). Organizational support, personal communication, and team building were some of the keys to success identified from a study of 30 collaborative initiatives.

**What is a good public participation process? Five perspectives from the public.** T. Webler, S. Tuler, and R. Krueger. *Environmental Management* 27:435-450. (Social and Environmental Research Institute, Leverett, MA 01054). Processes for public input into environmental decisions require leadership and compromise, they need to be fair, and they need to facilitate discussion.

*Plant/Animal Interactions*

**Defoliation-induced enhancement of total aboveground nitrogen yield of grasses.** R.A. Green and J.K. Detling. 2000. *Oikos* 91:280-284. (1180 Town Center Dr., MS 423, Las Vegas, NV 89144). Regrazing at monthly intervals will optimize forage yield and forage nitrogen in northern mixed-grass prairie.

**Distribution, movements and habitats of sage grouse (*Centrocercus urophasianus*) on the Upper Snake River Plain of Idaho.** K.M. Leonard, K.P. Reese, and J.W. Connelly. 2000. *Wildlife Biology* 6:265-270. (Grand Canyon National Park, P.O. Box 129, Grand Canyon, AZ 86023). The major landscape change in sage grouse habitat of southeastern Idaho has been the loss of winter range, with about 60,000 acres of rangeland converted to cropland from 1975 to 1992.

*Plant Ecology*

**Alien plant invasion in mixed-grass prairie: Effects of vegetation type and anthropogenic disturbance.** D.L. Larson, P.J. Anderson, and W. Newton. 2001. *Ecological Applications* 11:128-141. (U.S. Geological Survey, 1987 Upper Buford Circle, Saint Paul, MN 55108). "...five of the six most abundant alien species at Theodore Roosevelt National Park had distributions unrelated to disturbance."

**Effects of fire retardant chemical and fire suppressant foam on shrub steppe vegetation in northern Nevada.** D.L. Larson, W.E. Newton, P.J. Anderson, and S.J. Stein. 2000. *International Journal of Wildland Fire* 9:115-127. (U.S. Geological Survey, 1987 Upper Buford Circle, Saint Paul, MN 55108). By the end of the growing season, green rabbitbrush, big sagebrush, and species richness were unaffected by fire retardant chemical (Phos-Chek) or fire suppressant foam (Silv-Ex).

**Fire history and vegetation pattern in Mesa Verde National Park, Colorado, USA.** M.L. Floyd, W.H. Romme, and D.D. Hanna. 2000. *Ecological Applications* 10:1666-1680. (Environmental Studies Program, Prescott College, Prescott, AZ 86301). Fire frequency and extent in the park during the last 50 years have been similar to the fire regime of the late 1800s.

**Natural history and invasion of Russian olive along eastern Montana rivers.** P. Lesica and S. Miles. 2001. *Western North American Naturalist* 61:1-10. (929 Locust, Missoula, MT 59802). Beavers preferred plains cottonwood trees to Russian olive trees, and Russian olive grew nearly three times faster than green ash, a native late-successional tree species.

*Reclamation/Restoration*

**Summer establishment of Sonoran Desert species for revegetation of abandoned farmland using line source sprinkler irrigation.** B.A. Roundy, H. Heydari, C. Watson, S.E. Smith, B. Munda, and M. Pater. 2001. *Arid Land Research and Management* 15:23-39. (Dept. of Botany and Range Science, 401 WIDB, Brigham Young Univ., Provo, UT 84602). Irrigating daily for 1-2 weeks after seeding (until seedlings emerge) should sustain survival of grass and shrub seedlings.

*Soils*

**Nitrogen dynamics in perennial- and annual-dominated arid rangeland.** T. Svejcar and R. Sheley. 2001. *Journal of Arid Environments* 47:33-46. (USDA-ARS, Eastern Oregon Agricultural Research Center, HC 71 4-51 Hwy 205, Burns, OR 97720). Soil nitrogen did not differ between native bunchgrass sites and adjacent stands that had been dominated by cheatgrass for at least

Author is professor and extension range management specialist, Dept. of Animal and Range Sciences, Montana State Univ., Mont. 59717.

# Resource Roundup

**The majority of Americans believe ranching should be protected by allowing grazing on federal lands,** according to a Roper Starch Worldwide “Green Gauge 2000” study on environmental attitudes and behaviors. The study found 62% of Americans feel ranching is an American heritage that should be protected by allowing grazing on public lands.

Public support for ranching may relate to concern about open space. The study found that seven in 10 Americans view the loss of farms and ranches to the development of subdivisions and malls as a serious personal issue. Only 25% don’t feel this way.

**Environmental kudos to The Triple U Ranch, Correctionville, IA, the national winner of the National Cattlemen’s Beef Association’s (NCBA) Environmental Stewardship Award.** Craig, Elaine, Brad, Karen, Kirk and Barbara Utesch and their children own and run the operation, which demonstrates innovative and sound practices that protect and improve natural resources.

Regional winners also recognized for their stewardship practices were: Ritters’ Farm, Joan and Greg Ritter, Glasgow, KY; Gaddis Farms, Ted Kendall III, Ted Kendall IV, and Kendall Garraway; Morgan Cattle Co., Ralph and Evelyn Morgan, Chickasha, OK; Hanson Livestock Inc., Donna and Dan Hanson, Lusk, WY; Johnson Ranch, Darrell Johnson and family, Rush Valley, UT; and Cammack Ranch, Gary and Amy Cammack, Union Center, SD.

This was the 10<sup>th</sup> annual Environmental Stewardship Award presented by NCBA. The award is sponsored by Dow AgroSciences.

**After last year’s wildfires, expect more weeds on rangelands.** A recent study in central Utah found the amount of squarrose knapweed on rangeland nearly doubled within one year following a wildfire.

“Noxious weeds often invade and spread rapidly in response to the natural disturbance of fire,” says Utah State University Extension weed specialist Steve Dewey.

Weeds to watch for after fire include: yellow starthistle, knapweeds, medusahead, dyer’s woad, toadflax, thistles, hoary cress, leafy spurge and many others.

On the bright side, fire can actually help control of some weeds, Dewey says.

His research indicates treating squarrose knapweed with herbicides soon after a wildfire resulted in excellent weed control. The combination of fire followed by a herbicide application resulted in much better squarrose knapweed control than if we sprayed and had no fire, Dewey says.

In another study, knapweed control two to three seasons after a single herbicide application (Tordon + 2,4-D) averaged only 20% on non-burned land, compared to 86% on land where the application was preceded by burning, he adds.

In that same study, forage grass yields were five times greater on plots that were both burned and sprayed (2,591 kg/ha) compared to 512 kg/ha on plots that were just sprayed.

Dewey recommends land managers inspect burned areas for weeds soon after any fire. If a weed problem is noted, map where the infestations are and start control efforts promptly.

The collar prototype acts a virtual fence. It controls movement of cattle by whispering electronic versions of the commands “gee” (go right) and “haw” (go left) into the cow’s ears. It also locates cows with a global positioning system antenna that receives and uses these satellite signals to apply bilateral cues.

cues not only change an animal’s location but also its direction of movement. If a cow ignores all sound cues, mild electrical shocks follow.

Ranchers can program future grazing locations based on sound ecological and economic data. The cues are then given autonomously for making the change only when the cow is on the move to minimize stress.

*For more information, contact Dean M. Anderson, ARS Southern Plains Range Management Research Unit, Las Cruces, NM, at 505/646-5190 or e-mail deanders@nmsu.edu.*

**There’s more money made or lost in forage at seeding time than any other time of the year.** That’s because decisions made at seeding affect crop performance in year one and for the lifetime of the crop, says Surya Acharya, forage breeding researcher at the Lethbridge Research Centre.

Acharya provides these six “golden rules of forage establishment” to ensure better forage stands and productivity.

**1. Choose the right crop to get the best yield.** Look for the correct forage species and variety for the purpose and local conditions. For maximum hay production, pick a species with good yield, even if it has a shorter life span. For the best economic return, choose varieties that yield well for three to four years. For a long-term stand, select for good winter hardiness and disease resistance.

Under irrigation, it’s important that species have high levels of disease resistance. For pasture, look for grazing tolerance. When in doubt, get advice and variety comparisons from independent forage sources.

**2. Prepare the seed.** Some forage crop seed (like alfalfa and cicer milkvetch) requires preparation through scarification or inoculation before planting. Legumes fix their own nitrogen but, to be effective, legume seeds should be inoculated with nitrogen-fixing bacteria. Treated seed will establish better and produce healthier plants.

**3. Seed early.** “Research clearly demonstrates that the earlier you seed in spring, the better the stand,” says Acharya.

**4. Seed pure forage stands.** Don’t plant cereal or canola as a companion or “nurse” crop, says Acharya. Research shows companion crops vigorously compete with the forage crop for valuable nutrients, water and sunlight.

“Even after four or five years, the effect of the companion crop shows up in reduced yield,” he says. “The increased forage brings in more income by far than that from the companion crop.”

**5. Seed shallow.** For best results, plant forage seeds at a half inch depth. Because most forage seeds are small, there’s not much energy in those seeds to poke through deep profiles of soil, Acharya says. On irrigated land, irrigate the seedbed three to four days before seeding. On dry land, direct-seed or harrow the field, then cover and pack the seed well.

**6. Mow the crop for weed control.** Mow the forage crop when the seedlings are about 1-ft. high. This reduces competition from annual weeds and helps the crop stool out and quickly cover the ground. If weeds are mowed, herbicides should be unnecessary.

*For more information contact Surya Acharya, Lethbridge Research Centre at 403/317-2277, or visit their Web site at <http://res2.agr.ca/lethbridge>.*

“Resource Roundup” is compiled by Kindra Gordon. Contributions welcome: 952/851-4671 or [kgordon@intertec.com](mailto:kgordon@intertec.com).

## Book Review

**New England Forests through Time. Insights from the Harvard Forest Dioramas.** By David R. Foster and John F. O'Keefe. 2000. Harvard Forest, Harvard University, Petersham, Massachusetts. Distributed by Harvard University Press, Cambridge, Massachusetts. 67p. US\$9.95 paper. ISBN 0-674-00344-6.

"I can count too Ben..."

—from John Wayne's *The Sons of Katie Elder*.

Quality often eludes efficiency; those concerned with the latter generally look to the future, while seekers of the former sometimes must look to the past. In *New England Forests through Time*, David Foster and John O'Keefe examine changes in the New England landscape over the past 300 years as represented in the Harvard Forest Dioramas—minaturized, realistic, three-dimensional scenes constructed in the 1930's with funds provided by Dr. Ernest Stillman, a conservationist-philanthropist. The book consists mostly of a series of vignettes, each designed around a single diorama, showing either one in a series of landscapes over the past three centuries, or an example of a practice or activity in forest management.

The text is organized into four main parts. In Part 1, seven dioramas represent the major stages in the landscape history of central New England, including the pre-settlement forest, homesteading, maximum clearance for agriculture, farm abandonment, old-field white pine regeneration, succession to hardwoods, and growth of a hardwood forest. The current forest landscape is then examined (with a photograph, of course, rather than a diorama), and the future of the forest is discussed briefly. Conservation issues in the history of New England forests are examined in Part 2. Here the dioramas are used to examine such matters as old-growth forests, wildlife habitat, accelerated erosion, wildfires, and prescribed fire. Forest management practices are addressed using ten dioramas in Part 3, with coverage of practices such as thinning, pruning and harvesting. Some close-up photographs of parts of some of the dioramas are included here.

The text of Parts 1–3 of *New England Forests through Time* provides a sound description of the activities portrayed in the dioramas. Continuity is less of a problem than redundancy, as if the text were edited a piece at a time without concern for slight repetition among descriptions. The photographs showing the dioramas are clear enough, but I am sure they cannot convey all of the three-dimensional splendor of the actual miniature landscapes.

To fully appreciate Parts 1–3, you will need to read Part 4, *Artistry and Construction of the Dioramas*, where the reader sees how copper wires are soldered, wrapped, etched, and painted in remarkable detail to produce realistic hardwood trees. Seeing the quality in materials and construction, and the uncompromising attention to detail reminded me that many of the older educational tools, relics and buildings of forestry and range management science, from forestry camps to old books to old tools, have been lost, dispersed or abandoned, and that so much quality in materials, construction and character has been lost in the quest for efficiency, or just modernity. Like the dioramas, all of this quality often has value far exceeding its function—value in attracting students, in interesting them in traditions, in interesting them in quality itself. Part 4 on the artistry and construction of the dioramas will likely have some readers reexamining the earlier photographs, and will have most wishing they could see the actual dioramas, but those immaculate miniature meetings of science and art had me thinking about efficiency, quality, and money well spent. I recalled the message of Robert Pirsig's *Zen and the Art of Motorcycle Maintenance*, and considered how we seem to have more of most things in the world of today, except more intrinsic quality.

Two years ago, I sat in a meeting to evaluate the progress of a young scientist toward tenure, and for the entire hour, not one men-

tion was made of the quality of his research. Near the end of the meeting, a dispute arose concerning the number of journal papers the man had published. I watched a group of scientists doing their best impressions of university administrators pre-occupied with efficiency, pens and pencils in hand, pointing, tapping, and counting. Periodically, someone would announce his count, only to have it differ from another counter's count, with the result that each would recount. After a couple of minutes, I commented, into a particularly intense, counting-induced void of silence, that "counting beans can certainly be difficult." The counting ended, more or less, and when I asked if it were not important that we evaluate the quality of the scientist's research, someone commented that he did not see himself as capable of evaluating the quality of his research, and most of the group agreed that they were not qualified to evaluate quality. Even though the research involved basic, understandable wildlife management rather than, say, *cryogenic electromagnetic theory*, I decided that I couldn't reasonably pursue the matter of quality with a group of scientists who were that passionately quantitative. Actually, if they couldn't evaluate quality I didn't need their help anyway, because I can count too.

As an introduction to the history, succession, and management of New England landscapes, but mostly as a tribute to some inspired, likely over-budget work of quality that was done years ago and has aged beautifully, *New England Forests through Time* is worth reading. The Depression Era individuals, behind the diorama project did not make the best use of the material. In fact using some synthetic material to enhance the visual effect of the project could develop the overall response to the projects. Today's technology of using virtual reality would be a positive enhancement and would be more cost effective, in allowing multiple views of the projects.—David L. Scarneccchia, Washington State University, Pullman, Washington.

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