United States Department of Agriculture
Natural Resources Conservation Service
Grazing Lands Technology Institute

GRAZING LANDS ROUNDUP

December 1996
Volume 2

FROM THE DIRECTOR: A Message to NRCS Employees

We are moving into FY 97 and it seems everyone is very busy. Just like you, we have completed our business plan and would like to share with you the highlights of the planned projects. I think you will see where your work and ours tie together.

We are excited about the National Range and Pasture Handbook. It will guide our future with improvements in grazing lands technology. Each member of the GLTI have helped in the preparation of the new handbook. We have worked as a team on many of the new technologies, such as the new Ecological Site Description for Rangeland. This new description format will better describe the rangeland site ecosystem. It will serve as the basis for discussions with landowners while we assist them to understand, inventory and plan the management of their rangeland. I think you will like what you will see. Larry Butler is providing technical leadership in the coordination, writing, and editing of this handbook. (Cont'd on page 7.)

National Range and Pasture Handbook Status

The second draft of the NRPH is almost ready for release to NRCS for another technical review according to Larry Butler. Many constructive comments and suggestions were received following the first review. The GLTI staff met in November to review the current status of the Handbook and come to agreement on some significant changes that are being made. NRCS state grazing lands specialists should receive their copy of the second draft for Christmas. (Thanks Santa!) Following a two- month review period, additional comments will be considered and a third draft will be completed. The third draft will be reviewed by selected individuals and organizations outside the NRCS.

A Glimpse of Things to Come in the NRPH

Range Site Descriptions Replaced - "Range sites" will be called rangeland ecological sites. **Ecological Site Descriptions for Rangelands** will be more thorough than traditional range site descriptions. A catalogue of common "states" and "transitions" between the "states" will be described as range site descriptions are revised.

Similarity Index - "Similarity index" will be new terminology introduced in the NRPH. The index will indicate how similar (by %) the current plant community is to the desired plant community or any vegetative state described in the ecological site description.

No more Range Condition Classes - Rangeland will no longer be categorized as **poor, fair, good, or excellent** in the NRCS conservation planning process. "Range condition" will no longer be determined; however, a **Similarity Index to the Historic Climax Plant Community** may be determined, if it is desired.

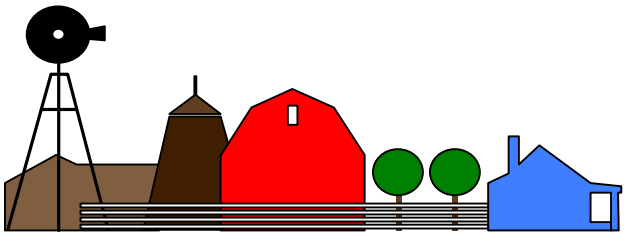
Desired Plant Community - The desired plant community will be the plant community that will meet the land owner/manager's objectives, provided it also meets the local Field Office Technical Guide quality criteria for the soil, water, air, plant, and animal resources.

Pro Pasture

by Jim Cropper

Since the last time I wrote to you, I met with the Midwest grazing land specialists in early June at Linneus, Missouri at the Forage Systems Research Center. We took the Management Intensive Grazing Course together. This was a very good course on grazing management. I highly recommend it to anyone involved in promoting grazing management within NRCS or our agency partners.

I also met with East Region grazing land specialists here at the Pasture Systems and Watershed Management Research Lab in September. The highlight of that session was a day lo.....ng tour of Pennsylvania looking at intensive rotational grazing management on dairies, sheep, and beef farms around the southern tier of counties. We even saw some range fed chickens and a sheep dairy barn. Sheep cheese is excellent. Splurge and buy some!



In December I will be meeting with Southeast grazing land specialists in Kissimmee, FL. This will be my first opportunity to work with them. One of the issues we will discuss is Pasture Health. This is a work item for this fiscal year. If you have an interest in pasture health issues, give me a call. I need a few good people to work with me to develop a method to rate the health of a pasture. We are trying to standardize a procedure similar to the one developed for rangeland health.

Interest in forage suitability groups is on the rise. I have had a number of requests for information on how to group them and write them. It is a new way of providing soil interpretations for forage and livestock producers. It is more comprehensive than older versions of pasture soil suitability groups. The procedure does a better job of grouping soils with like productivity and resource problems and management solutions than the previous procedure which only went to the soil series level. The new procedure goes to the mapping unit level.

Brian Pillsbury, East Region GLCI Coordinator, is moving on to Wisconsin as the state grazing land specialist. He will be located at Baraboo Field Office. I have fond memories of working there as a GS-7 soil conservationist in the early 70's. It is a great place to live, and the state is great place to work as a grazing land specialist. Congratulations, Brian! The Northeast will miss your good-natured leadership, but you stay in our grazing lands ranks.

There will be a Great Lakes Grazing Conference again in 1997. It will be held on February 17-18. This conflicts with the Society for Range Management meeting in Rapid City, South Dakota. However, for those of you interested in pasture management from the North Central and Northeastern states, this conference may have topics of greater interest to you.

Update on Rangeland Health and NRI

by Pat Shaver

A test for the rangeland subsample of the 1997 National Resources Inventory (NRI) was conducted during the summer of 1996. This test was in Major Land Resource Areas numbers 67, 77 and 9. These are the Central High Plains, Southern High Plains, Palouse and Nez Perce Prairies, respectively. The test was conducted to help determine what would be collected for the rangeland subsample of the 1997 NRI. The data collected included Rangeland Similarity Index, Apparent Trend, Woody Canopy Cover, Presence of Noxious Weeds, and Rangeland Health Indicators. All of these were collected in the 1992 NRI rangeland subsample with the exception of rangeland similarity index and rangeland health indicators. The rangeland similarity index will replace range condition and will include the actual composition by weight of the species present. The rangeland health attributes are a new data set to the NRI. This summer's test, as well as other field tests of the rangeland health attributes, have assisted the development of a matrix to use in the assessment of various attributes of rangeland health for the 1997 NRI. Rangeland health for the NRI will be reported in at least three ways; the stability of the soil and/or site, the functioning of the water cycle and site hydrology, and the integrity of the plant community. Currently, there are 19 attributes of rangeland health that will be assessed. The assessment of each of these attributes will be included in the NRI data base. This will enable the NRCS to better analyze and report the conditions and status of the rangeland resources throughout the country.

The USDI Bureau of Land Management (BLM) has been cooperating in the development of the concepts and attributes of the rangeland health matrix. The

BLM is interested in rangeland health assessment on the public lands for which it administers. The BLM has committed to conducting the 1997 NRI in the state of Colorado. The UDSA Forest Service (FS) is also interested, however, were unable to commit to the 1997 NRI. The 1997 NRI in Colorado will be a joint venture with the BLM and the NRCS and will be used as a test for both the rangeland health assessment and for BLM to determine if it will expand NRI throughout other lands it administers. The objective is to develop an inventory method that will be used by all agencies, assessing the same attributes, and used on all rangelands in the U.S. With the addition of the BLM administered lands to the NRI data base, we will have better data to report the status and conditions of the nation's resources. It appears that there is a real possibility for a truly national, natural resources inventory to be conducted in the near future.

The GLTI hosted a group of NRCS grazing lands specialists to review attributes of rangeland health during the week of October 15. (See below.)

Primarily, the group consisted of GLTI staff; Dennis Thompson and Fee Busby, National Office; Arnold Mendenhall, National Soil Survey Center; Ken Spaeth, cooperating scientist, Boise, Idaho; Jim Robinson, National Agroforestry Center; and Leonard Jolley, range conservationist in graduate studies at Colorado State University. Rangeland health determinations are planned for future national resources inventories and, eventually, as a tool to use in working with rangeland owners and managers.

Riparian by Pat Shaver

The NRCS is a partner with the USDA Forest Service and the USDI Bureau of Land Management in a "Riparian Service Team" throughout the western United States. These agencies are providing "train-the-trainer" opportunities at the BLM National Training Center in Phoenix, Arizona. Several NRCS employees have attended this training and are now actively training agency personnel, livestock operators, and others interested in riparian management throughout the west. These opportunities are open to interested NRCS employees with riparian management responsibilities. Currently, all the states in the western U.S. have an interagency team of instructors organized and active. There will be, at least, one more "train-the-trainer" session in Phoenix during January.

Upcoming Product

Pat Shaver announces that Oregon State University has recently compiled a bibliography on riparian subjects. This bibliography includes research, case studies, and observational data. It is in electronic form giving the user the ability to search by major words and topics. The GLTI has purchased one copy of this bibliography for each state and will be distributing them soon. There are a very limited number of bibliographies still available from the GLTI. They will be distributed on a first-come, first-served basis. If you are interested in a copy, contact the GLTI office in Ft. Worth.

Grazing Land Applications (GLA)

Arnold Norman's report of the status of the grazing land software is as follows:

There was a recompiling error when the transfer was made from one version of UNIX to the new uniware platform which disabled the Nutrition Balancer on the latest CD release. This error has been corrected and an upgrade to the most current version of Nutbal will be added to the release, which is version 1.15. Once testing is completed, this release will be available after the 1st of the year.

There are errors in the **back up and restore** functions of both the FOCS version and the DOS version of GLA. There were numerous failures in the

functions available in back up and restore. These are being tested and, hopefully, will be available for the next release.

The staff at Fort Collins is in the process of correcting the **Tract** planning capabilities in the FOCS GLA package. They are scheduled for completion in early 1997 and plan a release on CD by March. This addition will prevent double entry of a current business in the FOCS system and allow the inventory of grazing land to the response unit level.

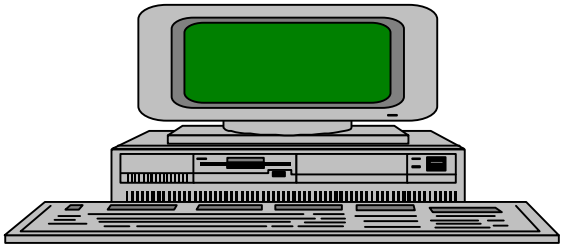
Programmers are planning to address the issue with **mapping units with complex soils** (more than one soil in a mapping unit). This is a lengthy addition to the program and will not be available until August or September. This problem does not exist in the DOS program.

There are other "fixes" underway in the program but most are minor and do not create difficulty in the use of the program or problem with the output reports. A list of these fixes is available on the FTP server at Fort Collins.

Plans for the GLA program are to discontinue the present format and move to a Windows environment.

Animal unit month calculations will be enhanced by potentially using forage species preference, nutritional quality, and/or total production. The program calculates AUM's now using only total production. These options will be connected to the total forage balance reports. The harvested roughage calculation will also be added to the total forage balance report.

Planning capabilities to be added to the program also include: economics and nutrition for dairies. A design team meeting will be held during early 1997 to plan the future program.



Completed regional training schedule for Grazing Land Applications Software in 1996:

April 17-19, 1996 - Chattanooga, TN
April 23-26, 1996 - Champaign, IL
May 7-8, 1996 - Shreveport, LA
July 29 - August 2, 1996 - Albuquerque, NM
August 12-16, 1996 - Greenville, SC
October 14-18, 1996 - Boise, ID
November 4-8, 1996 - Columbia, MO
November 4-8, 1996 - Auburn, AL
December 2-7, 1996 - Casper, WY
December 10, 1996 - Kissimmee, FL

Ecological Site Information System (ESIS) by Arnold Norman

The site description format has been completed and programming has begun to automate site descriptions. The site description includes the opportunity to describe the steady state communities and their pathways. A graphics representation will be available to distinguish communities and the disturbances which caused the community to make directional changes. Included in the ESIS project is the automation of the Range Data System (SCS-Range-417 forms) for capturing species composition and production. This will also include the ability to query data presently not available. This project is planned to be completed and ready for testing during 1997.

Animal Nutrition

by Arnold Norman

An animal nutrition video is in the planning stage and should be available by the end of the fiscal year. This will be a comprehensive training video to help the conservationist and the livestock owner understand nutritional requirements. An animal nutrition training session is scheduled for June, 1997 in Oklahoma focusing on the use of Nutbal, a decision support tool in the GLA program.

Conference:

The 50th Annual International Meeting for the Society for Range Management is scheduled for February 16-21, 1997 in Rapid City, South Dakota at the Rushmore Civic Center. Schedule of events include: student and youth activities, workshops, poster sessions, symposia, members forum, trade show and a plenary session.

Livestock: A Powerful Wildlife Management Tool

by Karen Launchbaugh, I. Morty Ortega, and Fred Bryant; Range, Wildlife and Fisheries Management at TTU

Editor's Note: This article is reprinted with the authors' permission from "Grass Roots" the Texas Section Society of Range Management newsletter, July-August 1996, Vol. 47, No. 4.

"Habitat" is an area that provides forage, water, cover and space; it is basically the "home" of a species. The question at hand is: Can livestock and wildlife share the same *home* without conflict? Many would say "no" viewing livestock as greedy creatures that steal resources needed by defenseless wildlife. However, scientists and ranchers who study habitat management realize that there are many instances when livestock can graze an area without detrimental and sometimes even positive effects on wildlife. In this article we will try to illuminate the habitat management principles that encourage harmony between domestic and wildlife species and lead to improved land quality.

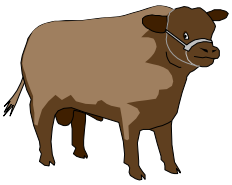
Livestock as Habitat Management Tools

There is no doubt that the mismanagement of livestock can degrade rangeland habitat for wildlife and livestock. However, livestock may also be powerful management tools if used properly. Dr. Fred Guthery, of the Caesar Kleberg Wildlife Research Institute, went so far as to say, "No habitat management tool is more powerful than the cow. Give her a little salt supplement and water, and she manages millions of acres of (bobwhite) cover. Like any powerful tool, she can be harmful or helpful depending on how she's applied." A large body of scientific literature now supports this contention.

Livestock, when **improperly** managed can:

- reduce nest sites for upland game and waterfowl
- trample nests for waterfowl
- disturb big game during fawning
- reduce cover that permits wildlife to hide from predators
- reduce biomass of desirable wildlife forage
- reduce floral diversity for bird, mammal, and insect communities
- attract predators, parasites, or disease

There are many ways that an individual cow, sheep or goat can improve habitat value for wildlife. Species such as bobwhite quail, deer, mourning dove, pronghorn, and elk prefer habitats with considerable diversity. This diversity can be created by livestock grazing. Of particular importance is the creation of feeding, nesting, and hiding sites created in close proximity to one another.



Cattle can be expertly used to open dense vegetation and remove rank grass. This creates travel corridors for small wildlife, like turkeys, and encourages high quality regrowth of grasses to improve forage quality for deer.

Livestock, when **properly** managed can:

- create feeding sites for early to mid-successional wildlife:
  - bobwhite quail
  - deer
  - mourning dove
  - pronghorn
  - elk
- create patchy habitat with high structural diversity for:
  - feeding,
  - nesting
  - hiding
- open up dense vegetation canopies to create travel corridors for wildlife.
- remove rank, coarse grass to encourage regrowth and improve abundance of high quality forage.
- stimulate browse production by reducing grass biomass.
- improve nutritional quality of browse by stimulating plant regrowth.
- create weedy patches as feeding sites for upland game birds and deer.
- create bare ground as feeding dust, and display areas for upland, game birds and passerines.

If stands of high quality browse are desired for cover and forage, livestock can do that, too. The removal of grass by grazing of cattle and sheep encourages the establishment and growth of shrubs. Livestock can also browse existing shrubs to encourage lateral sprouting which causes the growth of tender, nutritious shoots and creates more dense, "bushier" shrubs for excellent hiding cover.

Finally, the close grazing of specific areas can create small, open, weedy patches. These succulent weeds are high quality forage for deer and upland game birds. Livestock can also be used to create bare areas around water tanks and wells that are necessary for feeding, dusting and courtship displays by upland game birds and song birds.

Grazing Management for Habitat Improvement

With careful management, the beneficial effects of livestock grazing can be arranged into planned grazing systems to benefit wildlife. *Strategic grazing* can be used to meet specific wildlife habitat management goals such as creating areas for wildlife cover and other areas of high quality forage.

Strategic grazing = use of livestock as manipulative tools in wildlife habitat management to create specific habitat conditions.

Grazing systems can be designed:

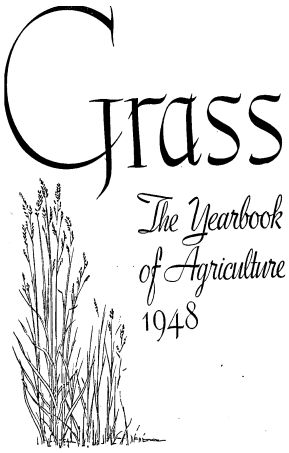
- using, strategic rest and deferment improve nesting cover for upland game birds and waterfowl.
- removing livestock from important fawning areas to reduce competition.
- using heavy stocking in some pastures to create weedy-open areas.
- stocking other pastures at moderate rates to create high quality regrowth.

The potential of a planned grazing system to improve wildlife habitat is great. However, successful systems require a thorough understanding of how livestock grazing changes plant communities and an intimate knowledge of the habitat requirements of specific wildlife species. Since wildlife species can differ in their habitat needs, a manager must carefully select a wildlife species in which to direct their management objectives. In other words, managing land for quail may not be good for armadillos.

When developing schemes to employ livestock in wildlife habitat management one must also consider the effects of this on livestock production. For example, the removal of dead, coarse grass may benefit deer, but it won't put many pounds on the cow. Finally, a manager must also consider if the enterprise is able to benefit from wildlife habitat improvements. The presence of "big deer" around the ranch certainly has benefits, but the ability to turn these benefits into dollars depends on enterprise conditions.

Conclusion

Can livestock and wildlife share the same *home* without conflict? Some competition between livestock and wildlife for natural resources is inevitable. However, much of this competition can be mitigated with careful livestock and rangeland management. Thus, the answer to the question depends on skill of the manager.



Editor's Note: The following is a reprint of the "Foreword" to the 1948 Yearbook of Agriculture written by, then Secretary of Agriculture, Clinton P. Anderson. Secretary Anderson's message is as appropriate, as we see 1996 come to a close, as it was in 1948.

A happy sign in this troubled year is the conviction held by many people that the time is now and the chance is here to plan for a more secure agriculture in the United States.

In conferences and meetings in the past twelve months I have encountered this conviction and sensed its force as I have traveled the length and breadth of the country. I have encountered it, stronger than ever before, on Capitol Hill and in rural communities where men and women have gathered to consider present urgency and future uncertainty.

They apply different words to the goal they mean to reach. Some call it a balanced agriculture or permanence in farming. Some call it stability or continued abundance. Others think of it as converting agriculture from a wartime to a peacetime basis. But, whatever the words, they express a common idea--the goal of security. To the farmer, security means year-to-year and generation-to-generation assurance that he can use his land as it should be used, free from fear of boom or bust: that he will have a fair market for the products of his soil and toil; that he will get the amenities that he earns; that he can serve community and country.

And many of the people with whom I have talked look upon grassland as the foundation of security in agriculture. They believe in grass, and so do I, in the

way we believe in the practice of conservation, or in good farming, or prosperity, or cooperation. For grass is all those things; it is not just a crop. Grassland agriculture is a good way to farm and to live, the best way I know of to use and improve soil, the very thing on which our life and civilization rest.

Through the foods that come from it, grass can give us better health. It is our alliance with nature. It is a tool against floods and a guardian of the water supplies of cities.

It is a source of strength as we face that time when we shall give less emphasis to commodities likely to produce surpluses and instead direct more attention to practices designed to sustain the productivity of our soils. Indeed, because we now produce a great deal more than before the war, we are to that extent placing an extraordinary burden on the land. Our land resources will be better used when we can turn more to grass and livestock farming.

Grass has other important values, as told in this Yearbook. I pass over them now, except one which is seldom mentioned but which I think of often as I travel and see the beauty of our country. I am particularly conscious of it now, as I write these lines in May of 1948, when spring brings out again her mantle of green and I am preparing to leave the Secretaryship of Agriculture.

That use is the use of beauty itself. Grass can make beautiful the hillsides, schoolyards, roadsides, farmsteads; in doing so it brings greater utility and efficiency.

Beauty also brings serenity, and serenity is a quality we and the troubled world need.

Clinton P. Anderson

Internet Access

If you prefer to access Grazing Lands Roundup on the Internet, you may do so by accessing the GLTI homepage at:

www.ncg.nrcs.usda.gov/glti/homepage.html

From the Director (Continued from page 1):

Arnold Norman continues to lead the development of GLA. He has completed the Client User's Manual which will be of great help. In 1997, he will begin design of the next generation of GLA in the Windows format. He is also leading the effort to develop the Ecological Site Information System which you may know as the automated data bases for forage suitability groups and ecological sites. Arnold and Jim Cropper will be working together to review dairy/pasture software developed by universities and ARS. We hope to have software to assist you as you work with the dairy farmer in the near future.

Pat Shaver is leading us in the development of Rangeland Health Science and Technology. This is a major undertaking of which many of you have already been involved. Jim Cropper will be leading us in the development of Pastureland Health Science and Technology. You will be hearing more about this as progress occurs.

Jim Cropper will work with the ARS Pasture Systems and Watershed Management Research Lab to utilize the NRCS Rainfall Simulator to study erosion, hydrology and water quality issues on pasture land. He will also cooperate with the Watershed Sciences Institute on water quality issues on pastureland.

The "Pinyon Juniper Ecology," publication is being revised by Pat Shaver. It discusses the pinyon/juniper ecosystem and contains a key for determining whether the site should be described as rangeland or forest.

Arnold Norman's revision of the brochure "How Plants Grow" will incorporate the latest knowledge. This publication has been very important through the years in helping land managers understand how plants respond to grazing and, subsequently, planning grazing management.

Refinement of the Pastureland Ecology I course at North Carolina State University is being lead by Jim Cropper. It will be taught for the second time this spring. Jim is also collaborating with Penn State University to develop the Pastureland Ecology II course. This course deals with pastureland dairying and will be taught for the first time this summer.

As we have moved into SWAPAH conservation planning and the management intensive grazing schemes, we have further recognized the need to meet livestock nutrition needs. A Prescribed Grazing Plan must meet the animals' needs to be successful. To insure this, we must have a good understanding of nutrition. The GLA software, Nutbal program helps us to insure that the animals needs are met. Arnold Norman, in cooperation with Dr. Jerry Stuth, of Texas A&M University, will teach a course on animal nutrition, develop a video on animal nutrition, and also develop a booklet to aid in understanding and using the nutrition program in GLA.

Enterprise diversification on grazing land continues to be a major area of interest receiving worldwide attention. A national symposium on enterprise diversification is being planned by Larry Butler as well as a publication entitled, "Grazing Lands Enterprises: Fee Hunting."

Riparian areas on grazing lands are of utmost importance to our nation. Pat Shaver is working with the Interagency Riparian Service Team to ensure the further development of the Proper Function Condition concepts and methodology. He is also working with the Northern Plains Region's Riparian Team to develop a library of riparian area technology and working on the Riparian Area inventory procedures for NRI.

Not many of us get to work with lichen ranges and reindeer during our career. If you worked in Alaska, that would be an opportunity. Pat Shaver and Arnold Norman are coordinating with Alaska to work with the Russian scientists on lichen and reindeer range management.

Agroforestry is fast becoming a recognized method of combining tree production with forage production for improved economics as well as resource management. I will be working with Jim Robinson, cooperating scientist, National Agroforestry Center, to prepare a booklet on silvo-pastoral agroforestry. Larry Butler, Jim Robinson, and other design team members are preparing an NEDC course on Agroforestry.

As you can see, we have much to keep us busy. If you have suggestions, call me or any member of the GLTI staff. Please use the gltiforum list server to communicate your ideas and information with one another. Keep up the good work and feel good about what you are doing for the grazing lands and people with whom you are working.

Rhett H. Johnson

The Grazing Lands Roundup is published by USDA, NRCS, Grazing Lands Technology Institute.

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