

Rangeland Watershed and Health

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Region: EAST **Circle which primary base program it addresses -** ANR

Section 1. Relevance

Where did this issue surface?

Texas Community Futures Forum

County Committees

Commodity / Industry / Special Interest Groups

Specialist(s)

Other: County Extension Agents

What is the issue/problem?

Rangeland sustainability - lack of knowledge of ecosystem - level functions. Impacts of past and present management..

Problem size and scope? (How many people does it affect? How wide spread?)

90% of Texas was historically rangeland. This problem affects all of Texas

Problem severity? (How serious is this issue?) *High*

Description: The rangeland resource is largely still present. How that land is being change, altered and used is the problem.

Target Audience? (Who does the problem impact and how many?)

Rangeland owners/managers, urbanites/suburbanites, land developers.

What are some general characteristics of the audience this program targets? How will you market this program to others?

1. Lack of understanding and successful adoption of technology.
2. Lack of knowledge and understanding of public policy issues surrounding rangelands.
3. Skewed vision of land use.

Section 2. Response

State the goal of the program

To improve rangeland health to provide needed goods and services to all Texans.

State the outcome objectives.

Client Change	At the end of this program, will....
<i>Knowledge</i>	increase knowledge on.... rangeland health, sustainability, ecological function and appropriate uses of the resource.
<i>Skills</i>	develop skills.... on proper decision making or the selection of land uses, best management practices and consumer consumption of products for rangeland.
<i>Attitude</i>	change their attitudes pertaining to... the rights of private landownership
<i>Behavior Change</i>	adopt... new technology and management practices that promote the improved health of the rangeland resource while maintaining products for human use.
<i>New Technology</i>	adopt... risk management understanding Vimp Acts Associated.
<i>Best Practice</i>	adopt practices that restore health to the soil, vegetative cover, and wildlife components of the rangeland ecosystem.

Program Design. In the space below, provide an explanation of the program design. Try to list the topics that could be addressed under this issue. For example, if this was an educational program for new ranch landowners, topics could include: pond management, introduction to beef cattle production, introduction to wildlife management, and general landscaping. How would you deliver the subject matter to address this issue? There are many strategies to deliver information. It could be a newsletter series, a workshop, and a meeting once a week for six weeks to name a few. It could also be a combination of all of these. Also, try and list resources that could be used to help develop or provide existing curriculum to address the issue.

Topic (Subject Matter)	Strategy to Deliver Content (Method)	Existing Resource(s)	Contact Person(s) (Includes CEA's Specialists, Commodity Reps)
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Risk Management	Ecological region-wide events for producers	NRCS Risk publications WWW Extension Wildlife Program Unit Extension Range Program Unit Texas Section - SRM	Hanselka - TCE Charley Hart - SRM Homer Sanchez - NRCS
Healthy Vegetation Communities (17 parameters)	Field Days Result Demonstrations	Extension publications, WWW, NRCS, SRM, Extension Rangeland Program Unit	Hanselka - TCE Charley Hart - SRM Homer Sanchez - NRCS
Soil Erosion (i.e. organic matter loss)	Publications (TX Range Mgmt. Handbook) Field Days Result Demonstrations	Extension publications, WWW, NRCS, SRM, Extension Rangeland Program Unit, TAES	Hanselka - TCE Charley Hart - SRM Homer Sanchez - NRCS USGS - "Randy" in N.C.
Bio-Diversity	Publications via - SRM in Colorado Field Days Result Demonstrations	Extension publications, WWW, NRCS, SRM, Extension Rangeland Program Unit, TAES, Texas Wildlife Association, Texas Parks & Wildlife	Sam Albrecht - SRM in CO TWA - Kirby Brown TPWD - Mike Berger Extension Wildlife Program Unit Extension Range Program Unit
Management for producing healthy rangelands	Ecological Region-wide programs Texas Master Naturalist Program	Extension publications, WWW, NRCS, SRM, Extension Rangeland Program Unit, TPWD, TMN, TWA, SRM	Sam Albrecht - SRM in CO TWA - Kirby Brown TPWD - Mike Berger Extension Wildlife Program Unit Extension Range Program Unit

Section 3. Results

Client Change Level	Sample Questions (Review the objectives section to help place questions or statements in the space below)
<i>Knowledge</i>	<p>Do you believe that management conducted on your land affects your neighbor?</p> <p>Do you believe that maintaining ample veg., cover and litter helps to improve your water cycle and helps to prevent erosion?</p> <p>Do you believe that the best place to store rainfall is in the soil?</p> <p>Do you believe that brush management should be conducted on the land for reasons other than just profit?</p> <p>Do you believe you should be able to identify invasive plants even if they are not on your land?</p> <p>Do you believe that one measure of a healthy rangeland is one that has adverse amount of plant and animals?</p>
<i>Behavior Change</i>	<p>Has your perceptions of the health of your land changed?</p> <p>If you made any change on your land has it affected in any way other aspects of your land? i.e., runoff, erosion, greater stocking rate, more deer.</p>

Example 1-Rangeland Health Example

Rangeland Health

Thanks for participating in the “*Rangeland Health*” Program. In order for us to put together the most effective educational program for you, please take a few minutes to answer the questions below.

Please rate your level of agreement/disagreement with the following statements. Simply place an ‘x’ in the box that best matches your thoughts.

Statements	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
I understand the importance of rangeland monitoring.					
My understanding of rangeland monitoring has increased.					
Healthy rangeland is a priority for me and my operation.					
I know the key indicators for monitoring rangeland health.					
I plan to adopt a rangeland monitoring system.					
My knowledge of rangeland health has increased as a result of this program.					

Open ended Questions. Please answer these as best as you can.

What are three characteristics of *healthy rangeland*?

What are three characteristics of at *risk rangeland*?

What are three characteristics of *unhealthy rangeland*?

List three key indicators for monitoring rangeland health.

Do you plan to adopt a rangeland monitoring system? YES NO
if yes, please explain what you have adopted.

If no, please explain why not.

Example 2-Rangeland and Watershed Management Example, Webb County, George Gonzales - KNOWLEDGE & BEHAVIOR

Your input is very valuable to Webb County. Please take a brief moment of your time to help us make our programs more effective for you. Please complete and return in the self addressed, stamped envelope by Friday, December 29, 2003. Thanks for your time!

I. INTRODUCTION

1. How many Extension Agriculture/Natural Resources programs did you attend in 2003? *Circle the most appropriate response.*
 - a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4

2. During 2003, newsletters and/or informational mailings from the Webb County Extension office are periodically sent to you. Please tell us how valuable these mailings are to your needs. *Circle the most appropriate response.*
 - a. No Value
 - b. Limited Value
 - c. Average Value
 - d. Much Value
 - e. Extreme Value

II. KNOWLEDGE GAINED

Please answer the following questions by circling the most appropriate answer.

3. There are both Vegetation and Soil indicators of Rangeland Health.

True or False

4. Energy capture, water cycling, nutrient turnover, and vegetation dynamics are ecological processes that determine Rangeland Health.

True or False

5. The paths that water can take on rangeland are:

- a. runoff
- b. deep percolation
- c. evaporation
- d. transpiration
- e. all of the above

6. The ecological processes that help determine Rangeland Health are: (circle one)

- a. water cycles
- b. nutrient turnover
- c. energy capture and flow
- d. vegetation dynamics
- e. all of the above

7. The categories of Risk that have to be managed on Rangeland are: (circle one)

- (a)climatic
- (b)financial
- (c)biological
- (d)political
- (e)all of the above

8. What percent of the standing forage crop is actually consumed by cattle? (circle one)

- (a)25%
- (b)33%
- (c)50%
- (d)75%

9. **Reducing stress in working cattle improves weight gains, reduces weight losses, reduces shrink, and prevents injuries.**

True or False

10. **Splitting up a family ranch may lead to**

- (a) overgrazing
- (b) low calving rate
- (c) lower weaning weights
- (d) all of the above

11. **In Texas, private farms & ranches account for 84% of the the state. This amounts to how many acres?**

- (a) 144,000
- (b) 32 million
- (c) 144 million
- (d) 73 million

12. **What is the primary motivating factor driving the market for rural lands in Texas?**

- (a) livestock prices
- (b) price speculation
- (c) wildlife associated recreation
- (d) vacation properties

13. **What is the concern with land fragmentation?**

- (a) loss of rural economic power
- (b) degradation of wildlife habitat
- (c) declining agricultural viability
- (d) all of the above

14. **The two most common private water well contaminants are:**

- (a) gasoline and oil
- (b) nitrate and gasoline
- (c) bacteria and oil
- (d) nitrate and bacteria

15. **The US-EPA has set a maximum contaminant level (MCL) for nitrates for public water suppliers for drinking water at:**

- (a) 12 ppm
- (b) 15 ppm
- (c) 20 ppm
- (d) 10 ppm

16. **Cattle that have to drink from lower quality water sources will drink more slowly, drink a smaller amount, and drink less than cattle drinking from a good water source.**

True or False

17. **Water is essential to life and is required for body temperature regulation, digestion, metabolism, excretion, lubrication of joints, and conducting sound and sight.**

True or False

18. **How much of 20 inches annual rainfall actually is consumed by livestock?**

- (a) 5%
- (b) 10%
- (c) 15%
- (d) 20%

III. PRACTICE CHANGES

19. **For each of the practices, listed below, in the LEFT column, circle the ONE number that best reflects you before your participation in the Webb County Agriculture/Natural Resources Outcome Program (Healthy Rangeland Watersheds). Then, in the RIGHT column, circle the ONE number that best reflects you after the Webb County Agriculture/Natural Resources Outcome Program (Healthy Rangeland Watersheds).**

NEVER 1	SELDOM 2	SOMETIMES 3	OFTEN 4	ALWAYS 5											
STATEMENTS					<u>BEFORE</u> Program					<u>AFTER</u> Program					
I maintain healthy rangeland on my ranch.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
I use visual appraisal to evaluate the range conditions.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
I consider domestic and livestock water quality concerns before making a management decision.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
I practice soil aerification practices (ripping/sub-soiling).	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
I think about how rangeland affects water quality.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
I think about how grass responds to renovation.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
I practice improved pasture management.	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

I manage for native and improved grasses on my rangeland.	1	2	3	4	5	1	2	3	4	5
I practice proper land stewardship.	1	2	3	4	5	1	2	3	4	5
I manage for soil erosion properly.	1	2	3	4	5	1	2	3	4	5
I practice proper livestock grazing management with wildlife and livestock.	1	2	3	4	5	1	2	3	4	5
I understand the economics of brush management.	1	2	3	4	5	1	2	3	4	5
I utilize water infiltration practices on my ranch.	1	2	3	4	5	1	2	3	4	5
I practice wildlife habitat management.	1	2	3	4	5	1	2	3	4	5
I test my livestock water supplies annually.	1	2	3	4	5	1	2	3	4	5
I increased my percent calf crop.	1	2	3	4	5	1	2	3	4	5
I purchase hay and supplement my cattle herd.	1	2	3	4	5	1	2	3	4	5

IV. ECONOMIC IMPACT

The Webb County Agriculture/Natural Resources Outcome Program is based on Healthy Rangeland Watersheds. One of the major questions we would like answered focuses on the economic impact this program has had on your land.

20. How many acres do you manage? Please place the total number of acres in the space provided.

_____ acres

21. Would you say this program saved you money? Please circle one answer below.

YES

NO

22. To your best estimation, how much money did the Healthy Rangeland Watersheds Outcome Program save for you and your operation PER ACRE? Please place a dollar estimate in the space provided.

_____ \$ Money Saved per Acre

V. LOOKING AHEAD

22. What other topics/issues in the area of Agriculture/Natural Resources would you like Texas Cooperative Extension in Webb County to address in the future?

Economic Indicators. Are there economic indicators that can be measured concerning this issue?

YES

Please list them below.

Increased stocking rate.
Hunting revenues.
Increased water available.

Interpretation. The last step in the process is interpreting the results to our stakeholders. List internal and external stakeholders that would be interested in the results of this educational program. Do not forget to think about other state agencies and groups that would be interested in these outcomes.

Internal to Extension Stakeholders	External Stakeholders
Department of Range Science Department of Wildlife Department of Soil & Crop Sciences Administration Texas A&M University Forest Science	NRCS Texas Park & Wildlife Legislators USGS Texas Water Development Board SRM TX Section TAES Texas Forest Service

Additional Resources. What additional resources are needed to address this issue? In other words, what is needed to design innovative programs that will impact our audiences? Use the space below or the back if needed.

Money (funding)