

Living On A Few Acres



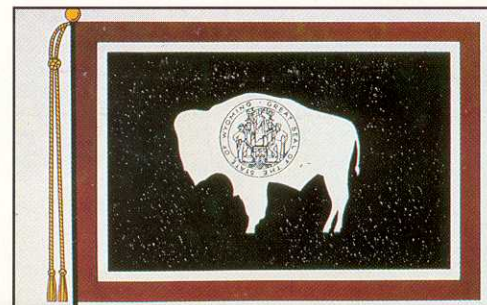
**In
Wyoming**

MP-86

Contents



<i>Know Your Responsibilities</i>	<i>2</i>
<i>Look at Your Land, Make A Plan</i>	<i>3</i>
<i>Weed Control</i>	<i>4</i>
<i>Soils</i>	<i>5</i>
<i>Water Management</i>	<i>6</i>
<i>Grazing Management</i>	<i>7</i>
<i>Animal Health</i>	<i>8</i>
<i>Streams, Wetlands and Water Quality</i>	<i>9</i>
<i>Wildlife Habitat</i>	<i>10</i>
<i>Trees & Shrubs</i>	<i>11</i>



WHAT You Need to Know As A Wyoming Landowner

Water Rights and Documents - Water use permits are required before diverting, withdrawing, impounding or distributing any surfacewater or groundwater including wells and springs for domestic use.

Protection of Streambanks - Permits are necessary prior to any activity modifying the stream channel or streambanks.

Floodplain Protection - A local permit may be needed before doing any construction work in an area inundated in a 100-year flood. If you are in a floodplain, insurance and financing may be restricted.

Control of Noxious Weeds - All counties have laws requiring control of noxious weeds. Find out which weeds and other pests are noxious by state law or local ordinance and how to control them.

Septic System Installation - State law regulates septic system installation, including the minimum acceptable distance between your septic system and drinking wells, streams, and groundwater. Most counties also approve the septic system design, capacity, and soil type used to treat your wastes.

City/County Zoning - Before building, contact your city or your county planning office to obtain zoning requirements and information. Find out if your city or county has special ordinances, such as property access road restrictions, an aquifer protection ordinance or grazing restriction covenants which may affect your proposed activity.

Water Quality Protection - You are responsible for preventing livestock manure, pesticides, sediment and other pollutants from reaching surface or groundwater.

WHO To Contact

•Wyoming State Engineer, Cheyenne; 307/777-6475

•Local Conservation and Natural Resource Districts
•U.S. Army Corps of Engineers, Cheyenne;
307/772-2301

•Local City/County Planning Office
•HUD Office, Casper; 307/261-5252
•USDA, Natural Resources Conservation Service

•County Weed and Pest Control Districts
•Local Cooperative Extension Service Office
•Wyoming Dept. of Agriculture, Cheyenne;
307/777-6585

•County Health Department or Planning Office
•Dept. of Environmental Quality, Cheyenne;
307/777-7781

•City or County Planning Office
•County Engineer
•Local Conservation and Natural Resource Districts

•Dept. of Environmental Quality, 307/777-7781
•Local County Health Departments
•USDA, Natural Resources Conservation Service

Wetlands Protection - Permits to fill, drain, dredge, or alter any waters of the U.S., including wetlands, are mandatory. Additionally, permits to construct or stock a fish pond with any species are required. Proper design criteria is essential to developing a quality fishpond.

- U.S. Army Corps of Engineers, 307/772-2301
- Dept. of Environmental Quality, Cheyenne; 307/777-7781
- USDA, Natural Resources Conservation Service
- Wyoming Game and Fish Dept., 307/777-4600
- State Engineer's Office, 307/777-6475

Forest and Timber Considerations - Care should be taken to properly consider wildlife, soil stability and other resources in the development of a timber/forest management plan and windbreak design.

- USDA, Natural Resources Conservation Service
- Local Conservation and Natural Resource Districts
- State Engineer's Office, 307/777-6475
- State Forester, 307/777-7586

Buried Utilities - CAUTION! There may be any number of utilities on your property serving you and others. Care should be taken to determine proper location of utilities before construction begins.

- Local utility companies
(The following numbers are provided for customer assistance: 1 800/348-1030 and 1 800/849-2476).
- County Engineer

Rare and Endangered Species - Certain plant and animal species have been identified and classified by the U.S. Fish and Wildlife Service. Management of your private lands may be affected if these species are present.

- U.S. Fish and Wildlife Service, 307/772-2374
- Local Cooperative Extension

Air Quality Protection - State regulations and local ordinances may regulate activities that degrade air quality, and may restrict the use of stoves & fireplaces.

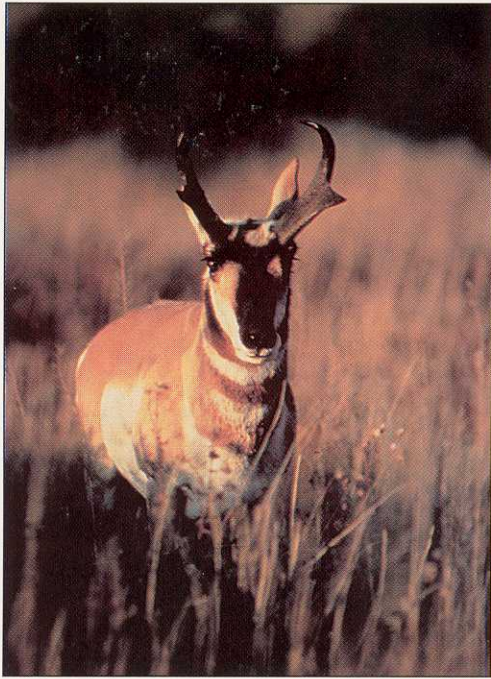
- City/County Health Dept. or local Fire Dept.
- Dept. of Environmental Quality, Cheyenne; 307/777-7781

Open Range - Wyoming is an open range state. Adjacent landowners are equally responsible to maintain the fences between them. Fence your property to keep range livestock out and your animals in. It is unlawful for pets to harass, kill, or wound livestock and wildlife--**you are responsible.**

- Wyoming Dept. of Agriculture, Cheyenne; 307/777-7321
- Wyoming Game and Fish Dept., Cheyenne; 307/777-4600
- Local Animal Control officers



Who To Contact



CONSIDERATIONS FOR LOCATING YOUR HOMESITE

- **Soil** - suitability, saving of topsoil
- **Natural Protection** - wind and flood protection
- **Space** - allow for developing windbreaks & other plantings
- **Access** - avoid problems with snow-drift, soil erosion, and neighbor infringements
- **Energy** - solar potential, wind protection needs.



What is the VALUE of Open Space?

Wide open space is a valuable asset to you and your neighbors. Open space will provide for wildlife, clean air, irreplaceable aesthetic values and the freedom to enjoy the benefits that brought you to your present homesite. Open space should be a major consideration in planning any potential future development. Close coordination and cooperation between neighbors can enhance the achievement of open space.

If you want to take steps to sustain your land's rural agricultural qualities and to maintain wildlife habitat, contact the Wyoming Game and Fish Department, USDA, Natural Resources and Conservation Service, Cooperative Extension Service, Nature Conservancy or your local Conservation and Natural Resource Districts. These, as well as numerous other agencies and organizations, are available to assist you and your neighbors in achieving your goals.

*TIPS FOR PLANNING A HOMESITE

- Plan for minimum impact before building
- Site homes and roads away from streams, on stable soils, and avoid steep slopes and areas of drifting snow
- Avoid disturbing wildlife corridors, wetlands, and riparian areas
- Control your pets so they don't disturb or attract wildlife
- Maintain or plant native vegetation
- As a neighborhood working together, you can provide the vegetation diversity that birds, butterflies, and mammals need for food, cover, and nesting:
 - (a) plant small corner wood-lots,
 - (b) establish shelterbelts edged with shrubs along property boundaries,
 - (c) connect with meadows of native grasses or pasture land,
 - (d) locate house and lawn in a corner of your property to minimize wildlife disturbance and allow for future tree/windbreak plantings.





WHY IS LAND AND WATER CONSERVATION IMPORTANT TO YOU & WYOMING?

ARE YOU RAISING HORSES and wondering why you are having to buy more feed each year as your land's productivity declines, leaving bare ground and weeds?

HAVE YOU HAD THE GOOD FORTUNE to buy a place on a creek and are now frustrated that the stream won't support fish?

DID YOU JUST FIND OUT that those pretty yellow flowers along your fence are noxious weeds and threaten the productivity of your land and your neighbor's land?

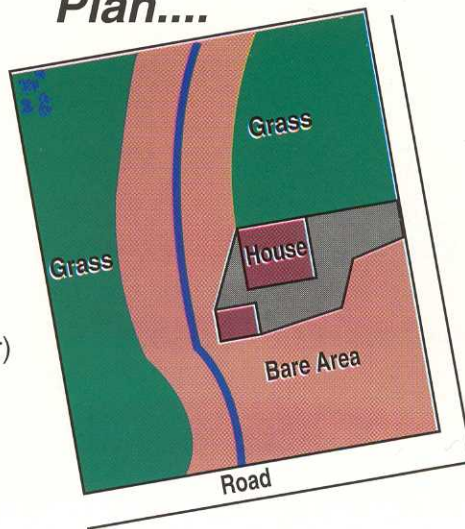
This booklet will get you started and give you lots of information and ideas for your place that you can be proud of ... and protect Wyoming's land and water. The things that you and your neighbors do can greatly improve the health of our resources...the resources we all appreciate in Wyoming!

*LOOK AT WHAT YOU HAVE

Any landowner needs a comprehensive management plan. Before developing your plan - look around, make a sketch, and take a few notes about your property. In your sketch, show or note:

- Utilities (buried or above ground)
- Property boundaries
- Fences and corrals
- Buildings
- Wells (human or stock)
- Septic system
- Streams, wetlands, ponds
- Bare ground
- Weeds
- Lawn, pasture, or crop land
- Trees or shrubs
 - * Soil type (USDA NRCS)
 - * Depth to groundwater (driller)
 - * Neighboring ground uses
 - * Flat or sloped ground

Before You Plan....



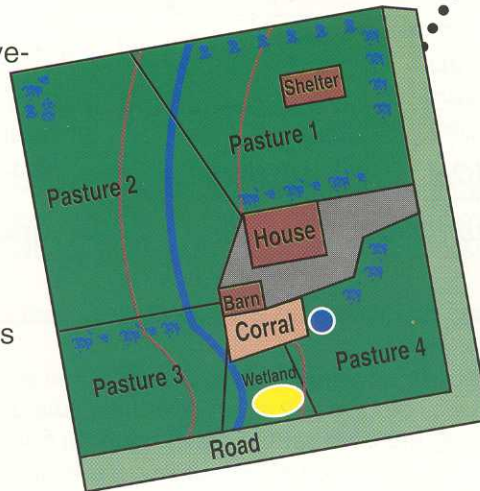
CONSERVATION VALUES

Saves money because your land is more productive over the long term
Ensures better water quality for you, your animals, and your neighbors
Promotes open spaces and wildlife habitat
Produces more grass for grazing
Grows healthier livestock and improves your property values.
Makes your place more attractive, keeps your neighbors happier, and satisfies your responsibility to care for the land
Assures the health and safety of your family

UTILITY PLANNING

- Underground lines should be located and marked. Owner should maintain maps for future reference.
- Plan for future, long-range improvements such as sheds, irrigation structures.
- Suitability and stability of septic fields.
- Location of drinking wells away from possible waste and flood contamination.
- Placement of overhead utility lines should be planned for future tree plantings and safety.

After You Plan....



ENERGY CONSERVATION

- Southern exposure placement allows for solar heating
- Windbreak placement
- Location of foundation plantings
- Building design - window placement, installation factors
- Water - "wise use" of native plants
- Incorporation of energy efficient heating systems.

MAKE A PLAN FOR YOUR LAND

Once you've looked at your property and identified your goals, you need to develop a management plan. You may find that you have to modify some of your goals because they are not realistic for your property. The practice of preventive maintenance for both your home and land should be an integral part of your overall management plan. Working with your neighbors to develop and implement resource management will improve your chances of success!



Look At Your Land....Make A Plan



QUIZ

Find Where Your Land Fits

How much of these do you have on your property?

Healthy ground cover (forest, shrubs, grass or cropland)

Weeds or plants that hold the soil poorly (dandelion, knapweed, cheatgrass)

Bare ground

A Lot Some A Little

A Little Some A Lot

A Little Some A Lot

WEED MANAGEMENT

The best practice to prevent weeds from establishing or spreading is to establish long-term perennial grasses where bare soil is present. Once perennial grasses are established weeds either spread more slowly or grass competition prevents them from establishing from seed. Careful use of pasture is the key to managing for good grass stands (see the Grazing Section). If continuous grazing of livestock occurs on small acreages bare soil will result, making an excellent area for weeds to establish.

WEED CLASSIFICATION

Life cycle type serves to classify weeds, and often control measures.

Perennial

Canada Thistle
Leafy Spurge
Dalmation Toadflax
Hoary Cress
Knapweed
Others
Back Every Year

Biennial

Houndstongue
Scotch Thistles
Others

2 Year Life

Annual

Downy Brome
Mustards
Others

1 Year Life

Poison

Larkspur
Death Camas
Hemlock

Learn to recognize what plants/weeds are on your land.



Hoary Cress



Canada Thistle



Downy Brome



Russian Knapweed



Poisonous Plants

Noxious and poisonous plants should be managed carefully to prevent spread and/or ingestion by animals. Obtain a plant guide or seek technical assistance.

A Homeowner's Approach to Integrated Weed Management

Environmental Education

Learn to identify specific noxious weeds, such as spotted (diffuse) knapweed, leafy spurge, purple loosestrife, downy brome grass, musk thistle, plumeless thistle, and scotch thistle. For unknown weedy plants, contact a weed specialist in your area.

Physical Measures

Use cutting, mowing, tillage and clean cultivation to discourage weed growth.

Biological Agents

Insects, plant pathogens, parasites and domestic animals may be used to reduce weed growth.

Cultural Methods

Crop rotation, reseeding with competitive plant species, live-mulching, proper livestock management and other revegetation projects may limit weed populations.

Herbicide Methods

Use EPA-registered herbicides in a prescribed manner to combat weed species. Many herbicides and pesticides require purchase and application by someone holding a Wyoming Applicator's License.

Preventive Measures

Weed contamination can be reduced by:

- washing vehicles as often as possible to prevent seed transfer,
- purchasing feed which is as weed-free as possible,
- addressing weed outcroppings as quickly and comprehensively as possible,
- minimizing livestock traffic between weeded and weed-free areas,
- making the effort to learn effective weed control.



Leafy Spurge



Dalmatian Toadflax



Musk Thistle



Dyers Woad



WHAT IS YOUR ANNUAL PASTURE AND HAY PRODUCTION?

Fertile Soils

Poor Soils

	Hay Tons/Acre	Forage AUMs/Acre	Hay Tons/Acre	Forage AUMs/Acre
Irrigated	2-4	3-4	<2	1-2
Nonirrigated	1-2	1-2	0-.5	.5
Rangeland/woodland	0-1	0-.5	0-.5	.25

*These figures are averages and may vary
up or down, depending on management.*

SOIL MANAGEMENT

Healthy soils provide the support and nutrients for plants to thrive. The soil requires a certain amount of air space (pores), moisture movement, and structure to do this.

There is a great diversity of soils which may vary in a short distance, such as the distance across your back yard. Most soils have a top layer (the "A" horizon) where most nutrient and plant activity take place. Protecting this layer from erosion, compaction, nutrient loss, and other disruption maintains a strong growth medium for plants.

You may need to add extra soil amendments to your soil or implement mechanical measures to fight a degrading soil condition.

If you notice erosion, bare ground, or changes in vegetation
.....INVESTIGATE as thoroughly as possible.

**VIRTUALLY EVERYTHING DEPENDS
ON YOUR SOIL----PROTECT IT!**

***Compaction or cultivation may change
your soil by enhancing or degrading
its natural characteristics, which will
have direct effects on both soil &
vegetation.***



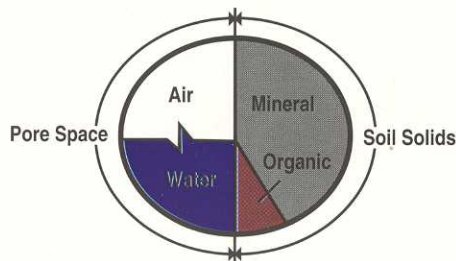
SOIL & WATER RELATIONS

CLAY - Water goes in slowly,
but is held tightly.

LOAM - Water goes in at
average rate, and is held
with medium strength.

SAND - Water goes in quickly
and is held poorly.

Soil Constituents



VEGETATION / SOIL RELATIONSHIP

<i>Vegetation</i>	<i>Organic Matter</i>	<i>Fertility Infiltration</i>	<i>Water Storage</i>	<i>Water Table</i>	<i>Water</i>
<i>Grassland</i>	<i>High</i>	<i>High</i>	<i>High-1</i>	<i>Med.</i>	<i>Low</i>
<i>Shrub/ Grass</i>	<i>Med.</i>	<i>Med.</i>	<i>High</i>	<i>Low</i>	<i>Low</i>
<i>Forest</i>	<i>Low</i>	<i>Low</i>	<i>High-2</i>	<i>Low</i>	<i>Low</i>
<i>Riparian</i>	<i>High</i>	<i>High</i>	<i>Low-3</i>	<i>High</i>	<i>High</i>
<i>Wetland</i>	<i>High</i>	<i>Low</i>	<i>Low-3</i>	<i>High</i>	<i>High</i>

High-1 = If Sod, then Infiltration is Low

High-2 = Steep slopes and shallow rocky are Low

Low -3 = High when water not at surface

This diagram shows volume composition of a loam surface soil when in good condition for plant growth. The air and water in a soil are extremely variable, and their proportions determine to a large degree the soil's suitability for plant growth.

For more information on soil management contact the USDA, Natural Resources Conservation Service, the University of Wyoming, or your local Cooperative Extension Service.



QUIZ

Did you know grass lawns & pastures...

add up to 150,000 acres, or the second largest irrigated crop in Wyoming?

Y N

☐ ☐

control soil erosion, moderate summer heat, produce oxygen, act as runoff filters, and are aesthetically pleasing?

☐ ☐

with native species such as blue grama, buffalo-grass, and several wheatgrasses better fit the climate and require less maintenance?

☐ ☐

Effective Rooting Depths

- * Grass 24"
- Shrubs 36"
- Flowers 15"
- Trees 60"
- * Common lawn species may be half this depth.

USING NATIVE or LOCAL SPECIES INCREASES CHANCES for SUCCESS

For more specific information on grass species differences, their requirements, and potential: contact your local Cooperative Extension Service.



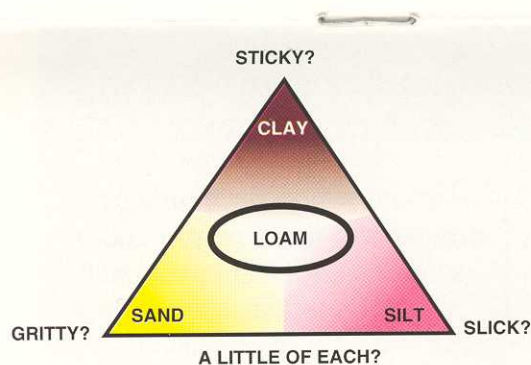
WATER HOLDING CAPACITY

(inches of water/ft. of soil depth)

CLAY	2" in/ft
SILT	1.9" in/ft
LOAM	1.8" in/ft
Loamy SAND	.8" in/ft
Gravel SAND	.5" in/ft

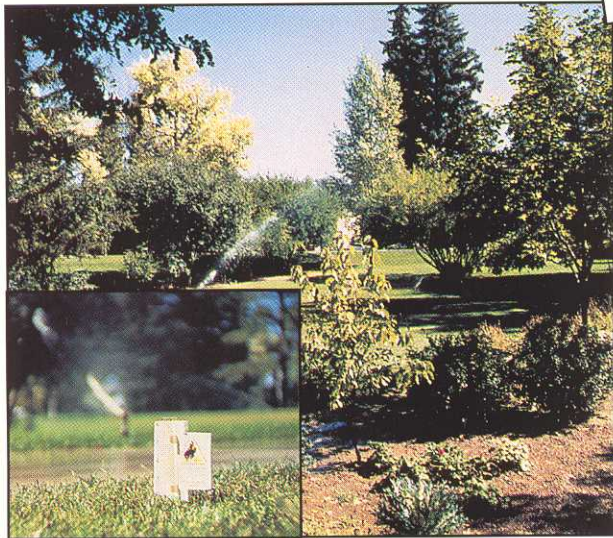
KNOW YOUR SOIL

How does your soil feel when it's wet?



Soil is a plant's moisture reservoir. The amount of plant-available water depends on soil depth & texture, weather, and management. Plant rooting depths and water use vary greatly - learn what you have and how to manage it well. Sandy soils require twice the frequency of watering than silt or clay soils. Avoid erosional run-off situations where the water can start cutting away soil and vegetation. If runoff begins, stop and water again later. Pasture and lawns are similar in needs and management. Whether you refer to it as "watering" or "irrigation" plants need water to thrive.

TIPS



- Water needs vary with weather (temp & precipitation).
- Watch for drying (discoloration, wilting, and footprints).
- Shallow root plants require small frequent waterings.
- Deep root plants require large infrequent waterings.
- Some trees/shrubs require water during cold periods.
- When mowing, leave 2/3 of the plant height and mulch.
- If clay or loam soils crumble in hand at 12", irrigate.
- Plants near curbs or slopes will show drying first.
- Water in early morning, evening watering may cause plant disease, mid-day watering wastes water with high evapo-transpiration rates.
- Check with Cooperative Extension Service, USDA, Natural Resources Conservation Service, or others for more background information.

Water Management



QUIZ

GRAZING?

Is there browsing damage on your trees, shrubs, fences, or barns?

Yes No

☐ ☐

Does the primary forage consist of weeds and sod-forming grasses?

☐ ☐

Are there large patches of bare ground?

☐ ☐

If you answered "yes" to **any** of these questions, you need a grazing program that will provide more grass, healthier animals...and save you money with lower feed costs!

Prevent overgrazing...

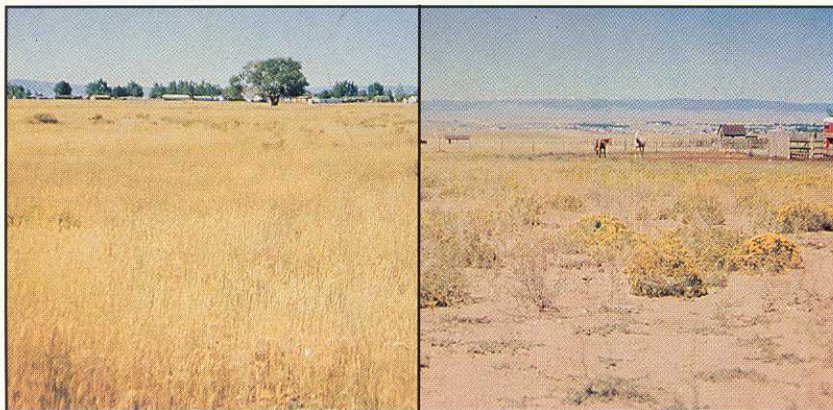
..leave a stubble

Leaving 2-6 inches (dry vs. irrigated) protects soil and plant health.

Plant leaves must remain for rapid regrowth to occur.

Exposed soil allows erosion and weed invasion.

Allow plants to recover before regrazing.



Pasture rotation and good grazing management produce more forage, fewer weeds, and less bare ground.

Continuous grazing allows weeds to grow where roots of desirable plants have been weakened.

Successful Grazing Principles

- ◆ Check your animals frequently to limit amount grazed.

GRAZING ON A FEW ACRES

Proper facility setup, including using proper fencing and building materials enhance your operation.

Use a combination of corraling and cross-fencing to create lots which can be easily managed for your needs.

If you do not plan to corral animals you should develop a rotation system so pasture can be rested adequately before regrazing.

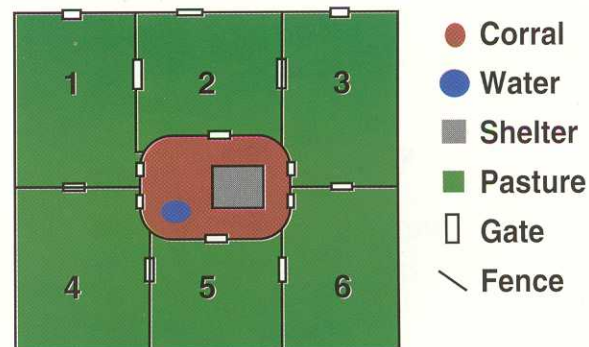
Poor producing pasture may require renovation and/or reseeding to enhance its health and potential.

Different fence types and installation methods suit a number of different management and aesthetic goals. These may include barbed wire, rail, or woven wire.

A wildlife-friendly fence will enhance the movement of wildlife across your property.

- ◆ Avoid continuous season-long grazing.
- ◆ Continue year-round rotation to distribute manure, food wastes, and trampling evenly across your pastures or hold animals in a corral.
- ◆ Have a water source for each pasture.
- ◆ Do not allow livestock to graze frequently/repeatedly on wet soils, due to potential soil compaction and erosion.
- ◆ Horses and other livestock do not necessarily need 24-hour access to feed or forage. Corral animals and feed if needed to prevent over-grazing.
- ◆ On a limited acreage, you may have only enough pasture to exercise your animals and will need to feed year-round.
- ◆ Mowing and dragging pastures will allow better pasture utilization and help control parasites.
- ◆ Grazing capacity varies from area to area. Check with local organizations and agencies for recommended number of acres suggested per animal.

References and technical assistance for these subjects are available from your local Cooperative Extension or USDA, Natural Resources Conservation Service office.



STOCKWATER DEVELOPMENT

Clean, accessible, fresh water is essential for good animal health.

Options for stockwater include:

1. A stock tank (keep from freezing).
2. Water gaps on a stream or pond, (pg 4).
3. Wind and solar pumps.
4. Pipelines from wells and springs.

STUBBLE / PASTURE HEALTH

Post-grazing Stubble

Root Response

Grazing Period

Recovery Allowed



Short

Long



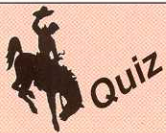
Long

Short



Continuous

None



ANIMAL HEALTH

Do you have so little grass in your pastures that your animals consume dirt while trying to graze?

Are your animals losing weight, or having trouble eating?

Do your animals have scruffy long coats?

Are your animals prone to health or respiratory problems?

*If you answered "yes" to **any** of these questions, you need a new health program that will promote healthier animals... and save you money in lower feed costs and lower veterinarian expenses!*

Y N

☐ ☐☐ ☐☐ ☐☐ ☐

KNOW THE STATE LAWS ON LIVESTOCK MOVEMENT

In Wyoming, a brand inspection is required when livestock are moved across county or state lines or upon change of ownership.

Contact your local brand inspector for further details. In addition, various health certificates are required when transporting livestock.

General Welfare & Safety Tips

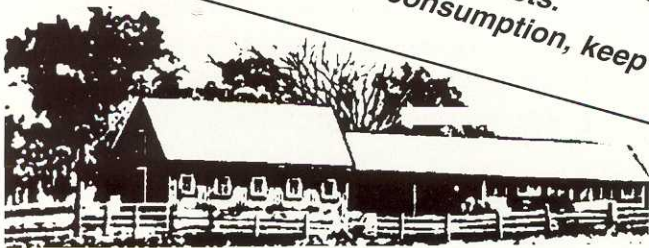
- Allow animals to adjust to their new environment.
- Don't overcrowd animals - understand their behavior and space requirements.
- Children are attracted to animals, be aware of this attraction for safety reasons.
- When planning a vacation, don't forget to make arrangements for someone to care for your livestock.
- Provide shelter for animals if possible for improved health and reduced feeding costs.
- Monitor animal water consumption, keep water open.

A Good Health Program is Important

Your program should include:

- ◆ regular deworming
- ◆ regular hoof & teeth care
- ◆ a balanced feed ration
- ◆ shelter
- ◆ mineral supplements
- ◆ fresh water and feed

The most important factor in a proper health program comes from getting to know your local veterinarian, farrier and other animal health care providers.



Do You Have Enough Forage For Your Livestock?

In Wyoming, livestock are usually grazed May through October during the plants' growing season (if you have enough pasture) and fed hay from November through April.

Forage is what your animals consume by grazing. Forage growth is measured in animal unit months (AUMs). One AUM is equivalent to the amount of forage consumed by a 1000-pound animal in one month.

Harvested forage is the hay or hay cubes you provide animals when fresh forage is not available. Bale weights will vary.

TOTAL FORAGE REQUIREMENTS

ANIMAL	FORAGE
Horses	
Young	17-22 lbs/ day
Mature	22-33 lbs/ day
Cattle	
Young	14-18 lbs/ day
Mature	22-39 lbs/ day
Sheep	
Young	3-4 lbs/ day
Mature	6-7 lbs/ day
Llama	
Young	4-6 lbs/ day
Mature	7-9 lbs/ day
Goats	
Young	2-4 lbs/day
Mature	4-7 lbs/day

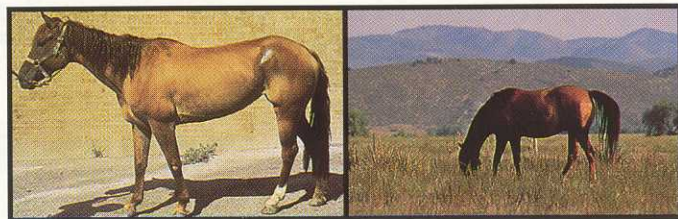
* Average requirements are listed above, but may vary with season, level of use and the age and size of the animal. As a general rule, animals consume 2-3 percent of their body weight daily. For feed guidelines, contact your local Cooperative Extension agent or area veterinarian.

Proper Waste Management & Pest Control

Proper disposal of waste is important in maintaining the health of your livestock. Be aware of the following when planning your management program.

- ◆ How much waste an animal produces per day
- ◆ The odor from waste can attract flies, which may pose health risks
- ◆ Zoning laws may specify waste management programs
- ◆ To dispose of waste, spread the manure, compost or give it away

Reducing the manure level decreases flies, parasites and their associated health risks. When spraying for pests, be careful not to contaminate the water and feed sources. It is wise to check with local authorities before beginning a pest control system.



Do You Have Enough Forage For Your Livestock?

In Wyoming, livestock are usually grazed May through October during the plants' growing season (if you have enough pasture) and fed hay from November through April.

Forage is what your animals consume by grazing. Forage growth is measured in animal unit months (AUMs). One AUM is equivalent to the amount of forage consumed by a 1000-pound animal in one month.

Harvested forage is the hay or hay cubes you provide animals when fresh forage is not available. Bale weights will vary.

TOTAL FORAGE REQUIREMENTS

ANIMAL	FORAGE
Horses	
Young	17-22 lbs/ day
Mature	22-33 lbs/ day
Cattle	
Young	14-18 lbs/ day
Mature	22-39 lbs/ day
Sheep	
Young	3-4 lbs/ day
Mature	6-7 lbs/ day
Llama	
Young	4-6 lbs/ day
Mature	7-9 lbs/ day
Goats	
Young	2-4 lbs/day
Mature	4-7 lbs/day

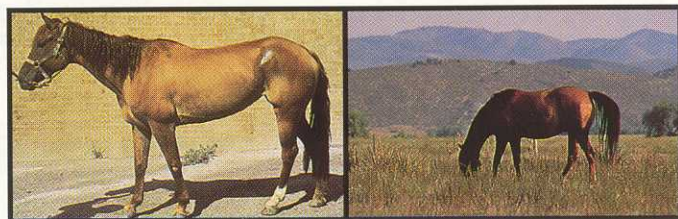
* Average requirements are listed above, but may vary with season, level of use and the age and size of the animal. As a general rule, animals consume 2-3 percent of their body weight daily. For feed guidelines, contact your local Cooperative Extension agent or area veterinarian.

Proper Waste Management & Pest Control

Proper disposal of waste is important in maintaining the health of your livestock. Be aware of the following when planning your management program.

- ◆ How much waste an animal produces per day
- ◆ The odor from waste can attract flies, which may pose health risks
- ◆ Zoning laws may specify waste management programs
- ◆ To dispose of waste, spread the manure, compost or give it away

Reducing the manure level decreases flies, parasites and their associated health risks. When spraying for pests, be careful not to contaminate the water and feed sources. It is wise to check with local authorities before beginning a pest control system.





QUIZ How Safe Is Your Drinking Water?

Do you have a drain field or livestock corral less than 100 ft. from your drinking well or stream?

Yes No

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Are your stream banks bare of vegetation eroding, or falling into the stream?

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

Do your well tests show fecal or nitrate contamination?

<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------

If you answered "yes" to any of these questions you will want to take immediate action to correct the problem. Get help!

A Healthy Riparian Area....

is the key to a healthy stream system. Lush riparian and wetland vegetation along the water's edge will:

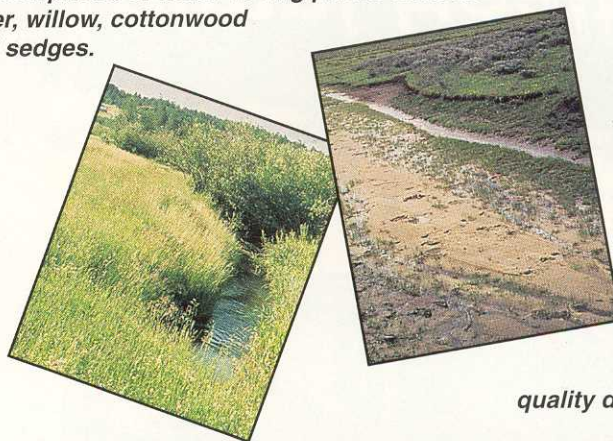
- Slow flood flows and reduce erosion and property loss.
- Secure food and cover for fish, birds and other wildlife.
- Keep water cooler in the summer and prevent ice damage in winter.
- Reduce water pollution by filtering out sediment, chemicals and nutrients from runoff.
- Provide important breeding habitat for birds.
- Shelter animals during calving, lambing or fawning.
- Hold more water in the soil, slowly releasing it for longer season streamflows and groundwater recharge.

Tips to Prevent Water Pollution

"Nonpoint Source" water pollution can cause serious water quality problems. It is difficult to control since it comes from many sources. Snow melt, rainfall and irrigation water flowing over the ground, which pick up and carry away various natural and man-made pollutants, to be eventually

Riparian Areas

are found along streams, lakes and wetlands. They are comprised of water-loving plants such as alder, willow, cottonwood and sedges.



Continuous season-long grazing often removes important riparian vegetation and may cause stream-bank erosion and water quality degradation.

These areas make up less than 5 percent of the landscape, yet contain 75 percent of our plant and animal diversity; turtles, beaver, muskrat, wood duck, songbirds, frogs, insects, aquatic organisms, orchids, lilies and more. Just about everything you like about these areas depends on leaving them in the desired condition.

Streambank stability is critical to maintain or improve riparian condition. The importance of streambank stability relates to the existing and future condition. You can obtain recommendations for improving stream banks and information on how sensitive your area is to disturbance from your local Cooperative Extension Service or Natural Resource and Conservation District office.

Protect Your Drinking Water

Nearly 90 percent of Wyoming's rural residents rely on groundwater for drinking water and land management activities. Structures on your property and your management practices can influence the quality of groundwater. SAFE is a voluntary program designed to help agricultural producers and rural residents protect, maintain and improve the quality of groundwater -- their usual source of drinking water. The Systematic Assessment of Farmstead Environment (SAFE) program can:

- ◆ Create awareness of activities and structures that may contaminate drinking water.
- ◆ Promote understanding of groundwater protection and cleanup

various natural and man-made pollutants, to be eventually deposited in surface and groundwaters.

To help prevent this problem: establish and maintain native shrubs and grasses along streams and around animal confinement areas to trap and absorb pollution-laden runoff before it reaches streams or groundwater. Talk to your Conservation and Natural Resource Districts or local Cooperative Extension Service for sources of native species seeds and plants.

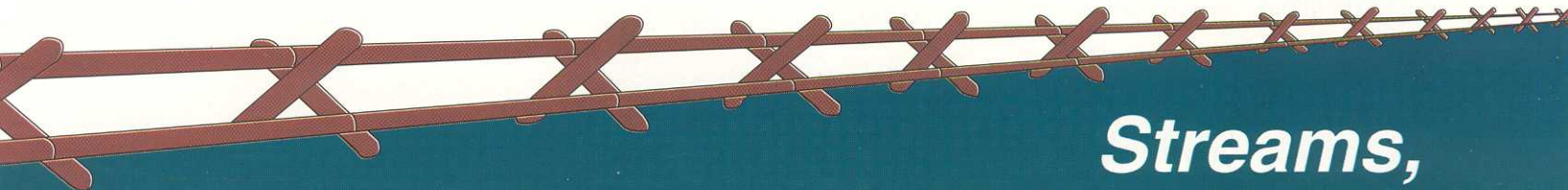
- ◆ Locate corrals and other livestock confinement areas away from streams. Use water gaps or off-stream stock water tanks to minimize livestock trampling of stream banks.
- ◆ Avoid over-irrigation that can cause topsoil, fertilizer and pesticide runoff.
- ◆ Proper disposal of manure, feed and bedding wastes, by spreading on your cropland, will reduce the need for expensive commercial fertilizers.
- ◆ Locate corral and septic system downslope of your drinking water well.
- ◆ Do not mix, apply or dispose of weed control chemicals, used motor oil or other toxic substances near streams or where they can leak into groundwater. Contact your county health department for the best method of disposal in your area.
- ◆ Well heads must be protected to prevent them from becoming a "pipeline" for contaminants into the well. Contact your local Cooperative Extension Service, the Department of Environmental Quality, or the State Engineer's Office for more information.

- ◆ Identify sources of technical, educational and financial assistance
- ◆ Aid landowners in developing an action plan to reduce contamination risks
- ◆ Contact your University of Wyoming Extension Agent for more information.

Does Your Property Have A Wetland?

Wetlands are protected from land management activities that would destroy them or change their function. Wetlands are determined by specific soil, vegetation and hydrologic characteristics. Refer to "Who to Contact" information.

Federal legislation provides incentives and guidelines for the proper management of wetlands and water quality. If you have wetlands which you would like to bank, improve, or create, including ponds and lagoons, see the "Who To Contact" section.



Streams, Wetlands, & Water Quality 9



QUIZ

Is Your Property Attractive to Wildlife?

Are there a variety of vegetation types, such as small grains, tall grasses, shrubs, and trees for food? For cover?

Y

N

☐☐

Is there a pond, stream, or stockwater tank available to wildlife?

☐☐

Can wildlife avoid predation from domestic animals, such as cats and dogs?

☐☐

The more "yes" responses you had, the more likely you will enjoy the company of birds, small mammals, and maybe even deer and elk.

SONG BIRDS

Provide food and water.

Trees and shrubs can provide seeds, fruits, and berries that birds like. Streams, ponds, or stocktanks can provide water. Place a floating board in stocktanks to prevent birds from drowning while watering.

Provide nesting areas and cover.

Song birds require a diversity of vegetation heights (tall grass, shrubs, trees) and a variety of foliage densities (evergreen and deciduous trees) for nesting and safety from predators. Perches of different heights, such as old snags, fences, and telephone poles, are used by many birds (from bluebirds to hawks) for resting and searching for food.

WATERFOWL

Provide food. Waterfowl like aquatic plants, small insects, snails, and crustaceans. They also feed on grains and forage.

TIPS

- Plant a diversity of vegetation types and heights.
- Plant shelterbelts and fence rows with evergreens and fruit-bearing shrubs.
- Leave snags and down, woody material for perching, hiding, and nesting.
- Plant small grains or large-seeded grasses for wildlife food.
- Develop ponds or other watering facilities.
- If you have too much wildlife or a problem species contact the Wyoming Game and Fish Department, Cooperative Extension Service, or the U.S. Fish and Wildlife Service for help.

FOOD + WATER + COVER = Wildlife Habitat

Wildlife habitat is lost as more land is subdivided, bringing houses, people, livestock, pets, and other intrusions. Landowners can offset habitat loss by growing a diversity of vegetation that provides food and cover for wildlife.

FOOD requirements will vary by wildlife species, from seeds and berries required by birds, to the grasses, forbs, and shrubs preferred by deer and elk.

WATER in the form of a pond, stream, or developed stockwater will increase the variety of wildlife you can attract.

COVER is needed for hiding from predators, travel corridors, nesting, and shelter.

TROUT AND OTHER FISH

Provide food and cover.

In small streams, the majority of "fish food" comes from aquatic insects and the insects that fall into the stream from overhanging vegetation.

Overhanging shrubs, sedges, and grasses also help to keep water temperatures cool in summer and reduce icing in winter.

Provide habitat. Fish need riffles and deep pools to meet all of their food and cover needs at different stages in their lives. The rocks found in riffle areas churn up the water, which adds oxygen and carries insects to the fish hiding behind rocks or under overhanging banks. Deep pools provide the coldest, most oxygenated water in summer and are least likely to freeze fish in winter.

BIG GAME

Pronghorn antelope are browsers preferring various species of sagebrush, but also select succulent grasses and forbs (broadleaf plants) in spring and summer.

Provide water. Ponds are natural attractants for ducks, geese, and other waterfowl. Ponds should have shallow and deep areas and well-vegetated banks. Vegetated islands are the safest and preferred for nesting.

Provide nesting areas structures, and cover. Areas of tall, dense, undisturbed vegetation near open water are best for nesting to minimize losses to predation. Nesting areas need periodic revitalization to remain beneficial. A tangle of dead plants from last year's growth will hide nesting hens from predators. This dense, dead vegetation will also protect eggs and chicks from cold, wet weather.

UPLAND GAME BIRDS

Provide food. Areas of tall grass, thickets of shrubs, and plots of wheat, barley, and other small grains provide food and habitat diversity for upland birds. When harvesting crops, begin cutting from the center of the field outward to flush birds away. Don't worry about water. These birds get moisture from dew and the food they eat.

Provide nesting areas and cover. Plant tall grass along roadsides and ditchbanks and shrubs along fencelines or as part of a windbreak to provide nesting and cover. Since these birds nest on the ground in the spring, avoid mowing, burning, or using weed control chemicals on tall grass until birds are out of the nest in mid-June. (Some weeds should be sprayed prior to June 15 to control their spread effectively, so weigh your priorities).

For Help

To develop a plan for improving wildlife habitat and management on your property, contact your local USDA, Natural Resources Conservation Service, Natural Resource and Conservation Districts, Wyoming Game and Fish Department, Cooperative Extension Service, or U.S. Fish and Wildlife Service.

Antelope prefer flat terrain with short vegetation to evade predators. Fences should be constructed with a smooth bottom wire approximately 16 inches above the ground to allow easier travel.

Mule and White-tailed deer are browsers as well, preferring shrubs such as mountain mahogany, chokecherry, bitterbrush, and sagebrush. Forbs and grasses are also consumed in varying amounts depending on their availability and succulence. Deer prefer a mixture of open range and forest to inhabit. Deciduous and coniferous trees provide important thermal and hiding cover.

Elk are grazers, selecting succulent grasses whenever possible. Forbs are an important food source in spring and early summer. Shrubs and tree species are necessary in fall and winter due to their accessibility during times of heavy snow accumulations and for their high protein content.

Moose are browsers, preferring willow species for a forage source virtually year round. Aquatic vegetation, grasses, and sagebrush are all utilized to some extent as well. Habitat requirements for moose include riparian areas for foraging and dense forest for cover.

OTHER CONSIDERATIONS

Pets can be a serious threat to wildlife. Cats should be prevented from preying on birds by "belling" them to alert birds. Dogs should not run loose. Avoid feeding wildlife processed foods--dependency and unbalanced diets can result. Native trees, shrubs, forbs and grasses are the best natural food sources. Use bear proof garbage containers if you live in bear country.



QUIZ

Is Your Forest Healthy?

Are your trees free of problem insects, diseases, or animal damage?

YES

NO

☐
☐

Are your trees spaced far enough apart to allow some sunlight to reach the plants growing on the ground?

☐
☐

Is there more than one age or size of tree present (e.g., seedling, pole, mature)?

☐
☐

Is there more than one tree species present?

☐
☐

Are the species present adjusted to the local climate?

☐
☐

Will the planting cause problems (ie: snow on the roads)?

☐
☐

Field Windbreaks/Forest Plans

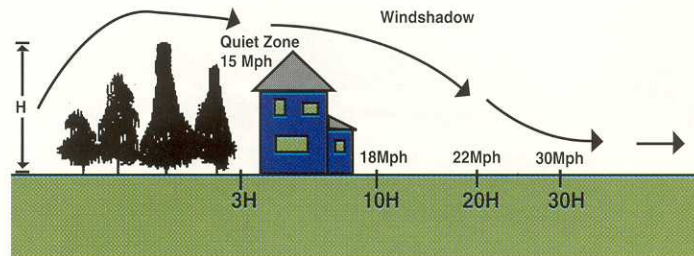
Field windbreaks are valuable resources providing both long term benefits by protecting valuable topsoil, wildlife habitat, and short term benefits through increased crop yields, increased benefits in livestock feeding and energy conservation. Prior to planting trees the site, soil, available species, and climate should be considered.

A Forest Stewardship / Planting plan is needed. Cost Shares may be available. Contact the local Conservation and Natural Resource Districts, USDA, Natural Resources Conservation Service, Cooperative Extension Service, Farm Services Agency or State Forestry Office.

LIVING SNOW FENCES

Living snow fences are rows of trees and shrubs planted to keep snow drifts off highways and access roads. A great deal of time and money is spent annually on snow removal to provide access and to keep transportation routes open. Tree plantings can protect roads from drifting snow and reduce snow removal costs.

Windbreak Function



HOME ENERGY CONSERVATION

Proper windbreak establishment - can result in an Energy Savings of 15 to 25 % by the average home owner each year. Wind speeds can be reduced by 50-80% in the quiet zone.

WINDBREAKS AND LIVESTOCK

Windbreaks are important for reducing feed and maintenance energy costs for livestock because they reduce wind velocity and, therefore, reduce the effect of windchill.

This results in better animal health, lower feed costs and greater financial gain.

TREE INSECT, DISEASE AND ANIMAL DAMAGE

■ Problem



BARK BEETLES

● Vulnerable Trees

■ Pitch tubes or mass of sap on bark surface or mounds of red-orange boring dust on bark.

- Lodgepole and Ponderosa Pine > 6" diameter
- Spruce or Douglas-fir > 14" in diameter



FOREST MANAGEMENT

- o Maintain diverse species and ages of trees.
- o Reduce losses of trees to problem insects and diseases by removing infected trees and slash.
- o Thin trees to improve growth, health and vigor.
- o Seek help when planning a timber sale to get top dollar and meet your objectives.

PROTECT YOUR HOME FROM WILDFIRE

Maintain 30 ft. of green lawn or fire-resistant plants around your house.

Prune the lower branches of trees below 12 ft. to remove "ladder fuels" that can cause a ground fire to become a more destructive and harder-to-control crown fire.
(Not applicable to windbreaks)

Have water and fire-fighting tools available.

Avoid using wood shakes for roofing or storing firewood next to your house.



**ANIMAL
DAMAGE**

- Outer bark removed, exposing inner layers grooved with parallel teeth marks.

- All sizes, ages, and species of trees



MITES

- Fine webbing, minute red to brown mites, needles lighten in color

- Juniper, Spruce



SCALE

- White to brown tear drop shape, found on needles of pines, branches of ash.

- Green Ash

- Pines

Other insects, diseases and animal pests such as rabbits, deer, gophers, mice and livestock may all damage natural and planted trees. For identification and solutions, contact the local Cooperative Extension Service and State Forestry offices, USDA, Natural Resources and Conservation Service, and Conservation and Natural Resource Districts.

Catching tomorrow's dream...

Wyoming

...people working together

**PROJECT DEVELOPED IN COOPERATION
WITH:**

- The Wyoming Department of Agriculture
- University of Wyoming
Cooperative Extension Service
- USDA, Natural Resources Conservation Service
- Wyoming Ag in the Classroom
- The Wyoming Association of Conservation
Districts
- The Wyoming Stock Growers Association
- Wyoming County Commissioners Association
- Wyoming Weed & Pest Council
- Wyoming State Forestry Division
- Soil & Water Conservation Society
- Wyoming Farm Bureau
- Wyoming Game & Fish Department
- Wyoming State Engineer's Office
- Wyoming Department of Environmental Quality
- Nonpoint Source Task Force
- Greater Yellowstone Coalition
- Wyoming Realtors Association
- Wyoming Wildlife Federation
- Society of Range Management (WY section)
- Wyoming Rural Electric Association

COOPERATIVE FUNDING PROVIDED BY:

- USDA, Natural Resources Conservation Service
- Wyoming Department of Agriculture
- UW Cooperative Extension Service
- Wyoming Ass'n. Conservation Districts
- Wyoming Riparian Association

PHOTO CREDITS:

- Wyoming Department of Agriculture
- Natural Resources Conservation Service
- University of Wyoming
College of Agriculture
Cooperative Extension Service
Botany, Dennis Knight
- Colorado State University
Photo Services, John Buffington

**DEVELOPED, DESIGNED, and
EDITED BY:**

- **Corinne Buffington,**
UW Communication Intern
- **Scott Cotton,**
UW Cooperative Extension Service

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Darryld Kautzman, Acting Director, Cooperative Extension Service, University of Wyoming, Laramie 82071.

Persons seeking admission, employment, or access to programs of the University of Wyoming shall be considered without regard to race, color, national origin, sex, age, religion, political belief, disability, veteran status and marital or familial status. Persons with disabilities who require alternative means for communication or program information (braille, large print, audiotape, etc.) should contact their 1 local UW Extension Office. To file a complaint, write the UW Employment Practices/Affirmative Action Office, University of Wyoming, P.O. Box 3354, Laramie, Wyoming 82071-3354

**UNIVERSITY OF
WYOMING**

For copies of this brochure contact: UW Cooperative Extension Service, local Conservation District office or the Natural Resources Conservation Service. You may reproduce or copy any portion of this booklet by notifying the UW Cooperative Extension Service. Please acknowledge this publication as a source. The concept for this brochure was partially developed from "Tips on Land and Water Management for Small Farms & Ranches" published by the Montana Dept. of Natural Resources and Conservation.