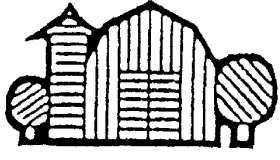
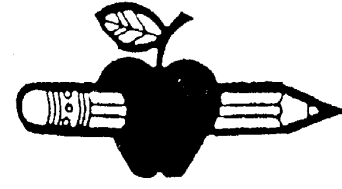


COUNTRY

to

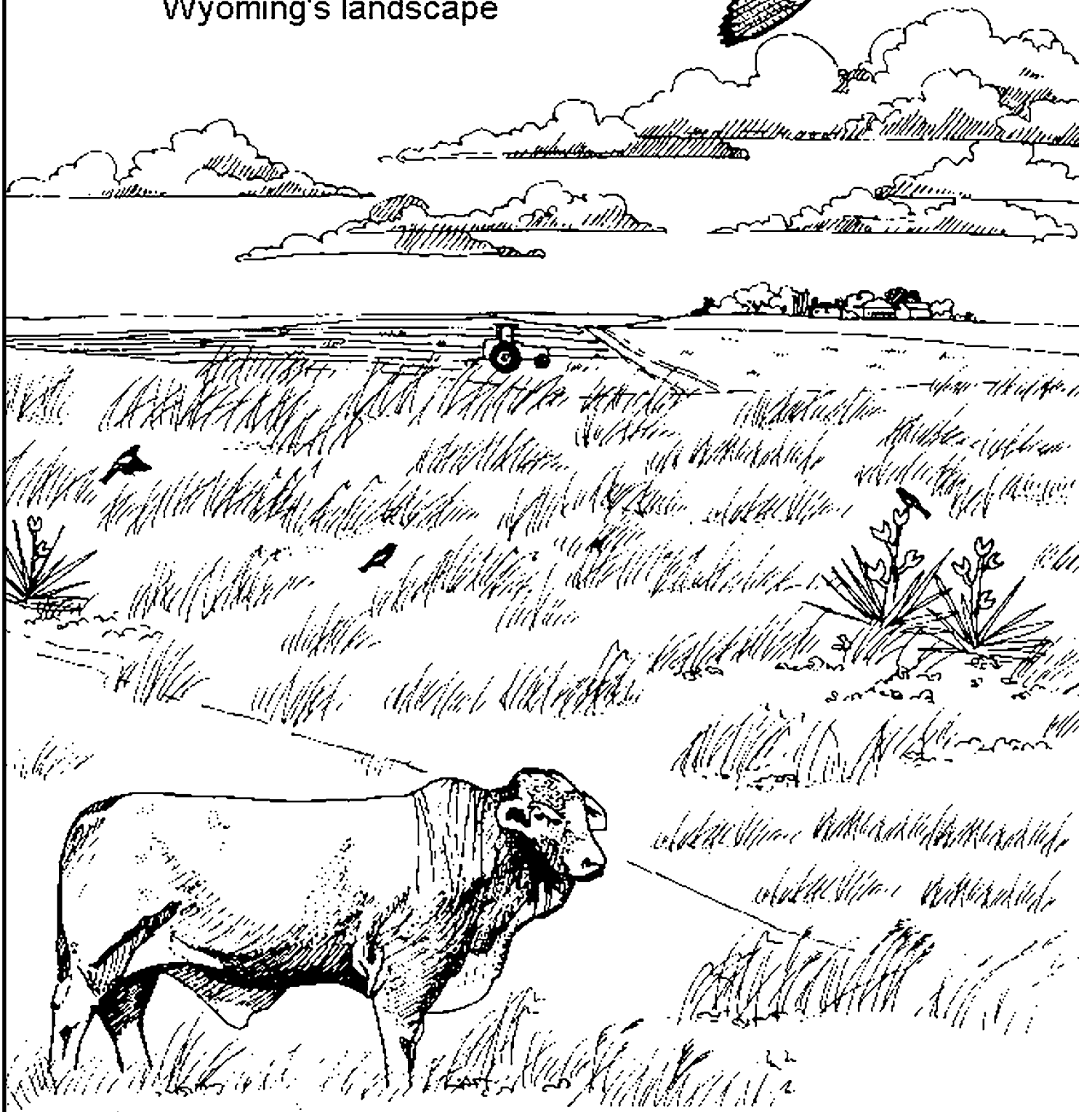
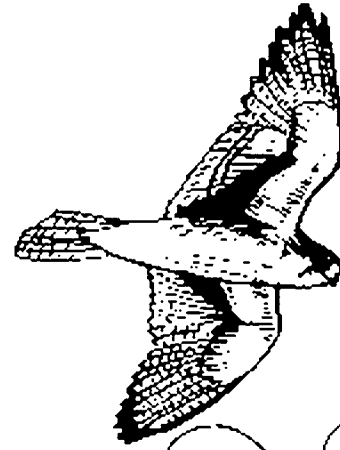


Classroom



Wildlife and Agriculture

... on common ground as part of
Wyoming's landscape



Graphic Courtesy of Colorado Bird Observatory. Design by Sherrie York



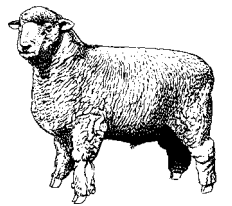
Landscape...Do you know what Wy²o²ming's

Wyoming is the least-populated state, which means we have lots of space. However things are changing in Wyoming and the West. Wide - open spaces have more houses, more roads, and more people. That means that our landscape is changing. What do we mean by landscape? A landscape is a view or vista of the scenery on land. It is the land representing our natural scenery. There are many components of making up Wyoming's landscape including agriculture and wildlife living together on the land.

One of the wonderful things about Wyoming is all the animals you can see if you stop and look. How many different animals have you seen today? Surely you saw some birds, a rabbit, some deer, cows, or even sheep on your way to school. However, with our landscape changing, that can mean tough times for wildlife. With habitat disappearing, animals must move or adapt, or they don't survive. Luckily, ranchers and farmers know they must take care

of their land. That keeps their cattle and sheep healthy, and it also keeps wildlife and plants healthy, too.

It is important that both rural and urban people learn more about our land so we can use our resources wisely and provide a living space for all plant and animal species on our landscape. Let's get started on learning more about wildlife and agriculture, and how we can learn from others to take better care of the land of Wyoming.



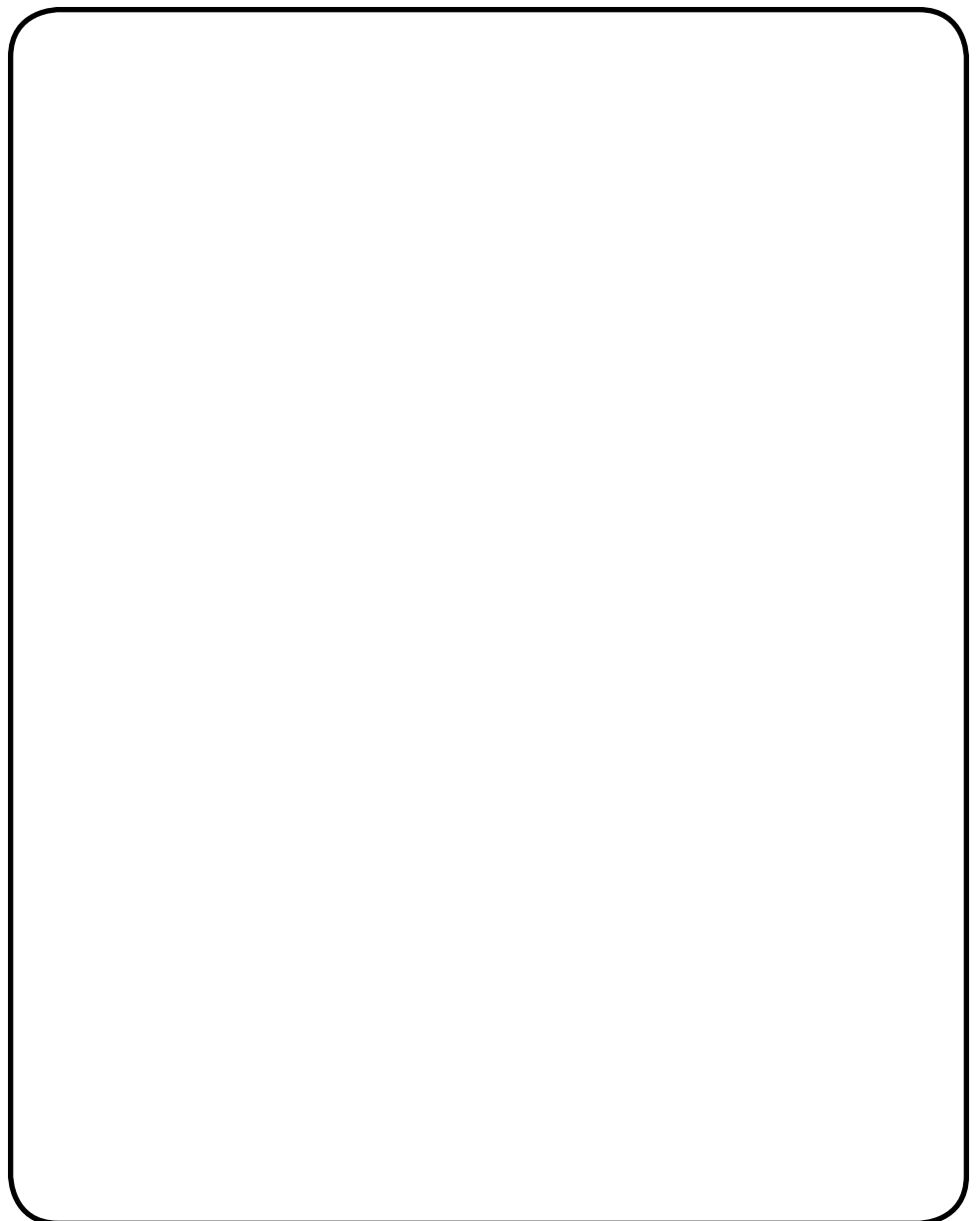
Wildlife Versus Domesticated Animals

The term "Wildlife" refers to animals that are not tamed or domesticated. People often think of wildlife only as large animals like deer and elk like we see in our landscape in Wyoming. Wildlife includes the smallest animal organisms- even those that can be seen only through a microscope. Wildlife includes animals such as insects, spiders, birds, amphibians, reptiles, fish and mammals, if they are not domesticated. Wildlife can be found all around us, even when we think we can see or hear no animals at all, they exist somewhere around us - maybe even under our feet. Domesticated animals are those that humans have tamed, kept in captivity, and bred for special purposes and have evolved in this way over a long period of time. All domesticated animals have their origins to wild ancestors. Think about Wyoming's landscape and what kind of animals you might see there. Below make a list of four animals that are considered Wildlife and four animals that are considered Domestic:

- 1. _____
- 3. _____
- 5. _____
- 7. _____

- 2. _____
- 4. _____
- 6. _____
- 8. _____

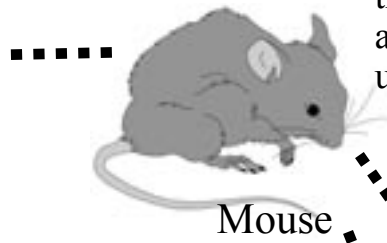
When food, water, shelter and space are arranged in a special way so wildlife can live there, we call that area a HABITAT. Each species has different needs for food, water, shelter and space. These basics are often arranged differently. If you live in a home where the bathroom is four miles north, the kitchen is 12 miles west and the bedroom is nine miles east. You could not live in this arrangement and neither can Wildlife. They need these four basic fundamentals to survive. For example, mule deer are found over the entire state and occupy a variety of habitat types ranging from high mountain alpine tundra to desert badlands. As their needs change through a year, mule deer move from one habitat to another. Some herds in Wyoming may move relatively short distances while other herds may move many miles as their needs for food, shelter, water, and space change so they can survive. For wildlife, livestock and humans, habitat means home. Think of an animal, it can be "domesticated" or "wild." Then, in the box to the right, draw a picture of this animal in a place where it lives. Make sure you include: food, water, shelter, and space in an arrangement that you think it would be possible for the animal to survive.



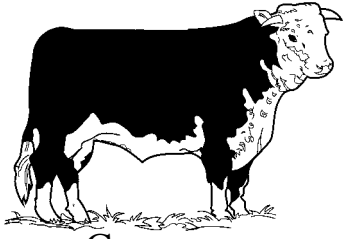
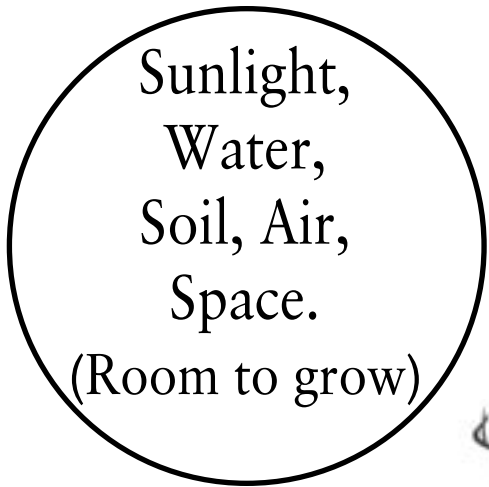
FOOD WEB



Grass, Plants,
Farm Crops



Mouse



Cow



Garter Snake



Human



Eagle



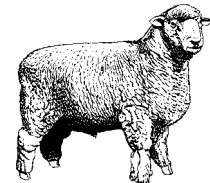
Deer



Insect



Shrubs, Berries,
Leaves, Fruits



Sheep



Hawk



Coyote



Rabbit



Frog

Dependent means to rely on someone else for help or support. All life is dependent on six basic things. Do you know what they are? The "FOOD WEB" below will give you a clue. By doing the "FOOD WEB" you will see how we are dependent on the world around us and how all living things rely on one another to survive.

The diagram below shows some things that live in Wyoming. Use the Food list given for the animals below to add lines to the diagram to form a "FOOD WEB." The mouse has been done for you. When you are done, use the "FOOD WEB" to answer the questions.

ANIMALS AND WHAT THEY EAT

- Mouse... seeds, insects
- Frog insects
- Garter snake frogs, insects
- Rabbit..... plants, bark, twigs
- Deer..... shrubs, twigs, leaves, berries, farm crops
- Coyote fruits, rodents, rabbits, fawns, sheep
- Hawk mice and other rodents, rabbits, snakes
- Insects plants, tree bark
- Eagle mice and other rodents, lambs, rabbits, snakes
- Cattle grasses and plants, farm crops
- Sheep..... grasses and plants, farm crops, shrubs
- Humans farm crops, fruits, milk from cattle, meat from deer and livestock

QUESTIONS FOR THE FOOD WEB

1. Give examples of food chains in your food web that have only 2 links.

2. Give an example of a food chain in your food web that has 3 links.

3. What food chain has the most links?

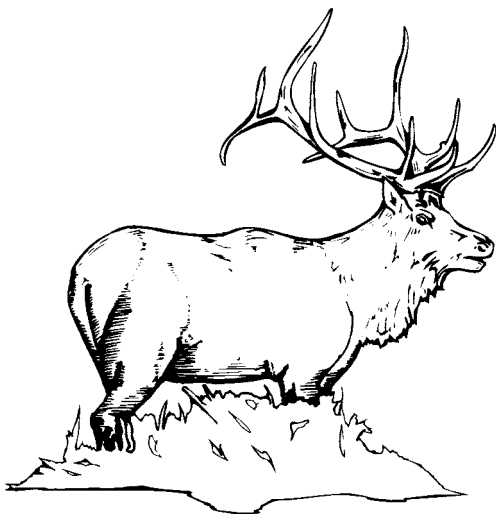
4. Who would be affected if a long, cold, snowy winter came to the area?

5. What effect does an over-abundance of coyotes have on the sheep industry or on the deer population?

6. What could animals do to survive even if they had no food source nearby?

7. Which animals are the "predators" and which animals are the "prey?"

WILDLIFE IS A VALUABLE PUBLIC RESOURCE



Wildlife is an important part of our environment. For centuries people have used wildlife for food and clothing. Today wildlife still benefit people. Wildlife is a part of what we enjoy in outdoor activities such as camping, hiking, biking, photography, fishing and hunting. They are part of our landscape. Did you know that every citizen in the United States is an owner of the wildlife that live here. All species of wildlife belong to the public. Watching wildlife is an enjoyable experience to most people. It is fun to watch

birds, deer, coyotes or rabbits. Sometimes, however, wildlife can become pests. For example, raccoons can invade homes and garages and woodpeckers can peck holes in the sides of houses. Sometimes wildlife can carry diseases like rabies into an area. For example, skunks can carry rabies to dogs. Some animals are predators. Most of the time wildlife and humans live in harmony. For example, predators help reduce rodent populations. But sometimes conflicts arise, like when a coyote or a mountain lion kills a ranchers lamb.

In Wyoming, federal, state and county governments are responsible for keeping healthy, stable wildlife populations. When wildlife cause damage like to livestock, people from government agencies work to control the damage. The agencies in Wyoming are the U.S. Fish and Wildlife Service, which is a division of the United States Department of Interior, the U.S. Department of Agriculture - Animal and Plant Health Inspection Service - Wildlife Services and the Wyoming Game and Fish Department, which is a part of state government. Wildlife damage management responsibilities fall to different agencies depending on the type of animal, type of problem and the location. For example, the U.S. Fish and Wildlife Service is responsible for managing migratory birds (like geese and ducks) and federally listed threatened and endangered animals like the gray wolf located in Yellowstone National Park. The Wyoming Game and Fish is responsible for the management of resident wildlife and all other animals not federally listed as threatened or endangered. Some of the wildlife that the Wyoming Game and Fish managed is deer, elk, antelopes, and rainbow trout. The U.S. Department of Agriculture - Animal and Plant Health Inspection Service - Wildlife Services provides Federal leadership in managing problems caused by wildlife to reduce damage to agriculture and natural resources and to minimize potential threats to human health and safety. Wyoming also has Predatory Animal Districts located in every county. These Districts supervise the control of predatory animals that prey upon and destroy livestock, other domestic animals and wild game. In 1999, the State Legislature created the Animal Damage Management Board to bring together representatives from all the different people affected by predatory animals and birds. The board includes livestock producers, wildlife managers, sportsman, outfitters, urban representative and federal, state and county government that help in the management of livestock and wildlife. Together they are working to solve conflicts between humans and wildlife, so we can live in harmony with wildlife.

Wildlife living in Harmony Wildlife living in Conflict

Most of the time wildlife and humans live in harmony. For example, predators help reduce rodent problems. But sometimes conflicts arise, like when gophers put holes in your lawn. Read the following examples. Place a "C" in front of the examples showing animals and humans in conflict. Put an "H" in front of the examples showing humans and animals living in harmony or when wildlife are helpful to humans.



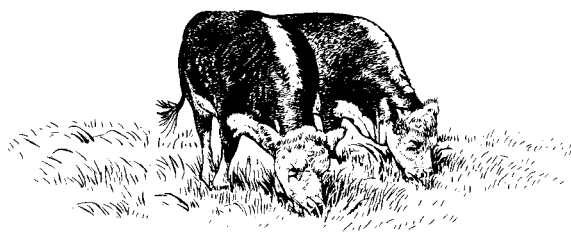
- In the spring, a large flock of birds have taken roost in your favorite park, causing problems when you want to play.
- In the summer a large flock of ravens are eating grasshoppers that have invaded your mothers flower garden.
- A coyote eats prairie dogs living on rangeland.
- A beaver builds a dam that floods a road going to your home.
- A beaver builds a dam and creates a wetland habitat for birds and other wildlife.

Your turn. Pick a wild animal found close to where you live. Write an example of how your animal can live in harmony or be helpful to humans.

Now give an example of how that same animal can sometimes be in conflict with humans.

Can you think of some ways that you can reduce human and wildlife conflict around your home? Like don't leave out dog or cat food for wildlife to come and eat at night or putting a lid on the garbage can.

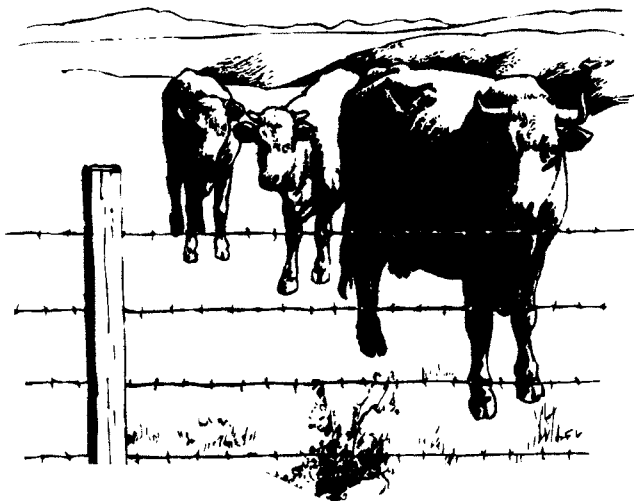
WYOMING'S RANGELAND



Grass is such an important part of our state. Over 70% of the land is covered by grasslands, known as rangeland, that grows there naturally. Many of the grasses are perennials, plants that live for several years. These rangelands provide food (known as **forage**) for wildlife and make it possible for many ranchers to make a living by providing food for all of us. How do animals share grass? If every grazing animal used rangelands the same way, some parts of the rangeland would wear out quickly. Other parts might not be used at all. Over millions of years, nature has worked out a way for grazing species to share grasslands so that both the animals and their habitat stay healthy. Did you know that prairie dogs eat grasses and forbs and prefer some grasses better than others? Ranchers calculate **carrying capacity** of the rangeland for optimum sustained yield of forage, water, wildlife, wood, recreation, and other uses, without damaging the resource. Carrying capacity of an area is the number of animal units the land can support and helps ranchers determine how long to stay in one pasture. Ranchers make sure their livestock moves from one pasture to another to rest the grass. That way livestock stays healthy, wild grazing animals find food, and the rangeland continues to produce grass. One term used with grazing is **overuse** of the rangeland by livestock and wildlife. Overuse is grazing plants so much at one time that the health of the plant is weakened. By calculating the carrying capacity of the land and moving livestock from one pasture to another, ranchers reduce the overuse of the rangeland and continue to provide wildlife with forage.

WHERE ARE YOU GOING TO GRAZE YOUR

Where are you going to graze your cattle during certain times of the year? Above we talked about one system of grazing livestock by rotating the livestock and resting the land. Some ranchers use the rest/rotation system by grazing cattle in one pasture during the growing period, graze one pastured during post-seed ripe period, and the third pasture is set to rest. Over a three-year period, a pasture will be grazed during the growing season in year one, grazed post - seed ripe in year two, and totally rested in year three. Below using this system, develop a three-year grazing plan for your herd of cattle.



1. You have three pastures where your cattle can graze from May 1 to September 30 each year.
2. All of your cattle stay together and graze only one pasture at a time.
3. Pastures used at one time one year cannot be used at the time for two more years.
4. From September 30 to May 1 you will move your cattle to other parts of your ranch. Of course, wildlife may use these pastures at any time, most likely during the fall and winter.

Put the letter (A, B, or R) in the pasture to show where you would graze your cattle during the three-year time period.
 A = During the growing season for grass, that is, when the grass is green, probably about May 1 to mid - July. After putting an "A" in the Pasture, color the pasture **GREEN**.
 B = During the time when the grass is in the mature/dormant stage when the grass has turned brown, mid - July to the end of September. After putting an "B" in the Pasture, color the pasture **BROWN**.
 R = Rest during the entire growing season. No livestock grazing at all from about May 1 until the end of September. After putting an "R" in the Pasture, color the pasture **RED**.

FIRST YEAR	SECOND YEAR	THIRD YEAR
Pasture #1	Pasture #1	Pasture #1
Pasture #2	Pasture #2	Pasture #2
Pasture #3	Pasture #3	Pasture #3

Over the three year period, how must rest did Pasture #2 get? _____

Do you think that the rangeland was overused by livestock by using this rest/rotation system? _____

Do you think that by resting and rotating your cattle, that wildlife would benefit? _____

How do you think that livestock and wildlife live together in harmony on common rangeland? Think about what wildlife need for a healthy habitat. _____

DID YOU KNOW

There is millions of acres in the United States that are considered public lands and these lands are for your use. The Bureau of Land Management (BLM) is an agency of the U.S. Department of Interior. They are responsible for managing the many uses of public land.

If you took a long walk through these lands you would find many wonderful things. Public lands provide habitat for wildlife, and things to do for recreation such as hunting, fishing, and hiking. Cattle and sheep also graze this rangeland for their survival and provide us with food and many valuable products. Ranchers who lease public land work with the BLM, other federal agencies, and the state to help care for the land. In Wyoming about 48% of the land is either managed by a federal or state agency.

Private Lands Public Wildlife

Wyoming is comprised of about half of the land owned by private landowners, like farmers and rancher. These private lands supports healthy habitat for elk, deer, antelope, fish, and small game species. Private lands provide some of the best hunting and fishing in Wyoming. The Wyoming Game and Fish Commission, recognized that many people would like to have more access to public wildlife on private land, so they developed a program for landowner called "Private Lands Public Wildlife Conservation Program." This program allows people to have walk-in access to private land to view, hunt, and fish public wildlife. This is a good example of how government agencies and ranchers are working together so that more people can have access to public wildlife. If you would like more information on this program, please contact the Wyoming

Game and Fish to find out what private land in your area you can go to learn more about wildlife. Be a good citizen by following the signs and not leaving trash on the land.



LANDSCAPE WORD FIND

Find the words listed below. They may be forward, backward, horizontal, vertical or diagonal in the puzzle.

agriculture	biologist	cattle
change	common ground	compatible
compromise	deer	drought
elk	erosion	forage
fish	graze	habitat
land	landscape	livelihood
livestock	management	pasture
private	public	rancher
renewable	rest	riparian
rotation	rural	sheep
urban	vegetation	water
western	wilderness	wildlife

E W R L L E S S U R I T N E M E G A N A M
P R I V A T E R U T S A P E L J G O R R E
D N A L N L N O I T A T O R T C I L B U P
R C G I D P E E H S B I K Y R T N A B R U
O O R V S L B C U E V B G R A Z E P E A X
U M I E C N I H P R D A R T I S T M S L E
G P C S A R O F B Y T H E R O S I O N G L
H R U T P E L H E B E G N A H C V Y H N B
T O L O E T O L I V E L I H O O D N A Y I
D M T C H S G B T V F O R A G E G I E E T
M I U K L E I J S S R E H C N A R F F L A
U S R D G W S P I I R E N E W A B L E T P
I E E E T L T E N I T S I R P F I S H T M
R E I H H S S E N R E D L I W K X I L A O
R E T A W B N N D N U O R G N O M M O C C

"Working Together for Wildlife"

CAREER CORNER

As you move into Junior High, and High School, you may not know what your college major will be, but you probably know what your interest are. Whether you are interested in biology, office management or writing, or management, there are many jobs in agriculture, wildlife, and natural resources that you might be interested in. Some of the career are as follows:

Fisheries Biologist	Surveyor
Laboratory Technician	Engineer
Wildlife Veterinarian	Educator
Public Information	R a n g e
Biologist	R e s o u r c e
Manager	Rancher

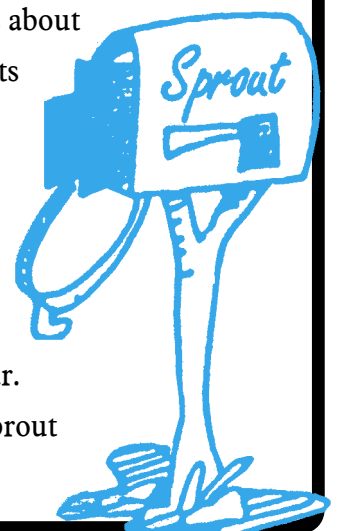
These are just to name a few. Go to the school library to learn more about careers in these areas.

Dear Readers,

It's has been a great school year. I hope you had some fun along the way and learned something new about why Wildlife, Agriculture and other Natural Resources are important to all of us. If you have any questions about agriculture or comments about "Country to Classroom" send them in. It's always fun getting letters from you.

Have a good school year.

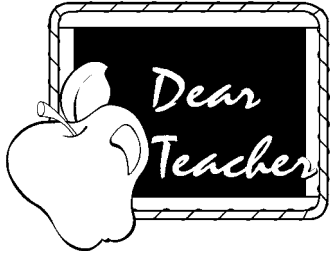
Sprout



Wyoming Agriculture In The Classroom

TEACHER GUIDE

Volume 8



Dear Teachers,

Wyoming Agriculture in the Classroom hopes that this issue of Country to Classroom will be a valuable resource to your teaching materials. Wyoming Agriculture in the Classroom has many great educational tools and products for your free use. The Wyoming Game and Fish Department and the

U.S. Fish and Wildlife have great material for classrooms as well. Look in our Potpourri section for their contact information.

It is our intent to create a deep awareness and understanding of the agriculture industry in a way that is challenging, relevant, fun, and educationally innovative. We are always looking for innovative teachers and community members to be a part of our team. If you or someone you know is an asset we could use, please contact our office.

Wyoming farmers and ranchers work very hard with both state and federal agencies to improve our local natural resources by coordinating management practices. To learn more about this and many other topics, contact our office for further information.

Sincerely, Sarka J. White, M.Ed.
Education Coordinator WDA/WAIC

If you want to continue your study on agriculture and need more information to enhance your classroom studies, please contact Sarka J. White, Education Coordinator with Wyoming Agriculture in the Classroom, 2219 Carey Ave., Cheyenne, Wyoming 82002, and (307) 777-6618. Wyoming Agriculture in the Classroom has an extensive resource library and training that is free to all Wyoming teachers. Visit our website at www.wyomingagclassroom.org for information and links to other agriculture literacy sites for educators and families.

Potpourri... Discussion Prompters and Projects

Some additional projects and ideas to extend the use of the "Country to Classroom" magazine.

- Discuss what kind of food and clothing do we get from wildlife, domesticated animals, and plants? What objects do you use every day? Classify them as coming from animals (wildlife or domestic), plants, or minerals.
- "Invent" names and descriptions for the wildlife and domesticate animals found outside during a field search. Have the students observe the animals, write a written description - to include what are they eating, what kind of tracks did they leave, etc. Then check their invented names and descriptions against the scientific names and information found in the library.
- Create posters of the food chain tracing foods eaten by animals and people to green plants and the soil. Be sure that they add soil, water, sun and air, since these are necessary to plants, people and all animals.
- Compare plants and animals living in your community with those in the ocean, in a pond, in a desert, and in a forest. How are they similar? How are they different?
- Name some of the physical characteristics of plants and animals that enable them to adapt to different environments. How have people learned to adapt to different environments? Why can some animals live in several different environments?
- In what ways are farmland, rangeland, forest, wildlife and minerals important to our community? Have the students develop a bulletin board showing the landscape of your community. Have them include wildlife they see, agriculture production, and how the two are related.
- Contact the Wyoming Game and Fish Department to learn more about Wyoming Wildlife and their educational programs at 1-800-842-1934 (In-State only). Contact the U.S. Fish and Wildlife Office in Lander at (307) 332-8719 for information on Endangered or Threaten Species in Wyoming.

Wyoming Content and Performance Standards **4th and 8th grades**

Language Arts: 1. Reading; 2. Writing; 3. Speaking and Listening.

Science: 1. Concepts and Knowledge; 2. Science as Inquiry; 3. History and Nature of Science in Personal and Social Decisions.

Social Studies: 1. Citizenship/Government/Democracy; 2. Culture/Cultural Diversity; 3. Production, Distribution, Consumption; 5. People, Places and Environment.

Mathematics: 1. Number and Operation; 5. Data Analysis and Probability.

Riparian Habitat

Riparian habitat is the land around lakes, rivers, and streams where plants and trees grow well because they have plenty of water. It is the area where water and the dry land meet, and it could be a few feet wide or hundreds of yards across. It might be in the forest or on the plains. Riparian areas provide food, water, shelter and space for the plant and animal communities that are associated with this habitat. Livestock and wildlife use riparian areas as corridors when moving from place to place, to escape the heat of the sun during hot weather or to find protection from the wind and winter storms. Overuse in a riparian area can cause damage to the vegetation, increase erosion and harm aquatic life. Fish and other aquatic life can be harmed if too much sediment is being carried by a stream, spring, creek or river. Careful management of riparian areas will prevent this. To enhance this exercise you can check out two video's from WAIC resource library; one on "The Value of Riparian Habitat" and the other "Landscape." Both of these videos talks about the importance of Riparian Habitat to agriculture and wildlife.

Procedure:

1. Describe riparian habitat to the students. Ask students to name riparian areas that they have visited or know about. Make a list.
2. Ask students to describe some of the specific things they remember about the riparian habitat: smells, plants, temperature, types of rocks, wildlife, etc.
3. Ask students to bring pictures of an many animals, plants, streams, lakes, springs, or rivers that they can find in magazines or newspapers at home (use magazines and newspapers from school if available). Once the students have a good collection of pictures have them classify them into three groups: rivers, streams and lakes. Discuss the differences and similarities between these three riparian habitats. What do we find most in Wyoming?
4. Divide the class into three groups (River Group, Stream Group, and Lake Group).
5. Each group will design a poster describing its particular groups's theme: river, stream, or lake using the magazine and newspaper pictures, construction paper, markers, crayons, and paint.
6. Once the students have created their riparian habitat, have groups share their poster with the class. After each group has described its riparian habitat poster to the class, ask the students question concerning human-caused and naturally occurring changes in the riparian habitats. What would happen to stream and river banks or springs, if large herds of elk, deer, cattle or sheep used a specific area frequently? What would happen if many of the big trees and shrubs along the water's edge were cut down? What would happen to the level of the water in the river, stream, spring, or lake in the spring time if there were a lot of snow in the mountains?

"COUNTRY TO CLASSROOM" is a publication of WYOMING AGRICULTURE IN THE CLASSROOM.

Wyoming Agriculture in the Classroom is a cooperative effort of many Agriculture organizations and individuals around the state. Materials are compiled from the following sources: Wyoming Department of Agriculture, United States Department of Agriculture, Wyoming Game and Fish Department, Wyoming Ag in the Classroom, Montana Ag in the Classroom, Minnesota Ag in the Classroom, Oklahoma Ag in the Classroom, U.S. Fish and Wildlife, and Project WILD.

Publication of this magazine was made possible by funds provided by the WYOMING GAME AND FISH DEPARTMENT. Thank you to all of our sponsors.

