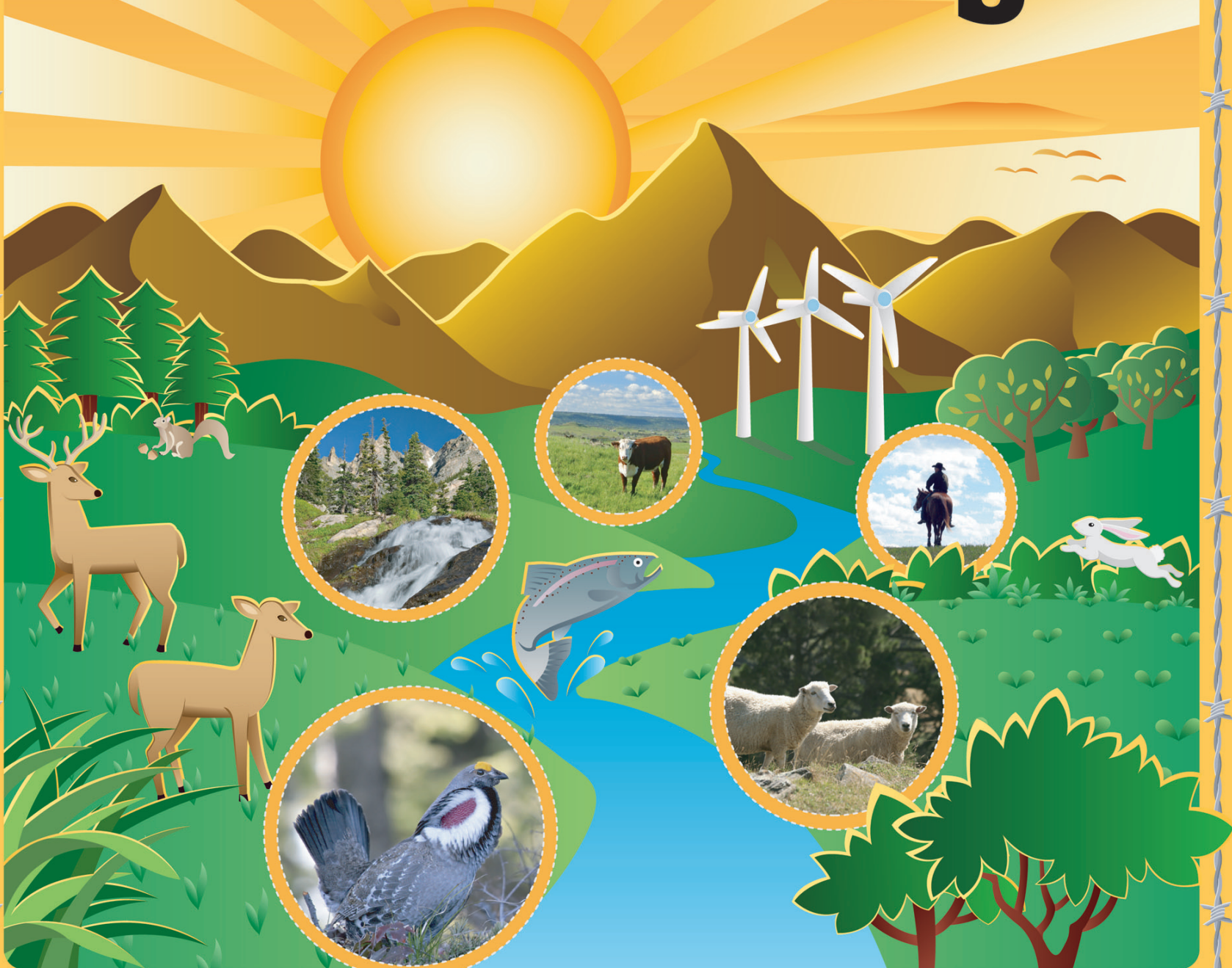


Food, Land & People

At Home on the Range



Greener Grass

Westward Ho!

Timeline of the Land

What's Rangeland?

The Natives & Weedo

Cow Tales

Sheep Tales

Who's at Home on the Range?

DESERET
Morning News

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newspapers in education

Come on in!

There's a lot to learn inside. Get comfortable and make yourself "at home."

MAYBE YOU'VE BEEN driving with your parents or other friends from one place to another over a long distance. Maybe you drove through a landscape with few trees that struck you as "wasteland." Maybe you noticed—

- ★ Sometimes the land was fenced. Other times it wasn't.
- ★ Sometimes you saw a yellow highway sign that read, "Caution—Open Range," and there was a picture of a cow.
- ★ Sometimes the land was privately owned and might have been called the "Diamond D Ranch."
- ★ Other times the land had signs showing that it was managed by a state or federal agency—agencies like the Forest Service or the Bureau of Land Management. You may have even seen signs with their logos indicating roads into the distance or directing you to a historic landmark.

Maybe you found yourself wondering, "Is it all going to look like this, with nothing to see for miles? What kind of land has neither trees nor crops? What's this land good for anyway?"

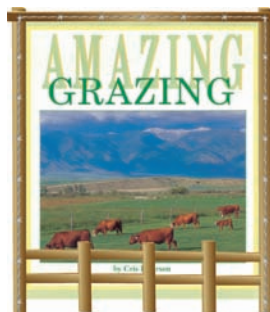
At Home on the Range will help you understand the role that wild lands play in supporting our modern style of life. While it may not seem obvious at first, every one of us has a "steak" in rangelands — lands that are typically used for grazing, not farming.

Rangeland is important to supporting our modern way of living. These seemingly empty lands are really "working landscapes." They have their own special beauty. But it takes a keen eye and desire to tune in and find it. Rangelands are also a major source of our meat supply and wool production. In addition, range serves as an important source of clean water. Wildlife is usually abundant. Rangelands also support many forms of recreation.

Of course, those who make their living on the range want to protect it for future generations. But each of us — including those living in cities and suburbs — also must value and protect rangelands. Only those with a sharp eye and an inquiring mind can uncover the hidden secrets of these native lands.

Reading Roundup

Experience the land through these "corralled" resources.



Amazing Grazing

This 28-page book has incredible color photographs of three Western ranches known for their conservation practices.

Author: Cris Peterson

ISBN: 156397942X

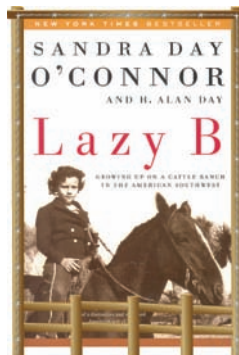


'Til the Cows Come Home

Set on a cattle ranch in the American West, this story traces a cowboy's beautiful piece of leather from a pair of chaps to a button cover. The life of the leather reflects the cowboy's own life, and he shares this story with his daughter.

Author: Jodi Icenoggle

ISBN: 156397987X



Lazy B: Growing Up on a Cattle Ranch in the American Southwest

Deep in the granite hills of eastern Arizona in 1880, H.C. Day founded the Lazy B Ranch, where U.S. Supreme Court Justice Sandra Day O'Connor and her brother Alan spent their youth, a time they recall in this affectionate joint memoir. "We belonged to the Lazy B, and it belonged to each of us," write O'Connor and Day. This fascinating glimpse of life in the Southwest in the last century recounts an important time in American history, and provides an enduring portrait of an independent young woman on the brink of becoming one of the most prominent figures in America.

Author: Sandra Day O'Connor and Alan Day

ISBN: 9780812966732

Special thanks to the Montana 4-H Center for Youth Development and their contributions from their instructional unit *At Home on the Range*. Available from Montana State University, (406) 994-2721.

Credits

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Resources

Utah State University Extension; Utah Agriculture in the Classroom; Utah State University College of Natural Resources; U.S. Dept. of Agriculture; Cattlemen's Beef Board and National Cattlemen's Beef Association; Colorado Foundation for Agriculture

Sources

BLM: Learning Landscapes, Invasive Species, (online)
Aliens in Your Neighborhood! (online)
Buffalo Slaughter; HarpWeek, LLC. (online: www.harpweek.com)
Wikipedia (online)



ON THE HORIZON Greener grass

Improving the health of grazing land

IN MAY OF 2006, Utah Gov. Jon Huntsman Jr., signed legislation that will help Utah livestock owners improve the health of grazing land. The governor signed House Bill 145, the Rangeland Improvement Act, which gives the Utah Department of Agriculture and Food (UDAF) the authority to begin a new Grazing Improvement Program (GIP).

The GIP is designed to improve forage for grazing, reduce invasive weeds, increase water supplies, and positively impact state and federal land use management plans. The program will also improve wildlife habitat and watershed conditions. "Utah's livestock industry contributes at least \$600 million to the state's economy," said Brent Tanner, executive director of the Utah Cattlemen's Association. "This GIP program combines the rancher knowledge with range management solutions, and it has the potential to help ranchers be more profitable, and that's good news for our rural communities."



Historically, rangelands in Utah have been used primarily for grazing, hunting and mining. Overgrazing harms the land, but proper management of grazing animals can ensure a healthy rangeland ecology. Today, Utah has become well known for its rangeland and the many

other recreational opportunities that abound, including bird watching, camping, skiing, fishing, fourwheeling, hiking, horseback riding, mountain biking, rafting, canoeing, kayaking, rock climbing and snowmobiling.

In this Deseret Morning News Newspapers in Education special section of "At Home on the Range," you'll explore the interdependence and connections we all have to one of our most important resources, rangeland.



Lasso'n Lingo

Acre: American unit for measuring land.

One acre of land is about the size of a football field, including the end zones.

Biome: a major regional ecological community of plants and animals; desert, forest, etc.

Ecosystem: an area where living things interact with each other and their physical environment

Food chain: the linear links from producers (plants) to primary consumers (herbivores, plant eaters) to secondary consumers (carnivores, meat eaters)

Food web: an intertwining and overlapping of several food chains, where all species are represented as being connected to, and thus dependent, on the other species

Forage: the plant species consumed by herbivores

Habitat: the place where plants or animals live

Homestead Act, 1862: United States federal law that gave one quarter of a section of a township (160 acres) of undeveloped land in the American West to any family head or person who was at least 21 years of age, provided he lived on it for five years and built a house of a minimum of 12 by 14 feet.

Invasive: a plant or animal that establishes itself in an area other than its native habitat and succeeds in supplanting the native species of its new locale

Multiple use: part of a federal law mandate, (1976) defined as the "management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people."

Native: a plant or animal growing or living in the geographic area in which it originally evolved

Niche: functional role of a species in the community, including activities and relationships

Plant community: a group of plants that interact that may or may not be of the same species

Rangelands: an area that is vegetated mainly by native grass, forbs and shrubs; open region of land used by grazing wildlife and livestock

Riparian: the banks and surrounding area of a river or other body of water

Taylor Grazing Act: United States federal law enacted in 1934 that regulates grazing on federal public land

Weed: any plant unwanted and deemed a nuisance by humans

In the past...

Activity on page 5

Many different historical events affected Native Americans and European settlers. These historic event photos on the right page are not in the correct order. Read the story below the pictures, then place the number of each historic event sketch in the correct circle below the timeline.



Westward Ho!

MODERN DAY UTAH ranchers can trace their roots back to the late 1700s when horses and cattle first appeared in Utah. Horses and cattle were trailed into the state by Spanish trading parties. Later, in the 1840s, when trapping wound down in the West, a few enterprising trappers built trading posts to accommodate the needs of those traveling westward. Western travelers could purchase cattle along with other supplies at these trading posts.

In the late 1840s, when the Mormons migrated to the Great Basin they began to supply western travelers with beef. Typically, two or three trip-worn animals of the overland travelers would be traded for one fit cow. This trade quickly built Utah cattle numbers

and helped the economy of early Utah pioneers.

In the 1870s sheep were introduced into Utah in great numbers. Sheep, like cattle, thrived in Utah's diverse landscape. During the first decades of the 20th century, sheep were the most important livestock in Utah in both numbers and value.

In the 1920s there were more than 2.5 million sheep in Utah worth \$23 million dollars! Utah, with its millions of acres of desert land, was an ideal region for raising sheep. Cattle and sheep enterprises made ranching – the raising of livestock – a vital part of Utah's economy, which is still important today. Seventy percent of Utah's agricultural receipts are from livestock sales.

A pioneer covered wagon caravan pauses for noon rest at the Coalville Corral before proceeding to the Salt Lake Valley.

Charles William Carter, photographer, 1867, LDS Church archives.

Vocabulary

Conservation is...

the protection, management and responsible use of valued natural resources such as soil, water, plants and animals. If Tootsie Rolls® were

soil and you were trying to "conserve" your Tootsie Roll®, you'd lick it slowly until more could be made. If you ate it all at once you would be considered an "indiscriminate user." If you only looked at it and kept it in its wrapper, you would be considered a "preservationist."

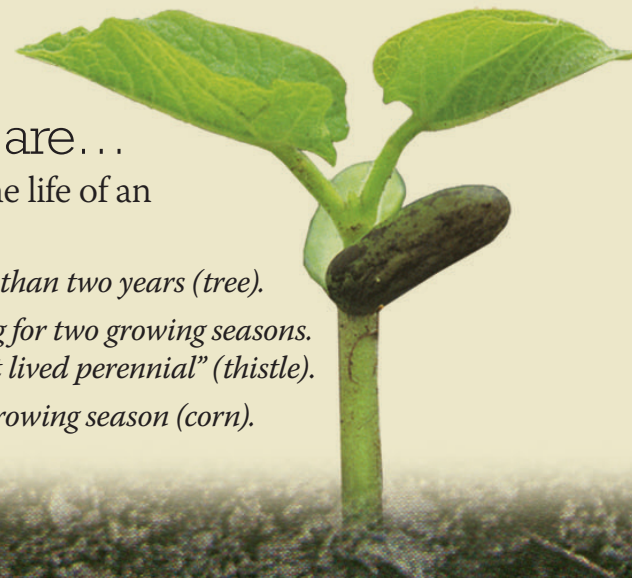
Stewardship is...

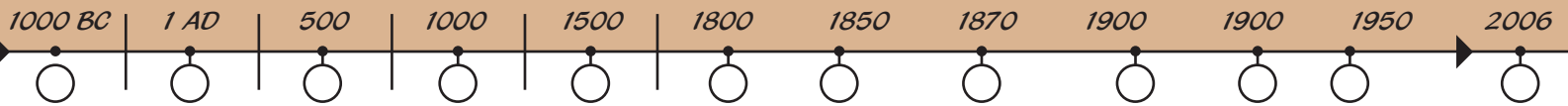
an attitude or a dedication to doing the best we can for the soil, water, plants and animals. Being a good steward means leaving the land and other natural resources for use by future generations.

Plant Life Cycles are...

stages that characterize the life of an individual or group.

- ★ PERENNIAL: *lasting more than two years (tree).*
- ★ BIENNIAL: *lasting or living for two growing seasons. Some consider this a "short lived perennial" (thistle).*
- ★ ANNUAL: *living only one growing season (corn).*





1 Lewis and Clark Expedition



2 Rangeland health continues to improve



3 Cultivated crops



4 Bison killed by non-Native people



5 Taylor Grazing Act 1934



6 Only 544 bison remain; native peoples relocated to reservations



7 U.S. Forest Service created in 1905



8 Trading seeds and goods



9 Megafauna hunters



10 Oregon Trail opened and Transcontinental Railroad completed



11 The horse is introduced and new Americans explore the West



12 Hunter/gatherer lifestyle

For thousands of years, native peoples hunted game and picked nuts and berries in North America. With simple spears, they hunted and killed **megafauna**, huge beasts like the saber-tooth tiger and woolly mammoth. These Native Americans changed the world around them with fire. They used fire to keep the trees from taking over the grasslands and to open patches of forest to become grass. Wild game like deer and elk lived everywhere, especially where forest and grasslands came together. The native peoples were **hunter/gatherers**.

Then the Native American people learned to **cultivate crops** like corn, cotton and tobacco. They built canal systems to irrigate their fields. They may have cultivated as much as hundreds of thousands of acres. The native peoples also **traded ornamental items and seeds** with people who lived far away.

In the 1500s, the **horse was introduced** to North America by Spanish explorers. On horseback the Native American people could travel far away to hunt for large game like bison (also called buffalo). They could also make contact with other

peoples in distant places. But, the bison was still their most important source of food and other things. They made their tepees and clothes from the hides, and utensils from the bones.

Early European explorers from France and other nations came to North America. They found the Native Americans living in villages. Some newcomers started trading posts. At these stores, Native Americans could trade furs, hides and handmade goods for cloth, food and weapons.

President Thomas Jefferson asked **Lewis and Clark** to explore the West. They traveled from St. Louis to the Pacific Coast and back again during 1804-1806. Western settlement began. When the Oregon Trail opened in the 1840s, many settlers moved into Idaho, Oregon, Washington, Montana and Wyoming. These new Americans began to **hunt and kill** the huge herds of buffalo for sport and to make money.

The Gold Rush of the mid-1800s brought miners to much of the West. In 1862, the Homestead Act gave 160 acres of land to anyone willing to settle in the West. Also in 1869, the **Transcontinental Railroad** was finished. This made it easy for people

to move west and settle in towns and on farms.

By the 1880s, most of the land where buffalo had roamed was crossed by railroads. Towns had sprung up everywhere. The bison had nearly all been killed. Most Native American tribes signed treaties with the U.S. government. They were **moved to reservations** far from their homes.

Cattle drivers began to move large herds of European cattle from Texas to places north or west where there was lots of grass. This land was open range with no fences. With the Trail Drives came the Range Wars of the 1880s and '90s. Barbed wire was invented, and there was less open range for cattle herds and for buffalo. By 1900, only 544 bison remained in North America.

The **U.S. Forest Service was created in 1905**, and the issues of overgrazing and free range began to be addressed. The **Taylor Grazing Act** was written in 1934. This law required permits to graze livestock on public lands and helped stop overuse.

The Bureau of Land Management was established in 1946. This agency was created to oversee public lands and grazing. **Today, rangeland health continues to improve on federal, state and private lands.**

So, what is Rangeland?

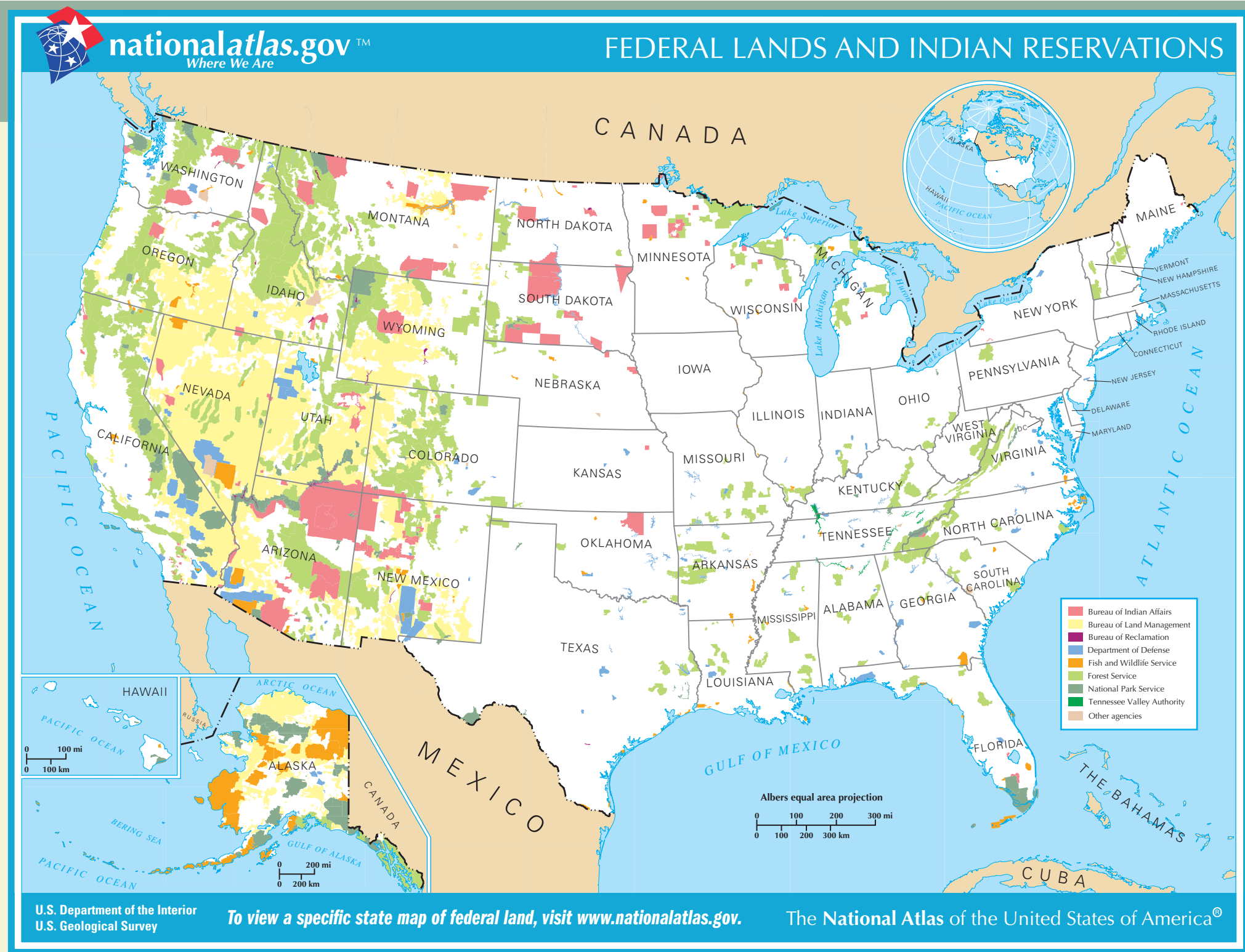
THAT'S ABOUT 60 percent of the United States land mass. There are 1.8 billion acres of land in the United States. The pie chart shows how land in the United States can be grouped. Land often has more than one use. For example, farmlands can also be forested. Likewise, a single forest can have recreational, grazing, timbering and other uses all at the same time (this is called multiple-use land). Urban areas have highways, railroads, and airports; they also include recreational and park areas along with homes and factories. Deserts can have residential and wildlife areas.

When the term "rangeland" first came into use in the 1800s, it was used to describe the extensive, unforested lands dominating the western half of the United States continent. Today, rangeland refers to a large, mostly unimproved section of land that is primarily used for livestock grazing. Rangelands include natural grasslands, savannas, shrublands, many deserts, tundra, alpine communities, coastal marshes and wet meadows. Rangeland is generally unsuitable for farming but suitable for harvest by livestock.

Rangelands cover about 80 percent of Utah's land – from desert canyons to spectacular mountains with numerous lakes and streams. Utah ranks 10th out of 50 states in rangeland area, with about 24 million acres. So how is the land used or owned? Check out the "Land use in Utah" pie chart.

Why are Rangelands important?

People derive multiple goods and services from rangeland ecosystems including wildlife and wildlife habitat; high quality water; clean air and open spaces; carbon sequestration to mitigate global warming; habitat for threatened and endangered species; recreational uses; food and fiber production, including livestock grazing; and a unique setting for social and cultural activities. We depend on these goods and services and expect them to be sustained for the benefit of future generations.

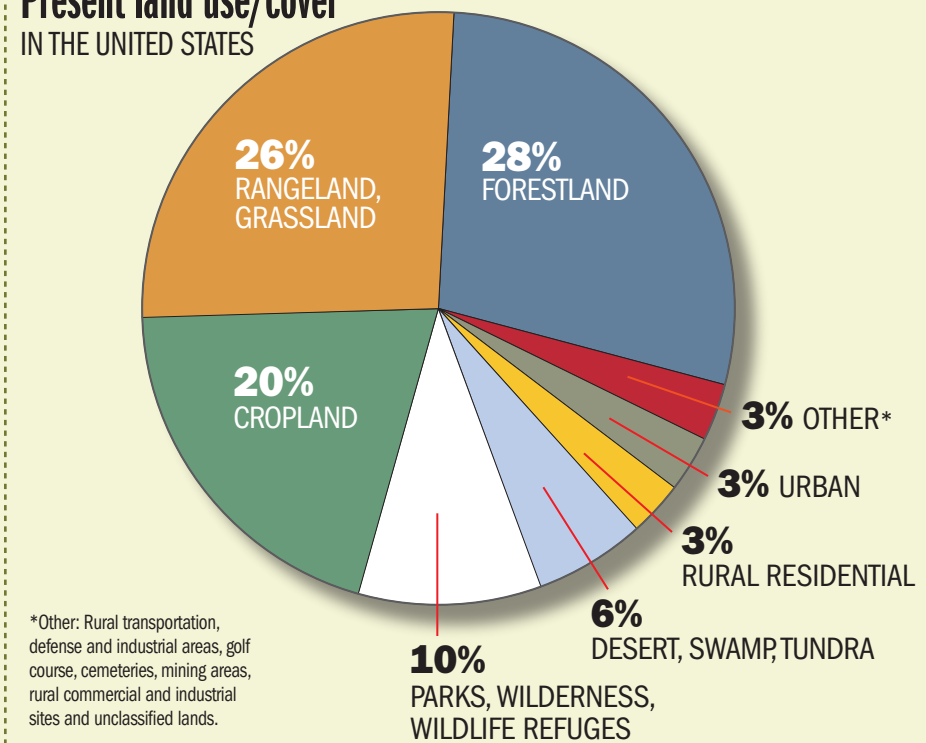


Who owns the land?

Around the time of the Civil War, the U.S. Congress passed the Homestead Act to encourage people to move west in exchange for free land. While homesteading succeeded in the arable lands in the broad Mississippi valley, it failed in the dry high plains and the Rocky Mountains where farming is difficult.

Much of the land that was not homesteaded became today's federal lands. Federal lands, which cover 50 percent of the western United States, include 270 million acres managed by the Bureau of Land Management (BLM) and the U.S. Forest Service (USFS).

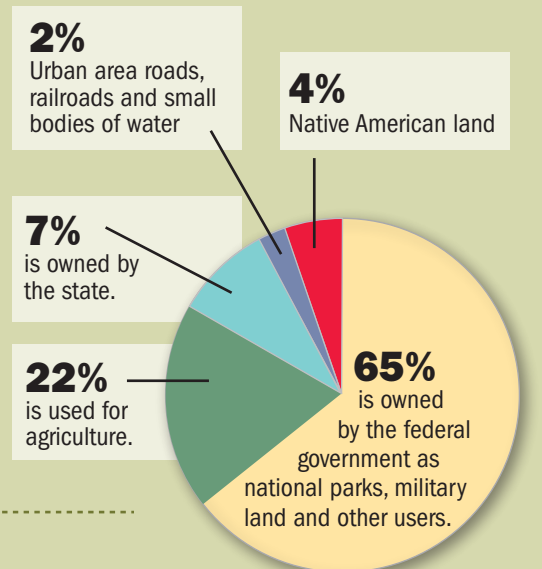
Present land use/cover IN THE UNITED STATES



SOURCE: USDA, Economic Research Service

Land use in Utah

Twenty-two percent of Utah's land is used for agriculture. Only about 2 percent of agricultural land is cropland; the other 20 percent is pasture or private rangeland used for livestock grazing.



Ridin' the Range WEB-QUEST Journey



Take an online journey to explore Utah's rangelands. Discover the plants and animals common to these rangelands and how these species get along in their environment. Follow the links on www.agclassroom.org/webquest/ridinrange.htm to answer the provided questions. You can print a worksheet that you can use to record your findings.

On the Trail!

The map above indicates areas that are designated as federal lands and Indian reservations.

Note that the white areas are privately owned land. Using your map-reading skills and a Utah road atlas, answer the following questions:

1. In what part of the United States are most federal lands located?

2. Locate the area of the U.S., called "America's bread basket" (named for the wheat and other crops grown there) which includes Kansas, Iowa, Nebraska, Missouri and Illinois. On what type of land is most of the wheat grown?

3. Which state has the most Indian reservations?

4. What agency of the federal government owns most of the land in Utah?

5. What biome best describes the Utah lands indicated in yellow?

a. savanna b. desert c. forest d. grassland

6. Along what geographical feature is most of Utah's forest land located?

7. What two geographical features in Utah are owned by the Bureau of Reclamation?

8. Using a Utah road atlas, draw and label the four major interstate highways in Utah.

WHAT'S A Native?

A plant or animal that lives or grows naturally in a particular region without direct or indirect human intervention is said to be native. Here are a few plants that are native to Utah landscapes. To learn more about the native plants and animals of Utah, go to www.extension.usu.edu/aitc/native.



Sagebrush



Utah Juniper



Pinyon Pine



Invasive species, weeds, exotic plants, OH MY!

EARLY EUROPEAN SETTLERS in North America inadvertently brought weed seeds with them, perhaps in the hay they brought for their animals or in the dirt they used as ballast for their ships, or even in their clothes or bedding. Some activities, such as clearing the land, opened up niches that created places for weeds to grow. Settlers also purposely brought plants from their “home country” to reseed areas, make dye for clothing, and use as ornamental plants.

What is an invasive plant? What’s a weed? What makes it exotic? Terms such as invasive weed or noxious weed are used somewhat interchangeably to refer to weeds that infest large areas or cause economic and ecological damage to an area. Most simply stated, **a weed is a plant out of place**. A plant may be a weed in one place but an acceptable plant in another. Noxious weeds are weeds that, by law, must be controlled. They are usually the most invasive and aggressive of the weeds. They usually spread easily, reproduce quickly and in large numbers, they also reduce populations of desirable plants. The term exotic weed describes an invasive unwanted non-native plant.

Invasive plants destroy wildlife habitat, threaten endangered species and native plants, increase soil erosion and groundwater loss, and block recreational opportunities. The challenge is to prevent the spread of invasive plants to non-infested areas. Everyone can help by learning to identify invasive plants, taking care not to spread them, and reporting them when found.

Grazing and lawn mowers?

In Pursuit of Greener Grass

We tend to take grass for granted because there seems to be so much of it. In fact, there is a lot of grass. It is one of our most important available renewable resources. Grass is important to America’s environmental quality. Grass prevents runoff of rain, helps control flooding and keeps the soil from eroding. Grass holds the soil in place and helps keep the air clean. Grass filters and cleans the water and helps it percolate through the soil and back into streams and aquifers. Grass also produces oxygen.

Cattle and sheep are like rangeland lawn mowers that can help care for the grass. Imagine what

your lawn would look like if you didn’t mow it!

In Utah, most of the private land is owned by ranchers. Ranchers may use their own private land to graze their animals or pay a fee to the government to lease public rangeland. Private rangelands in combination with public rangeland are usually mountainous, rocky or dry lands that can’t be used to grow the usual farm crops. However, grass and other plants on this rangeland can be used for grazing animals. People can’t eat grass but cattle and sheep can turn grass into beef and lamb. Proper grazing can be extremely useful for keeping rangelands and the grass healthy. Compared with harvested feeds like corn and wheat, ranges and pastures provide a relatively inexpensive feed



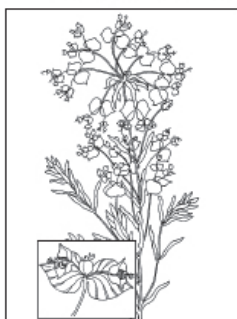
source for livestock. With only 3% of the Earth’s resources suitable for growing crops, it is nice to know we have another resource that can provide food. When properly managed, grazing cattle aerate the soil with their hooves, scatter seeds, and trim wild grasses. Wildfires have a harder time taking hold on shorter, cropped grass than on longer vegetation. Properly grazed or “mowed” grass can help create healthy green grass!

WHERE'S Weedo?

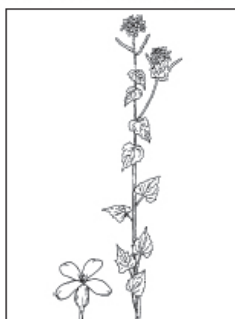
RANGE SCIENTISTS and ranchers need to be able to identify native and nonnative species to keep rangeland ecosystems in balance and “root-out” invasive species (weeds) before the plants take over the native vegetation affecting livestock, wildlife and water.

Try your hand as a rangeland manager. Look for the four invasive plants pictured at the bottom of the MyRangeland picture at the right and circle or color them in the larger picture. Want an extra challenge? Look for color images of these and other Utah noxious weeds from the links on this Web site, <http://extension.usu.edu/aitc/native> and create your own “Least Wanted” posters.

My Rangeland



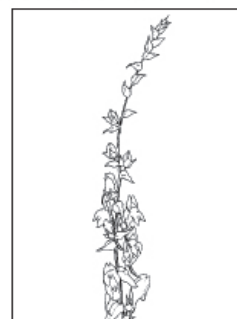
Leafy Spurge



Garlic Mustard



Russian Knapweed



Dalmatian Toadflax

LEAST WANTED

(dead, not alive)

Field Bindweed



Utah's least wanted

If you see these noxious (really obnoxious), alien invader plants, up root 'em!

LEAFY SPURGE: A native plant of Eurasia, leafy spurge is an aggressive invader of pastures, rangeland, stream banks and waste areas. It reproduces by seed and rootstock. It is toxic to cattle and may result in their death.

GARLIC MUSTARD: A native to the northern areas of Europe, garlic mustard has been discovered in Summit County. Garlic mustard invades forested areas where it rapidly spreads and displaces native plants. Displacement occurs rapidly, often within 10 years of establishment. Once established, garlic mustard is very difficult to control.

RUSSIAN KNAPWEED: A native to Eurasia, this plant infests rangelands, field edges, pasture, roadsides and other disturbed soils. Knapweed releases chemical substances into the soil that inhibit the growth of competing vegetation. It can cause “chewing disease” in horses that consume it.

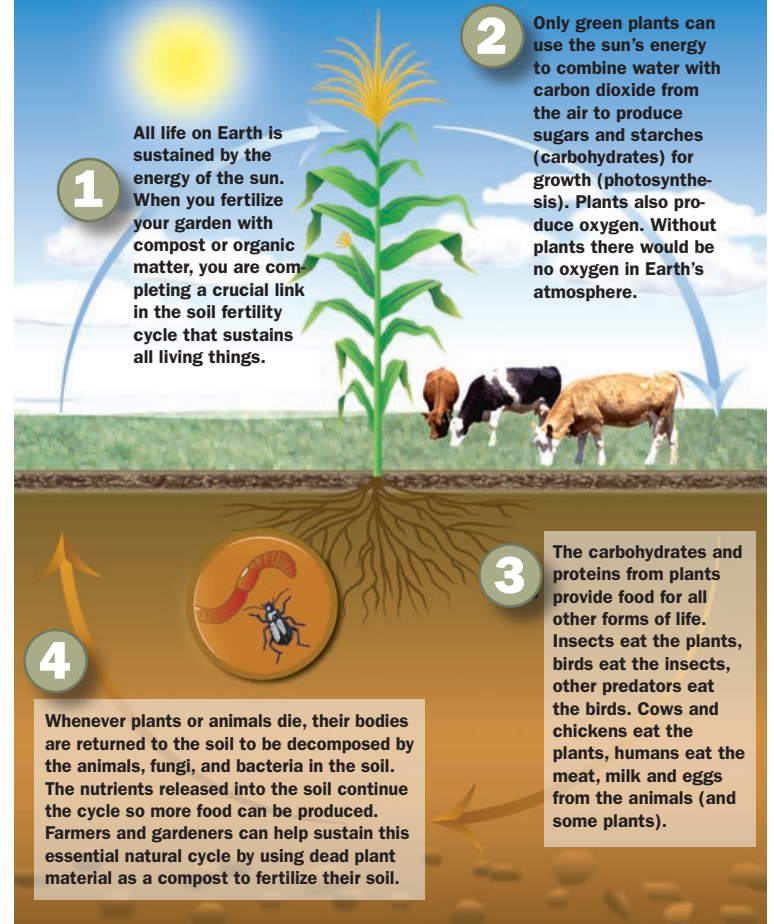
DALMATIAN TOADFLAX: This plant was brought to the United States from Europe, probably for ornamental purposes. It prefers rangeland and roadside habitat with sandy soils. It is very aggressive and hard to control due to deep roots and a thick waxy leaf cuticle. It reproduces by seed and rootstock.

WORKING WITH THE Cycles of Nature

THOSE WHO WORK with the land to produce food (yes, burgers!), clothes and shelter, and many of the other things we use each day are involved in agriculture. These producers use technology and science to work with the natural cycles and creatures of the Earth. The water and fertility cycles are just two of several important cycles farmers and ranchers work with. Understanding seasons and how weather will influence crops and animals is also important.

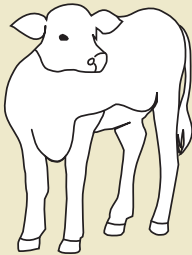
The Soil Fertility Cycle on this page explains how soil must be replenished by life on and in the soil to continue to provide us with food, clothing and shelter. Humans have used fertilizer for thousands of years – even though we have not always known why it was good for plants. Long before we understood plant nutrition, we noticed that animal droppings, wood ashes and certain minerals helped plants grow. During the late 1800s, scientists discovered that certain chemicals were essential for plant growth.

Soil Fertility Cycle



Cow Tales

Cattle production in Utah is the number one agriculture crop. In the state, cattle generate over one-third of the cash receipts received from agriculture products and create over \$350 million dollars of revenue. While cattle production is the largest agriculture commodity in the state, Utah is not the largest producer of cattle nationally, ranking number 28 in cattle production. Every county in the state produces cattle. Box Elder County in northern Utah produces the most cattle.



After their calves are born, mother cows are given additional feed to help keep them and their baby calves healthy. Calves stay with their mothers, eating grass and nursing milk.

Cattle ranchers brand their cattle to show ownership. Some cattle receive plastic ear tags for additional identification. All brands used in Utah are registered by the Utah Livestock Brand Board.

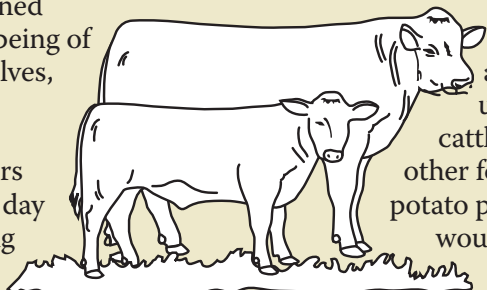
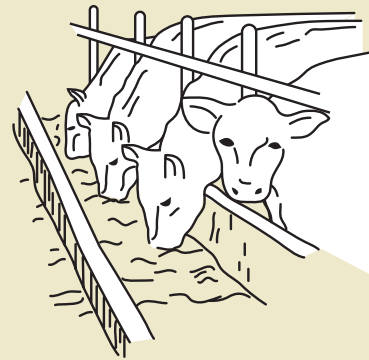
When calves are six to eight months old, they are "weaned" or separated from their mothers. By this time, the calves weigh between 400 and 600 pounds and are able to eat grass and drink water, and no longer need their mother's milk to survive. When calves are weaned, they are provided a balanced diet of feed to keep them healthy and growing. This feed might be hay, grain or silage.

The rancher keeps some of his best females, or heifers, to add to his herd. These females will become mother cows. The rest of the "calf crop" is then either sent to pasture or to a feedlot where the animals will grow before they are used to produce beef. In the feedlot cattle are fed grain, hay and sometimes other food processing by-products like potato peels, cornstalks and cottonseed that would otherwise be shipped to landfills.

Cattle, as ruminants, are great "re-

cyclers." Cattle eat grass and other forages – containing cellulose or fiber, which is inedible by humans and many other animals – and turn those resources into high-quality food for humans. This makes use of vast forage resources that would otherwise go unused for food production. Initially weighing between 600 and 800 pounds when they enter the feedlot, the cattle will grow quickly and gain 2 to 3 pounds per day!

When cattle weigh about 1,200 pounds, they are ready for market. At the processing plant, all cattle are inspected for health and safety by a USDA (government) inspector while being processed into beef. It typically takes just under two years to produce a steak or hamburger for our table.



Sheep Tales

In the United States, most sheep are raised west of the Mississippi River. Utah ranks 7th in the nation for sheep production. Most sheep in Utah live in Sanpete County.



Sheep like to graze, and they will eat plants that other animals will not eat. Some sheep are raised in pastures on farms, but in Utah, sheep graze in mountain areas in the summer and desert ranges in the winter.

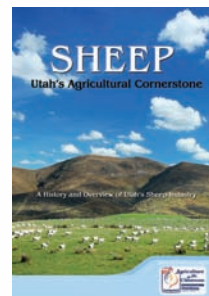
Sheep may be hunted by predators while grazing. Coyotes, mountain lions, eagles and foxes prey upon sheep. Many sheep producers, along with sheepherders, use guard dogs to protect the sheep. Sheepherders or shepherds live in a small trailer year-round protecting the flock and moving the sheep to new feeding areas.

Sheep less than one year old are called lambs. Before they are born, lambs have spent less than 5 months (145 days) growing inside their mothers, which are called ewes. Lambs are usually born in the spring. The ewes provide milk to their lambs for the first few weeks of their lives. Sheep are born with tails, but they are cut short (docked) within the first couple

of weeks. Docking helps to keep sheep clean and healthy. Ewes and lambs are often kept in barns or lambing sheds for a couple of weeks before they go outside and begin to graze.

After the lambs graze for 7-9 months they weigh about 110 pounds and are ready for market. Sheep are multi-purpose animals; they can be used for meat, milk and wool. Some sheep are raised specifically for their meat. The meat can be made into roasts or chops. Specialty cheeses and yogurt can be made from the sheep's milk. The "hair" on sheep is called wool. Once a year, in the early spring, the sheep are "sheared" or given a "hair-cut," which provides people with wool and helps to keep the sheep cooler in the summer. The wool, or fleece, is then shipped to market to be cleaned and spun into wool yarn for fabric.

In addition to these three uses, sheep (and goats) are unique in that they will eat plants that are poisonous or avoided by other animals. Grazing sheep and goats can be an effective way to control invasive, noxious weeds that are not native to Utah rangelands.



Sheep-Utah's Agricultural Cornerstone

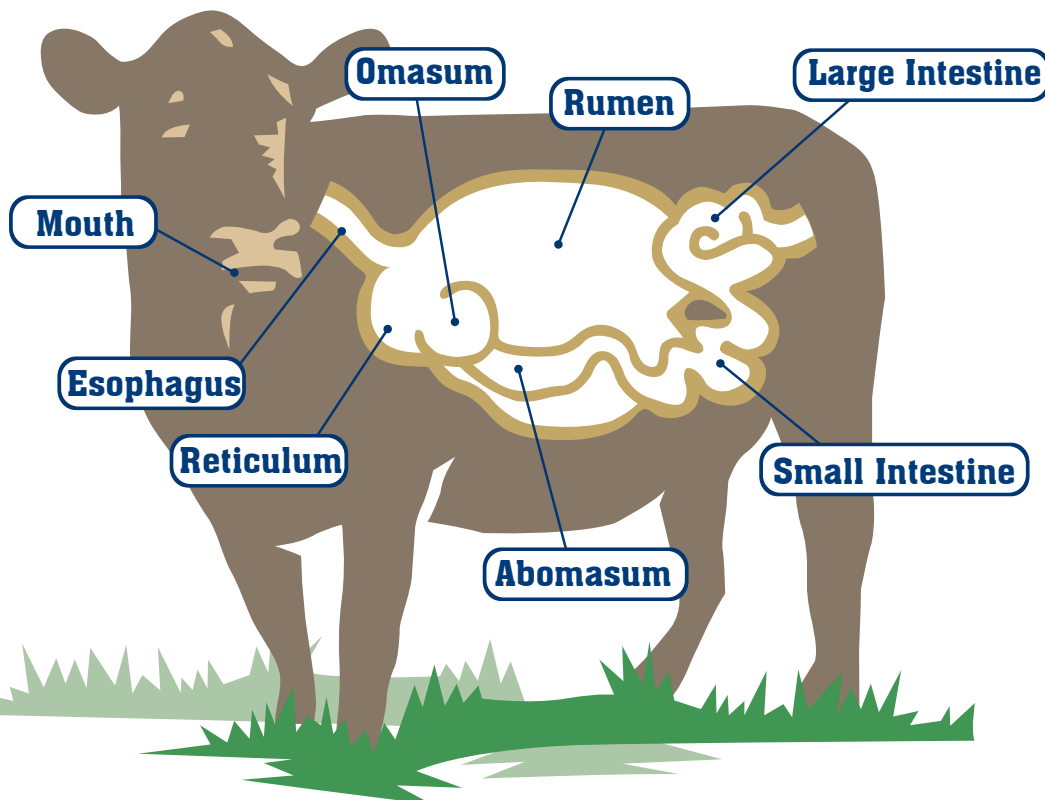
The Utah Wool Growers Association has created a DVD that explores the history, life cycle, and environmental issues associated with raising sheep in Utah. For more information about this program visit www.agclassroom.org/ut.

Why can a cow eat grass?

All ruminants, including cattle, can eat grass. Ruminants include cattle, goats, sheep, camels, llamas, giraffes, bison, buffalo, deer, wildebeest and antelope.

Some of these animals are livestock, such as cows, goats and sheep. Others are wild animals such as deer, elk, bison and antelope. Why can these grazing animals eat a lot of grass while other animals can't? One reason is that these animals have a special digestive system. Rather than the small stomach you have, these animals all have very large stomachs with four parts called the *rumen*, *abomasum*, *omasum* and *reticulum*. Each compartment is responsible for helping to digest feed such as grass and other vegetation.

Ruminant Digestive System



Ruminant Digestion

Look at the picture of the "Ruminant Digestive System". Using a pencil trace the path of grass as it moves through the ruminant digestive system. You may want to place arrows on your line tracing.

1. Teeth tear and chew food in mouth
2. Food travels down the esophagus
3. Cud (swallowed food) mixes and softens in the first stomach, the rumen.
4. Cud returns to mouth for more chewing by rear molars. Cattle chew their cuds 40-60 more times before they swallow it again.
5. Cud then passes through stomachs 1 (rumen), stomach 2 (reticulum), and stomach 3 (omasum) where the cud is broken down further. Stomach 4 (abomasum) is more like a human stomach. The cud is digested and then continues on through the intestines where nutrients are absorbed into the blood stream.
6. Waste materials pass through intestines and exit body as manure (not really waste, especially if you use it as fertilizer!).

1



The rangeland photographs on this page are all found in different states. Under the column for each picture, put a check mark beside what you see.

3



2



What is alike in all these pictures?

PHOTO	1	2	3	4	5	6
Make a check mark beside the plants you see in each picture.						
Grass						
Shrubs						
Wildflowers						
Make a check mark beside the type of grass-eaters you see.						
Cattle						
Sheep						
Elk						
Deer						
Buffalo						
Grasshopper						
Mice						
Is the land in the picture:						
Flat						
Rolling						
Mountainous						
If there is water in the picture, check the type of waterbody.						
Lake						
Stream						
River						
Wetland						

What is different?

4

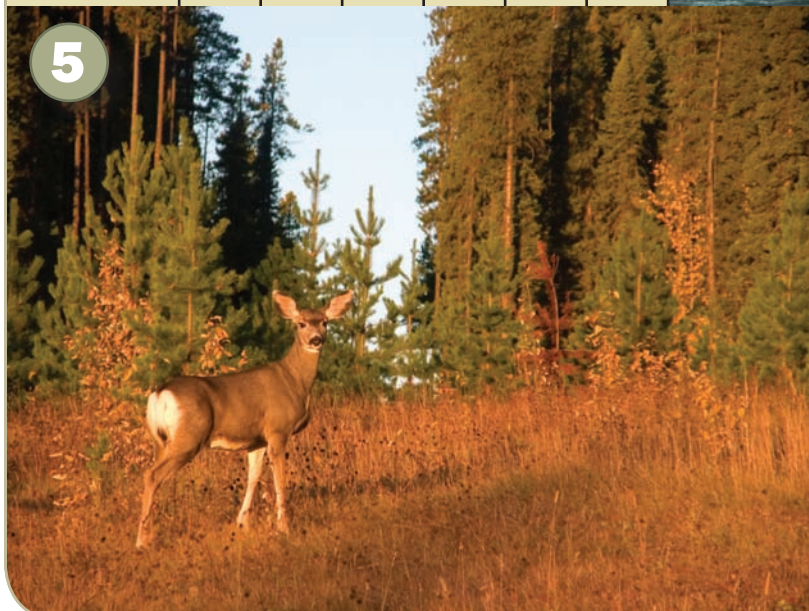


Learn more from



www.agclassroom.org/ut

5



6

