

# *Yellowstone*

THE PARK BEHIND THE GAME



The Avalon Hill Game Company







# Yellowstone

## THE PARK BEHIND THE GAME

by Joe Zarki and Jack de Golia

*Climb the mountains and get their good tidings. Nature's peace will flow into you  
as sunshine flows into trees. The winds will blow their own freshness  
into you, and the storms their energy, while cares will drop off like autumn leaves.*



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Inside Front Cover: Glacial Pond, Lamar Valley  
Title Page: Wild Raspberries  
Credits Page: Sundews, Old Faithful Area  
Inside Back Cover: Grand Prismatic Spring  
Back Cover: Bull Elk Grazing in a Yellowstone Meadow

The painting on the box cover and contents page, entitled "Tower Falls", is an original 1872 watercolor by Thomas Moran, (1837-1926).

Moran traveled through Yellowstone with the 1871 Hayden Expedition. His artwork helped persuade Congress to establish Yellowstone National Park in 1872. The original watercolor is in the collection of the Thomas Gilcrease art institute in Tulsa, Oklahoma.

(All quotations are from John Muir's *Our National Parks*, Chapter II, "The Yellowstone National Park", pp. 42-83, Houghton Mifflin Company, 1901.)

*Photography Credits*

Jeff Foott—Pages 14 (blue grouse and trumpeter swan), 19 (goshawk).  
W.H. Jackson—Page 6 (Hayden Party), courtesy of  
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Joe Zarki—Pages 8 (weasel), 11, 14 (grizzly bear), 16 (moose), 22 (grizzly bear, coyote), 24.

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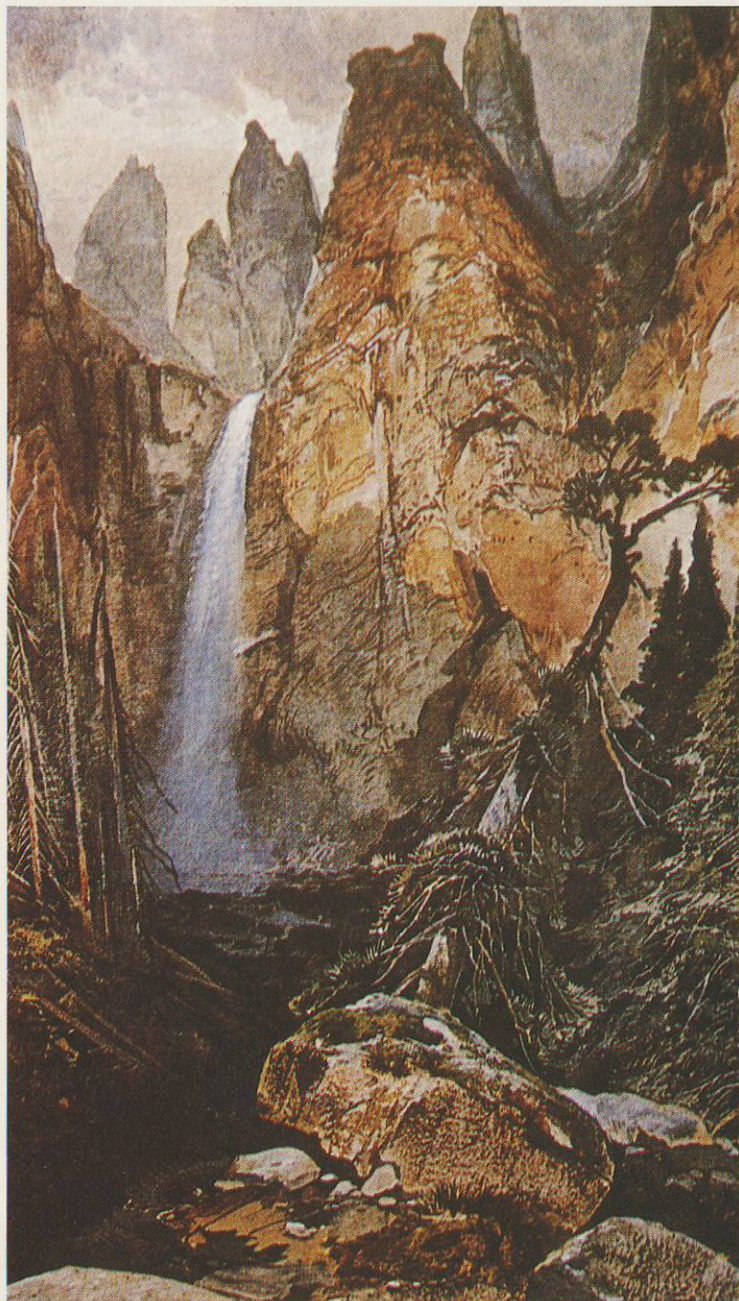
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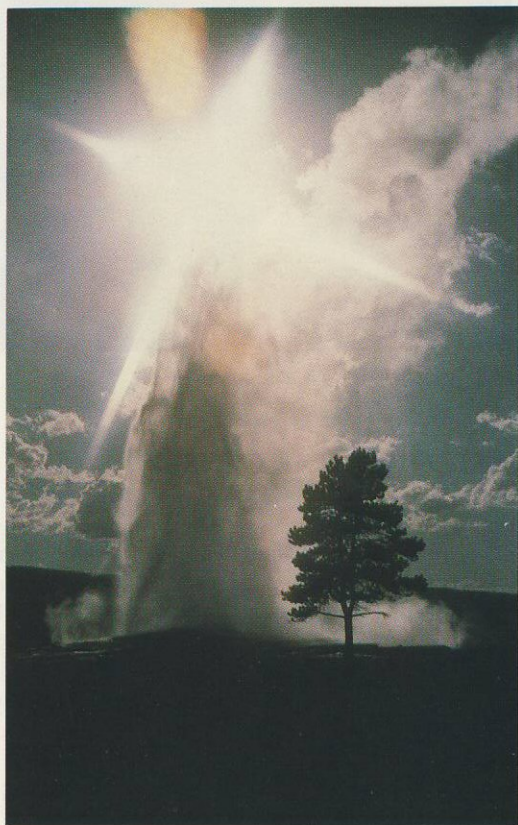


## GEYSERS AND GRIZZLIES

In the northwest corner of Wyoming, the northern Rocky Mountains form a high, forested plateau broken occasionally by volcanic peaks and deep canyons. This plateau is the center of America's largest remaining wilderness area outside of Alaska.

Drained by the Yellowstone River on the north and the Snake River on the south, the Yellowstone Plateau is home to some of America's largest surviving populations of wild animals. Elk, moose, mule deer, bighorn sheep, bison and pronghorn antelope thrive. It is the home of numerous threatened and endangered species—the grizzly bear, the trumpeter swan, and our national symbol, the bald eagle.

The Yellowstone area is also one of the most geologically active regions in all of North America. The site of an immense volcanic explosion called a caldera, Yellowstone is still jolted regularly by minor earthquakes. Molten material called *magma* exists close to the surface under Yellowstone, and the heat from this liquid rock in contact with underground water has created the greatest array of geysers, hot springs, and other thermal features found anywhere on our planet!



*It is a big, wholesome wilderness.*



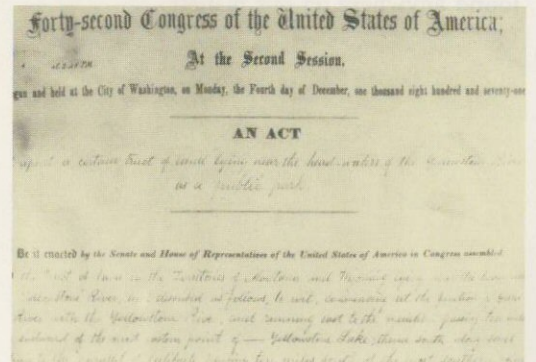


*The Hayden Expedition in Yellowstone in 1871. The Expedition's report effectively persuaded Congress that Yellowstone merited special protection as the world's first national park.*

## YELLOWSTONE GENESIS

Early explorers viewing Yellowstone's incredible thermal areas were for many years considered liars and story-tellers when they reported what they had witnessed. Not until expeditions (led in 1869 by Nathaniel Langford and in 1871 by Ferdinand Hayden) confirmed with photographs, paintings, and detailed maps what had long been rumored, did the world begin to grasp the amazing truth about Yellowstone. Through the efforts of Hayden and others, the Yellowstone area was established as the first national park in the world. The law signed by President Ulysses Grant on the first of March 1872, created the Yellowstone National Park as "a public park or pleasuring ground for the benefit and enjoyment of the people."

Equally important in the establishment of Yellowstone was the idea that a national park was valuable for its scenic and wilderness values, and that these were to be preserved and protected for the benefit of all Americans, both present and future. While roads, hotels, and other facilities are now found in the park, it is still possible, over 100 years later, to walk just a short distance from any developed area and enter a timeless world of nature.





## VISITING THE PARK TODAY

Each year some two and a half million people from every American state and dozens of foreign countries come to Yellowstone to watch the geysers erupt and view wildlife herds as abundant and varied as those of the great game parks of Africa. Few are ever disappointed, and many people return again and again. For many, their vacation in Yellowstone is the trip of a lifetime.

Though remote, Yellowstone is easily reached in summer. Modern paved highways approach the park from nearly every direction. Airline service is available to the nearby communities of Bozeman, Jackson, and West Yellowstone, and bus transportation to major points of interest in Yellowstone is possible through TW Services Inc., one of Yellowstone's concessioners. Lodging, dining, fuel and many other services can be readily found in the park from Memorial Day through Labor Day. While the park is open to visitors year round, services are limited or curtailed during certain seasons of the year. Nonetheless, many people are discovering that the off-seasons of spring, fall, and winter offer uncrowded roads and trails and more easily seen herds of wildlife.

Visitors coming to Yellowstone are required to pay a nominal entrance fee that entitles them to a one-week visit to Yellowstone and the nearby Grand Teton National Park as well. This fee applies to privately owned cars and includes all passengers travelling in a single vehicle. Commercial tours, organized groups, and individuals on foot or bicycle are required to pay a small amount per person. American senior citizens and some educational groups are entitled to have these fees waived. It is a small investment for such pleasure.





## CAMPING IN YELLOWSTONE

For visitors wishing to camp in Yellowstone, the park offers twelve campgrounds. These range from small, primitive sites without flush toilets or running water to large developed areas with running water, modern plumbing, giftshops, eating establishments and sewage dump stations. The campgrounds at Canyon and Fishing Bridge are limited to hard-sided cars or recreational vehicles because of the frequency of bears in the area. Tents and tent-trailers are not permitted in these two campgrounds. For more information on camping in Yellowstone, write to the Superintendent of Yellowstone National Park.

Remember! *Yellowstone is bear country!* When camping, it is essential to take proper precautions with your food. Never leave food or cooking utensils unattended, even for a few moments. At night, or when gone from your campsite, lock all food and cooking gear in your car. With common sense application of some basic guidelines, no trip need be marred by accident or confrontation with the wildlife.



*A short-tailed weasel looks for a meal.*



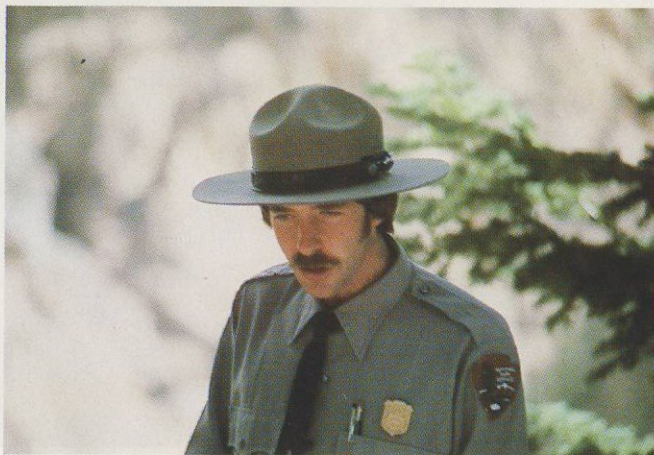
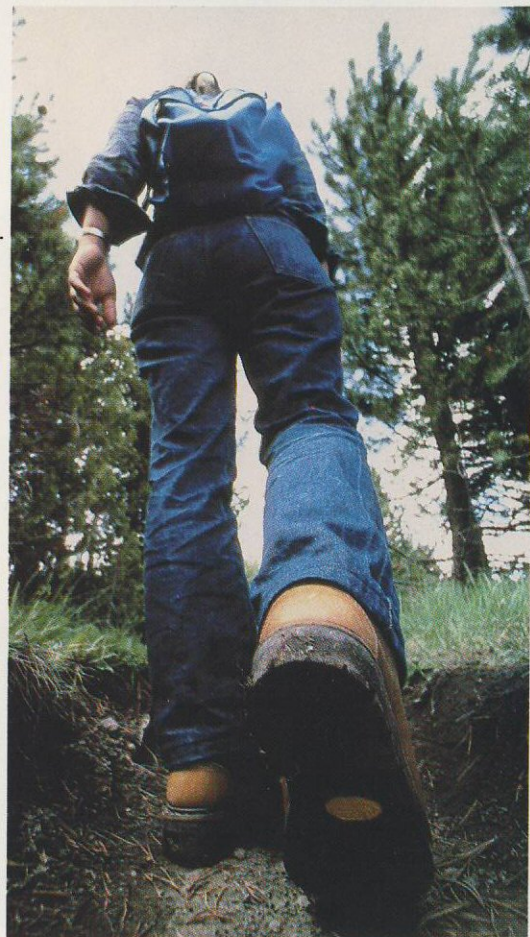
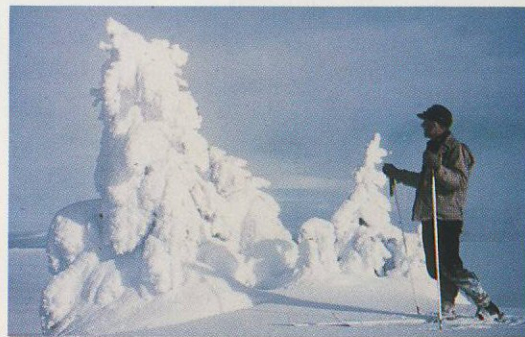
## BACKPACKING

There is no finer way to experience the beauty of Yellowstone than by taking an overnight hike. Over a thousand miles of trail lead to nearly every corner of Yellowstone, including some of the most remote country left in the United States. Each summer thousands of visitors take advantage of the unique opportunities afforded by Yellowstone's many trails.

Those planning overnight or extended hikes are required to have a backcountry permit. There is no fee for this permit, and they are available at park visitor centers and ranger stations. When obtaining a permit, hikers will be asked to specify backcountry campsites where they will spend each night of their trip. Usually no more than one party is allowed at a campsite, thereby ensuring each party's solitude. Detailed maps showing locations of campsites, trails and terrain are available in each visitor center and ranger station. An oversize relief map of the park showing trail locations is available at park visitor centers. US Geological Survey 15-minute topographic maps of the region can be purchased at the Old Faithful Visitor Center, at nearby sporting goods stores, or directly from the US Geological Survey.

Day hikes are also an excellent way to explore Yellowstone Park. A large number of fascinating all-day or half-day hikes are located throughout the park. Details on these can also be obtained at park visitor centers and ranger stations. While no permit is required for day hikes, it is best to request up-to-date information from park rangers about particular trails before starting out, since trail conditions can vary considerably over even short periods of time.

If you are planning to go hiking at all when you visit Yellowstone Park, write to the park offices and request the free brochure on backcountry use.

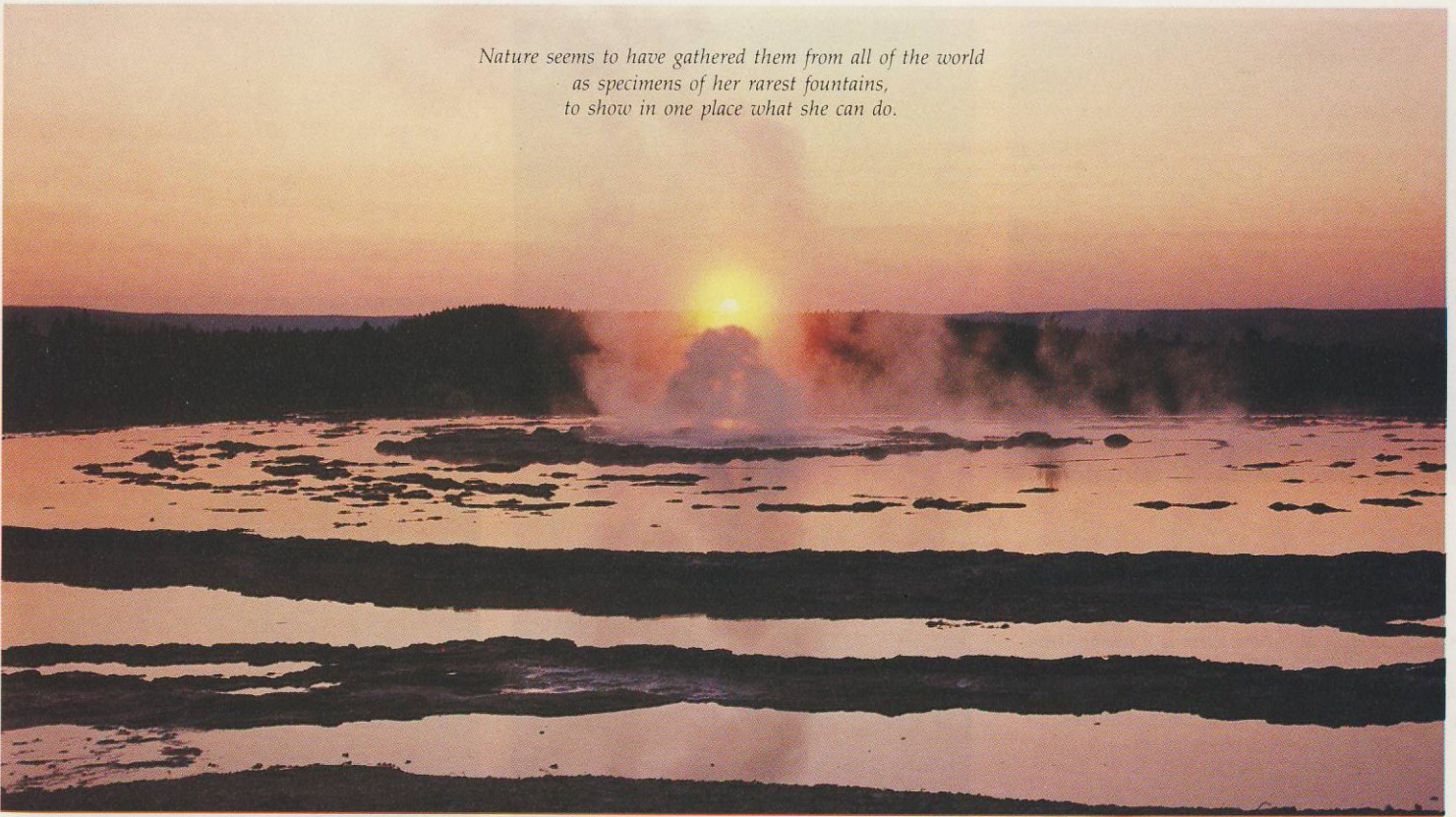








*Nature seems to have gathered them from all of the world  
as specimens of her rarest fountains,  
to show in one place what she can do.*



## SEEING THE PARK: THERMAL FEATURES

Yellowstone National Park covers 3472 square miles of diverse natural wonders and scenic splendor. While it is common for many visitors to try to see the entire park in a single day (or even a few hours), it is not recommended. To really give a region this size a chance to display all it has to offer, you should allow at least three days of unhurried travel, with time to walk some of these beautiful trails.

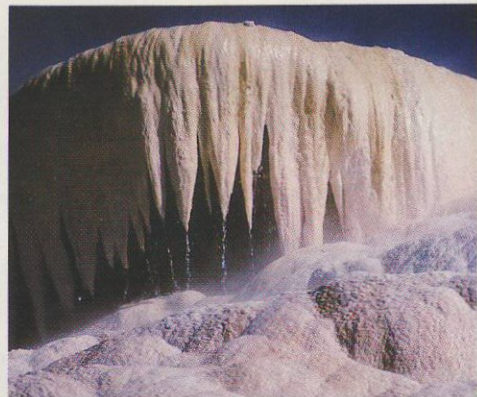
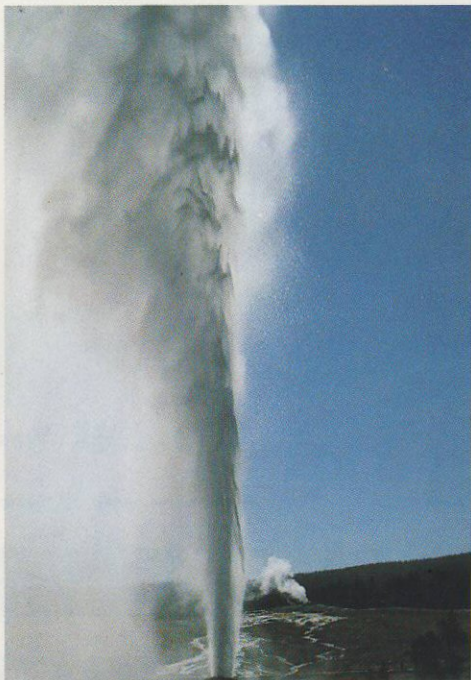
Most visitors want to see Old Faithful Geyser during their visit to the park, but Old Faithful is neither the biggest nor the most frequent of the regularly erupting geysers. Numerous other geysers in the Old Faithful area are more spectacular, although they erupt less often. In addition, the boardwalk trails in the Old Faithful area pass hundreds of hot springs, brilliantly

colored pools, and roaring steam vents. The Fountain Paint Pots Trail, seven and a half miles north of Old Faithful, has one of the more fascinating thermal features in the park—bubbling mud pots! Delighting both the eyes and ears, these hot mud pools are almost hypnotic in their never-ending display of splashing and gurgling colors.

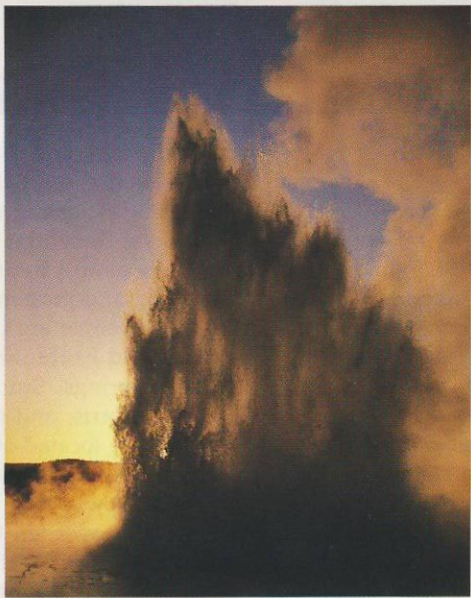
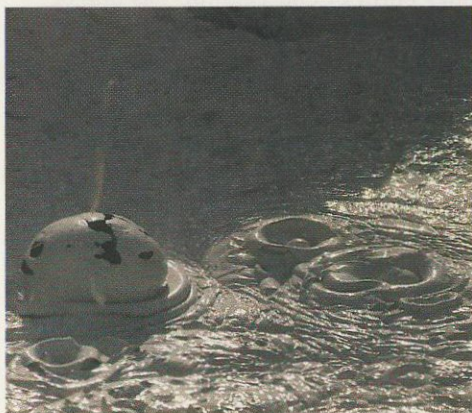
Many people are unaware that there are numerous locations besides Old Faithful that have noteworthy groupings of geysers and hot springs. Stunning geysers can be found at West Thumb, Norris, and the Mud Volcano area. Significant thermal features are located at Mammoth Hot Springs, Artist's Paint Pots, and along many backcountry trails. A delight to behold, the visitor owes it to himself to witness these wonders.

All told, over ten thousand different thermal features have been identified in Yellowstone—the greatest concentration found anywhere in the world.





A walk through a thermal basin is a sensory treat.  
 Clockwise from upper left:  
 a fumarole, a cone geyser, travertine terraces,  
 a hot spring, a fountain geyser, and mud pots.





## WILDLIFE

Yellowstone owes its world-wide reputation to its great herds of wild animals as much as its spectacular thermal features. Elk, mule deer, moose, bison, pronghorn antelope, and Rocky Mountain bighorn sheep are all found in sizable herds that are often in view of the park roads.

Elk are by far the most numerous of the park's large animals. The bulls reach one thousand pounds in weight and grow antlers spanning over four feet. Their stirring mating call, known as *bugling*, can be heard in the evening hours from late August through September. Elk can be found in many areas of the park, particularly near Mammoth Hot Springs, the Madison River Valley, and many of the open meadows near the Norris and Old Faithful thermal areas.

Mule deer are known for their large ears. Bigger than their cousins the whitetail deer, mule deer are found throughout the park, but are especially fond of the mixed woodlands and open brushlands along the northern boundary of Yellowstone. Mammoth Hot Springs and the Tower/Roosevelt area are good locations to watch for mule deer.

In terms of sheer bulk, bison (or buffalo) are the largest animals in the park. Mature bulls frequently exceed two thousand pounds. Their massive heads and shoulders are very handy for pushing aside winter's deep snow to reach the dried grass upon which they feed. Bison are social animals and travel in herds which occasionally number as many as five hundred animals. Bulls will band together in small bachelor groups

of five to fifteen animals. Their sluggish movements and seemingly docile manner can be very deceptive. Each summer a few park visitors are charged, and even gored, when they approach bison too closely. By the time people realize their error, it is too late, since a bison can move with surprising speed when provoked. Yellowstone's bison herd is the largest free-roaming herd left in North America. They can be seen in the open grasslands of the Hayden Valley, the Lamar River Valley, and the Old Faithful area.

With their massive curled horns, bighorn sheep are perhaps the most majestic of the park's large herbivores. Preferring the steep rugged terrain of the park's mountains, bighorn sheep graze the slopes in small bands; usually females and lambs separate from the adult males. The bone-crushing mating duels of the adult rams are one of nature's most spectacular sights. Because of their preference for high, remote mountains, bighorn sheep are not often seen from the park roads during the summer months. The steep cliffs near Tower Falls, and the hills above the Lamar Valley are two places they are occasionally seen, but most people have better luck searching for them along the three-mile trail from Dunraven Pass to the top of Mount Washburn.

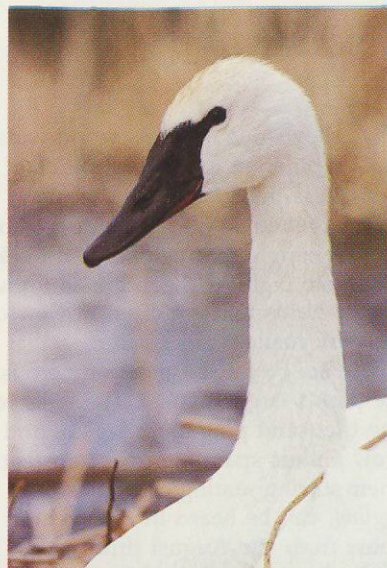
Moose are the largest members of the deer family and are fond of willows and freshwater vegetation. The shallow marshlands between Mammoth and Norris and the quiet stretches of the Yellowstone River between Lake and Canyon are favorite haunts for the



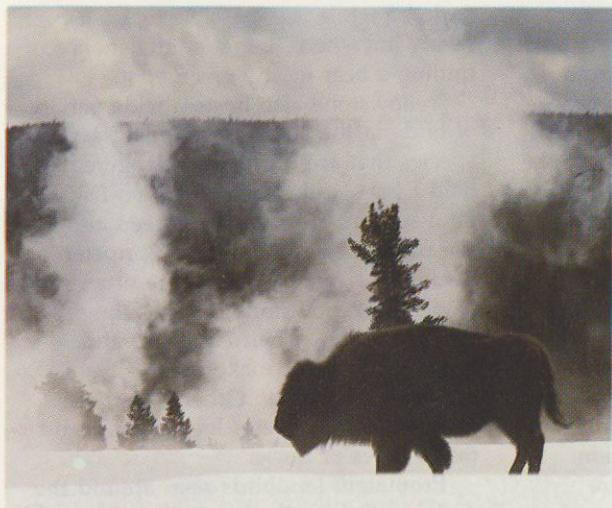
moose. The reddish calves born early in summer are jealously guarded by their mothers, who will not hesitate to charge the fiercest predators—or unwary people for that matter.

*On the following pages,  
Yellowstone boasts an array of wildlife  
matched in few places. Clockwise from upper left:  
a Rocky Mountain bighorn ram, a young elk,  
a strutting Blue Grouse, the endangered Trumpeter Swan,  
a grizzly bear, a Barrow's Goldeneye,  
a pronghorn antelope.*











Pronghorn antelope, America's fastest land animal, are denizens of the open plains and their range in Yellowstone is restricted to the drier grass and sage lowlands of the northern portion of



*A young moose nibbles on new willow blossoms.*

*Preceding page: The long Yellowstone winter is a big factor in the lives of many animals. Some animals hibernate throughout the winter, but bison, snowshoe hares, mule deer, and elk survive on what little forage they can find under the snow or near thermal areas.*

Yellowstone National Park. Pronghorn use their speed, their keen eyesight, and wide open spaces for protection from predators. These graceful animals can be seen most easily near the park's North Entrance at Gardiner, Montana, or in the open bottomlands of the Lamar River Valley.

The most frequently observed predator in Yellowstone is the highly adaptable coyote. These intelligent canines are relatively common in the area and are often observed in the open country along the northern half of the park. Rarely observed are the feline predators such as the mountain lion, bobcat and lynx. These animals are highly secretive and even park rangers hardly ever spot them. Members of the weasel family found in Yellowstone include badgers, wolverines, pine martens, fishers and otters. River otters are occasionally observed near the park's streams and lakes, and if you are lucky enough to see them, their antics will provide some of the best entertainment anywhere.

Nearly everyone coming to Yellowstone hopes to see a bear. "Where can I see a bear?" is one of most frequently asked questions of the park personnel. Perhaps no animal evokes the mixed emotions of fear and delight as thoroughly as a bear. Yellowstone has populations of both black and grizzly bears. Because these animals roam widely across the park searching for food, the typical visitor's chances of seeing a bear from the road are slim. Bears are supreme opportunists. They will eat nearly anything, animal or vegetable, that appeals to them. The fact is, though, that 90% of their diet is plants. Their search for favorite succulents takes them to all parts of the

park, so while it is possible to see a bear nearly anywhere, there is little chance of finding a bear in any given spot.

Yellowstone also hosts a wide variety of birds in the summer including several species that are rare and endangered. Bald Eagles and Ospreys rely on fish for food so they are sometimes seen along the park's river and lakes. Trumpeter Swans and White Pelicans are often seen along the Yellowstone River in the Hayden Valley. Their large size and bright white color make them unforgettable sights. Other waterbirds include Canada geese, loons, gulls, and many types of ducks.

Prominent landbirds seen around the park are Golden Eagles, Red-tailed Hawks, Prairie Falcons, and Sandhill Cranes. Western Tanagers, Mountain Bluebirds, and Yellow-rumped Warblers are among the most colorful of the smaller birds. All told, some two hundred twenty-five species of birds put in an appearance at Yellowstone throughout the course of the year. Checklists of birds and mammals are available upon request at the park visitor centers in Yellowstone.

To many, Yellowstone means good fishing. Yellowstone Lake, the Yellowstone River, and many other streams and lakes in the park boast some of the world's richest trout fishing. Thousands of visitors come to the park each summer to cast flies for cutthroat, rainbow, brown, lake, and brook trout. The excellent fishing opportunities are enhanced by the virgin wilderness setting available to fishermen throughout almost the entire park. All fishermen are required to obtain a fishing permit before they can fish in the park. These permits are available at all entrance stations, visitor centers, ranger stations, and many stores around the park.



## WHAT TO DO IN YELLOWSTONE

For many people, a visit to an unfamiliar place like Yellowstone Park can be an exciting, yet confusing, experience. It's obvious there's a lot to see and do, but the park can be so overwhelming that it's difficult to know where and how to start.

The National Park Service offers programs to help park visitors put their experiences in focus. These programs are actually a diverse assortment of group activities ranging from evening slide programs to extended hikes to historical re-creations to seminars on specific outdoor skills. If you are coming to Yellowstone, the best way to learn about these activities is to ask a ranger when you arrive for a free brochure on the ranger-naturalist programs.

TW Services Inc., a park concessioner, also offers a wide range of organized activities. These include guided bus tours around the park, boat tours of Yellowstone Lake, horseback rides, stagecoach rides, and Old West cookouts. Boats and fishing guides are also available for rent at the Bridge Bay Marina.

The park's larger lakes offer excellent opportunities for boating in a wilderness environment. Both power and hand-propelled craft are allowed on Yellowstone Lake and Lewis Lake, while Shoshone Lake and the southern arms of Yellowstone Lake are restricted to hand-powered boats. A permit is required for any boating in Yellowstone. These can be obtained at the ranger stations and visitor centers nearest to where you plan to use your boat. Yellowstone's larger lakes are extremely cold and are subject

to sudden, violent storms in the summer. Caution, common sense, and good information are essential for those planning any boating in the park.

## THE OFF-SEASONS

Some people are daunted by the prospect of bumper-to-bumper traffic and filled-to-capacity campgrounds and motels that are characteristic of the busy summer season at Yellowstone Park. The vast majority of people come between June 15 and Labor Day when the weather is most reliable and the full range of facilities and accommodations are open. However, in the spring (May to early June) and fall (September through October), the weather is usually very pleasant and the roads and trails delightfully uncrowded. Some accommodations are closed at this time, but gas, food, lodging, and several campgrounds are still open. Another attraction of the spring and fall is that many of the animals are now in their winter ranges at lower elevations where they are more easily viewed by park visitors.

Winter is growing in popularity in Yellowstone as a favored time to visit the park. Winter activities such as snowmobiling and cross-country skiing are attracting more and more participants each year, and Yellowstone offers unparalleled opportunities for both. Nearly all park roads are groomed in winter for snowmobile use. While a permit is not required to operate a snowmobile in Yellowstone, all snowmobilers should pick up a copy of the regulations governing the use of their snowmobiles in the park.

Lodging and meals are available at Old Faithful and Mammoth Hot Springs,

and visitor centers are open at these locations throughout the winter season. Airline service to Bozeman is available year round, and TW Services Inc. provides bus transportation from Bozeman to Yellowstone. Snowcoaches take passengers into Old Faithful and, from there, on day-long tours of the park. Snowmobiles and cross-country skis can be rented from TW Services in the park. They are also available in West Yellowstone, Flagg Ranch, Gardiner, Cooke City, and just outside the East Entrance of Yellowstone. Warming-huts (buildings having hot drinks, sandwiches, and information) are located in winter at West Thumb, Canyon, and Madison.

For those wishing to drive to the park in winter, the park road from the North Entrance to Cooke City, Montana (via Mammoth and Tower), is kept plowed for automobile traffic year round. Chains and snow tires are often required in winter, and icy conditions are common on this road. Care should be exercised, and normal winter driving precautions observed; but the trip is of great interest to many who are unfamiliar with the high country winter.

Park rangers offer a variety of activities in winter. Slide programs, ski trips, snowshoeing, and wildlife camera safaris are all popular activities. Several brochures and leaflets on winter and other off-season use of the park are available.

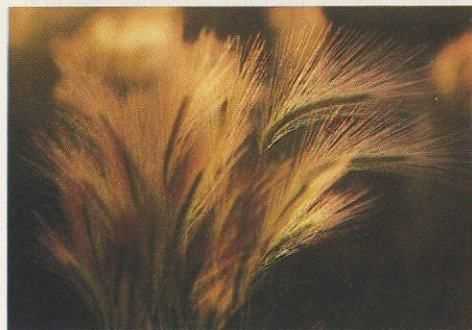
For more information, write to:  
Superintendent  
National Park Service  
P.O. Box 168  
Yellowstone National Park  
Wyoming 82190



## THE GAME AND YELLOWSTONE WILDLIFE

The **YELLOWSTONE** Game tries to show as accurately as possible how populations of wild animals live together in a natural system that ensures their survival—not as individuals but as a group. Coping with their environment, in competition with others who face the same threats, is a central consideration in the game. In essence, it is “Nature’s Way”.

All living things require energy in order to live. Most animals gain this energy by eating food of some sort. In any given place, the plants and animals living there belong to a hierarchy of living things, a food *chain* or *pyramid*. These food chains are normally in balance. Plants are always at the bottom of the chain. They make their own food by using energy from the sun. Plants, especially grasses and shrubs, provide food for an entire class of animals called *herbivores*. These are often large animals that maintain their great size by eating huge quantities of plant material. In Yellowstone, bison, elk, mule deer, and bighorn sheep are the most prominent members of this group.



Some animals survive by eating both plants and meat, depending upon which is more readily available. These animals are called *omnivores*. Both bears and human beings fall into this group. They are surely the most adaptable, and often the most dangerous, of the denizens of the wilderness for they can compete with all other species.

Animals that survive by eating primarily (or exclusively) meat are called *carnivores* or *predators*. Predators get the energy they need by eating other animals. Members of the cat family—such as mountain lions, bobcats, and lynx—are some of the most efficient predators in the animal kingdom. In the dog family, coyotes and wolves are other examples of highly skilled predators. In the **YELLOWSTONE** Game, bears and human beings are considered predators—as well since they kill and eat herbivores.

Herbivores, like those in **YELLOWSTONE**, face several survival problems. Because they must eat large quantities of plant material, herbivores are in a constant struggle to be able to find enough forage. Different plants provide more nutritive value at certain times of the year than others. In addition, the heavy winter snow cover in Yellowstone makes many plants unavailable during the long winter. These two facts have encouraged most large grazing animals to adopt a migratory lifestyle. They travel long distances hoping to find fresh vegetation as it grows in the spring and summer.

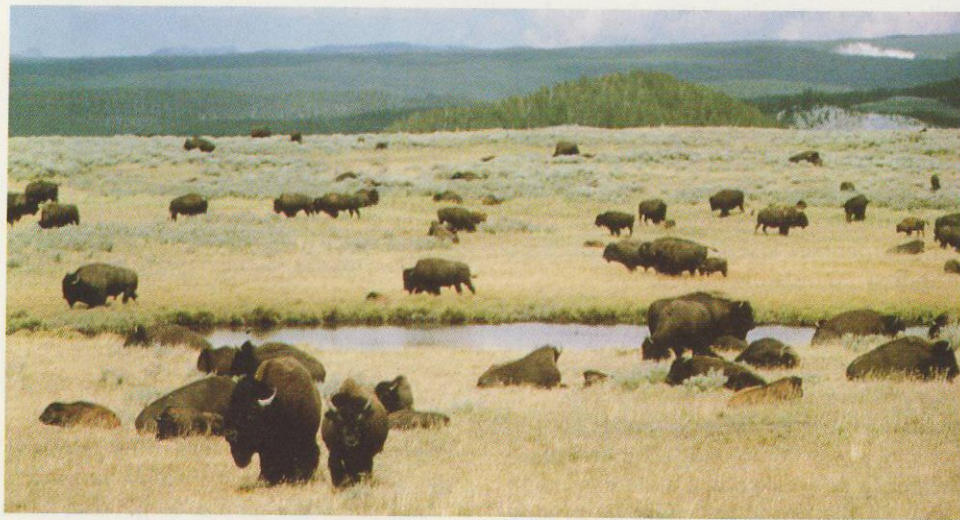
Another problem faced by the grazing animals is that of protection from predators. Any animal that spends many hours each day with its head down munching on grass is very vulnerable to attack. Consequently, many grazing animals have developed the tendency to



associate in herds for protection. With a large group of animals it is a simple matter for a few to be watching for signs of approaching danger while the others devote their full attention to eating. Also, larger and stronger members of the herd are able to provide reasonable protection for young animals and weaker herd members. When approached or attacked by predators, a herd will often run in a chaotic manner closely resembling a stampede. The noise and confusion this creates makes it difficult for a predator to single out an individual animal for an attack. Some animals, such as deer, use a bounding or leaping gait when they run making them an even more difficult target.

By moving about to take advantage of seasonal changes in vegetation and by banding together in herds for protection, many grazing animals developed preferences for specific areas that they return to year after year. There is a strong incentive for a herd to return during the following season to an area where food is plentiful and other conditions favorable. As a result, animals develop *summer and winter ranges*. These are places the animals migrate to each season to conduct their basic activities for survival—finding food, giving birth to young, and seeking protection from predators.





The timing of these basic activities depends a great deal on the availability of food, which in turn is determined largely by weather. Most grazing animals give birth over a short period of time in the spring to take advantage of the nutritious new growth of grasses and other leafy plants. This rich source of food enables mothers to produce plenty of milk for newborn animals. It is important that young herbivores grow quickly so that they can move with the herd and survive on their own. By fall, many animals born in the spring are nearly as large as their mothers. Breeding activities take place in the late summer and fall so that females are ready to give birth again in the spring. Late spring snowstorms can have a disastrous effect on the survival of newborn animals.

The lives of predators, their social activities, and even their physical appearance have been determined by their dependence on available prey and the weather. As meat-eaters, predators

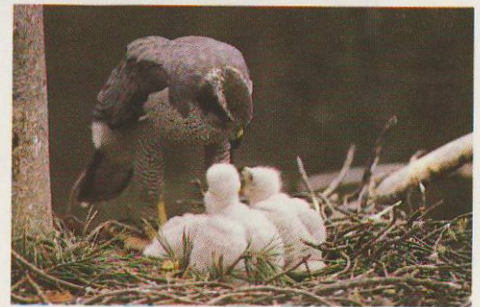
have developed teeth and claws designed to tear, slash, grasp and crunch so they can obtain food more easily. Their ability to move quietly and quickly to sneak up on grazing animals has come about to counter protective mechanisms of the herds. Some, such as wolves and coyotes, have developed the cooperative hunting behavior of the pack to ensure greater hunting success. Breeding and the birth of young are timed to take advantage of the abundance of weak adult and newborn grazing animals that are present in the early spring. At this time of year, food is usually plentiful, and the young predators can grow strong.

While herbivores are migratory, predators, for the most part, center their lives around a home range or *territory*. These territories are determined by the type of prey that is taken and its availability in a given area. Mountain lions, for example, eat primarily deer. Their territories are huge to ensure that enough deer are present for a given

animal to survive. As a result, mountain lions are never abundant in a locality and are seldom seen. Bears and coyotes, by contrast, eat a wider variety of foods and are able to survive in smaller territories allowing a great number to exist in any similar area.

Animals will often have different territories for specific uses. A breeding territory will be a different size than a feeding territory and will be defended more strongly. While all territories are defended to a certain degree, serious fighting among predators is uncommon. The animal defending its own territory seems to have a "home-court advantage" and will almost always win out, even over larger animals.

While both predators and herbivores have developed strategies and adaptations for survival that are efficient, and even ingenious, they are still not perfect. While most grazing animals can withstand attacks from predators, not all will be able to do so to the same degree. Most predators are able to subdue enough prey to survive, but there are always those that cannot and starve as a result. In both cases, those that die are usually the weak, sick or injured—leaving strong and healthy animals surviving as breeders. They pass on their



*A Goshawk feeds its young.*



successful traits to future generations.

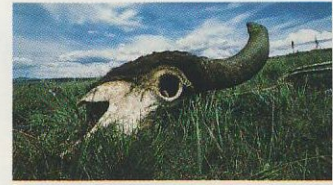
For both predator and prey, the great equalizer is winter. In Yellowstone, snow remains on the ground consistently from October to May and temperatures plunge to below -50 degrees Fahrenheit on occasion. Winter weather like this takes its toll on all animals living there. The animals have made adjustments to deal with this difficult time of the year. For most, the problem is not so much the cold as finding enough food. Thick coats of fur provide adequate protection from even the most severe temperatures; but more food is required during cold weather to provide the body with enough energy.

Some animals have solved this problem by escaping it entirely. Birds migrate long distances each winter to areas where food is plentiful and temperatures mild. Other animals hoard food in caches during the summer and

fall; some mammals go into dens and sleep away the winter in a state of slowed body activity called *hibernation*. A body that breathes less and pumps blood less can survive for a long time without eating. While bears do not hibernate in the classic sense, they too "den up" to avoid the long winter months. Even so, they sometimes lose more than two hundred pounds over a winter.

Elk, deer, bison, bighorns and many predators are unable to escape winter. They do move to lower elevations where snow is less deep and food is more accessible, but for them winter is the time of stress. Many reach the end of winter in so weakened a state that a late storm in the spring can cause them to die.

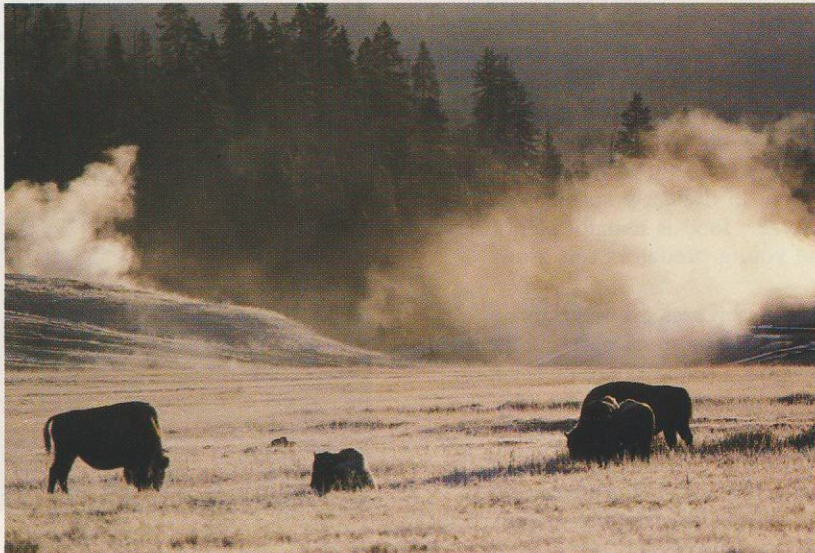
To us, as observers who often feel removed from the bitter struggle of survival, nature at times seems cruel. Certainly, visitors who walk through a



*Old, weak, and injured animals often succumb to Yellowstone's harsh winters. Their remains nourish a variety of animals, and micro-organisms recycle nutrients back into the soil. These vital processes are allowed to operate unhindered in the park.*

Yellowstone geyser basin in May and discover numerous dead animals often wonder why more isn't done to keep them alive. We tend to forget that nature has worked this way for millions of years long before humans came on the scene. Those animals that die provide food for the others, and their remains eventually decay and add vital nutrients to the soil. These nutrients nourish the plants which provide food for new generations of animals. In Yellowstone, and in all nature, it is not individuals that matter as much as populations.

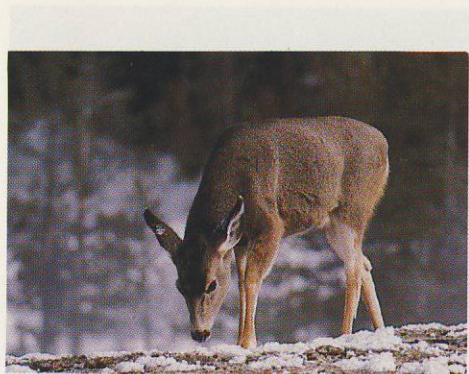
A balanced ecosystem like this has taken a millenia to develop. While any natural area can adjust to change, that change is usually slow as new generations of animals take part in the massive trial-and-error process, where those creatures having successful traits do survive and pass them on to their offspring. It is mainly human beings, with their capacity for making tools, altering their environment, and planning for the future, that are able to seriously endanger a natural system like Yellowstone. Yet, it is only people that can create national parks, correct past mistakes, and appreciate the beauty of a balanced wilderness like Yellowstone.





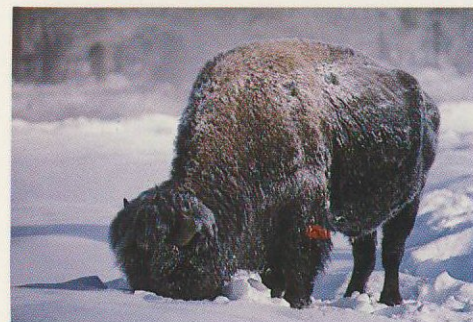
## PLAYER PROFILES

**ELK** (*Cervus canadensis*)—Yellowstone is Elk Country! The most numerous large animal in Yellowstone, elk (or wapiti) number about twenty-five thousand in the park and its environs. Standing about four to five feet at the shoulder, adult elk weigh from five hundred to a thousand pounds. Elk are pale brown in color and have a yellowish rump patch. The male, or bull, elk is known for its large spreading antlers and its piercing mating call known as bugling. Elk are herd animals and are often seen in groups of twenty or more animals. Cows give birth to a single (rarely two) calf in May or early June. True vegetarians, elk eat grasses, herbs, twigs and bark. Once widespread throughout most of North America, they are now most commonly seen in our western national parks.



**MULE DEER** (*Odocoileus hemionus*)—Mule deer greatly resemble the more widespread whitetail, differing mainly in their larger size, their large mulish ears and their black-tipped tail. Standing three feet tall, adults weigh from one to four hundred pounds. In summer, they take on a slightly reddish hue which fades to gray in winter. Fawns (usually two) are born in June and are spotted. Males of both mule deer and elk grow antlers which are used for display during the *rutting* season. These are shed each year in the early spring. Mule deer are primarily browsers, eating shrubs and twigs and herbs. They are quite adaptable and continue to thrive in areas as diverse as the coniferous forests of the Rocky Mountains to the deserts of the American Southwest.

**BISON** (*Bison bison*)—More commonly called buffalo, bison are the largest animal living in Yellowstone. Adult animals reach heights of five to six feet, and weigh from eight hundred to two thousand pounds. Exceptionally large bulls weighing a ton and a half have been recorded. Bison are usually rich chocolate brown in color and have a massive head and shoulders covered with thick, shaggy hair. Horns are grown by both bull and cow bison. These are permanent structures that are used for defense. Cows give birth to single reddish calves in May and June. Bison once occupied much of central North America in herds numbering in the millions. Today, only a few thousand remain scattered in parks and reserves around the United States. In Yellowstone, herds of several hundred animals can still be seen.





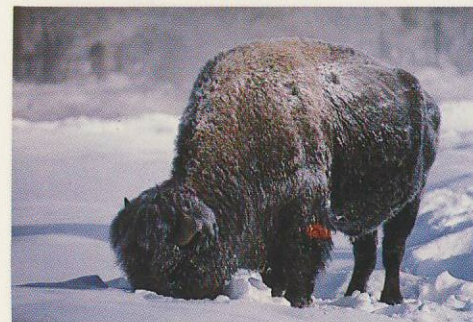
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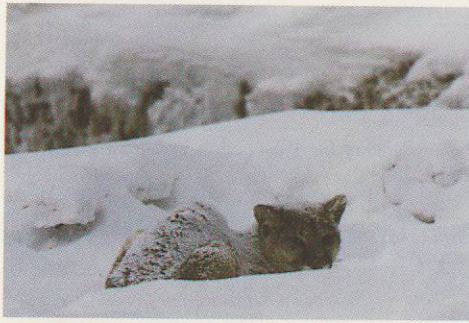


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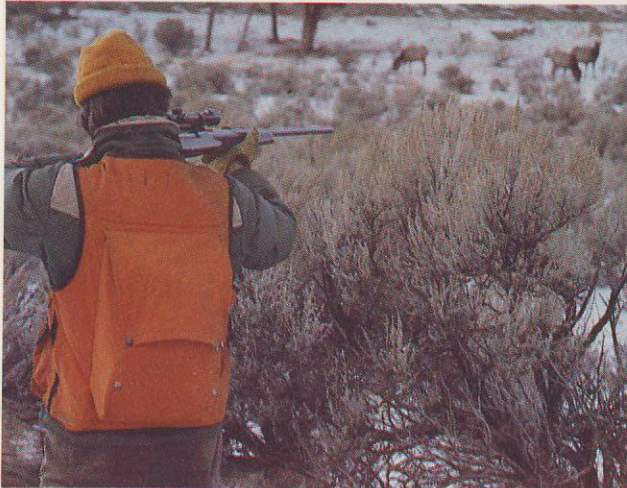






**MOUNTAIN LION** (*Felis concolor*)—A rare predator in Yellowstone, the mountain lion is also known as cougar, puma, and panther. Adults are from six to seven feet in length and weigh between one hundred and two hundred pounds. Coloration is usually tawny and gray. Mountain lions are highly secretive animals and are rarely seen even by experienced outdoorsmen. Their chief prey is deer, but they also eat hares, rodents and, very rarely, domestic animals. These cats occupy large territories and will often roam many miles in the course of a single day. Cubs can be born any time during the year, and while one to six cubs are possible, two is the usual number. Widely persecuted by man, mountain lions now occupy mostly remote wilderness areas.

**HUMAN BEING** (*Homo sapiens*)—Highly migratory, these large omnivores invade Yellowstone in large numbers each summer. Bipedal in stance, adult humans range in size from four and a half to six and a half feet in height and weigh from eighty to three hundred pounds. Nearly hairless, humans are highly adaptable creatures possessing a complex social behavior. Able to make and use a great variety of tools, humans construct intricate dens in which they can modify their own environment. This has enabled them to increase dramatically in numbers, and they occupy virtually every available habitat, usually at the expense of other animals. Females give birth at any time of the year, usually to one or two offspring (although rare cases of five to seven births have been recorded). Young are called children and require a long period of parental care. Highly efficient predators, humans hunt singly or in groups, although often they do not eat their prey. Other unusual features include the ability to cultivate their own food, highly developed oral and written communication, and the marked tendency for mass conflict and predation between various human populations themselves.





## SUGGESTED READING

Like to learn more? What follows is a list of non-technical works—some specifically about Yellowstone, others of a more general nature. A list like this can barely scratch the surface. For information on more reading, write to the Yellowstone Library and Museum Association, P.O. Box 117, Yellowstone National Park, WY 82190. However, all the books in the world can't begin to replace personal experience. Two and one-half million visitors to Yellowstone each year can attest to that.

Alexander, T. and G. Fichter, *Ecology*. Golden Press, New York, 1973.

Burt, W.H. and R.D. Grossenheider, *A Guide to the Mammals*. Houghton Mifflin Company, Boston, 1952.

Cahalane, V.A., *Mammals of North America*. The Macmillan Company, New York, 1954.

Crandall, H., *Yellowstone, The Story Behind the Scenery*. K.C. Publications, Las Vegas, 1977.

Fuller, S. and J. Schmidt, *Snow Country*. The Yellowstone Library and Museum Association, Yellowstone National Park, 1980.

Haines, A., *The Yellowstone Story*. Vols. 1 & 2. The Yellowstone Library Museum Association in cooperation with the Colorado Associated University Press, Boulder, 1977.

Harry, B. and W. Dille, *Wildlife of Yellowstone and Grand Teton National Parks*. Wheelwright Lithographic Company, Salt Lake City, 1964.

Keefer, W.R., *Geology of Yellowstone National Park*. The Yellowstone Library and Museum Association with the U.S. Geological Survey, Yellowstone National Park, 1976.

Murie, O.J., *A Field Guide to Animal Tracks*. Houghton Mifflin Company, Boston, 1975.

National Geographic Society, *The New America's Wonderlands*. Washington D.C., 1975.

National Geographic Society, *Wild Animals of North America*. Washington D.C., 1960.

Robbins, C., B. Bruun, and H. Zim, *Birds of North America, A Field Guide to Identification*. Golden Press, New York, 1966.

Schullery, P., *Bears of Yellowstone*. The Yellowstone Library and Museum Association, Yellowstone National Park, 1980.

Storer, J.H., *The Web of Life, A First Book of Ecology*. The Devin-Adair Company, New York, 1953.

Sunset Magazine, *The National Parks of the West*. Lane Publishing Company, Menlo Park, 1980.

Yandell, M., *National Parkways, Yellowstone National Park*. World-wide Research & Publishing Company, Casper, 1976.



*The bitterroot, State Flower of Montana.*







*A thousand Yellowstone wonders are calling,  
'Look up, and down, and round about you!'*



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**Yellowstone**  
Library & Museum Association