

CONSERVATION  
EDUCATION

# Lifozones of New Mexico



[www.wildlife.state.nm.us](http://www.wildlife.state.nm.us)

# TEACHER'S GUIDE

**N**ew Mexico has a rich wildlife heritage. Appreciation and awareness of this heritage is important for every generation. As the population of New Mexico continues to grow, the human use and management of wildlife habitat is increasingly a focus of discussion and debate. An informed understanding of wildlife is an important beginning in any such discussion. New Mexicans can play a critical role as stewards of the natural diversity in the Land of Enchantment.

The richness of wildlife in New Mexico is partly a result of the several different biogeographic regions found here. They include the Rocky Mountains, Great Plains, Great Basin and the Chihuahuan Desert. We even have Sierra Madrean and Sonoran Desert components in the southwestern corner of the state. We also have large differences in elevation in the state, ranging from over 13,000 feet at the summit of Wheeler Peak near Taos down to a low of 2,841 feet on the Pecos River near the Texas border.

There are many ways of looking at the land and discussing the variety of plants and animals that live there. One of the most useful concepts for organizing our understanding of New Mexico plants and animals is by seeing how they group together along 'life zones' and 'habitats'. In this coloring book, you will be introduced to 6 different life zones and 17 examples of habitat types that occur in New Mexico.

What is a habitat? A habitat is a natural "home" where certain kinds of animals find what they need to survive. Habitat is more than just food, water, shelter and space. These components must also be arranged in a way that is appropriate to the animal's needs. A good habitat must have a stable climate that suits an animal's physical needs. It must also have a varied terrain, room to roam, and a dependable supply of food and water. It should also have safe places for animals to feed, play, hide from predators, be protected from the elements, safely rest and raise their young. A single habitat may not provide everything an animal needs for survival. Because of this, animals may visit more than one habitat on a daily or seasonal basis. Missing habitat components, no matter how abundant the others may be, will limit the numbers and types of wildlife that can live within this habitat. Habitat loss and degradation continues to be an important factor for the future of many species of wildlife.

Global climate change is increasingly being seen as a potential serious threat to wildlife and wildlife habitat. A major concern in New Mexico is that global climate change will increase the severity and length of drought conditions. It also has the potential to increase the frequency and intensity of severe weather events such as damaging thunderstorms.

This coloring book is part of many activities and programs offered through New Mexico Department of Game and Fish-Project WILD. Range maps indicate where habitats can be found in New Mexico.

The logo for Project WILD features the word "Project" in a smaller, sans-serif font, followed by "WILD" in a large, bold, sans-serif font. A white wavy line curves underneath the text, set against a black background.

## WHAT IS PROJECT WILD?

Project WILD is a nation-wide program that provides K-12 learning opportunities in several subject areas and at every ability level. Designed for diverse teaching and learning styles, Project WILD has proven an effective tool for teaching Language Arts, Math, Science, Art, Physical Education and other subject areas. Students can get involved in hands-on activities that encourage problem-solving and decision-making skills about the environment they share with wildlife.

## READY FOR A PROFESSIONAL DEVELOPMENT WORKSHOP?

To get Project WILD educational materials, educators can sign up to attend free six-hour workshops that are practical, interactive and fun! Workshops occur throughout the year and can be scheduled anywhere in New Mexico.

## PUBLICATIONS

Project WILD also offers free publications. Coloring Books:

- Aquatic Wildlife of New Mexico
- Endangered Species of New Mexico
- Wildlife of New Mexico

## TEACHERS GUIDES

- WILD About Elk: An Educator's Guide
- Land of Little Water
- WILD About Bears: An Educator's Guide



This coloring book is part of many activities and programs offered through the Conservation Education Section- Project WILD. Project WILD is an award-winning environmental and conservation education program of instructional workshops and supplementary curriculum materials for teachers of K-12. Project WILD helps prepare teachers and students to make responsible, informed decisions for wildlife.

For more information on Project WILD and free workshops and materials on wildlife contact: Project WILD Coordinator, POB 25112, Santa Fe, NM 87504. (505) 476-8000. Or visit our website [www.wildlife.state.nm.us](http://www.wildlife.state.nm.us)



# LIFE ZONES AND HABITATS OF NEW MEXICO



A Coloring Book  
by  
**Kevin W. Holladay,**  
Project WILD Coordinator

and  
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Co-Coordinator

**Dyan del Gaudio**  
Illustrator



Special thanks to New Mexico Department of Game and Fish staff, **Charles Painter** and **Jim Stuart,** **Lance Tyson** and **Hira Walker** for their assistance with maps and technical review.

As the state wildlife agency, the Department of Game and Fish provides wildlife education materials and workshops to the public.

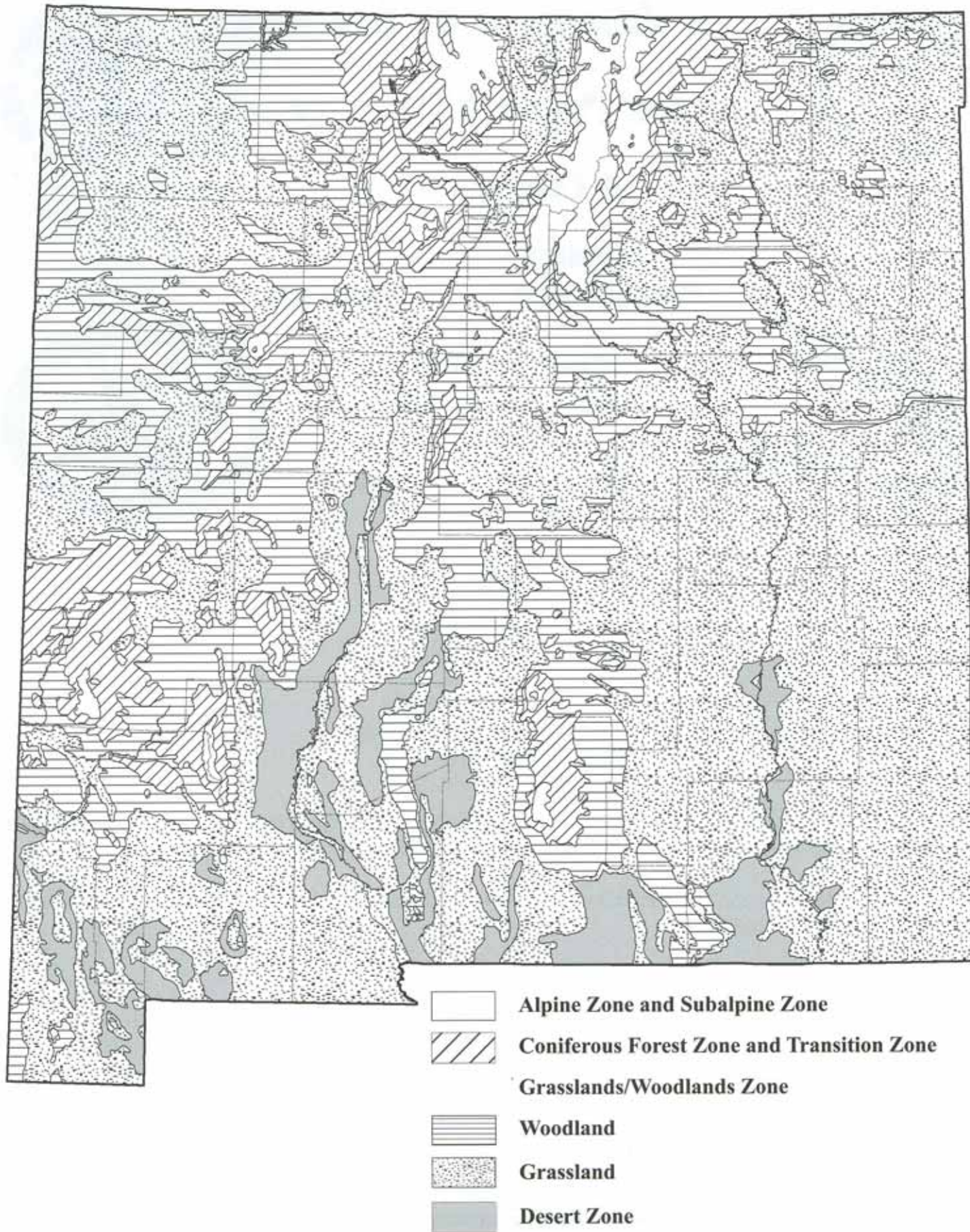
## Sport Fish Restoration Act

A 10 percent federal excise tax on your purchase of fishing equipment and motor boat fuel helps states sustain sports fisheries. This includes acquiring easements or leases for public fishing, funding hatchery and stocking programs, improving boating facilities for anglers and supporting aquatic education programs and materials like this coloring book.

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# Life Zones of New Mexico



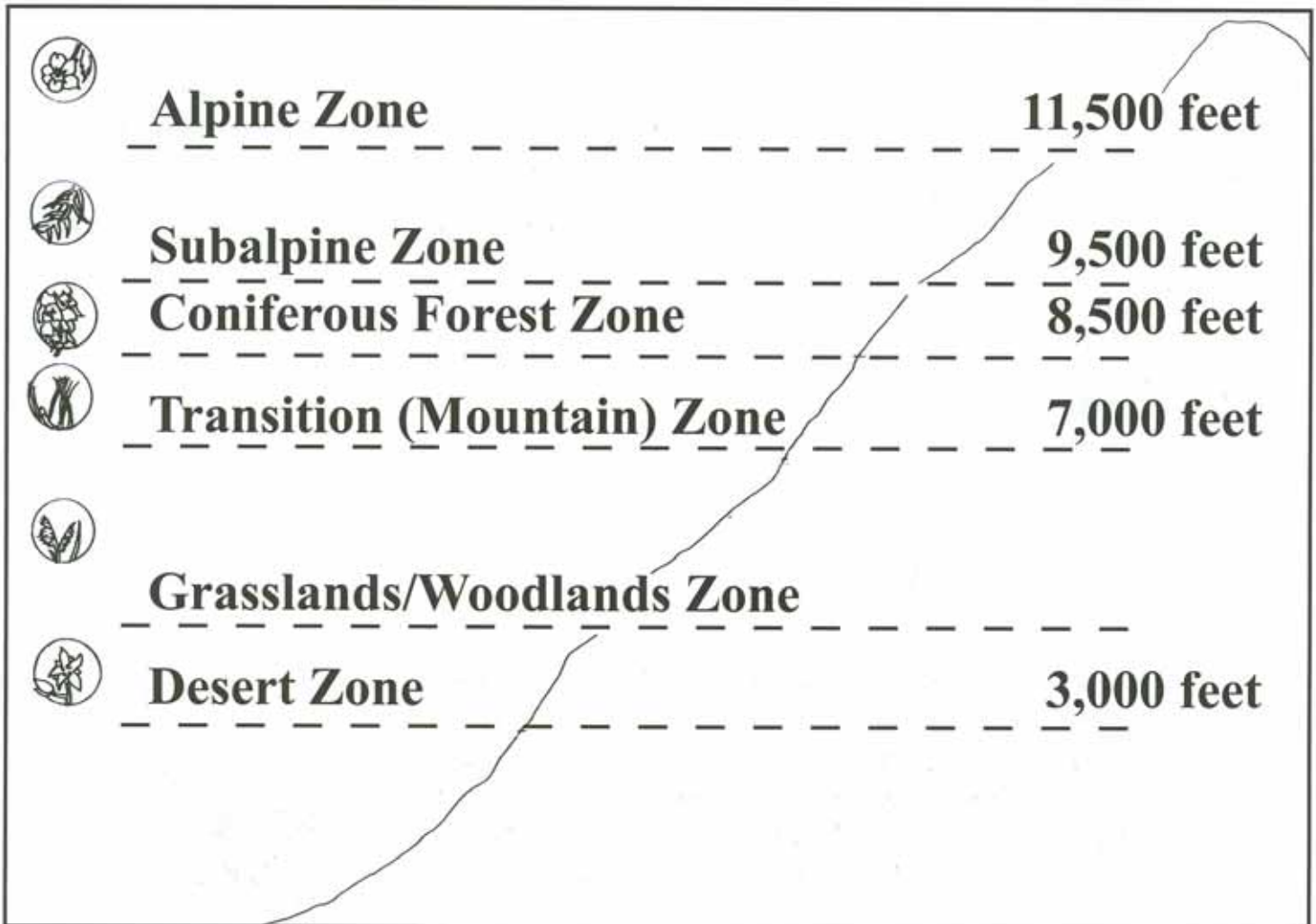
# LIFE ZONES



In the late 1890s, a botanist named Clinton Hart Merriam explored the area around the San Francisco Peaks and Grand Canyon in Arizona. His expeditions included extensive plant and animal collections and elevation documentation from an aneroid barometer. These studies helped him think of a way to identify major plant and animal habitats. He divided the land into several main groups called Life Zones.

The Life Zone system is most useful in the western part of the United States. Six of the seven zones Merriam identified are found in New Mexico. They are outlined in the chart below. This concept of biogeographical elevation gradients has been modified over the years but is still widely used. Look for the life-zone symbol next to the habitat descriptions throughout this book. In New Mexico, the life zones start at about 3,000 feet above sea level and go up to slightly over 13,000 feet.

Elevation and temperature are two main factors that influence where plants and animals can live. As the elevation goes up, the temperature goes down. Thus, the plants and animals that live in higher, colder areas differ from those that live within lower, warmer areas.





# DESERT ZONE

## Chihuahuan Desert Scrub

Most of the Chihuahuan Desert lies in Mexico, but a small part of it reaches up into New Mexico. This area makes up New Mexico's Desert Life Zone. It is generally a very hot, dry *terrain*. Like other deserts, the Chihuahuan Desert usually receives less than 10 inches of rain a year, which makes for a very short growing season. It gets most of its moisture during summer rains. These rains help expose wildflower seeds to conditions they need in order to grow.

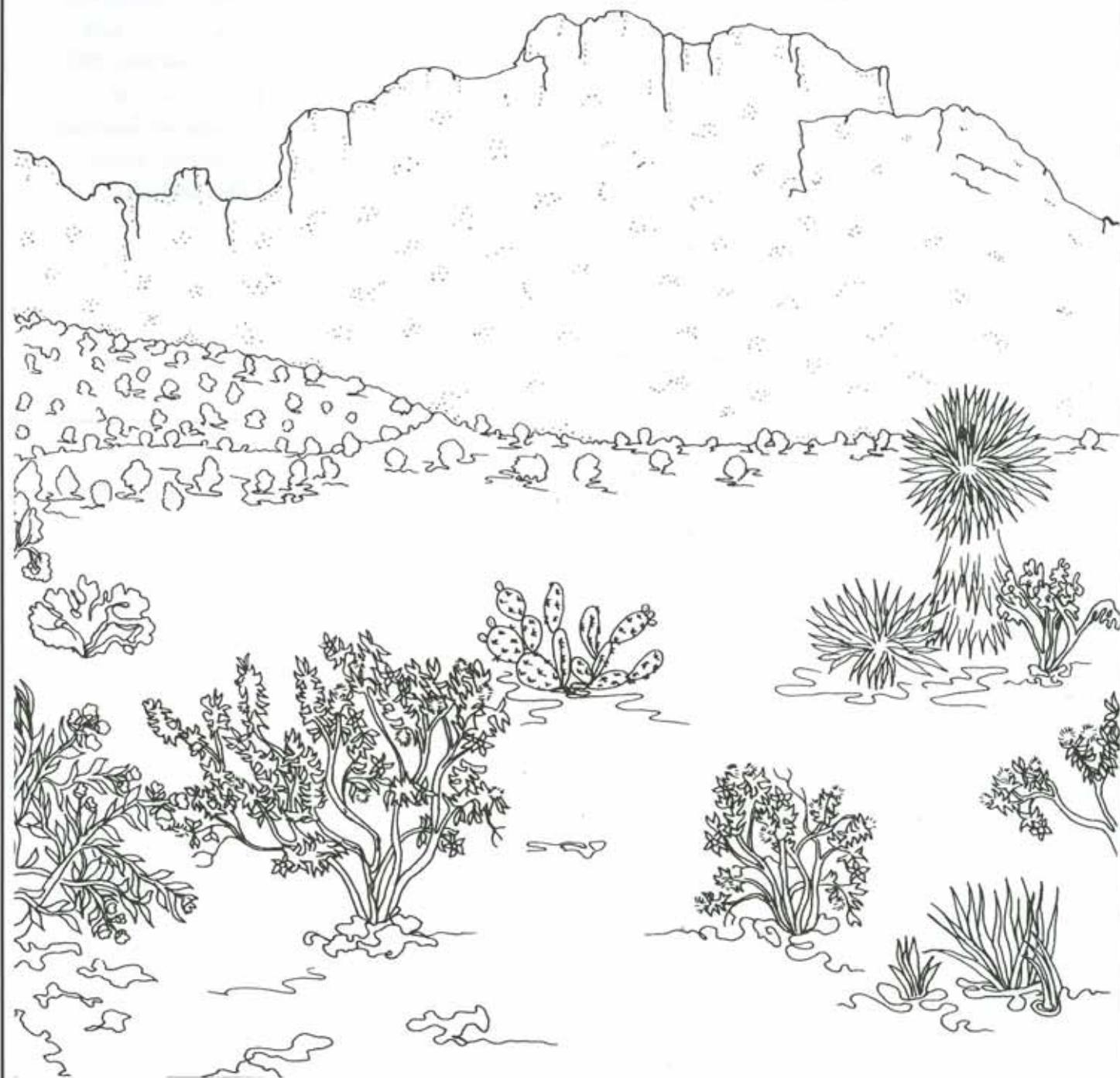
The most common *habitat* in this life zone is the mixed chaparral shrub. Plants include creosotebush, ocotillo, desert holly, tarbush, whitethorn acacia, tree cholla, and a variety of cacti, such as barrel, hedgehog, and pincushion. Agave lechuguilla can be found in a few of these habitats in southeastern New Mexico. Mostly it is found in large numbers in the Mexican part of the desert. *Wildlife*, such as whiptail lizards, leopard lizards, coachwhip snakes, green toads, Merriam's kangaroo rats, desert cottontails, common hog-nosed skunks, coyotes, desert bighorn sheep, Brazilian free-tailed bats, scaled quail, zone-tailed hawks, turkey vultures, greater roadrunners, cactus wrens, and other birds make their home in this habitat.



Desert plants often have small leaves that help conserve water. Each leaf on the **creosotebush**, a common desert plant, is actually made up of two small leaflets. They are joined at the bottom like one leaf. A waxy coating on the leaves helps hold in moisture. After a rain, these plants give off a special smell. Small yellow flowers cover the bushes, after which white fuzzy fruits appear.

The **kangaroo rat** is a desert animal that often builds its burrow under the creosotebush. The roots of the plant help support the roof of the kangaroo rat's tunnels. The kangaroo rat burrows during the hottest part of the day and can live without drinking any water. It gets its water from a diet of seeds.





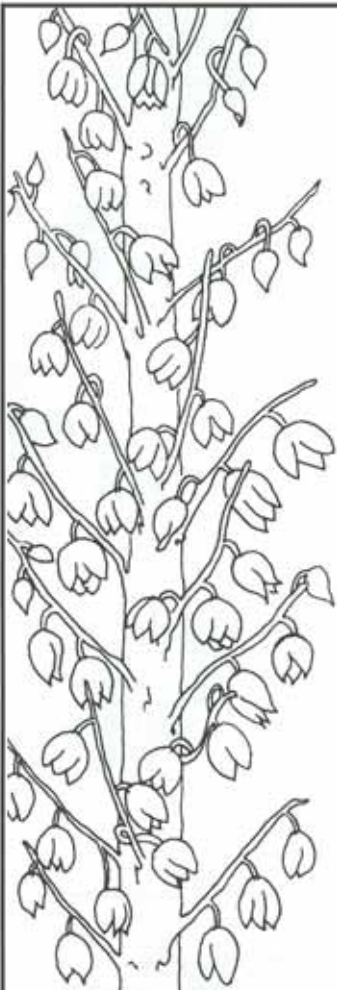
**HABITAT: Chihuahuan Desert Scrub**



## DESERT ZONE

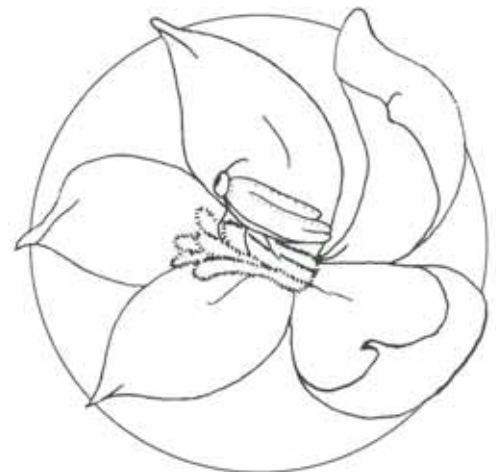
### White Sand Dunes

White Sands National Monument is a special place in the Chihuahuan Desert. It is made up of many hills and ridges of sand. These sand dunes are piled up by the wind. The dunes are made up of tiny, broken pieces of the mineral gypsum. The sand acts like a sponge during rains by soaking up water. This helps hold in enough moisture to reach the long, spreading roots of many plants. It is difficult for plants to grow in this type of soil, but there are more than 60 different kinds that live here. Many grasses, small shrubs, and some trees grow here, including Indian ricegrass, rabbitbrush, soaptree yucca, and cottonwood and mesquite trees. Coyotes and kit foxes are residents here, but smaller animals are most common. Kangaroo rats, desert cottontails, greater roadrunners, insects, lesser earless lizards, prairie lizards, and glossy snakes all make their homes in this habitat.

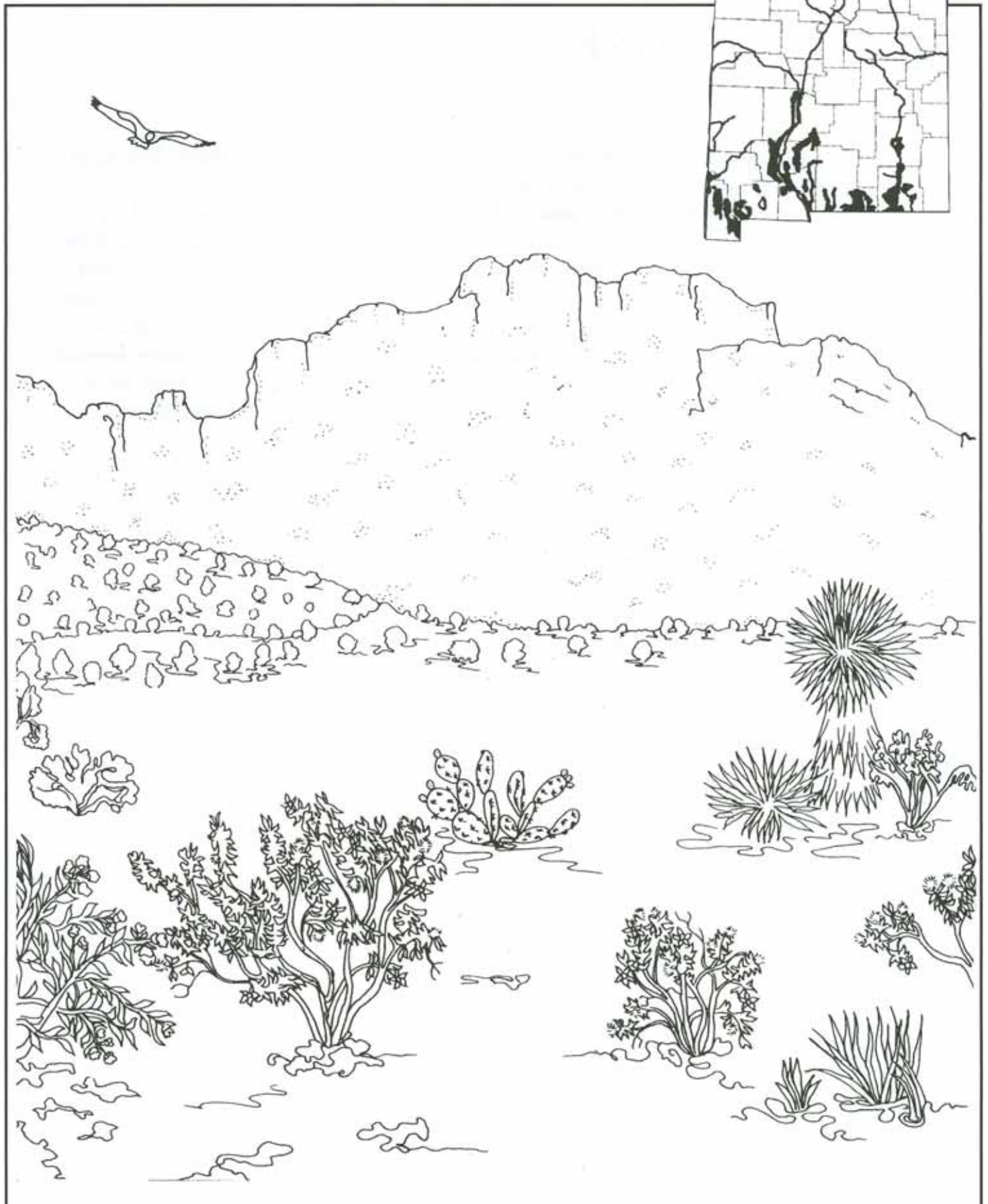


When the wind blows and moves the sands around, it can cover up plants and kill them. The leaves of the **soaptree yucca** grow especially fast so it can keep its flowering parts above the sand. This helps it continue to live even though part of it might be buried. It sends out many roots that weave through the sand, helping the dunes to become stronger and hold more water. The soaptree yucca is New Mexico's state flower, easily recognized by its tall, slender flower stalk.

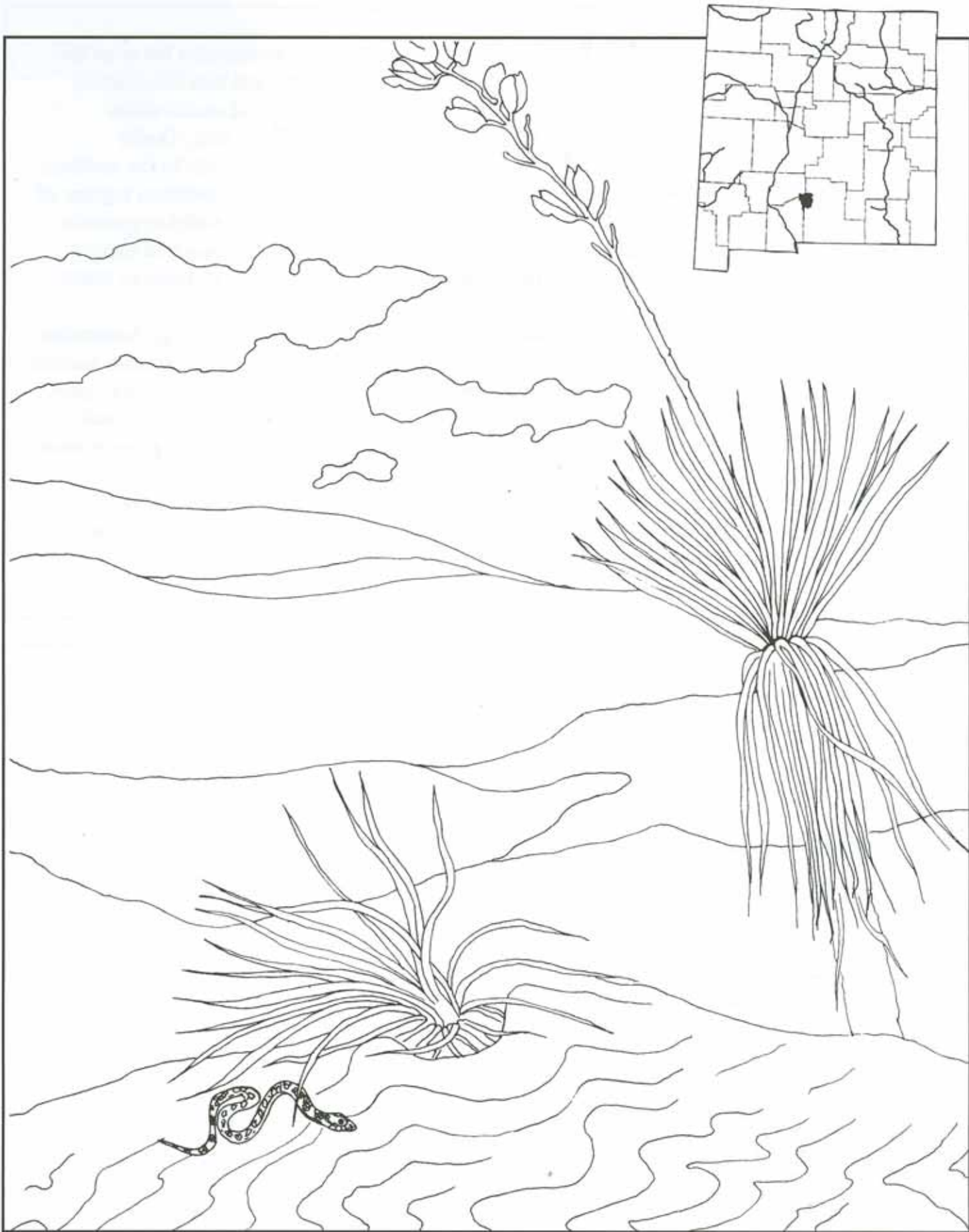
The **pronuba moth** is a tiny, white-winged insect that makes its home on the yucca. It lays eggs deep down in the yucca flower. After yucca seed pods form, the insect *larvae* eat their way out. Yuccas depend on this moth to pollinate it. In turn, the pronuba moth needs the yucca for food. They are truly special partners!







**HABITAT: Chihuahuan Desert Scrub**




**HABITAT: White Sands Dunes**



# DESERT ZONE GRASSLANDS/ WOODLANDS ZONE

## Desert Grasslands



This habitat is a transition between the Desert Life Zone and true Grasslands/Woodlands. It is found at elevations between 4,500 to 7,000 feet. Desert grasslands habitat also exists in the northern part of the state, as well as southern regions of New Mexico. The land is usually rocky or gravelly.

Rainfall ranges from about 10 to 20 inches in one year. Snow falls in winter. Much of today's Desert Grasslands occupy areas that had formerly been grasslands with different kinds of plants.

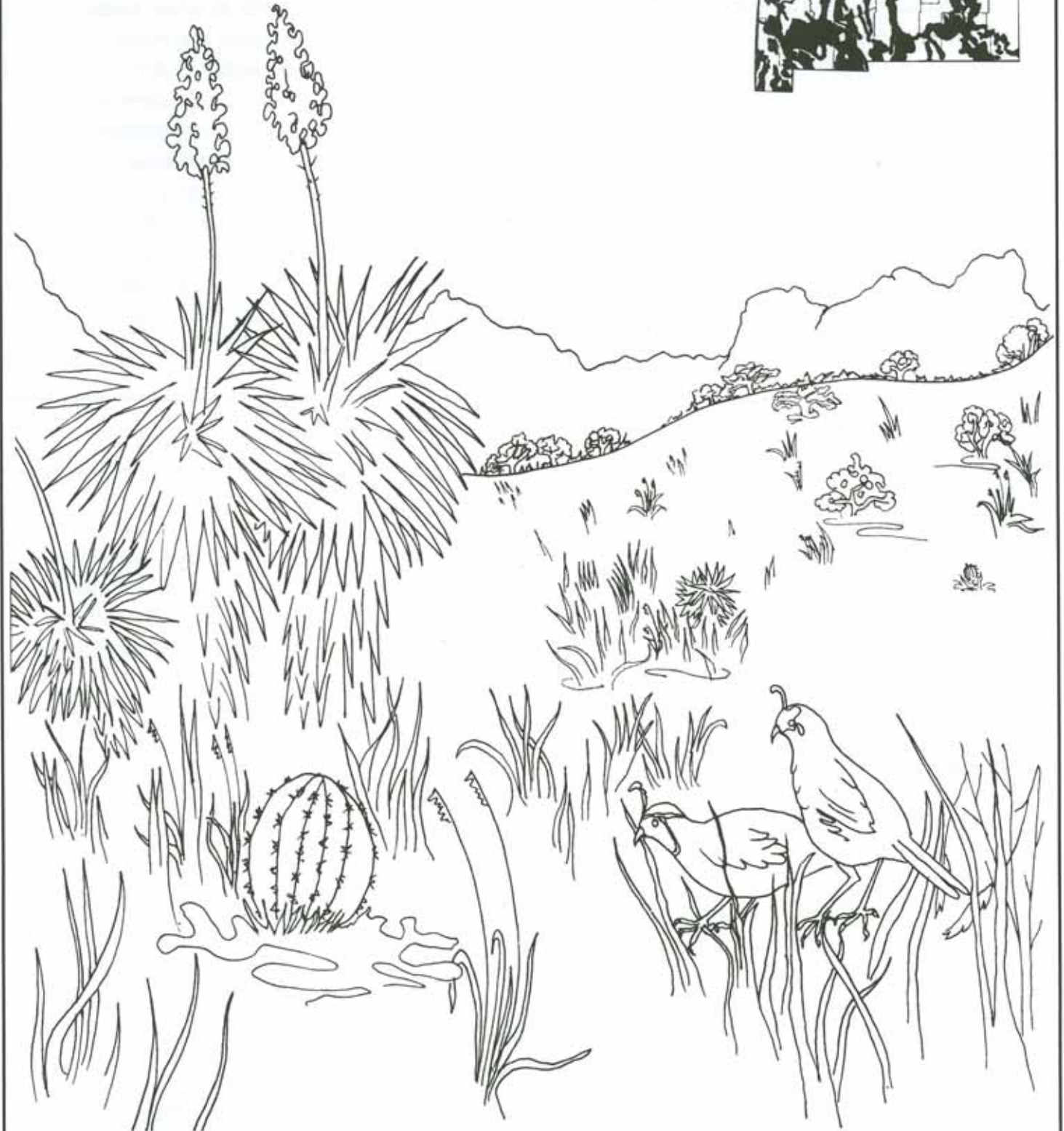
In the southern portion of the desert grasslands, the rainy season is from April through September. The most common plants are grasses and shrubs. Most of these are called 'bunch' grasses, because they grow in bunches. They include black grama, bushmuhly, tobosa grass, western wheat grass, cane beargrass, and little bluestem. Shrubs include the century plant, sotols, catclaw, saltbush, yuccas, prickly pear, and cholla cactuses. Trees like the mesquite and desert willow grow in areas that collect water. Wildlife that lives in this habitat includes mountain lions, pronghorn, black-tailed jackrabbits, kangaroo rats, ringtails, coyotes, little brown bats, Harris's hawks, ferruginous hawks, lesser nighthawks, greater roadrunners, Gambel's quail, Great Plains toads, Texas horned lizards, and ornate box turtles.



**Black grama** is a bunchgrass that grows 12 to 24 inches tall. Its leaves are short, narrow, and gray-green. Flowers form in the fall. Seeds ripen three to four weeks after flowering. New plants grow from the seeds. They also provide food for some animals.

**Gambel's quail** are easily recognized by long black plumes on their heads. Like many other animals and plants, they do not recognize the imaginary lines of life zones. That is why you can see them in desert habitats, as well as desert grasslands. These birds are usually seen in family groups.





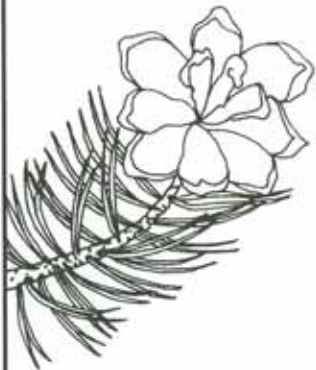
**HABITAT: Desert Grasslands**



# GRASSLANDS/ WOODLANDS ZONE

## Piñon-Juniper Woodlands

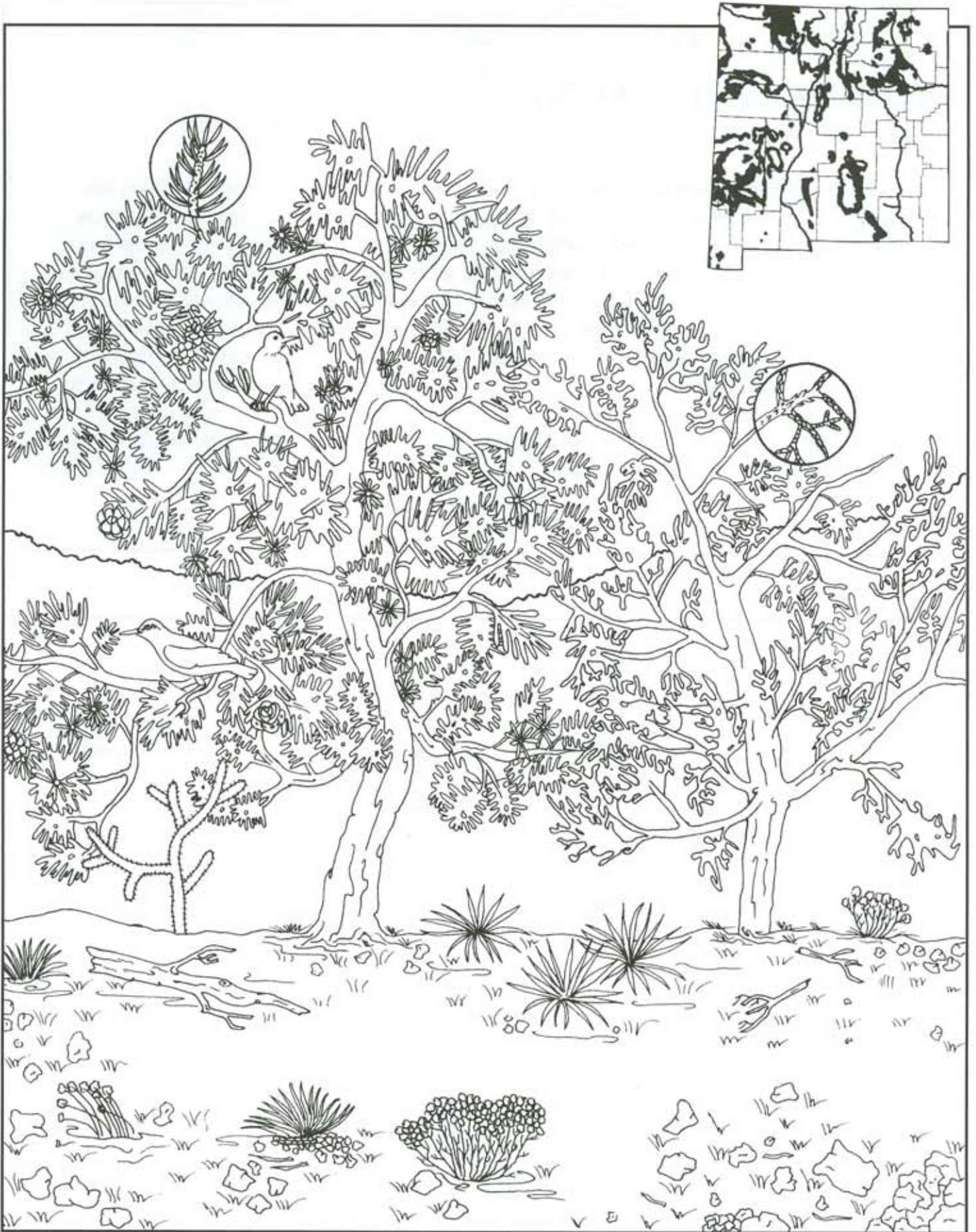
In the piñon-juniper woodlands, piñon and juniper trees grow close together in open, widely-spaced mixed clusters. There are usually more junipers at lower elevations and more piñons at the higher limits. Both usually grow less than 30 feet tall. The terrain is dry and rocky. Most of the 10 to 20 inches of *precipitation* that fall each year is in the form of snow. Other plants growing in these woodlands include mountain mahogany, rabbitbrush (chamisa,) sagebrush, shrub live oak, big bluestem grass, and some prickly pear cactus. The mountain lion, bobcat, pronghorn, turkey vulture, piñon mouse, piñon jay, gray flycatcher, bushy-tailed woodrat, rock squirrel, collared peccary, black-tailed jackrabbit, gray fox, Western spotted skunk, Western meadowlark, mourning dove, barn swallow, black-billed magpie, golden eagle, plateau striped whiptail lizard, collard lizard, gopher snake, pallid bat, and Western rattlesnake all make their home here. Wildlife from higher ranges, like elk and mule deer, often come down into this habitat during winter.



The **piñon pine** is an evergreen tree that grows up to 30 feet tall. Its small cones produce piñon nuts. Humans as well as animals eat these tasty seeds. Native Americans use the piñon nut for various ceremonies, as well as for food. The piñon tree's evergreen leaves are called needles because of their shape. The needles usually grow in bundles of two or three. Cones ripen every other year.

**Piñon jays** live in large, noisy groups on the piñon-juniper woodlands. Their favorite foods are piñon nuts, juniper berries, nuts and in summer, insects. Jays are very sociable. They can travel widely, flying around in flocks giving a harsh call. They nest together in small colonies. In late summer and fall they bury piñon nuts in the ground returning later on to eat them.





**HABITAT: Piñon-Juniper Woodlands**



# GRASSLANDS/ WOODLANDS ZONE

## Gray Oak Woodlands

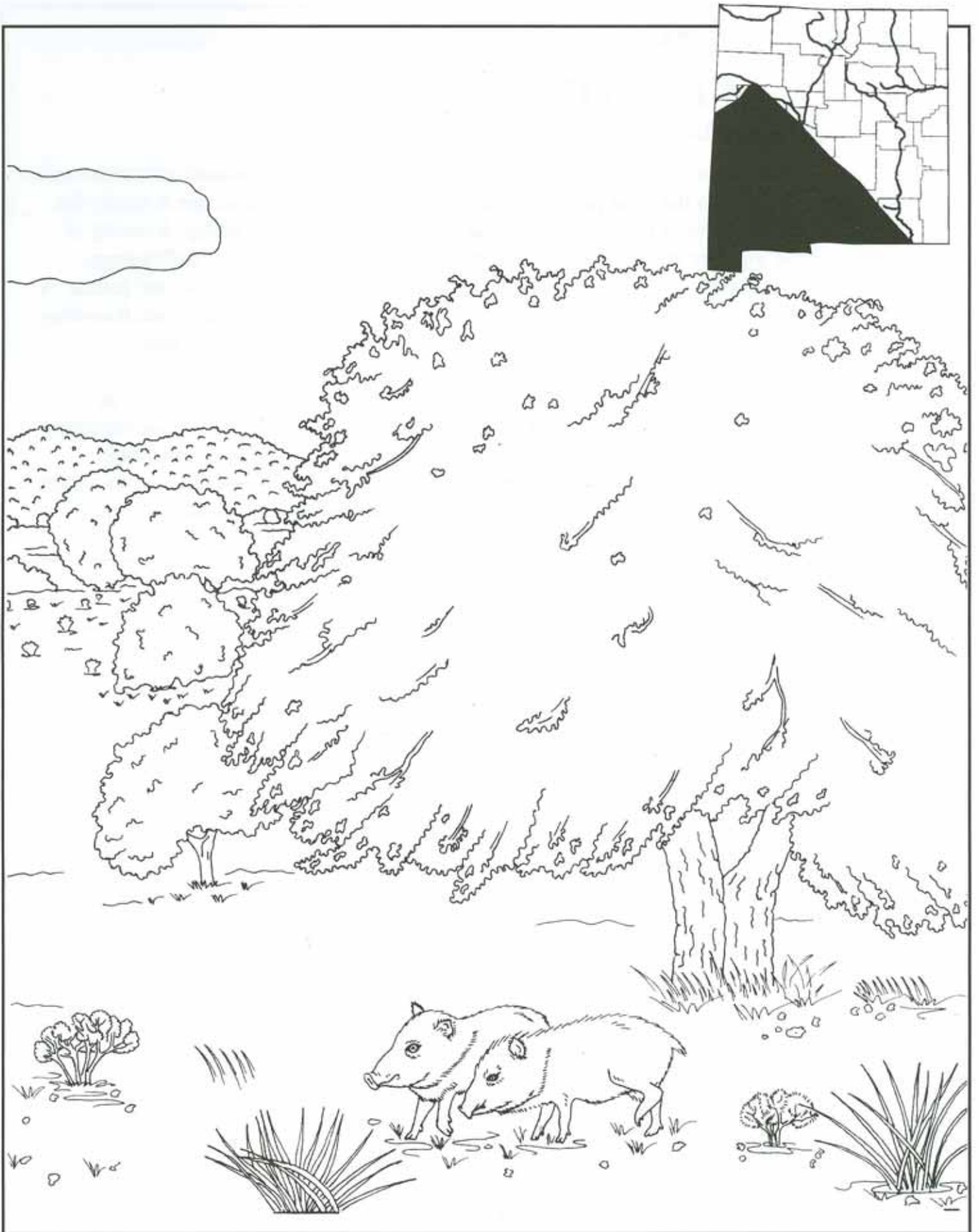
Woodlands are generally more open than forests, and the trees are usually smaller than forest trees. There is a mixture of trees and open areas. There is also a mixture of shady spots near the trees and sunny spots in the open areas. Woodland trees usually have long tap roots to reach deep down for moisture. Grasses usually grow beneath the trees, especially in open areas. Oak woodlands receive 12 to 18 inches of moisture a year, mostly during summer rains. These habitats can be found on foothills and lower mountain slopes. Plants that grow in and around these woodlands include muhly grasses, sideoats grama grass, ricegrass, bullgrass, and barrel, rainbow, and prickly pear cacti. Tree cholla, banana yucca, shrub live oak, and mock orange also grow here. Wildlife includes Coue's white-tailed deer, coatimundis, collared peccaries, Gould's wild turkeys, acorn woodpeckers, black-tailed rattlesnakes, Yarrow's spiny lizards, and canyon treefrogs.



**Gray oak** woodlands are found in southern and central New Mexico. The gray oak is an evergreen tree. It has small, oval-shaped leaves that are gray-green in color. Many birds and other animals eat its acorns. Mule deer and porcupines often eat the leaves as well. Although usually a small tree, it can grow up to 60 feet tall.

**Javelinas** are pig-like mammals that like to travel in small groups. They have bushy hair, poor eyesight, and a great sense of smell which is used to locate underground plant parts. They use their snouts for digging. Favorite foods include prickly pear cactus, roots, tubers, and acorns. Because of a band of white hairs around their necks, javelinas are sometimes called collared peccaries.





**HABITAT: Gray Oak Woodlands--Southern Region**



# GRASSLANDS/ WOODLANDS ZONE



## Plains-Mesa Grassland

As the elevation increases in this life zone, the short-grass (plains-mesa grassland) prairie becomes a widespread habitat. It is the most extensive grassland in the state. The landscape is mostly flat and open country. It can have long periods of wind in late winter and early spring. A variety of grasses are mixed together in this life zone. The main grasses are blue gramma, buffalograss, Indian ricegrass, western wheatgrass, threeawns grass, little bluestem, tobosa grass, and galleta. A variety of shrubs and *forbs* are mixed in with these grasses. They include shinnery oak, four-wing saltbush, wild rose, and rabbitbrush. Prickly pear and strawberry cactus also grow here.

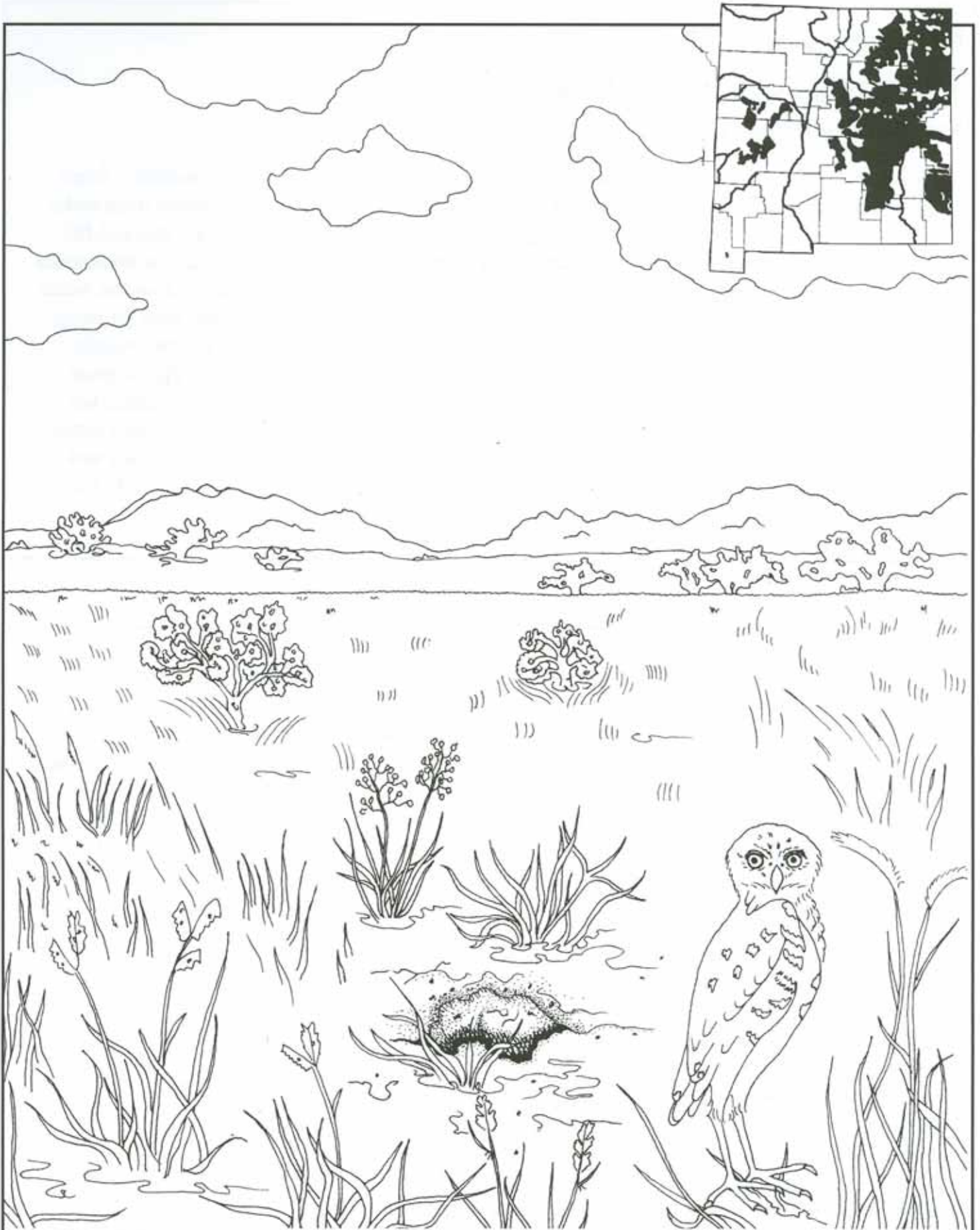
The loose soil and plentiful vegetation make an ideal habitat for burrowing animals, such as black-tailed prairie dogs, pocket gophers, and burrowing owls. Pronghorn are common residents here, as are the kit fox, badger, black-tailed jackrabbit, Eastern cottontail, Swainson's hawk, short-eared owl, American goldfinch, grasshopper sparrow, Western hognose snake, and the plains spadefoot toad. Lesser prairie chickens can be found locally around Milnesand and to a lesser extent, Roswell, New Mexico.



**Buffalograss** is a bunchgrass that grows from 4 to 12 inches tall. It forms a thick sod and has deep roots. A wide network of fine roots just below the surface helps absorb water from brief rain showers. This grass reproduces by stolons, which are thin stems that grow along the ground's surface. It becomes dormant during dry periods. When water becomes available, it begins to grow again.

**Burrowing owls** live in underground burrows or old prairie dog holes. Cowboys sometimes called these owls 'howdy birds' because of their habit of bobbing and bowing. They are often active by day, as well as by night. During summer they mostly eat large insects but can also feed on small mammals and birds. They have become rare in many areas because of loss of habitat and declines in prairie dog populations.





**HABITAT: Plains-Mesa Grasslands**

# GRASSLANDS/ WOODLANDS ZONE



## Flood-Plain Riparian

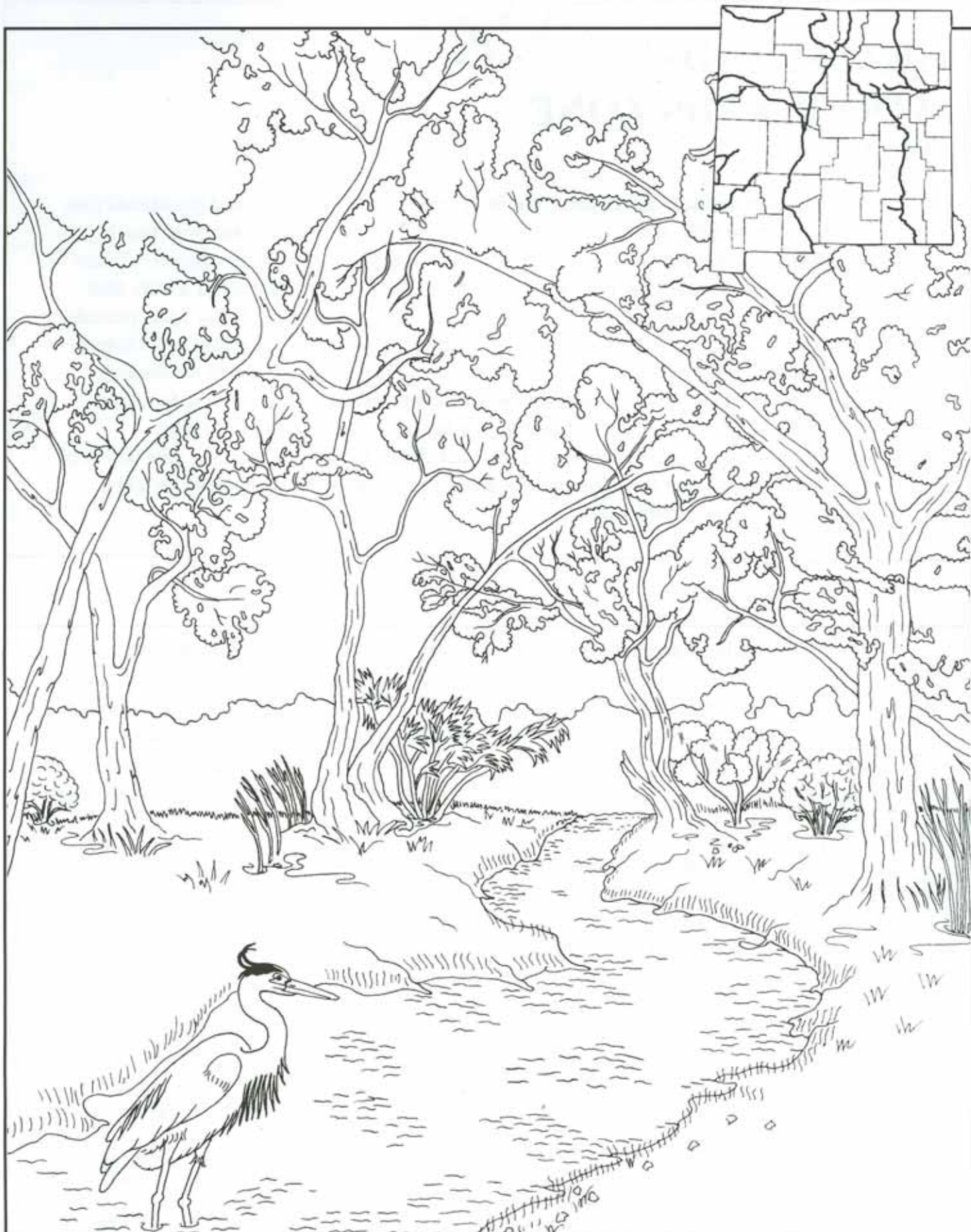
River habitats (*riparian zones*) provide fresh water, food, and shelter for many animals. There are usually twice as many animals here as in surrounding habitats. Tall, wide-leafed trees make up the *canopy*. Lots of plants grow close together in the *understory*. Water levels rise and fall along the river, which can change the shape of the river bank. Plants that grow on the streamside are used to being flooded. Some of them, such as the Fremont cottonwood, depend on this water for their seeds to grow. Insects thrive on the water and wet rocks. They become food for many birds like flycatchers, warblers, and swallows. Other wildlife attracted to this habitat include elk, mule deer, beaver, hoary bats, many species of fish, puddle ducks and diving ducks, great blue herons, least bitterns, belted kingfishers, sandhill cranes, shorebirds, Western painted turtles, Clark's spiny lizards, and yellowbellied racers. Common trees are Rio Grande and Fremont cottonwoods, willow, sycamore, and walnut. Other plants include sedges, rushes, cattails and cutgrass. Common plants introduced to the Southwest during colonial settlement include Russian olive and salt cedar.



**Fremont cottonwood** trees are native to the Gila country and grow where there is a lot of water. They typically grow along rivers and streams. They need the moist soils along waterways where their seeds can germinate. Mature seeds produced by the female *catkins*, or *spike* of flowers, are covered with white fuzzy cotton, which gives the tree its name. Fremont cottonwoods have coarsely *toothed leaves*. Leaves turn a beautiful golden yellow in autumn.

The **great blue heron** is a year-round resident in New Mexico. Look for this excellent hunter-fisher in watery places - mostly streams, wetlands or lakes. Everything about the great blue heron is long. A great blue heron is four feet tall with a long neck, long skinny legs and a long orange bill. The largest heron in North America-they are a very quiet and patient hunter, preying on fish, frogs, crabs, lizards and insects. The long black plumes on its head can only be seen during breeding season. Many great blue heron nests can be seen in the same tree. This grouping of nests is known as a rookery. Herons are protected by federal law from any hunting.





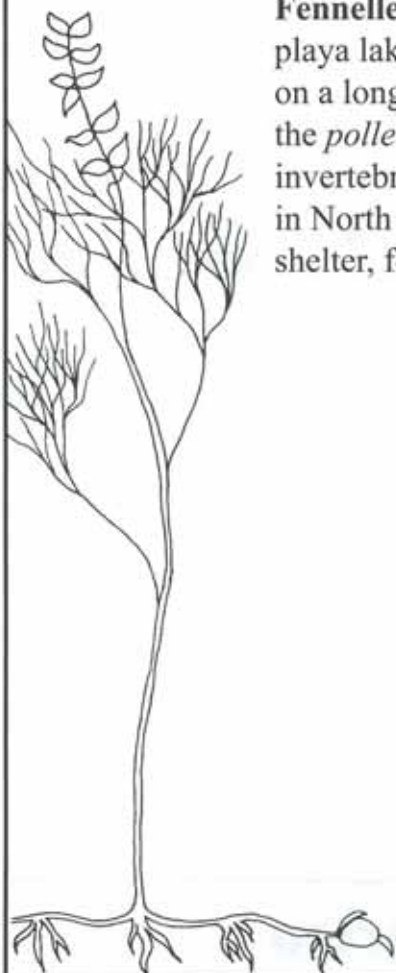
**HABITAT: Flood-Plain Riparian**

# GRASSLANDS/ WOODLANDS ZONE



## Playa Lakes

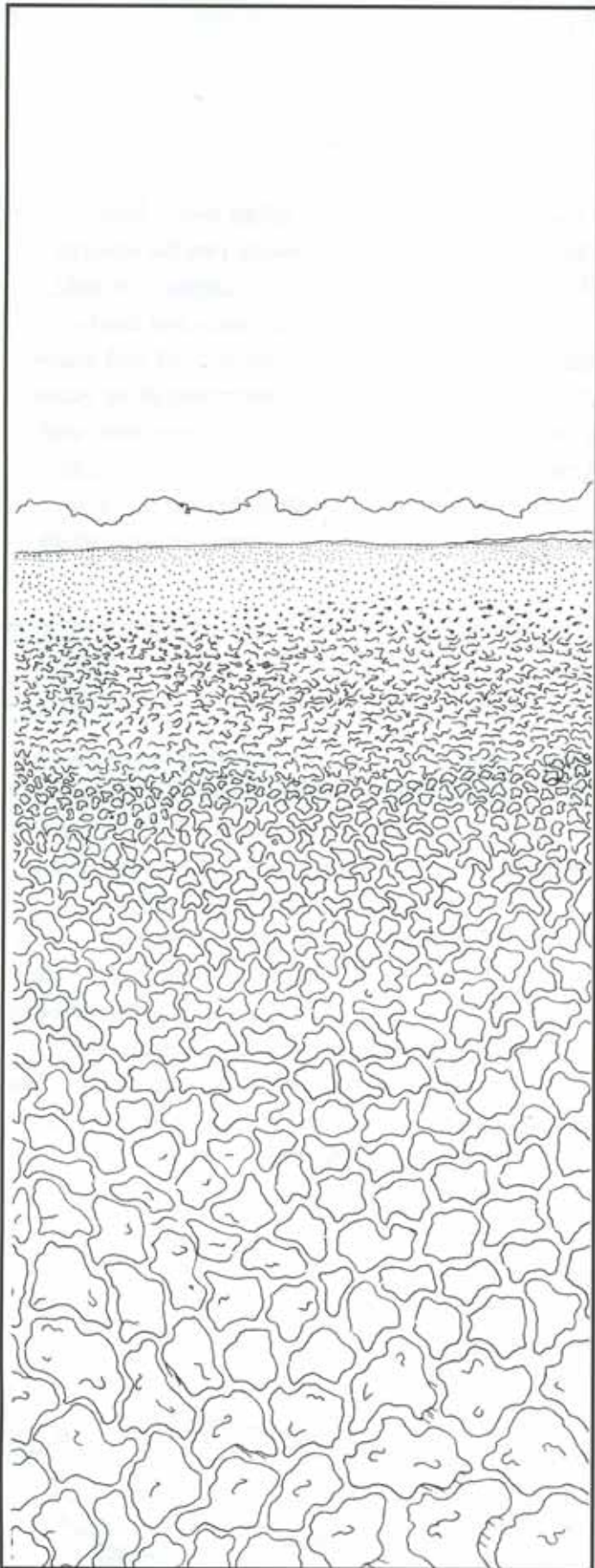
Most lakes have water in them all the time, but there are lakes in the desert and grasslands that only have water in them after heavy rains. They are called playa (Spanish meaning 'beach') lakes or dry lakes. There are approximately 4,000 playa lakes in eastern New Mexico. When these playa lakes are dry, they look like large, shallow holes in the ground. After a rain, they become filled with life and provide a habitat for many plants and animals. Playa lakes provide habitat for many animals, such as geese, ducks, great blue herons, sandhill cranes, checkered garter snakes, yellow mud turtles, and tiger salamanders. Plants such as horned pondweed, widgeongrass, fennelleaf pondweed, common hornwort and mud plantain provide food and shelter for animals. Playas are equally important for humans since they can recharge underground water supplies called aquifers. The water doesn't always stay in the lake bed very long; during the summer when the temperatures are very hot, the water evaporates quickly, leaving a white residue of mineral salts.



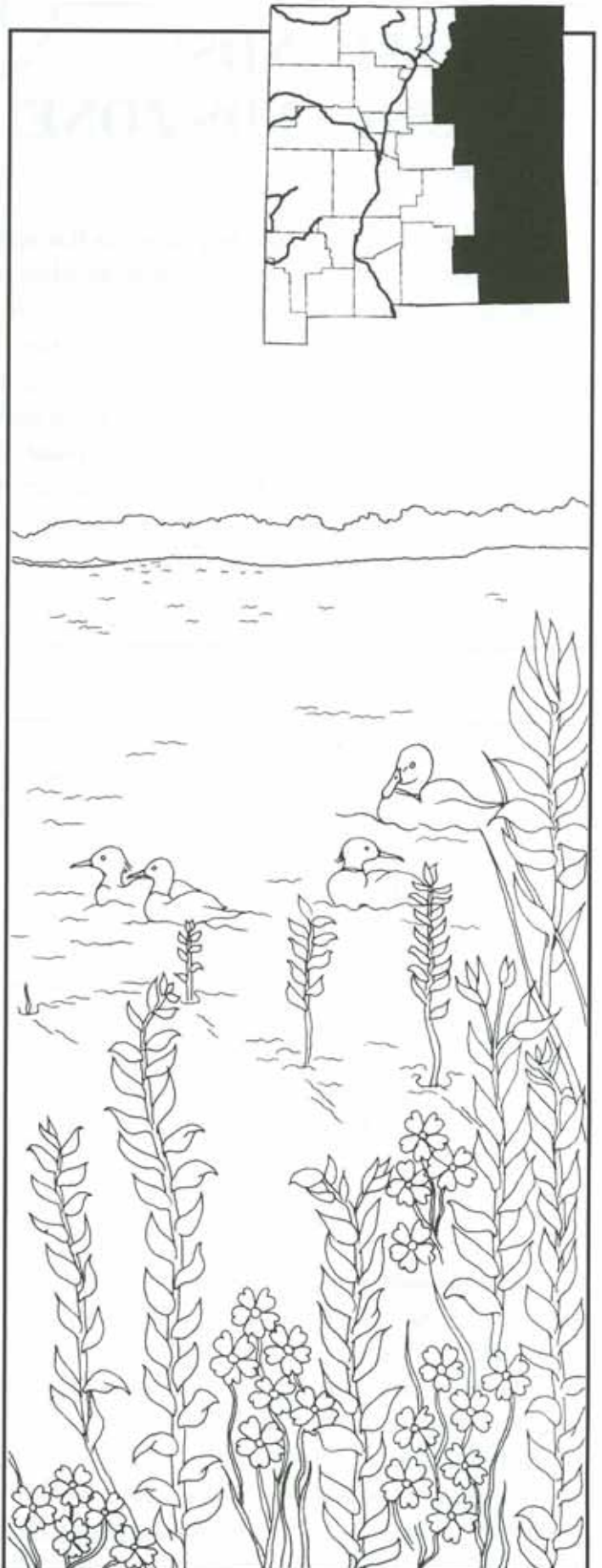
**Fennelleaf pondweed** is a plant that grows in the water. Like other plants in playa lakes, it seems to appear out of nowhere after a rain. Its flowers grow on a long stem or spike above the water's surface, so that the wind can spread the *pollen*. Like all pondweeds, this aquatic plant provides homes for a host of invertebrates. Pondweed is also one of the most important waterfowl food plants in North America. The many pondweed beds are essential fish habitat, offering shelter, foraging areas and spawning sites.

**Spadefoot toads** emerge from their underground burrows as summer's thunder storms signal heavy rains. The male spadefoots will call for females and you can hear them singing a croaking chorus. The eggs are fertilized as mating begins. The eggs hatch in less than two days. Feeding mostly at night, spadefoot toads eat beetles, moths, caterpillars and spiders. This provides them the fat they will need during their long waiting time below ground. In only a few short weeks the young tadpoles will become adults and are able to dig into the earth for dry periods.





**HABITAT: Playa Lake (Dry)**



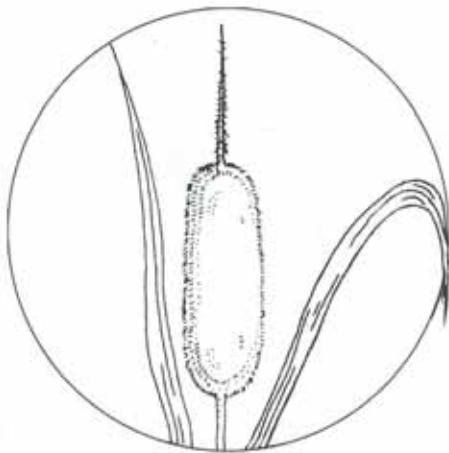
**HABITAT: Playa Lake (Wet)**

# GRASSLANDS/ WOODLANDS ZONE



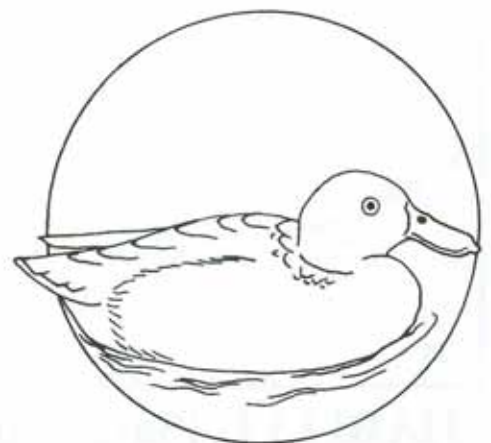
## Marshes

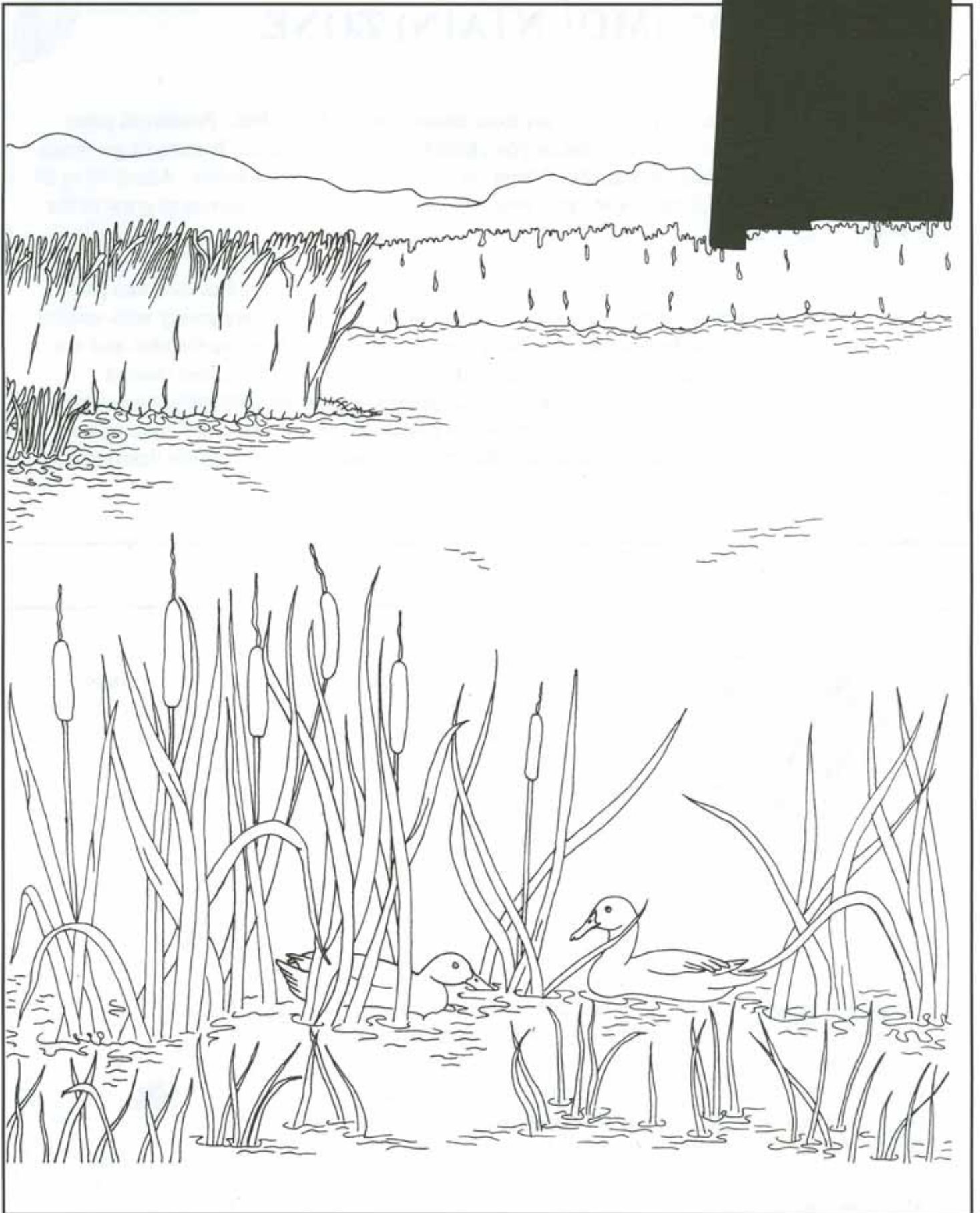
A marsh is an area of land where water has settled and *aquatic* plants have taken root. Marshes can occur in many life zones. Some marshes only have soggy soil, while others can be several feet deep with water. *Emergent* plants grow in shallow water near the edge. Examples include grasses, bulrushes, sedges, cattails, and arrowheads. Deep water plants, like reeds and duckweed have leaves that float. Other plants such as the common bladderwort, pondweed and many kinds of *algae* grow with most of the plant under water. They grow in the submersed plant zone. Frogs, toads and insects all lay eggs on plant stems in the marsh. Wildlife, such as mallards and other puddle ducks, black-crowned night herons, American bitterns, yellow-headed blackbirds, shore birds, great blue herons, snowy egrets, white-faced ibis, Western grebes, striped skunks, muskrats, raccoons, jumping mice, bullfrogs, common garter snakes and Western painted turtles make their home in marshes.



The **cattail** is a common marsh plant. The part that looks like a cat's tail or a hot dog is the female flowering structure. Above it during the early spring is a thinner male structure. The female 'cat's tail' can have up to 250,000 fuzzy seeds in it. Later in the growing season, these seeds break loose and can travel by sticking to fur and feathers of animals that brush past them. New plants also grow from underground stems called rhizomes. They shoot out from the base of the cattail. The rhizomes are a favorite food of muskrats. Muskrats may use hundreds of cattail leaves and mud to build one to two room dens known as 'push ups.' The core of the rhizome was eaten raw by Native Americans. Flour can also be made from this protein-rich plant.

The **cinnamon teal** is a puddle duck that uses cattails for shelter and food. The male is a beautiful cinnamon color. Females are spotty brown. They eat by ducking their heads underwater, with their tails sticking up out of the water. Ducks that feed in this way are known as dabbling ducks. Favorite foods are aquatic plants, seeds and snails. Newly hatched ducklings are imprinted by the mother's appearance and call and follow her closely. This trait helps protect the young ducklings. You may see little ducklings swimming close behind their mothers in marsh ponds.





**HABITAT: Marshes**





# TRANSITION (MOUNTAIN) ZONE

## Ponderosa Pine

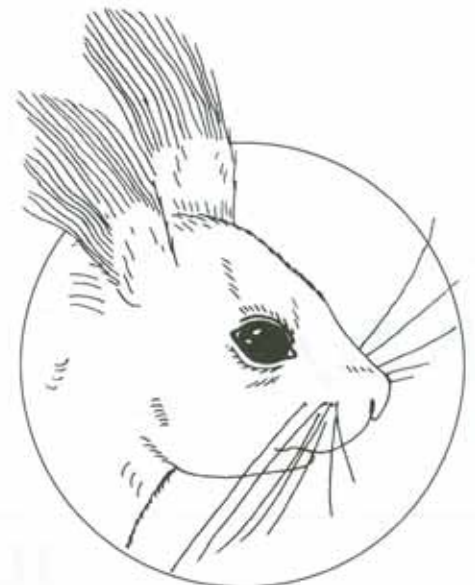
The Transition or Mountain Life Zone occurs from about 7,000 to 8,500 feet. Ponderosa pines are the first tall forest trees you encounter as you climb beyond the foothills. It starts to get much colder and wetter in this zone, a 'transition' from the warmer, drier climate below. About 20 to 25 inches of rain and snow fall each year. This helps many shrubs, vines, and berries to grow in the understory of taller trees.

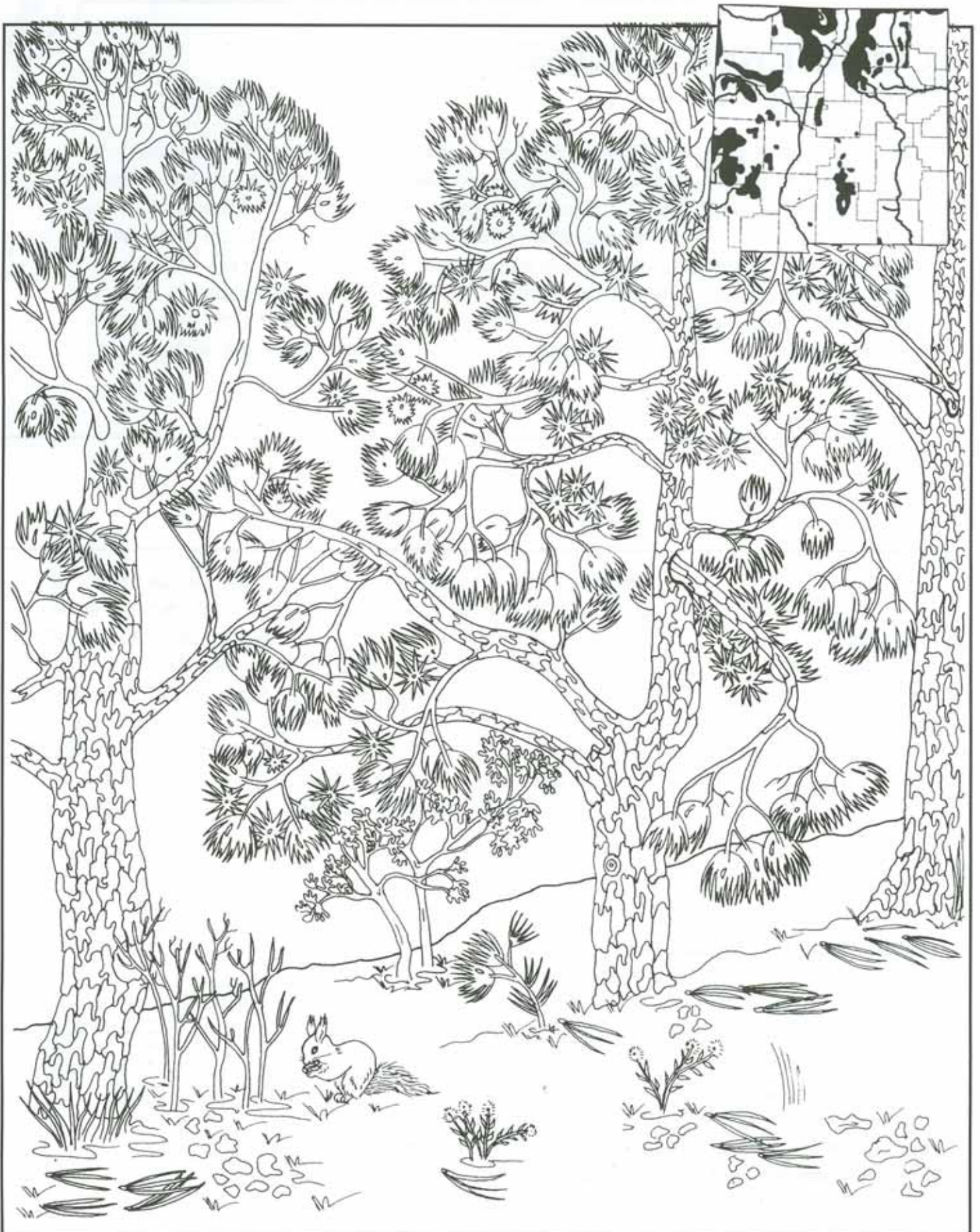
The most common habitat here is the ponderosa pine forest. These forests often look like parks, with younger trees mixed in with the older ones. Often the understory is very grassy with smaller trees and shrubs growing in the open areas. Other trees that may grow here are Gambel and wavy leaf oaks. Other plants include snowberry, three-leaf sumac, wild rose, and golden current. Wildlife that make their homes here include silver-haired bats, mountain cottontails, porcupines, wild turkeys, Abert's squirrel, mule deer, Western bluebirds, Northern flickers, common ravens, Steller's jays, canyon wrens, great horned owls, flammulated owls, Southern prairie lizards, upland chorus frogs, and tiger salamanders.



The **ponderosa pine** is also called yellow pine because of the color of its bark. As the trees get older, the bark changes from brown to a reddish-yellow color. Some older trees have a fragrance that some think smells like vanilla or butterscotch. Needles usually grow three in a bundle and stay green all year round. Ponderosa pines can grow up to 150 feet tall and live for 300 to 500 years.

The **Abert's squirrel** is a regular resident in ponderosa pine forests. You can recognize an Abert's squirrel by the blackish 'tufts' of fur on its ears. It uses the ponderosa pine for food and shelter, building its nest in the Y-shaped branches. This tree squirrel eats the cone seeds, inner bark of small twigs and the flowers of this pine. They are a favored food by many predators such as Northern goshawk, great horned owl, American marten, and coyote.



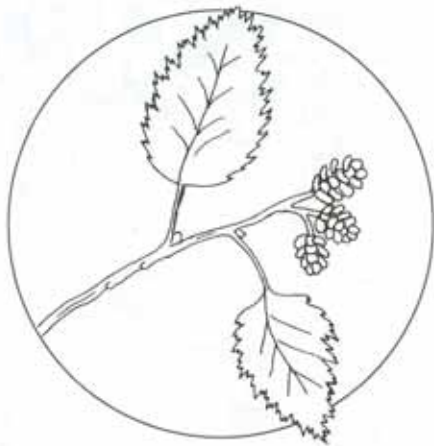


**HABITAT: Ponderosa Pine**

# CONIFEROUS ZONE

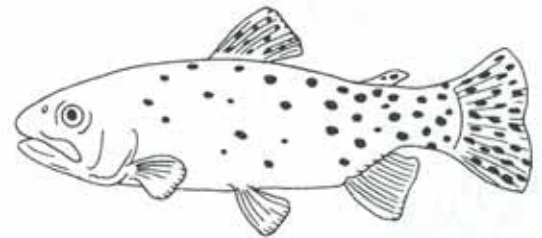
## Mountain Riparian

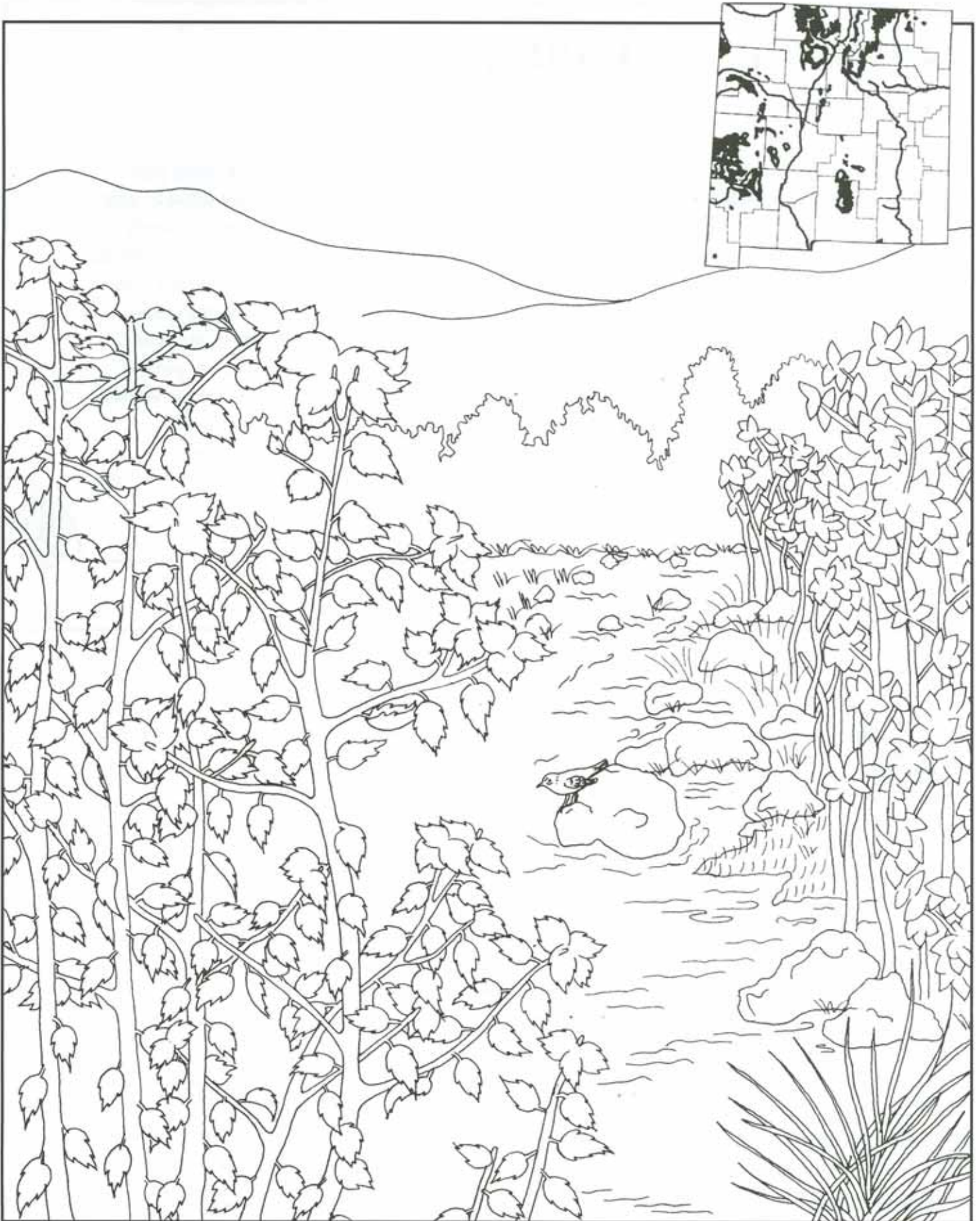
Many streams flow year-round in this life zone. As the water flows downstream, swirling *rapids* are followed by calmer water. Twigs, leaves and insects float along with the current, becoming food for many animals. Stream algae grow on top of rocks. *Invertebrate larvae* and small insects can live on the undersides of the rocks. Common plants are alders, water birch, willows, box elders, mulberry, blue spruce, chokecherry, Gambel's oak, Virginia creeper, sedge-grass, and water-loving wildflowers. Wildlife includes beaver, raccoon, wild turkey, broad-tailed hummingbirds, Western tanagers, ruby-crowned kinglets, violet-green swallows, American dippers, belted kingfishers, garter snakes, rainbow and cutthroat trout.



**Thinleaf alder** trees form *thickets* along many stream banks. They grow in thick stands, often with water birch trees. Several stems grow from one big base. These alders can grow up to 30 feet tall. Bark is a grayish color. Leaves grow two to four inches long and have toothed edges. The woody scales of the female catkins look like miniature pine cones. Alder bark is rich in tannic acid and is used for tanning animal skins. It is also used for dyeing blankets as well. American beaver, mule deer and cottontails like the alder's bark. Birds like to eat the seeds.

The **Rio Grande cutthroat trout** is native to New Mexico, and is New Mexico's state fish. This is a colorful fish. It is yellowish-green with black spots and its abdomen is creamy white except for males in breeding season, when the abdomen is a reddish orange wash. The Rio Grande cutthroat trout likes clear, cold streams and lakes and are found in the headwaters of the Rio Grande, Pecos and South Canadian drainages of New Mexico and Colorado. The female lays her eggs between March and July, making a gravel nest in flowing water. Rio Grande cutthroat trout like to eat insects in summer, as well as tiny plants and animals that live in the streams.





**HABITAT: Mountain Riparian**

# CONIFEROUS FOREST ZONE

## Douglas fir-white fir (mixed evergreen forest)

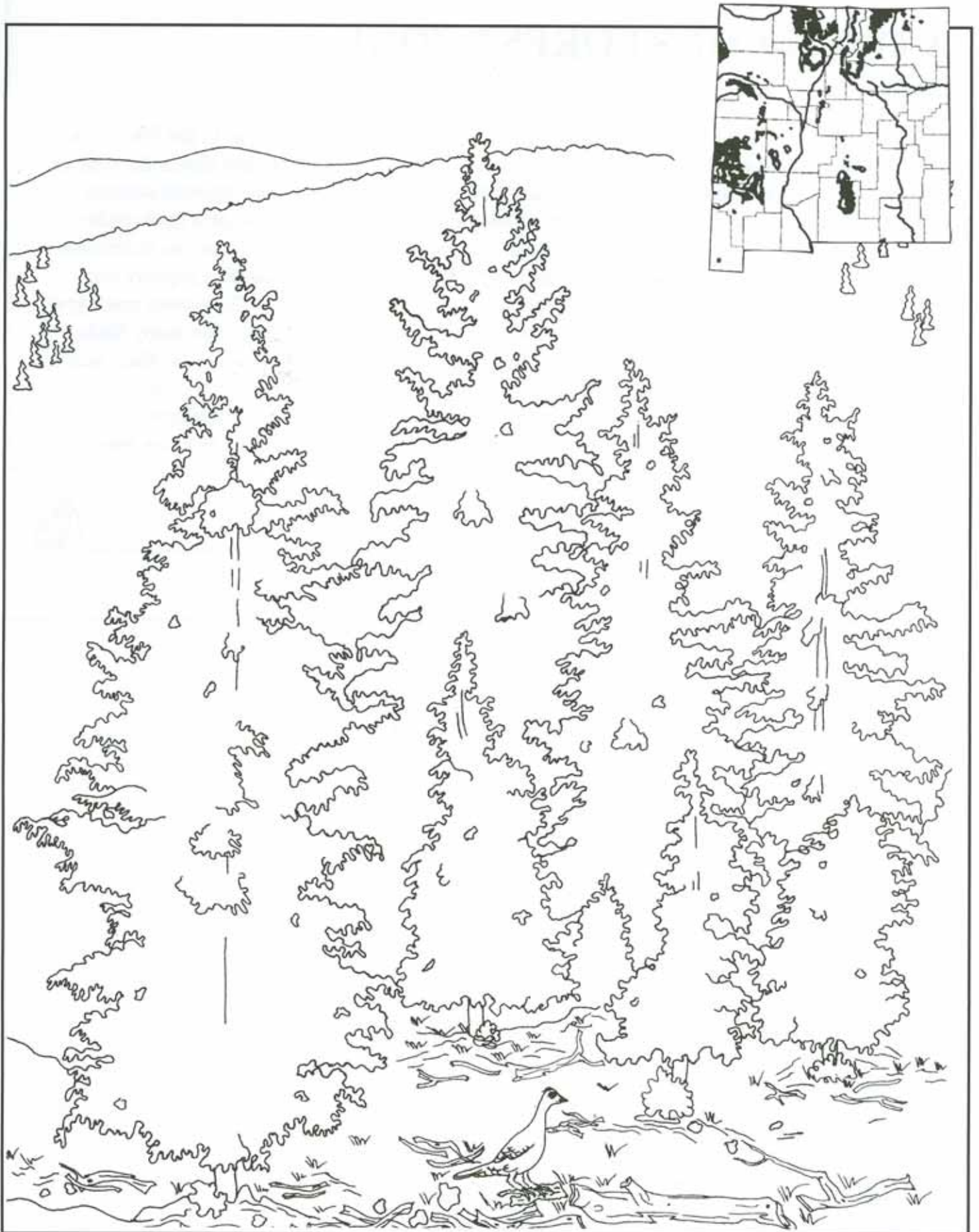
The *Coniferous* Forest Zone receives about 30 to 35 inches of rain and snow each year. This precipitation feeds the streams that flow into the drier regions. The elevation of this zone is from about 8,500 to 9,500 feet. The Douglas fir/white fir habitat makes a thick canopy cover. These trees grow very tall. Lots of leaves, twigs and logs fall and cover the ground. This makes it hard for many plants to grow in the understory. Dead fallen trees provide a habitat for many small animals. As they rot, the logs also make a good place for seedlings to grow. Rocky Mountain maples, blue willows, limber pine, blue spruce, and aspens might also grow here. Other plants include huckleberry, strawberry, poison ivy, ferns, lichens, and mosses. Wildlife such as the great horned owl, Northern goshawk, Mexican spotted owl, white-breasted nuthatch, Steller's jay, blue grouse, mountain chickadee, deer mouse, long-tailed weasel, red fox, porcupine, black bear, Jemez Mountains salamander, and the Western terrestrial garter snake also make their home here.



The **Douglas fir** is an evergreen tree. It is one of the tallest growing trees, reaching up to 130 feet tall. Needles are flat and bend easily. The pine cones hang down on the branches and have little 'rat-tails' sticking out of the cones. Bark is reddish brown and very thick. Some of the oldest Douglas firs were tiny seedlings in the 1300's.

The **blue grouse** is at home in the spruce, fir and aspen forests of the high mountains. It has a short strong bill and short, rounded wings that make it easier for the bird to fly through the dense forest. During the spring the males will carry out a 'hoating' behavior to attract females (hens). During courtship, the males will engage their yellowish combs above their eyes, and expose their bare, reddish neck skin, which is surrounded by a white circle of feathers. Their diet is mostly leaves, flowers, buds, berries and needles and many insects.





**HABITAT: Mixed Evergreen Forest**

# CONIFEROUS FOREST ZONE

## Aspen Woodlands

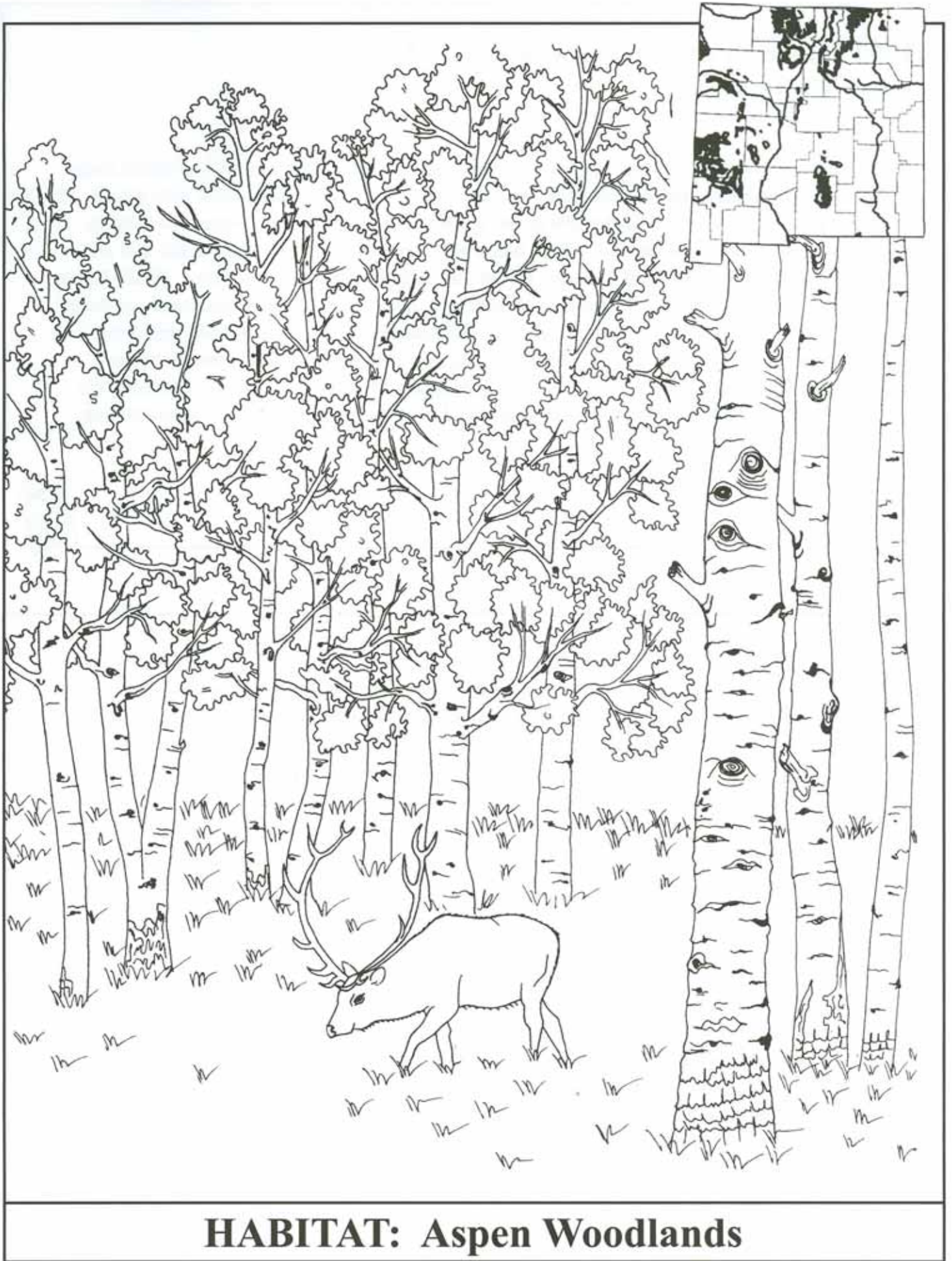
Aspen trees grow in thick stands or groves in the coniferous zone, as well as in the life zones immediately above and below. Aspen trees sprout mostly from underground shoots from other aspen trees in areas where evergreen trees have blown down or have been removed because of fire or logging. Aspen tree canopies let in sunshine, which helps encourage a thick undergrowth. Aspen groves provide food and cover for many animals. Elk and deer like to browse aspen trees. Deep snow in winter keeps the soil from freezing, so animals like gophers can burrow all winter. In old aspen stands, many of the older trees are dead. These trees make great homes for woodpeckers, and the insects that eat the dead wood become food for many birds. Other wildlife that lives here are big brown bats, shrews, mountain cottontails, elk, black bears, golden-mantled ground squirrels, wild turkeys, mountain bluebirds, American kestrels, Northern flickers, Northern saw-whet owls, yellow-bellied sapsuckers, and gartersnakes. Understory plants that grow here include gooseberries, currants, wheatgrass, bracken fern, and lupines.



**Quaking aspens** have a greenish-white bark with dark eye-shaped marks. They get their name because their leaves are always fluttering or 'quaking' in the wind. Leaves are shiny green until fall when they turn a beautiful gold. Aspens will invade a mixed-evergreen area soon after a burn. There, they will help shade and protect the *conifer* seedlings that eventually will replace them.

The **Rocky Mountain elk** is a large member of the deer family. Males (bulls) have large antlers that can spread more than 5 feet and weigh more than 700 pounds. They shed their antlers each winter and grow a new set by the following fall. Females (cows) are smaller than males. They are most active at dusk and dawn. Food includes grasses, forbs, and the leaves and bark of aspen trees. During rut (mating) season, a bull elk can acquire 10 to 40 females in his harem. Calves are born in May and June. The Edward Sargent Wildlife Area, Valle Vidal - Carson National Forest and Valles Caldera National Preserve are all great places to see elk.





**HABITAT: Aspen Woodlands**



# CONIFEROUS FOREST ZONE

## Mountain Meadows

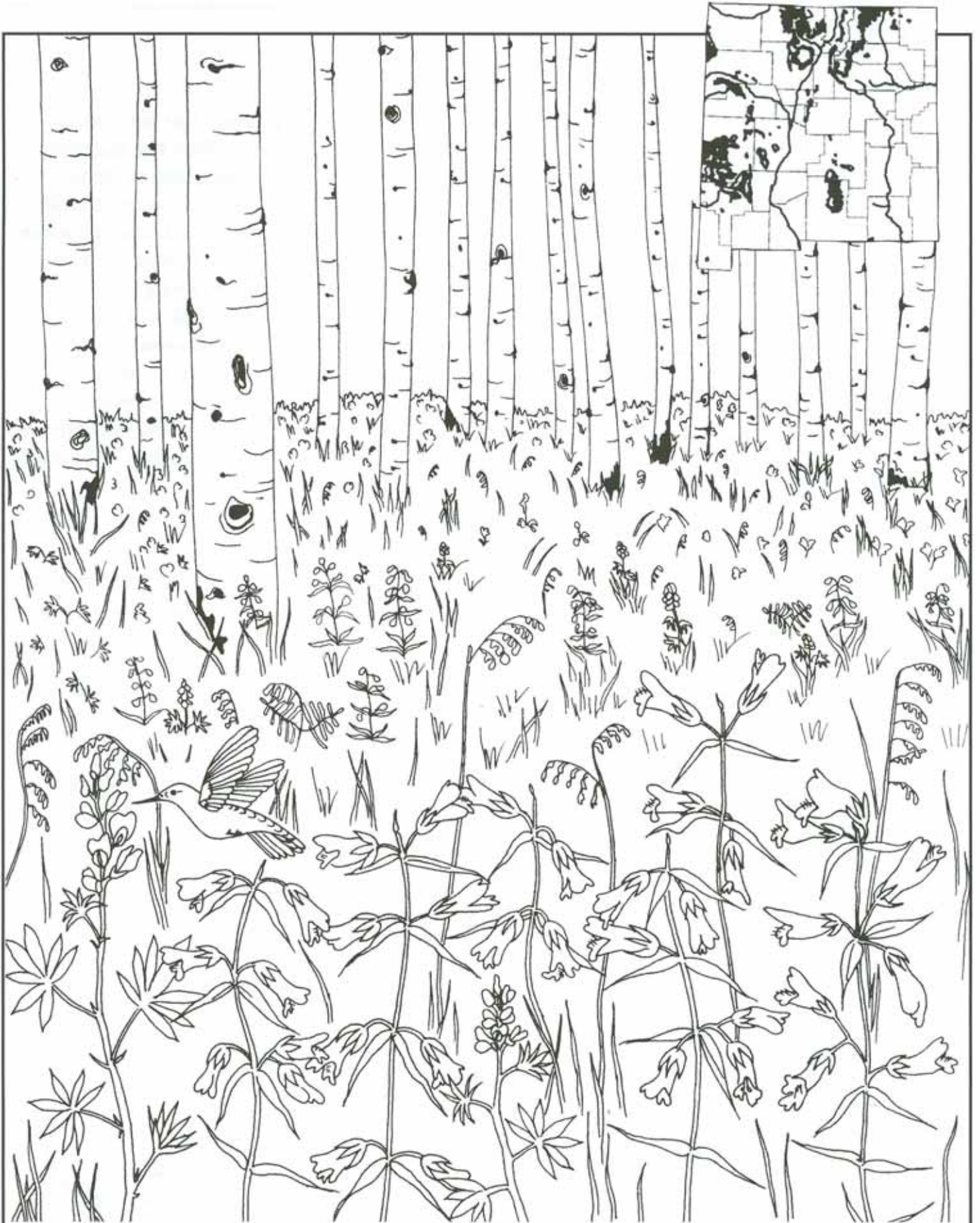
Meadows can occur in many life zones. They are big open spaces, usually without trees. Roots of the many grasses that grow here prevent little tree seedlings from taking root. In the forest life zone, snow that melts in the spring helps get things growing. Burrowing animals help to loosen the soil, which helps hold water in the soil. Many birds and animals use meadows for food. Nearby forests are used for shelter and nesting. Wildlife that can be seen in this habitat include black bear, elk, mule deer, sharp-shinned and red-tailed hawks, Western bluebirds, hummingbirds, silver-haired bats, striped skunks, red foxes, montane voles, Northern pocket gophers, dwarf shrews, boreal toads, upland chorus frogs, meadow jumping mice, and tiger salamanders. Wildflowers that grow among the grasses and sedges include penstemon, Rocky Mountain iris, yarrow, Indian paintbrush, fleabane daisy, and lupines.



Whipple penstemons like to grow in open meadows in the forest life zone. The whipple penstemon flowers grow mixed in with grasses and other wildflowers. Flowers are a dark purple color. This penstemon can grow up to two feet tall. Penstemons are also called 'beardtongues' because of the fuzzy *stamen* that rests on the lower petals.

The favorite habitat of the Western bluebird is in open woodlands and meadows. The male is a deep blue with a rust-colored breast. Females are gray with dark blue wings and tail. They will nest in birdhouses or holes in trees. They feed heavily on insects in the summer and in winter more on berries and small fruit like mistletoe and juniper.





**HABITAT: Mountain Meadows**

# SUBALPINE ZONE

## Englemann Spruce-Subalpine Fir (spruce-fir forest)

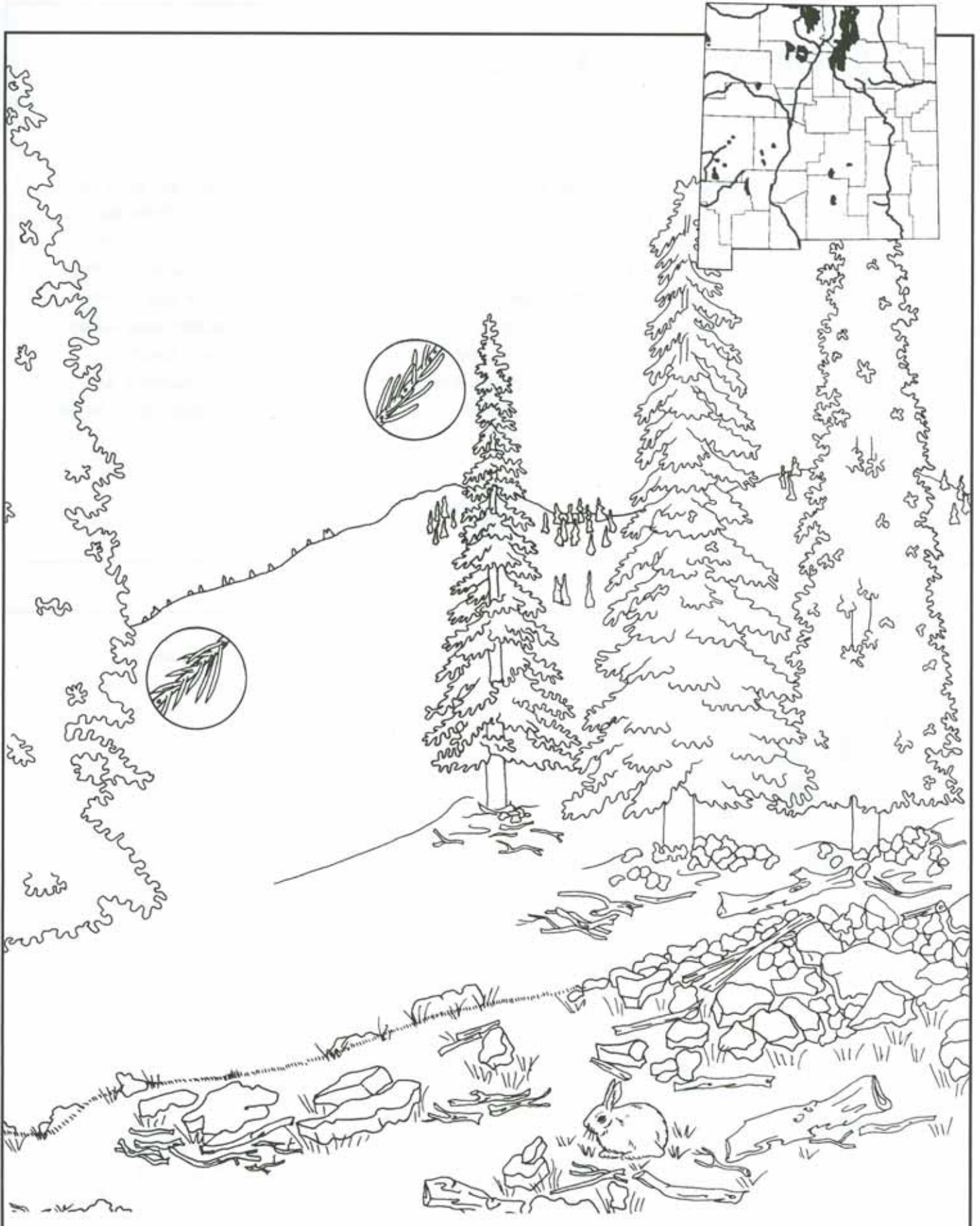
Between 9,500 and 11,500 feet above sea-level lies the Subalpine Life Zone. This is the most *humid* life zone, since it is covered with snow six to nine months each year. Rain and snowfall can be 30 to 60 inches a year. That leaves only about two months for tree seedlings to sprout and flowering plants to produce flowers and seeds. Some places in New Mexico where this life zone exists are Mount Taylor, and the Jemez, Sandia, Sacramento, and Sangre de Cristo mountain ranges. The major habitat in this zone is the Englemann spruce and subalpine fir forest. Shade from the forest and cool temperatures help keep snow on the ground until late spring. Trees, and other plants growing here, tend to be smaller than those growing in the zones below. Growing closer to the ground helps protect them from the harsh winds. Other plants that grow here are corkbark fir, bristlecone pine, dwarf junipers, currants, honeysuckle, huckleberry, alpine clover, and bluegrass. Wildlife making homes here include elk, mule deer, Rocky Mountain bighorn sheep, snowshoe hare, least chipmunk, American marten, red squirrel, vagrant shrew, blue grouse, red crossbill, pine grosbeak, Northern three-toed woodpecker, Clark's nutcracker, gray jay, boreal owl, Northern flicker, and Sacramento mountain salamander.



The Englemann spruce is an evergreen tree that can grow up to 100 feet tall. This spruce has a real 'cone' shape. It is pointed at the top, and little by little, fans out into a wide bottom. Their cones hang down from the branches. Their scales are very papery and bend easily. Needles are a bluish-green. When they fall off the branches, a rough scar remains on the twigs. Englemann spruce can live up to 500 or 600 years.

Snowshoe hares live in forests with a bushy understory. They rest in depressions in the thick cover. Unlike rabbits, hares have young that are born with fur, open eyes and are ready to move around soon after birth. In winter, their coats turn white. This protects them by helping them blend in with the snow. In the summer their coats turn brown again. Extra hairs on their hind feet help them walk on top of the snow.





**HABITAT: Spruce-Fir Forest**

# SUBALPINE ZONE

## Bristlecone Pine

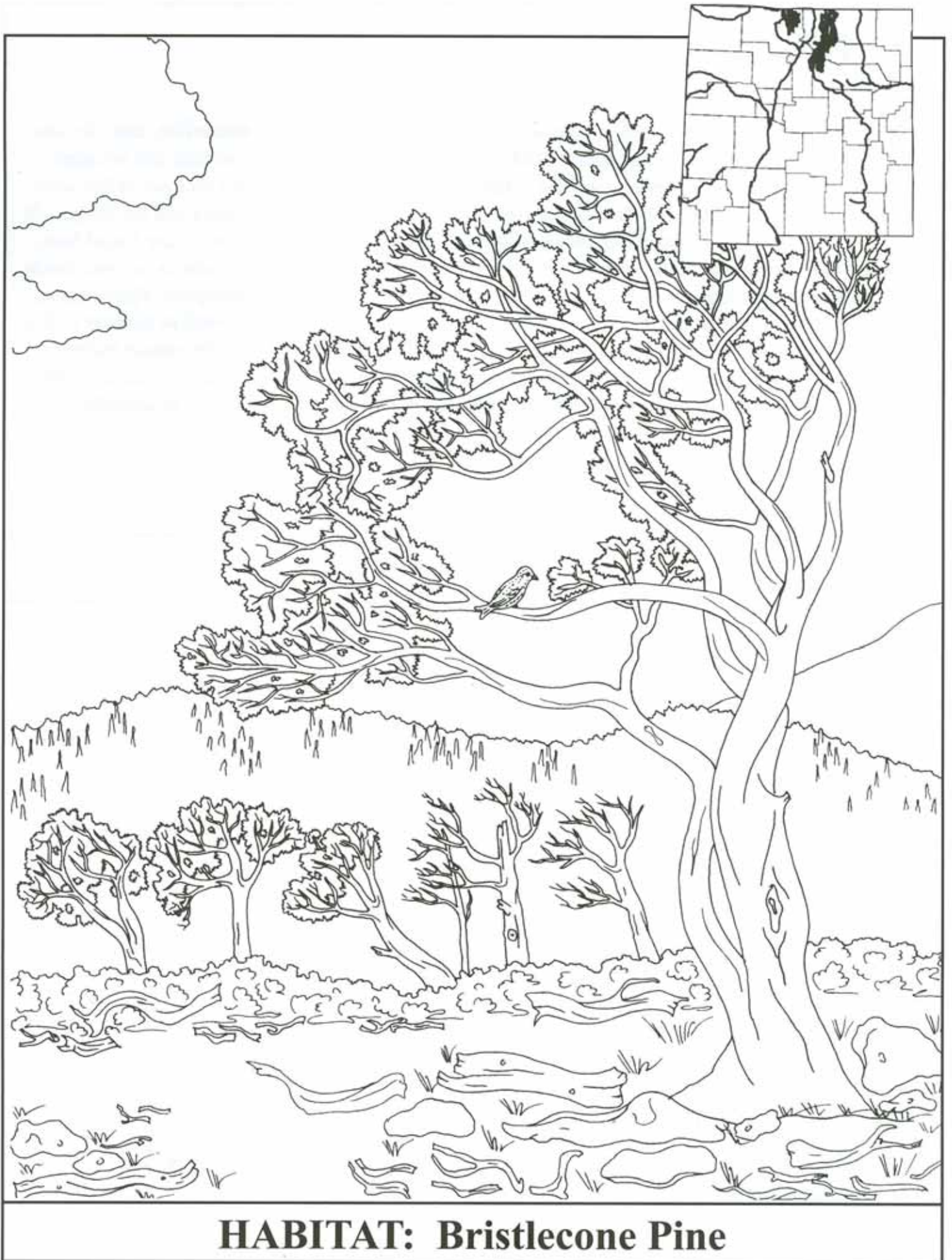
Also common in the Subalpine Life Zone is the bristlecone pine habitat. These trees tend to grow in clumps on gravelly or rocky *outcrops*. This helps protect small seedlings from the strong winds, especially near the timberline. Old dead trees that have fallen down also play a part in nature's cycle. Wind can knock down branches, and ice can wear down the bark. That is why many of these trees have a twisted look. The side facing the wind usually has fewer branches than the other side. As you get closer to *timberline*, trees tend to become smaller and even more twisted. Summer visitors in this zone include elk, mule deer, coyotes, Rocky Mountain bighorn sheep, yellow-bellied marmots, American pikas, Clark's nutcrackers, and rosy finches. The same plants and wildlife from the Englemann spruce and subalpine fir forest can also be found in the bristlecone pine habitat.



Bristlecone pines like to grow in wind-swept places. This often makes them grow in very twisted shapes. The tips of their cone scales have sharp 'bristles' on them. These dark green pines are some of the oldest living things on earth. Tree age can be figured out by counting the *annual rings* of the trunk. In New Mexico, some bristlecone pines are known to be 1,000 years old, and the oldest bristlecone pine ever recorded (in California) is over 4,800 years old and still growing!

The pine siskin is a little finch about 4-6 inches long and only weighing a half an ounce. These birds have yellow streaks at the base of their tails and also on their wing feathers. Their bills are sharp and thin, making it easy to pick out seeds from cones and other seedpods. They can often be seen hanging upside-down while they eat these seeds! They will visit bird feeders for thistle seeds.





**HABITAT: Bristlecone Pine**

# ALPINE ZONE

## Tundra

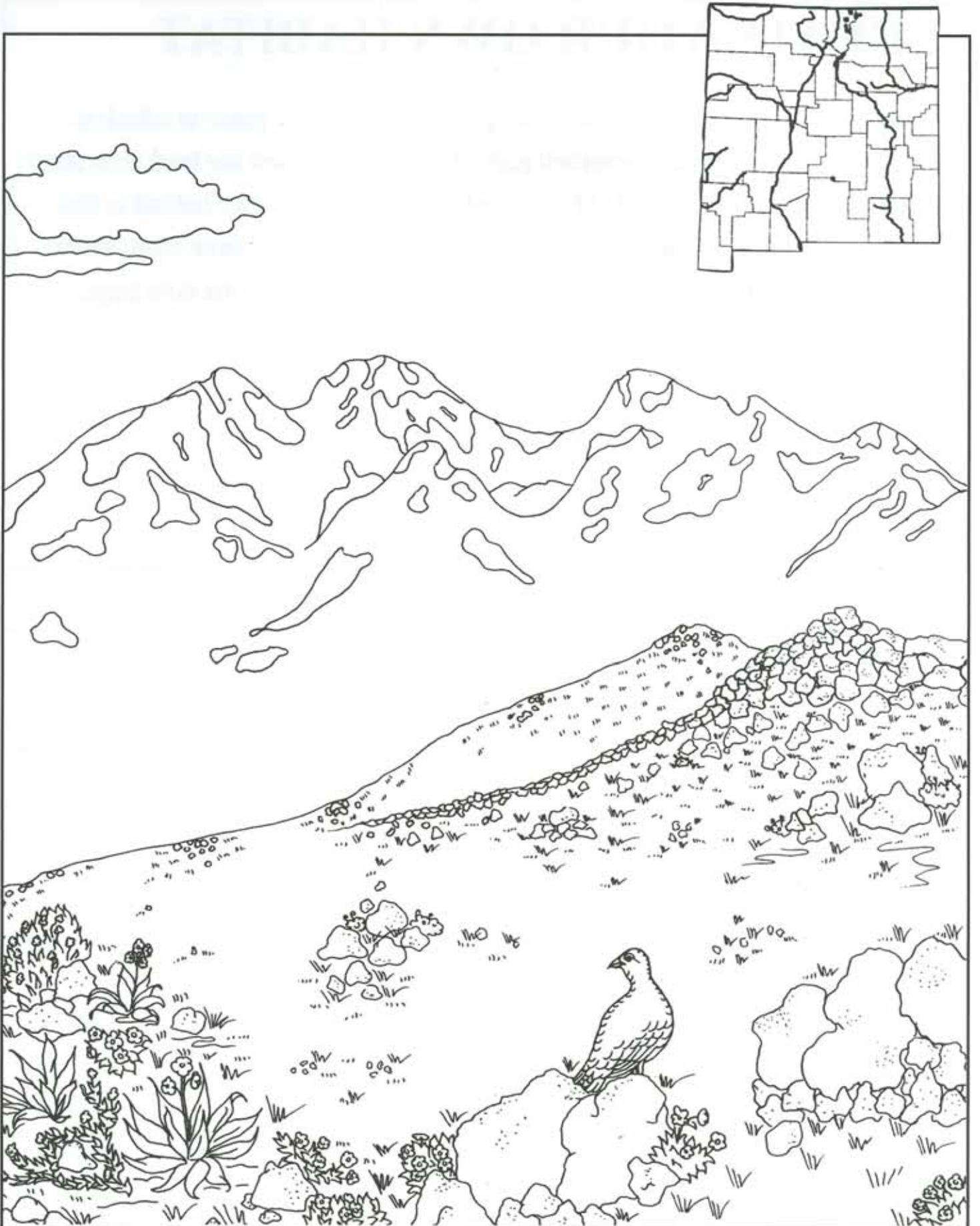
The highest life zone in New Mexico is the arctic-alpine *tundra*. Above timberline, this life zone ranges from 11,500 feet to more than 13,000 feet in elevation. This is the wettest and windiest life zone. Here the air is thinner, and the temperatures are cooler. There are no trees in this zone. Two places in New Mexico where this life zone can be found are Sierra Blanca and the Sangre de Cristo range. Small, low-growing plants, similar to those that grow in the arctic, are found here. Annual rain and snowfall can accumulate more than 40 inches. Snow that melts in summer feeds streams below, helping to water the land. Common plants include tufted hairgrass, alpine fescue, golden avens, alpine forget-me-not, sedges, spike woodrush, and lichens. Wildlife adapted to this cold environment include the American pika, white-tailed ptarmigan, Rocky Mountain bighorn sheep, deer mouse, masked shrew, Northern pocket gopher, yellow-bellied marmot, horned lark, white-crowned sparrow, rosy finch, golden eagle, and the Sacramento mountain salamander.



Plants in this habitat often grow in thick little clusters. Among these 'cushion'-type plants is the alpine forget-me-not which grows close to the ground. This plant grows best in open, rocky places in the high mountains. Its flowers are a deep blue, and its hair-covered leaves appear as if they were made of wool. These hairs help reduce the loss of water.

The white-tailed ptarmigan is a rare resident above tree line on rocky alpine slopes and high meadows in the Sangre de Cristo mountains. It has red 'combs' over its eyes. In the winter, this ptarmigan turns white to match the snow. Its upper feathers gradually turn brown, mixed with white in the springtime. Adults are mostly vegetarian eating buds, leaves, twigs and seeds. Very young chicks eat mostly insects at first and then switch over to plants.



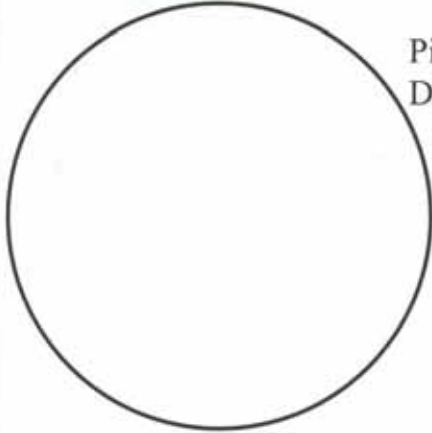


**HABITAT: Tundra**



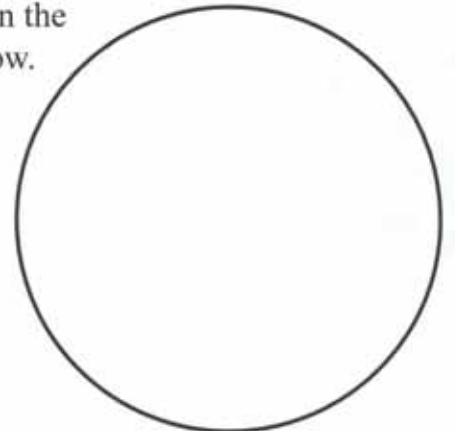
# CREATE YOUR OWN HABITAT

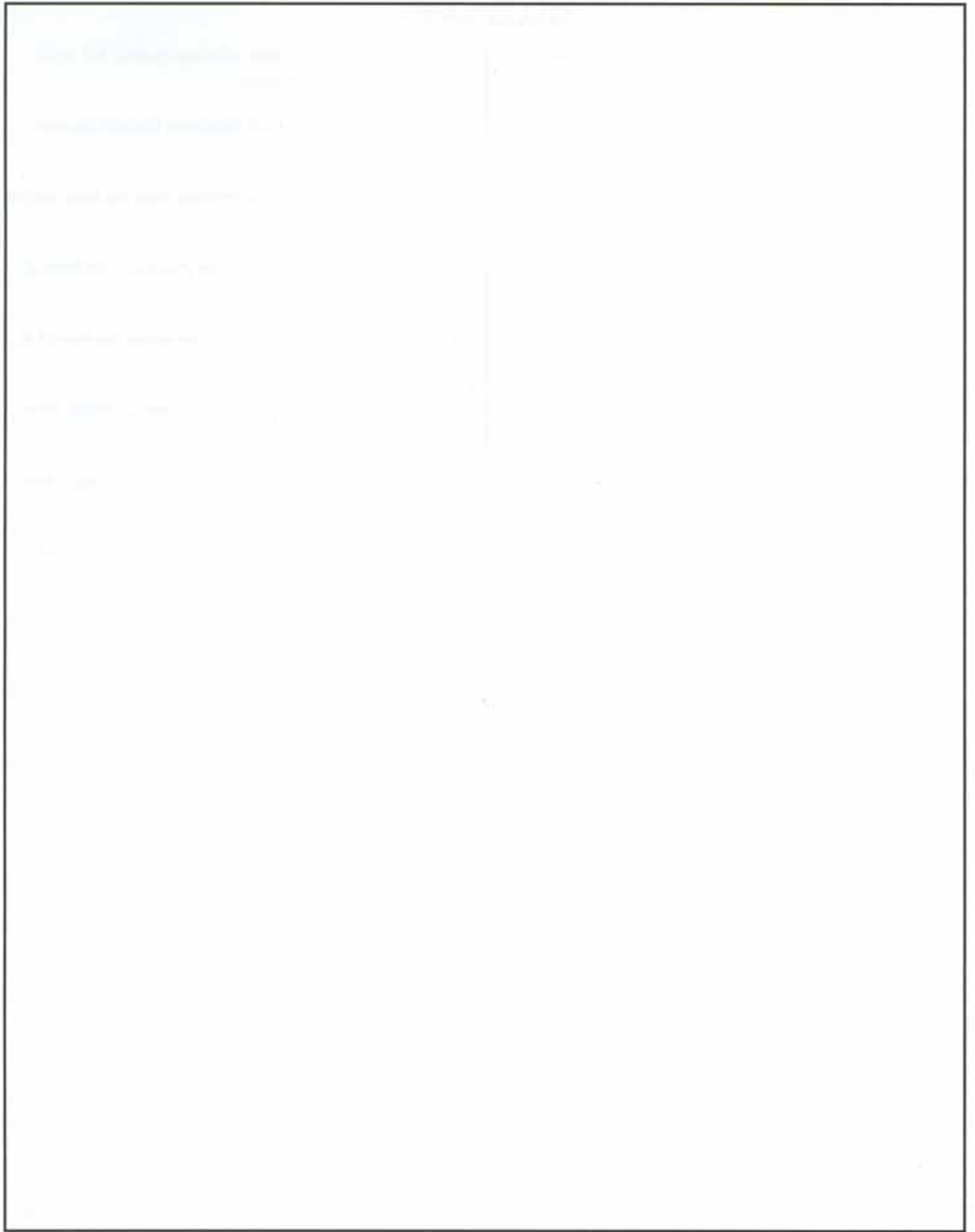
Plants and animals aren't the only living things that need a place in which to live. Humans are also an important part of nature. We share the land with other animals. In the space provided here, briefly describe what your habitat is like, or what you'd like it to be. Keep in mind that a habitat must have food, water, and shelter in order for you to survive. Draw your habitat on the next page, then color it in.



Pick a favorite plant and draw it in the circle.  
Describe it in the space below.

Pick a favorite animal and draw it in the circle. Describe it in the space below.





**HABITAT:**

# GLOSSARY

**Algae:** simple one-celled or many celled plants, usually aquatic.

**Aquatic:** growing or living part of its life in water.

**Annual ring:** a layer of wood produced by one year's growth.

**Canopy:** layer formed by the leaves and branches of the forest's tallest trees.

**Catkins:** small spike of usually hanging flowers.

**Conifer:** a plant that bears its seeds in cones.

**Coniferous:** refers to cone-bearing; coniferous forests include pines, firs and spruce trees.

**Emergent:** a plant with its roots in shallow water and most of its growth above water.

**Forage:** the act of an animal searching for food.

**Forbs:** low growing weeds and herbs, not including grasses.

**Germinate:** in plants, the act of seeds sprouting.

**Global climate change:** the variation in the Earth's global climate or in regional climates over time. It describes changes in the variability or average state of the atmosphere over time scales ranging from decades to millions of years. These changes can be caused by processes internal to the Earth, external forces (e.g. variations in sunlight intensity) or, more recently, human activities. In recent usage, the term "climate change" often refers to changes in modern climate which according to the Intergovernmental Panel on Climate Change (IPCC) are 90-95% likely to have been in part caused by human action. This phenomenon is also referred to in the media as global warming.

**Habitat:** the arrangement of food, water, shelter or cover, and space suitable to animals' needs.

**Humid:** containing a lot of moisture.

**Imprinted:** a response that is established between wild-life parent and young.

**Invertebrate:** animal without a backbone.

**Larvae:** the immature form of many insects; life cycle stage between egg and adult.

**Outcrop:** the part of a rock formation that can be seen above the ground.

**Pollen:** fine, dustlike grains released from the male part of a flower.

**Precipitation:** water reaching the ground in the form of hail, mist, rain, sleet or snow.

**Rapids:** the part of a river or stream where the current is fast and the water rushes of boulders

**Riparian:** located or living along or near a stream, river or body of water.

**Spawning:** the act of producing or depositing eggs; usually referring to fish

**Spike:** flowers growing close together on the long stem on an aquatic plant.

**Stamen:** the male part of a plant.

**Terrain:** the physical features of a piece of land.

**Timberline:** the upper limit of tree growth on mountains.

**Thickets:** a tangle of shrubs or trees.

**Toothed leaves:** leaves with jagged edges.

**Tundra:** treeless vegetation in regions with long winters and low annual temperatures.

**Understory:** the layer of plants growing under a higher canopy layer of forest trees.

**Wildlife:** animals that are not tamed or domesticated and includes, but is not limited to insects, spiders, birds, reptiles, fish, amphibians and mammals, if nondomesticated. Wild animals provide for their own food, shelter, and other needs in an environment that serves as a suitable habitat.

**Wildlife Management:** The application of scientific knowledge and technical skills to protect, preserve, conserve, limit, enhance, or extend the value of wildlife and its habitat.



# NEW MEXICO

## HABITAT STAMP PROGRAM

**Helping Wildlife Where it Counts - Where Wildlife Lives**

The New Mexico Habitat Stamp Program is a joint venture between sportsmen and the agencies that manage wildlife and their habitat. Each year licensed hunter, anglers and trapper, on Bureau of Land Management (BLM) or U. S. Forest Service (USFS) lands, are required to purchase the stamp or validation from the New Mexico Department of Game and Fish (NMDGF). These funds are dedicated to habitat conservation and rehabilitation projects.

Projects are developed from agency planning documents and from public proposals. The responsible state and federal agencies review and submit refined proposals to a Citizens' Advisory Committee. Members of these committees represent sportspeople, ranchers, wildlife advocates, and other outdoor enthusiasts. The committees set project priorities. This final list is recommended to the N.M. State Game Commission for approval.

Project work is completed by the responsible agency. Numerous volunteer organization/ individuals contribute expertise and labor during the work phase. The Habitat Stamp Program is not just for sportsmen. Anyone interested in New Mexico's wildlife and wildlife habitats is encouraged to purchase the validation and participate in helping wildlife where it counts. . . where wildlife lives.

For more information contact:  
New Mexico Department of Game and Fish  
Dale A. Hall, Habitat Stamp Manager  
3841 Midway Place, NE  
Albuquerque, NM 87109  
(505) 222-4725  
dale.hall@state.nm.us



[www.wildlife.state.nm.us](http://www.wildlife.state.nm.us)

# Project WILD®

## Schoolyard Wildlife Habitat Project



This is an action oriented project designed by and for students and teachers to establish actual wildlife habitat on or close to school grounds. These areas are outdoor classrooms made up of native plants and animal communities that attract and provide habitat for native wildlife. Some the many benefits of having Schoolyard Wildlife Habitat areas include:

- Attracting butterflies, hummingbirds, songbirds, lizards and small mammals. Build bird houses, small wetlands, wildflower gardens, rock shelters for lizards!
- Facilitating interdisciplinary learning opportunities for students. Language arts, math, science all are used in developing and maintaining an outdoor classroom. The classroom comes alive!
- Teachers, students, parents and local businesses come together to provide a positive way to revitalize schools and develop civic responsibility.

All schoolyards can be improved to increase their value for wildlife and to provide enhanced learning opportunities for students!

For loads of hands-on suggestions, suggestions and links to resource for developing, creating and maintaining a Schoolyard Wildlife Habitat please contact:

### Project WILD Coordinator

New Mexico Department of Game and Fish  
1 Wildlife Way  
Santa Fe, NM 87507  
(505) 476-8000  
[www.wildlife.state.nm.us](http://www.wildlife.state.nm.us)

