

# ARIZONA HIGHWAYS

FEBRUARY 1976 • 75 CENTS

IND. 33940



*Special Issue on the Animals of Arizona*  
*by Larry Toschik*



*Companion to the Moon*

BOBCAT  
TEMPERA • 11" x 15½"  
COURTESY OF MR. AND MRS. CLARENCE E. BOWE, JR.



Artist Larry Toschik at work.

Markow Studios

**From the Editor:** Larry Toschik is no stranger to this magazine. In fact, we consider this brilliant wildlife artist to be a member of the ARIZONA HIGHWAYS family. Since the first appearance of his work over 23 years ago, he has contributed to no less than thirty-seven issues. Most memorable of Larry's work, in our mind, would include: "Larry Toschik's Wonderful World of Birds" — March 1967, "Hunting with Brush and Palette in Arizona" — May 1970, "Arizona . . . the Quail Garden" — October 1971, and "The Whispering Skies of Arizona" — February 1973 — the latter being an entire issue devoted to our waterfowl and migratory birds.

Larry is a native of Milwaukee and won many local and national art awards at an early age. He is a trustee of Ducks Unlimited, and that organization's "artist of the year" for 1975. His designs and artwork have helped Ducks Unlimited raise a half million dollars for the restoration of waterfowl habitat.

His work is the result of a lifetime of careful, personal observation of wild animals in their natural habitat. He has done a staggering amount of research, including studies of animals in both motion and still photography, and often works from taxidermal specimens. The final result is what Larry calls *impressionistic realism*. His work is indeed very real, as you can see. But *impressionistic*, too, in that he interprets the subjects as he feels they really are . . . down to minute detail of color, shape, muscular development, movement, even the thickness of the animals hair.

Much of Larry's work is now done from his new mountain home and studio near the village of Pine, Arizona. According to Larry, "You can't do good wildlife art in downtown Phoenix. There are just too many distractions." Adjectives in describing his work seem hollow when placed next to the 22 eloquent expressions of tempera, oil and scratchboard reproduced in this issue. So instead we'll simply say: "Thank you, Larry Toschik, for this beautiful and enjoyable issue. And we look forward to seeing more superb work from the solitude of your mountain studio where you live among the subjects you love to portray, and portray so lovingly."

**Next Month:** The color theme for March is the *Moods of Weather*, a photographic essay on favorite Arizona scenery shrouded in unusual climatic conditions. Other features include *The Last Cattle Drive* in Arizona; tennis queen *Chris (Evert) Comes to the Desert* to join tennis mania in Arizona; *The Unique Powers of Turquoise*; *Texas Canyon: Rocks, Rocks Everywhere*, and *Astronomy Comes Alive* at the new Flandrau Planetarium in Tucson.

RACCOON (FRONT COVER)  
TEMPERA • 23" DIAMETER

COURTESY OF MR. AND MRS. RON CHRISTISON

*No Rest for the Night Shift*

# ARIZONA HIGHWAYS

February 1976

Vol. LII No. 2

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**In This Issue**  
Arizona Wildlife  
by  
Larry Toschik

### Color Classics 35mm Color Slides

This Issue 35mm slides in 2" mounts, 1 to 15 slides, 40¢ each, 16 to 49 slides, 35¢ each, 50 or more, 3 for \$1.00. Allow three weeks for delivery. Address: Arizona Highways, 2039 West Lewis Avenue, Phoenix, Arizona 85009.

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*Tom C. Cooper*

# Shadowed Trails

STORY AND PAINTINGS BY *Larry Toschik*

TECHNICAL DESCRIPTIONS OF ANIMALS AND PHOTOS BY  
*John P. Russo*  
CHIEF OF GAME MANAGEMENT  
ARIZONA GAME AND FISH DEPARTMENT



MULE DEER FAWN  
OIL • 18" x 24"

COURTESY OF MR. AND MRS. CHARLES WEIDLER

## *White Mountain Spring*



ARIZONA GRAY SQUIRREL  
SCRATCHBOARD • 12½" x 7¾"

... and God Said:

*"Be Light Made"*

... from this blessed source  
has come the power of life. For us, the sun is  
the prime fountain. Its light, journeying 93 million miles  
across space, bathes our days in a marvelous  
manner. Throughout history it has brought upon Arizona  
a treasury of the most remarkable wonder  
... from the Sixth Day of Creation on ...  
the "Wild" animals of our shadowed trails.



There is an hour of the day when labors should be put aside, when you can put your mind to other things, when you can extend your thoughts beyond routine and replenish heart and soul.

Here is such an hour. No matter where you are on the surface of this splendid globe you can, with the shifting of a thought and the turn of a page, be here among the sun-blessed ridges and canyons and streams and mountains of Arizona . . . a "million" miles from cares.

Did you know that if you were granted the ability to see all of this land, Arizona, from above at one moment you could, among your other observations, see elk in wild mountain meadows and deer, bear, antelope, buffalo, bighorn sheep, javelina, mountain lions, bobcats . . . and so many other varieties of wildlife from the southern Sonoran deserts to the pine-blanketed highlands?

Did you know that there was a time when beaver pelts shipped to market from Arizona commanded highest prices? . . . or that, when men first explored the Gila River Canyon they spent perilous days fighting off attacks of grizzlies? . . . that wolves grew famous in their skill of plundering pioneer cattle herds and evading capture?

Well, the grizzlies and the wolves are gone. Their time had run out on them. No longer could they fit into the scheme of human development as the "Winners of the West" consolidated their gains. While the Indians by virtue of their low population numbers possessed the ability to live on compatible terms with the creatures of the wild, the white man had lost those concepts thousands of years back into antiquity. Also, the Indian's limited technology against a monumental wilderness made few permanent scars while the growing wave of settlers, blinded by the vision of unlimited natural resources, pushed relentlessly west, stripping and changing the land. It is only in recent times that the Indian, confined to reservation areas and buried under a bureaucratic mess, has in many places laid waste to his land.

Under pressure from civilization the last grizzly bear hides were nailed to barn walls to dry in 1935 and the Aguila wolf, last of the known famous raiders, was held fast to a spot on the earth by a steel trap and yielded his ebbing spark to the stamp of progress during this same period. In spite of a melodramatic gloom that settles over these thoughts, the fact remains . . . their day had ended. These fierce shock troops of the wild simply did not belong among fences and roads and homes.

Recently there was some excited talk of replacing both grizzlies and wolves in some of the remote wilderness areas of the State. But I'm sure that this is just wishing, because which person or agency will be able to accept legal responsibilities from disastrous human contacts with these kings of the predators. However, there are occasional reports from reputable observers that wolves are still sighted in some isolated areas.

Beaver had nearly been eradicated from the State. But water, cattle, and farming interests who had waged continuous war on these strange animals found that their streams and mountain meadows were drying up after the beaver dams had been destroyed.

Instead of being looked upon as destroyers and competitors, beaver are now considered beneficial in controlled areas where they can't disrupt irrigation, clog gates or dig holes in banks. So, they still turn mountain streams into trout ponds and give that unique look of wilderness to the high back-country.

One surprising facet of the life of beaver in Arizona is that the desert edges of the lower Colorado River supplied the most and best pelts for the beaver trade. Their numbers ranged up the Gila River from the mouth of the Colorado, up the Santa Cruz and other flowing streams of the Sonoran hills and even in recent times were active in what is now downtown Tucson until city growth overran them. You would think that the forest country would be the logical place for winter-prime beaver but in Arizona that was not the case.

All this is changed now. The building of hydro-electric dams along the Colorado and the subsequent channelization of the watercourses has so radically altered the habitat that only very rarely will beaver be sighted in these waters. Similar dams elsewhere in the State stopped the waterflow completely in the channels below with the logical consequences.

Des Bartlett who films American wildlife for BBC and his own special research studies ("Beyond the Northwind with the Snow Goose" National Geographic, December, 1973 and other outstanding motion pictures) did part of the filming of the life of beavers in the beautiful trout country above Hawley Lake in the Apache Reservation.

Beaver share their beautiful mountain neighborhoods with many other animals small and large. Black bear range throughout that high land and on the southerning watershed below the Mogollon Rim fault line. When this tremendous split in the earth's skin occurred, the land below the great escarpment developed into a visually superb, wild mass of mountains, hills and valleys. Viewed from atop the rim this landscape is so vast and so crowned with forest green and so endlessly undulating that it has "another world" characteristic. It's a scene from the finest of Japanese paintings. The incredible misty shadings of emerald and blue make your heart and mind sing.

This is also great deer country. Both mule deer and white-tails love this land. Bears roam all the way south to the first folds of the nearly unknown Sierra Ancha's, a mountain range tucked away in the protective embrace of little traveled territory. Farther on south, along the eastern flank of Arizona, you can run your hounds after black bear in the forest mantles of towering Mt. Graham and in the historic Apache strongholds of the Chiricahuas. The wildly rugged and dramatic Mazatzal Wilderness Area, a beautiful massive rise of land that makes an outstanding backdrop for the view to the west from the Payson highway, is great bear country. From the

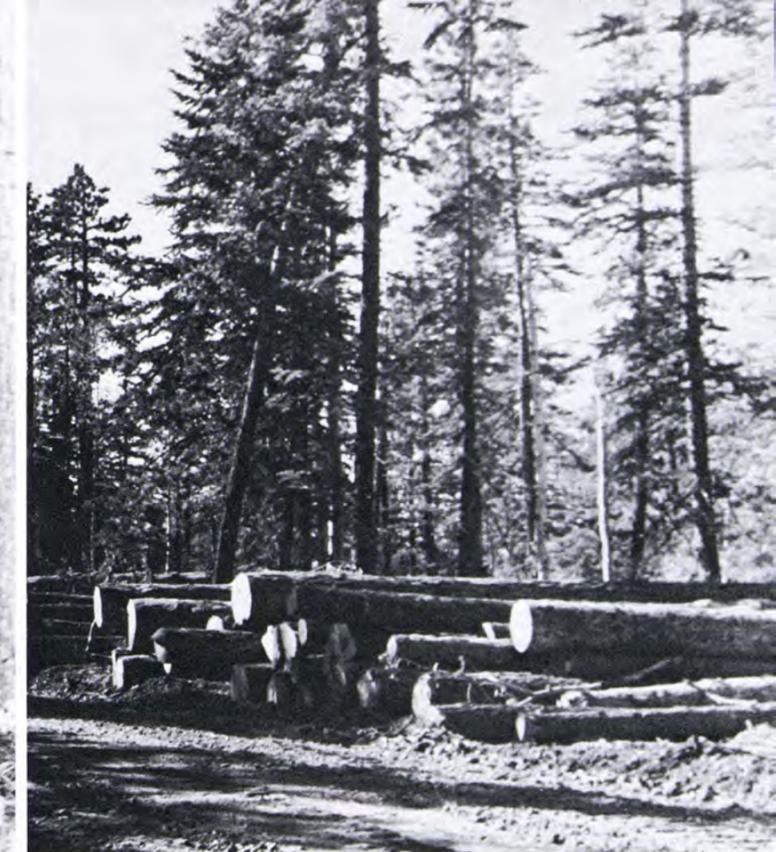


GRIZZLY BEAR  
SCRATCHBOARD • 12¾" x 10½"

ALL BLACK AND WHITE DRAWINGS ARE  
FROM THE COLLECTION OF MR. AND MRS. DON TOSTENRUD



Mule deer in their summer range. A bounty from the millions of timber acres in Arizona.



When logged wisely the forest is only temporarily disturbed. Thinned out, the refreshed forest stimulates plant production for the benefit of wildlife.

crests of these mountains black bears range, in season, all the way down to the Sonoran Desert where they stain their paws, muzzles and digestive tracts purple from gorging on cactus fruits. In the wondrously folded mountain fastness surrounding Prescott all the way up along Oak Creek Canyon and on up the slumbering volcanic majesty of the San Francisco Peaks and the surrounding mountain territory these lumbering bears lend excitement to the wilderness.

Black bears pad their "gentle" way through all these timbered thickets. Their fur coats range from black to cinnamon to blond. Every once in a while one will take down a range cow or calf and much excitement will come about. Hounds and horses and men will crash noisily through the entangled forest

until the culprit is brought to bay. Sometimes a bear's natural habits are horrible to human sensibilities especially when they hold fast to their still living prey and proceed to eat, unmindful that their table manners are to us cruelly shocking. But, for the most part, the bears keep pretty much to routine bear business and spend languid days ripping apart old windfall ponderosas for the crawly delights that scurry within or dig up a rodent or two to go with vegetation or fruits in season. Any remains of a dead deer or elk is a gourmet dish. If it's a range animal that died from natural causes and a bear is seen tearing at the carcass or if its sign is found at the site, it's a pretty sure bet that it will be accused of being the killer. But, in spite of a history of almost relentless human attack, the

**RACCOON** (*Procyon lotor*), see front cover: Desert raccoon (*P. I. pallidus*); Mexican raccoon (*P. I. mexicanus*).

**Habitat:** Statewide. Exception: remote, dry desert areas. Raccoons favor the bottomland habitat along rivers and streams, and timber and wooded highlands. They also make homes near irrigation ditches, farmlands, and in mesquite, cottonwood and saltcedar thickets.

**Description:** Length: 30 inches; Height: 12 inches; Weight: 30 pounds.

**Habits:** Raccoons are nocturnal and are seldom seen during the day. Telltale tracks in the soft mud attest to their presence along rivers, lakes and ponds. They prefer to den in hollow trees, especially large cottonwood trees growing along stream banks. In Arizona they are found more often in caves or burrows. They are extremely agile, strong swimmers and expert climbers. Raccoons hibernate during prolonged cold periods in the northern areas. They produce 2 to 6 young annually, averaging 4. The male helps to rear the young, and they form a closely knit family group. Young raccoons remain with the parents until the arrival of the next litter.

**Food:** Raccoons eat almost anything. They favor insects, crayfish and frogs; also chickens, eggs and garden vegetables. If water is nearby, they wash their food repeatedly as they eat.

**Enemies:** Man: Destruction to the habitat. Lions, coyotes, bobcats, foxes, and raptors on young raccoons.

**BOBCAT** (*Lynx rufus*), see inside front cover.

**Habitat:** Statewide. Bobcats prefer more densely vegetated areas along streams, rivers, arroyos, and the timber and wooded highlands.

**Description:** Length: 30 to 36 inches; Height: 15 inches; Weight: 15 to 20 pounds, slightly larger and heavier from the northern areas; Tail: 7 inches long. The upper parts of the body are reddish-brown to pale brown, becoming lighter along the lower sides; the undersides are white with dark spots and streaks, especially on the legs, chin and throat; ears prominent with small tufts.

**Habits:** A secretive animal, bobcats seldom reveal themselves, often hiding in small areas or behind objects, and blending into the surroundings. When caught in the open, they give the appearance of having no fear. They do not run off, but walk away unconcernedly. A well-hidden cave is the lair of a bobcat. This is usually a small opening under a ledge or rock, or no more than a shallow hole between the roots of trees, or in heavy underbrush. Kittens, usually 3 or 4, are born in the spring and remain hidden until they are 3 weeks old.

**Food:** Small rodents, birds, cottontail and jackrabbits, large insects, snakes, lizards, toads and frogs. Although small in size, bobcats can kill deer, antelope, bighorn sheep, javelina and turkeys.

**Enemies:** Raptors, coyotes and dogs on young bobcats.

**BIGHORN SHEEP** (*Ovis canadensis*): Desert bighorn sheep (*O. c. mexicana*), see page 7; Nelson bighorn sheep (*O. c. nelsoni*).

**Habitat:** A third of the state. Rugged mountains and canyons from the gorge of the Colorado River in the Grand Canyon, west along Lake Mead, the mountain ranges along the western part of the state, southwestern desert ranges and southern areas.

**Description:** Length: 60 to 65 inches; Height: 36 inches; Weight: 150 to 200 pounds; Ewes are smaller weighing 100 to 125 pounds. Rams have large horns which measure 40 inches or less. They are usually broken off or worn down, especially those of the older rams with longer horns. Ewe's horns are much thinner, shorter and rarely exceed a half curl. Both sexes have the same coloration with variations of gray, gray-brown to chocolate brown. Front feet are larger than the hind feet.

**Habits:** Desert bighorn sheep are seldom found away from the safety of mountains. They usually move early in the morning feeding downwards toward lower elevations where they rest through the midday. As evening approaches they move upward toward the high and rugged mountain tops and bed down for the night. In the desert habitat there is no need for seasonal migrations from higher to lower elevations but they do move and concentrate near water during the hot summer months. They have extremely sharp eyesight.

Ewes have 1 lamb each year. Desert sheep utilize caves and mines for shade from the hot desert sun.

**Food:** Grasses, weeds, browse and cacti.

**Enemies:** Lions, coyotes and bobcats. Eagles and foxes on young sheep.

**MULE DEER** (*Odocoileus hemionus*), see pages 8 & 9: Rocky Mountain mule deer (*O. h. crooki*); Desert mule deer (*O. h. eremica*).

**Habitat:** Statewide. Exception: a number of mountain ranges in the south and southeastern parts in some whitetail deer areas.

Rocky Mountain mule deer are found in the higher elevations, in the timber and woodland types. Desert mule deer inhabit the lower ranges of the south and western parts.

**Description:** Length: 6 feet from nose to tail; Height: 42 inches; Weight: 200 pounds or less; Ears are very large measuring about 9 inches; Tail 7 to 8 inches. Size and weight varies considerably and depends upon the age of the animal. Females are smaller and weigh less. Desert mule deer are similar to Rocky Mountain mule deer in all respects, except they tend to be leaner. Sexes are alike. Bucks grow antlers which are forked in contrast to the single tine of the whitetail. As yearlings, males start growing antlers, which are shed each year. New antler growth has a velvet-like covering which is retained until late summer, when the velvet dries, the antler becomes hard, and the velvet is rubbed off.



WOLF  
SCRATCHBOARD • 7¾" x 7¼"

black bear seems to be able to hold his own. It took many years for the Arizona Game and Fish Dept. to get bears classified as big game. So, today's good hunting regulations have been a valuable assist in protecting these wonderful giants from complete extermination.

This Arizona that wears so many garments can look like a cattail marsh in Minnesota or a range of winter hills in Vermont, or the mountains that ring the Serengeti Plains of Africa, or the dunes of Sahara or the craggy, barren cliffs of the Gobi Desert.

Because the land is varied so is the wildlife. Through millions of years many stupendous changes have racked the landscape; lifting it, cracking and churning it, bulging it up to dump billions of gallons of sea water off its back. Tremendous table lands, hundreds of miles long, were shoved up into the sky and others sunk alongside while released lava exploded up out to the earth's bowels to form great mountains. Today the land is seemingly at rest. At least for now the violence has been suppressed. At present, water freezing in the cracks in rocks expands to wedge off pieces and slowly reduces sheer rock faces to shale slopes. The heat of the sun works the same way to flake off surfaces. Lichens secrete their acids to soften

stone layers. The steady, slow force of gravity pulls rocks and broken debris down from the cliffs, and along with wind, rain water and snow melt, wears down the exposed hillsides and drops the cut-banks of desert washes into the flood to be spread out over the lowlands. The wildlife changed as the land and climate changed. Where mammoths once roamed over the rock-locked remains of dinosaurs, now deer and antelope spend their lovely lives.

Looking out of the studio window of my new retreat in a forested canyon in the center of the state at 5,600 feet, I can look up another 1,000 feet to the bottom of an ancient ocean resting atop a rocky cliff sheared off by forces impossible to imagine. Gray clouds have lifted and they've silvered the timbered ridge with new snow. I know that by tomorrow morning the snow line will have dropped and that we'll awaken to a winter wonderland.

To contemplate that this was once a tropical sea floor is an exciting meditation. Stellar jays, Arizona jays and juncoes wing through the trees. Whitetail deer, foxes and rabbits and raccoons roam the winding ravines. All this . . . in the exact spot where coral reefs broke the thundering waves and wide beaches, littered with shells, gleamed in the sun. We know this to be so for their fossil remains erode out of the weathering limestone and sandstone along the face of the Mogollon Rim.

To understand the wildlife you must understand the land. From where I sit shielded from the cold by a double thickness of glass and the aromatic warmth of a crackling juniper and oak fire the land spreads away to all compass points in a wondrous variety.

Two miles to the east, Milk Ranch Point, is one of the first ramparts of this fantastic Mogollon escarpment that extends hundreds of miles eastward into New Mexico. The high-side of the Rim slopes to the north in a gradual decline, interrupted by volcanic mountains, then on to the gaunt splendors of the Painted Desert to be stopped abruptly by the red mud waters of the Little Colorado River. From there the land rises again to the north and east to form the enchanted mesas of Hopi and Navajo country and centrally it climbs the Coconino Plateau and the southern crest of the Kaibab . . . Nature saw fit to split the Kaibab. She did it with a magnificent flair and a staggering, splendid barrier . . . the Grand Canyon. North again, the land lifts to meet the sky and becomes the wildlife treasury of the famed North Kaibab.

This forested gem is a sanctuary for the greatest deer alive on this earth . . . the Kaibab Mule Deer. Rare prime bucks



DESERT BIGHORN SHEEP  
OIL • 22" x 26"

*Keepers of the Craggs*

**Habits:** Mule deer are the most common cloven hoofed animals in the state. They are most active early in the day and in the evening and seek protection in woody and brushy areas during the day. Females average two fawns each year. Fawns have white or light buff spots on a rich reddish-brown coat. They hide by lying still with their necks stretched out along the ground and their long ears flattened along the neck. Mule deer run with a bounding gait.

**Food:** Shrubs, trees, weeds and grasses.

**Enemies:** Lions, bears, coyotes and bobcats. Foxes, eagles and dogs on fawns.

**KANGAROO RAT** (*Dipodomys sp.*), see page 9. Five species and 13 subspecies are found in Arizona.

**Habitat:** Statewide, except for the heavily timbered plateaus and mountains. More prominent in desert areas and lower elevations, especially the arid southwest. They prefer sandy, loose soil.

**Description:** The larger races of kangaroo rats measure 12 to 15 inches in length, the tail measuring 7 to 8 inches. The tail has hair. A true pocket rat, the kangaroo rat possesses external, furlined cheek pouches. Their outstanding characteristics are the long tufted tail, long hind legs and small weak forelegs giving them a kangaroo appearance. Ord's kangaroo rat is the smallest, and probably the

most common race found. The bannertail and desert kangaroo rats are the largest. In many respects, the coloration is similar; the upper parts yellow-brown to gray which gives way to white from the nose across the cheek, the underparts and across the hind legs and down the tail. The head is large; large dark eyes accented by white markings.

**Habits:** Kangaroo rats develop extensive burrows often located at the base of plants. The burrows are clean, having many passages and openings. Burrow entrances are generally clustered, which can undermine an area, causing a person or large animal to break through. Most active at night, the kangaroo rats move about gathering and storing food in compartments in their burrows. They are social animals and seem to live in colonies. They do not hibernate. Kangaroo rats in lower and warmer localities probably have 2 or more litters a year.

**Food:** Seeds, nuts and vegetation.

**Enemies:** All carnivorous animals, snakes and raptors.

**COYOTE** (*Canis latrans*), see page 10.

**Habitat:** Statewide.

**Description:** Length: 40 to 45 inches; Height: 24 inches; Weight: 20 to 40 pounds; Tail: 13 to 15 inches long and bushy. Color variations occur among coyotes found in the northern part of the state and



DESERT MULE DEER  
SCRATCHBOARD • 11" x 22½"

those from the lower deserts. Desert coyotes tend to look bleached.

**Habits:** One of the best recognized characteristics of the coyote is the yapping and howling which usually is heard in the evening or early morning. They are active at all times, but more so at night. They quickly learn to overcome obstacles in their search for a meal. Fast runners, they can outrun most dogs. In higher elevations they migrate to lower areas in winter. They establish family units and often hunt in groups. Dens are located in shallow caves, or cavities under rocks. Litter size is 5 to 7. The male takes an active part in helping to raise the pups.

**Food:** Rodents, particularly rabbits, vegetation, seeds, fruit, insects, aquatic life, snakes, birds and carrion. They can kill deer, antelope, bighorn sheep and domestic animals. They also raid farms and ranches for anything they can find to eat.

**Enemies:** Comparatively none to the adult with the exception of man. Eagles, hawks and owls on young.

**SKUNK** *Striped skunk (Mephitis mephitis)*, see page 13; *Spotted skunk (Spilogale putorius)*; *Hog-nose skunk (Conepatus mesoleucus)*; and *Hooded skunk (M. macroura)*.

**Habitat:** The spotted and striped skunks are found statewide, the striped being more common. Hog-nose and hooded skunks are found in the

southeastern parts of the state and into the central high-desert habitat, chaparral, woodland and grassland areas. Skunks have learned to live close to settlements and are common on town outskirts.

**Description:** Spotted skunk: Length: 15 to 20 inches; Height: 6 inches; Weight: 2 pounds or less. The hair is long and black with irregular white spots or stripes from head to tail; the tail is bushy but not large and has little or no markings. Striped skunk: Length: 24 inches; Height: 8 inches; Weight: 6 to 8 pounds. A heavy bodied skunk, the striped skunk's hair is long, glistening black with broad white stripes; the stripes starting as a single stripe at the head, neck or shoulders then dividing to two stripes down the back to the tail; the tail is large and bushy with slight white markings or none. Hog-nose skunk: Length: 27 to 30 inches; Height: 8 to 10 inches; Weight: 10 pounds. The hair is long; from the head a wide white stripe covers the entire neck, shoulders and back to the tail, which is all white; underparts blackish-brown; nose is hog-like. Hooded skunk: It is about the size of the striped skunk; markings vary but generally the hair on the nape is white and forms a ruff; narrow white stripes run the length of the body on each side to the tail; the tail is as long as the body, bushy with white markings.

**Habits:** Spotted skunks are more nocturnal than other skunks. They are good climbers, energetic and move about rapidly. They like rocky terrain, live in communal groups where dens and burrows

are used in common with other skunks. They also live in small, shallow caves or hollow logs. The burrows are usually those deserted by other animals. The striped and hooded skunks are most active at night, but can often be seen during the day, constantly searching for food. The hog-nose skunk has similar habits. They are more energetic diggers in their search for food. The hog-like muzzle helps to this end. Skunks have 2 to 10 in a litter, but 4 or 5 is average. They construct comfortable dens to have their young. Dens are usually lined with leaves, needles, weeds and grasses. They have the ability to spray a fine odorous mist which clings to anything it contacts. They store up fat for winter and den up in severe weather.

**Food:** Skunks are insect loving animals and will feed on crickets, grasshoppers and grubs. They will also eat small mammals, birds, eggs, reptiles, frogs, toads, crayfish, poultry, garbage and most anything.

**Enemies:** None, except young skunks are taken by raptors; coyotes, bobcats, foxes and lions will attack skunks when hungry.

**RINGTAIL CAT** (*Bassariscus astutus*), see page 15; *Texas ringtail cat (B. a. flavus)*; *Arizona ringtail cat (B. a. arizonensis)*; *Yuma ringtail cat (B. a. yumanensis)*.

**Habitat:** The Texas ringtail is found in the southeastern corner of the state. The Arizona ringtail is the most common race found throughout the state, except for the southeastern and southwestern corners.

The Yuma ringtail occurs almost exclusively in Yuma County in southwestern Arizona. The ringtail cat prefers country broken up by canyons, ledges, cliffs and caves, preferably near water. However, many have been seen far from water. They will often take up residence in buildings and in piles of debris.

**Description:** Length: 30 to 35 inches; Height: 6 inches; Weight 2 to 3 pounds. Although sometimes mistaken for a raccoon or coatimundi, the ringtail cat is distinctive. The underside of the tail is flattened, and the black bands are incomplete beneath.

**Habits:** A night-loving animal, it moves about easily using its tail for balance. It will take up residence in buildings even if they are occupied. The young are born in caves, rocky crevices and under buildings. They are exceptionally good "mousers" and were often tamed by prospectors and miners for that reason.

**Food:** Rats, mice and other small rodents, birds, eggs, insects, bats, fruits, vegetables and nuts.

**Enemies:** Coyotes, bobcats, foxes and owls.

**COATI** (*Nasua narica*), see page 17.

**Habitat:** Rocky and wooded mountain areas in the southern and southeastern parts of the state. Occasionally, they are found in the open grasslands, but never too far from rocky outcroppings or trees.



*Chorus to Orion*

COYOTE  
OIL • 20" x 24"

weighing close to 260 pounds will startle your senses every-time you see them. The painting on pages 24 and 25 shows a non-typical head, a classic recordbook buck with his harem, on the winter range overlooking Kanab Creek from Sowats Point. Teddy Roosevelt hunted on this land and was so impressed by this outstanding animal and this unique habitat that he set in motion legislation that became the founding roots of the "Grand Canyon National Game Preserve" which was later renamed "Kaibab National Forest." Northward beyond this, Arizona butts into the spectacular sandstone wilderness of Southern Utah.

The Mogollon Plateau, this tipped table of land, almost as big as the whole state of Massachusetts, is crowned with the largest stand of ponderosa pine in America. At higher elevations the ponderosa yields to spruce, douglas fir, aspen and the other beauties that thrive in the snow and cold of Rim country winters. The streams that drain this wondrous land are not gentle brooks. They have carved deep and wildly rugged canyons right through the bedrock. It would take an equally rugged man to explore them on foot.

When the oaks have turned red and brown and the aspens are a blaze of gold these canyons will ring with the frosty dawn challenges of elk. This is their country. The bull elk's bugle will make your hackles tingle and your pulse quicken in a way few other creatures can. At the first pealing whistle all the wilderness comes together and it all fits into place . . . the autumn color, the crisp breath of oncoming winter . . . the aromatic blue smoke of campfires overlaid with the clean scent of pine . . . the crystal sky . . . and all the dormant, primitive callings of the dawn of man begin to prowl your mind and spirit.

Elk were formerly denizens of open grasslands and forest edges. The advance of civilization pushed them uphill into big timber, rough canyons, and mountain meadows. Here's their last stand. So heavy was the pressure put on them that in the 1890s the Merriam elk, splendid palmate-antlered giants, were totally exterminated from Arizona and their kind no longer exists. The whole Mogollon Plateau and the rest of the state was stripped of elk. Thinking-men were aghast at this incredible destruction. Roosevelt Elk were brought down from Yellowstone National Park in 1913 and in years following were released into the historic elk range. From this nucleus herd of about 200 animals Arizona's elk population is now around 10,000 and in the years since they were brought here more than 22,000 were legally harvested. Strict laws were passed to give the Arizona Game and Fish Department the muscle to



KANGAROO RAT  
SCRATCHBOARD • 4 3/4" x 8 3/4"



**Description:** Length: 36 inches; Height: 10 inches; Weight: 20 pounds.

**Habits:** The coati moves about at all hours but prefer the early morning and late evening. They move easily usually traveling rapidly in search of food. They are expert tree climbers and move from limb to limb as easily as they move on the ground. The tail, carried upright, acts as a balancing organ. The Coati is a powerful animal and good swimmer, although it comes from a semi-desert habitat. The tough nose pad helps in rooting for food. Four to 6 young are born in the spring.

**Food:** Roots, plants, fruits, insects and lizards, small mammals and birds. Damage occurs when they "raid" a garden in large numbers.

**Enemies:** Lions, bobcats, coyotes, and raptors on the young.

**BLACK BEAR** (*Euarctos americanus*), see pages 18-19.

**Habitat:** Timbered mountains, woodlands and chaparral, with the exception of the Kaibab North Plateau, Arizona Strip, Hualpai Mountains and some of the high ranges in central and southern Arizona.

**Description:** Length: 5 to 6 feet; Height: 36 to 40 inches; Weight: 300 to 400 pounds.

**Habits:** Although a social animal, black bears establish a well defined home range. They spend much of their time foraging for food, especially in the fall of the year when they store up fat. In winter they

become dormant, the boars going into winter sleep after the sows. Bear dens are shallow caves, or hollows under the protection of downed trees, or holes in earthen banks. Usually 2 cubs are born during the winter sleep, weigh about 8 ounces each, and have a soft black coat of hair. Their eyes are closed for 5 or 6 weeks. They leave the den in the spring with the parent sow, the cubs then weigh about 4 pounds. Bears are good runners and can travel over very rough terrain at an exceptional pace. They also climb trees well.

**Food:** Anything including garbage, putrifying meat and rotting vegetables. They kill wildlife and domestic stock for food.

**Enemies:** When full grown, practically none.

**GRAY FOX** (*Urocyon cinereoargenteus*), see pages 20-21.

**Habitat:** Statewide. Prefers vegetated and agricultural areas.

**Description:** Length: 36 to 40 inches; Height: 14 inches; Weight: 8 pounds.

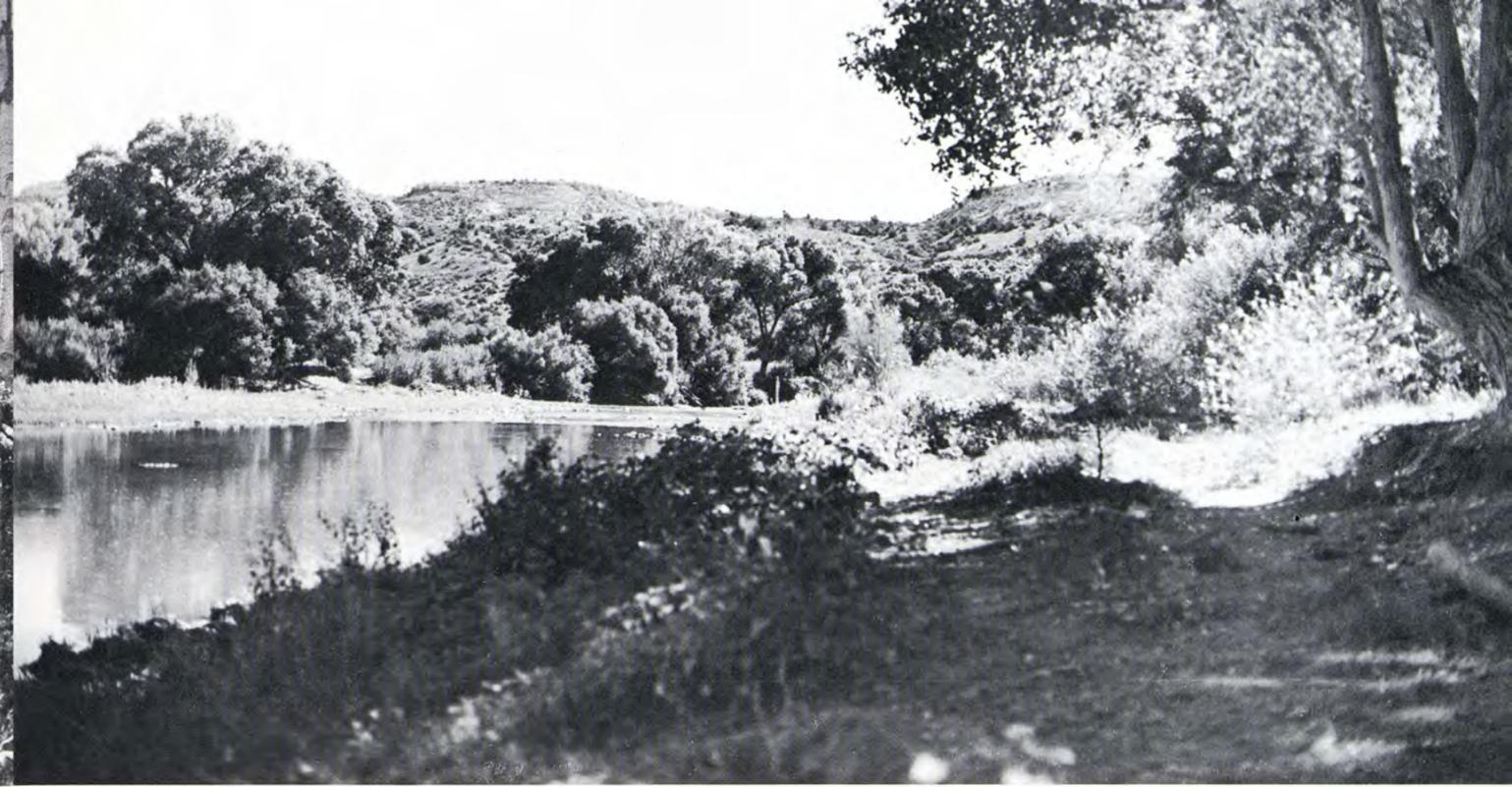
**Habits:** The gray fox is a night-loving creature and does most of its hunting and traveling after dark. Although a good runner, it does not run well before dogs, and usually climbs low trees to escape. The gray fox lives in dens and may have several. The dens are in shallow caves, burrows, or any place that offers protection. There is one litter a year of 3 to 5 pups.



Boulder strewn desert habitat. Not only is it dramatic to look at, but it provides good protection for rodents and predators.



Dense stands of Aspen in the high country. Beautiful in all seasons, especially in Autumn. These are nurse trees for the young pines starting to grow up through them. Home for deer, bear and turkey.



Verde River. Typical of desert rivers. The Cottonwoods, Palo Verde, Mesquite and heavy brush cover is ideal for deer, beaver, muskrats, raccoons, skunks, bobcats, coyotes, rodents and much bird life.

never let the killing of wildlife get out of hand. A firm halt was put to the commercial hunting to feed miners and railroad work gangs and also common sense was forged into the regulations that controlled livestock grazing. This last came too late to turn back the frightening permanent damage done to the once lush grasslands of Arizona. Now it's a holding action. Occasionally, over the years following, certain ranchers forgetting that they are intruders into other animal homelands potshot the elk and antelope that they accused of stealing their forage. Land developers have subdivided forest meadows and built golf courses to attract buyers. When the elk return seasonally to their historic meadows they leave deep tracks when the ground is soft from snow melt. So there's trouble. Javelina and deer are killed because they forage in unprotected gardens planted by home owners who moved into wildlife habitat. This is a typical human failing. We see it today in another form within our municipal centers. Here housing developments, for instance, are put at the end of airport runways and immediately the intruders complain of jet noise and danger and demand closing of the airport. Common sense says that they've asked for shattered nerves by building in that location in the first place. But somehow naivete overpowers reason and the airports are hard pressed. So with wildlife and the intrusion of man. However the scales are gradually being tipped in favor of giving wildlife the benefit of the doubt. Their battle is far from won though and it will be touch and go as long as man misunderstands the Genesis command to have dominion over the animals. Dominion means care and management not endless slaughter to the last animal.

The timing of space exploration to the peaking out of man's abuse of our earth's resources is an unmeasured blessing. From the vantage point of space we are now able to form an intelligent concept of our planet. Except for philosophers, poets, artists, and scientists too few people have contemplated our imprisonment upon our globe. Those who dared to implement space exploration began to realize aloud this crucial aspect of the earth as a base.

Our globe viewed from the infinite "emptiness" of space suddenly becomes so precious that learned men feel incompetent to make themselves understood about human vulnerability and the total human reliance upon the thin coating of soil, water and the nebulous layer of atmosphere that makes up the only possible environment for humanity . . . and for that matter every other living thing from bacteria to blue whales and from spores to sequoias.

Traces of despair show up in statements by astronauts as they hope to awaken the human race to the realization that human survival, as we know it, is perilously close to a point of no return. All the people and all the nations, must halt the destructive waste and pollution. Above the air there is nothing for life. Below the top soil and ocean bottoms there is nothing for life. Any continuation of the processes that wreck either one or all of these components and we'll have wrecked the planet.

We are realizing, too, that the horizon is no longer that line of hills or that row of buildings. The horizon for all practical purposes is really non-existent. Instead there is the exciting concept of the continuation of what we see going on over the curve of a stupendous ball upon which we live . . . and the whole enclosed surface of this ball is a living organism as vulnerable as an about-to-be-plucked rose.

As population growth expands to fill the last liveable niches remaining on this earth we sense that the globe has seemed to have shrunk. We now *feel* the suffering of others, however remote, who receive the kickback of nature grievously wounded by human excess. Soon, we could all be participants and not just compassionate spectators. So, it is wise to take another hard look at the Earth and treasure it as something exceedingly valuable . . . this gem of Creation that has been put into our custody.

Whether viewed from space or from a point on Earth, October in the temperate climes is *the* time. This is a magic month. The changes in the air, the beat of the sun and the striking shift from summer's green to autumn's golden glory

bring a new tempo to our pulse. For all ages Fall was a time of rejoicing. It is instinctive for us to hail its beauty.

Sometimes you hear plaintive expressions of sadness about oncoming winter . . . something about death and cold and all that. It puts a kind of melancholy to the hymn of October winds. Really though, this is a time to review nature's schoolings. Although it may seem to be, winter is not solely a period of death. Certainly, things that couldn't prepare for its privations might winter-kill. But mostly this season can teach us a thing or two. When winter closes the door on autumn's harvest *she is well prepared* for the coming of spring. Buds are set, seeds ready, the bounty of summer is composting to enrich the soil, and the old making way for the new.

It is true that no human heart can be unaffected by the sight of deer in their homeland. What a joy they cause. Something about them has no parallel. No matter how often you see them there is a surge of affection and excitement. And deer in large numbers . . . Oh Boy!

Mule Deer with dark lustrous eyes . . . ears spread to unbelievable size . . . backs bowed with legs cocked . . . a frozen moment of grace and energy. Or Whitetails in a different habitat . . . stepping lightly . . . then bursting into full flight with their banner tails fanned out over their backs . . . dodging smoothly through brush and trees. Such a contrast to the incredible bounce of the Muleys.

By mid-October in the White Mountains snow will have capped the peaks above timberline. Waterfowl, thanks to "Ducks Unlimited" projects in Canada, will be massing on the high country lakes. The distant pale blue mountain crests showing patches of gold where groves of aspen crowd among the pines will have great charm when seen from lower meadows or through notches in the nearby hills. Deer are in their prime. Antlers are polished and muscles are strong with the first hint of winter's blue-grey pelage showing through the summer rust.

All is alertness now. Mule deer seek out suspicious sounds with their enormous ears. Keen eyes penetrate distances trying



SKUNK SCRATCHBOARD • 7½" x 12"

to detect the slightest alien movement. Their nostrils twitch, testing the air currents, ever alert for warning odors. Does, mindful of their offspring nearby, take more time to flee . . . but when they do they move with the same stiff legged bounds of the bucks that gobble up yards of distance. The sound too, is dramatic . . . a thumping of the earth and the punching crackle of broken twigs as they bounce away over timbered ridges and into deep draws.

Some will end up as venison before the season is out but that's all for the good because no one in his right mind wants a repeat of the Kaibab disaster of 1954-55. Then the over-protected deer population outgrew the food capacity of their range and they starved by the thousands leaving a devastated habitat that will not recover in our lifetime. To the untrained eye the North Kaibab today looks in top shape, but then the sheet erosion that followed the over-grazing allowed the thin fertile soil to find its way down from the high plateau into the grinding maw of the Grand Canyon. Some plant types that were important to the ecosystem of the Kaibab may never return; they've lost their base. All this is due to "protection" by sincere but misinformed people. I have a skimpy-antlered skull from a fatally undernourished deer that I picked up on the Kaibab after that winter-kill. I keep it to remind me never to be led by blind emotion about wildlife management.

At times of steady stress upon habitat and animals certain aspects of the problem are obscured by not knowing what to expect when seeing wildlife in the field. Prior to the Kaibab die-off my friend John Prescott and I had made a trip up into that country. We were delighted to see so many deer.

Along the highway from Jacob Lake south to Kaibab Lodge we spotted many herds of deer along the forest edge of the big meadows. But, in the Grand Canyon National Park area itself, I recall remarking about the poor condition of the deer we could see close up along side of the road. Because I was after photographic research about deer, I became conscious of it. The next spring the impact of what I had seen became evident. Then I found out that the fine looking buck on the far edge of a meadow may not be fine at all.

*What you think* you see about them may not be so. That "splendid" buck seen stamping and snuffing may have his nasal passages so clogged with the larvae of the bot flies that he can scarcely breathe. He can be nearly deafened by plugs of ticks in his ears. Internal parasites may become so gross in numbers as to severely weaken the animal. If he is an old deer chances are that he has already survived beyond many of the does and fawns which have starved to death on the

overused range. If he is so old as to have his teeth worn down to the gum line he may also have a mouth full of agony from woody splinters driven into the gums along his teeth. Woody splinters from the stubs of browse so overused as to be reduced to stumps. His belly might look full but it's most likely full of indigestible things to kill the hunger pains. He too is doomed. Left to nature, silent and unobtrusive as she is, the reduction of deer numbers can be unbelievably impassive, and to us . . . cruel. How much more intelligent and compassionate it is to manage a herd to the capacity of the habitat.

These grim experiences with wildlife problems have taught firm lessons over the years. Fortunately for Arizona we have a skilled Game and Fish Department working year-round to better manage these resources.

In other forests of the State deer and elk will move down off the ridges and out of the timber to the gentler climes of pinon and juniper and the high chapparal. When November skies turn bleak and the first of the big snows transforms the land above, they'll make out on the lower elevations. The bears will begin to den up and the mountain lions heavy and resplendent in winter fur will be contemplating some richer meals as winter begins to take its toll. Trails are easier to find now. The dazzling carpet of snow will become the daily newspaper of comings and goings. Wild turkeys still feeding on the acorn crop and gradually heading for lower valleys leave a trail exciting with promise by their wanderings. Most songbirds will have filtered out of the high timber . . . some to journey thousands of miles before spring brings them back to the same ridge in the same timber garden. Squirrels will share the snowed-in solitude along with the elk and deer. They'll romp the winter through . . . staying well under cover through the wild thrashing of storms but quick to flash from sunlit patch to sunlit patch on those radiant days when mounded snow, pure beyond pure, beckons all living things.

While the higher elevations are bracing for the icy grip of winter, the rolling hill country where pinon and oak yield to juniper dotted grasslands is coming into high season. Quail will gather into great coveys, mule deer in small herds will be seen moving across ridges. Whitetail deer will flash their flags and streak away into brushy draws. Shimmering nights of the full moon will be made spooky by the mournful squealing of coyote song . . . so will the gray light of dawn when Venus or Jupiter hangs like a brilliant jewel on the rim of the glowing horizon. This is antelope country, too.

It's the classic cowboy west. Far reaches of land that test the eye and bring a strangely pleasant constriction to your



RINGTAIL CAT  
TEMPERA • 16" x 22½"

*Gentle Wanderer*



**Food:** Foxes prefer small mammals, reptiles, birds and amphibians. They also eat garbage, carrion, fruits, nuts, mushrooms and will raid hen houses, rabbit hutches and gardens.

**Enemies:** Larger carnivores. Raptors prey on the young.

**BUFFALO** (*Bison bison*), see pages 22-23.

**Habitat:** The buffalo that are maintained in two "plains-type" areas in the northern part of the state are not historically native to Arizona.

**Description:** Length: 11 feet; Height: 6 feet; Weight: bulls up to 2000 pounds; cows up to 1000 pounds. Buffalo are the largest horned wildlife mammals in North America.

**Habits:** Buffalo are herd animals and spend a considerable part of the day feeding. Their bulk and slow movements are deceptive. They have the ability to run fast for long periods of time. They enjoy wallowing in mud as well as rolling in dust. A single calf is usually born in the spring. The reddish color of the calves bleaches out.

**Food:** Grasses, weeds and browse.

**Enemies:** Possibly the mountain lion. Bobcats and coyotes on calves.

**KAIBAB MULE DEER** (*Odocoileus hemionus hemionus*), see pages 24-25.

**Habitat:** Kaibab North Plateau. The Kaibab mule deer herd is isolated by the gorge of the Colorado River and Grand Canyon on the east and south, and Kanab Creek Canyon on the west.

**Description:** Length: 6 feet from nose to tail; Height: 42 inches; Weight: 200 pounds. Exceptional bucks can weigh 260 pounds.

**Habits:** Excellent range and forage conditions and extensive limestone deposits in the soil produce heavy deer on the Kaibab North. Mature bucks grow large, well-developed antlers. The summer range consists of pine-spruce-fir and aspen forest with elongated parks and meadows. The parks and meadows are used for feeding and many deer can be found in these areas early in the morning and late in the evening. During the midday the animals move into thick timber to rest and are seldom seen. Fawns, usually 2, are born in July and remain hidden until September, when they have lost all of their spots. The herd moves off the summer range after the first severe winter storms to the lower elevations, where the snow cover will be light and winter temperatures warmer. In the spring they follow the melting snow-line back to the summer range.

**Food:** Shrubs, trees, weeds, grasses, acorns, and mushrooms.

**Enemies:** Lions, coyotes and bobcats.

**ELK** (*Cervus canadensis*), see pages 26-27.

**Habitat:** Timbered and woodland regions from the east central part west, above and below the Mogollon Rim; the Apache Indian Reservation; and the north central forests.

breathing. It's the kind of country that makes you want to roam. It's a-hankering at its richest. You're tempted to abandon all . . . lock, stock, and barrel . . . swing into a saddle and ride for the pale blue line of hills hunched up against the sky . . . even if you never rode a horse in your life. But, that's the pull of the land. A herd of antelope moving with liquid grace on a distant knoll won't help the cause of civilization any. They're another string . . . no, a cable . . . to your primitive yearning to wander.

Beyond Flagstaff on the vast northern drainage that fans out from the San Francisco Peaks the timber blends into grassland and this ends at the broken-chocolate badlands that precede the clay mounds of the Painted Desert. This is one important Antelope Range. To the south-east across Anderson Mesa is another, and west from Bill Williams Mountain almost to the Grand Wash Cliffs is another. Then south of Interstate 40 in the vast reaches of grass and juniper from the eastern watershed of the Hualapais through Chino Valley and on past Prescott is yet another.

Unless they are near the highway fenceline, antelope are hard to spot. In spite of their distinctive markings any distance away and they blend with their surroundings. They symbolize freedom at its best . . . perhaps because of big-sky country, and most likely because of their legendary speed. But for whatever reason, a herd of antelope on the prairie at sundown, catching the low light on the gilded beauty of their sleek frames, makes you think of lonely campfires, purple shadows on distant buttes, and a star-jammed sky to come.

Two areas of this north country have been set aside for buffalo ranges. House Rock Valley and Raymond Ranch. House Rock Valley lies below the spectacular Vermillion Cliffs. The west end of the valley ends at the foothills of the Kaibab Plateau along a saw-toothed pressure ridge called the Cock's Comb. The eastern end blends into near barren red earth that is flanked by the creamy escarpment of Echo Cliffs. This splendid valley, a wide-spread piece of land that embraces the sun at mid-day and becomes aflame from it at sunset is transformed into a vast bowl, brim full of moonlight, under an awe inspiring canopy of stars as night closes over the land. Those fabulous western names: Paria Plateau, House Rock, Marble Canyon, Colorado River, Kaibab, Grand Canyon . . . along with the stunning vistas is a fitting home for wild buffalo. Unfortunately, you will not see these animals from the highway. Their range is to the south almost up against the sheer chasm of the Colorado, out of sight beneath the sun-shot sky and in the shimmering distances.

Raymond Ranch, about 30 miles east of Flagstaff, is another kind of country. It's dominated by the sky and by the grand bulk of the San Francisco Peaks. To the north lies the sprawling Painted Desert and to the south the Mogollon Plateau. This range more closely resembles the classic buffalo country of the west.

The buffalo arrived in Arizona by devious routes. Rounded up wild in the Palo Duro valley in Texas, they were shipped first to Garden City, Kansas, then to Monterrey, Mexico, then up to Lund, Utah and finally trail herded to the Kaibab Plateau in 1905. Again in 1909 they were shipped to Fort Sumner, New Mexico. About 20 animals were left in House Rock Valley increasing to 98 by 1927 when they were purchased by the State of Arizona. The herd is maintained at around 300 animals according to the carrying capacity of the forage.

It is remarkable how this land can be so right for wildlife. The cities spaced across Arizona vary from fading frontier towns to ultra modern fast growing metropolises. Spend any amount of time in the big cities and you can lose sight of the fact that much of the State surrounding you is barely accessible. You need special equipment to get into a lot of it. Flying over it you can get a good insight into the unique character of the land. You fly over rough desert wilderness which changes abruptly to farm land and urban dwellings. So really it's only a matter of minutes from the edge of town to tread upon the threshold of the hinterland. Fine highways do cross through the land. You can travel with ease on them. But, immediately adjacent to the road-bed is the start of rough country and to get from here to "there" requires good preparation, equipment and a goodly amount of caution.

Especially in the southern portion of the State you'll be intrigued by distant clumps of peaks. These are island mountain ranges . . . great craggy upthrusts whose canyoned buttresses are rooted in the heated bed-rock of the Sonoran Desert and whose pine-bonneted crests are freshly cool in the crystal blue of Arizona skies. This kind of formation lets nature play wonderful games with life. Moving up the slopes of these mountains the vegetation changes from desert barbs and thorns to chaparral, then to oak, pinon and juniper and on some to Ponderosa pine and even spruce, aspen and fir. On the same day at the same moment javelina can parade single file through gardens of cactus blossoms, spring poppies and lupine while deer and wild turkey make delicate trails through new fallen snow and a few thousand feet above them.

*Continued on page 33*



**Description:** Length: 9 to 10 feet; Height: 5 feet; Weight: 750 pounds, larger bulls to 1000 pounds.

Elk are largest of the cloven-hoofed antlered wildlife in the state. Only the bulls which are much larger than cows, have antlers. A new set of antlers are grown each year. Coloration varies with the seasons and with the sexes. Calves are light brown or tan with creamy white spots.

**Habits:** Considering bulk, elk move through timber at a surprising speed. Bulls with large antlers lay their heads back and run through thickets with ease. Normally, elk begin to move early in the day and again late in the evening. They seek refuge in heavy timber or undergrowth during the day. They feed in meadows and often stay in groups. In the fall the older bulls become very aggressive and challenge other bulls as they establish harems. Elk move from the timbered plateaus to lower elevations in winter. They drop off into remote and rugged canyons where they find protection from the winter storms.

**Food:** Grasses, leaves of trees, brush and weeds.

**Enemies:** Lions, bears and coyotes.

**JAVELINA** (*Dicotyles tajacu*), see pages 28-29.

**Habitat:** Southern and southeastern parts of the state. Although closely

associated with desert habitat, they extend their northerly range to the Mogollon Rim. A severe winter with deep snows eliminates the northward drift of the herd. Javelina inhabit a wide variety of habitat types. They are found in the higher elevations of the desert mountains, in the oak-grassland and chaparral types, in mesquite thickets in the lower valleys and washes. They are particularly inclined to the use of the cactus covered areas where the mountain ranges break off onto the deserts.

**Description:** Length: 30 to 36 inches; Height: 20 inches; Weight: 35 to 40 pounds; larger animals have been recorded but they are exceptions. They are the smallest of Arizona's hoofed mammals. The body is covered with long bristle-like hairs which will stand on end from head to rump when the animal is excited. There is a musk gland located on the top of the rump. The piglets are reddish color.

**Habits:** Javelina are herd animals and hold together as a unit. Sows have 1 or 2 piglets per litter. They have poor eyesight and depend more on sense of smell for detection than eyes or ears. They do not share the uncleanness associated with domestic pigs. They utilize caves and mine tunnels for shelter and protection. When excited they will snort and "whoof" and squeal as they mill about.

**Food:** Tubers, cacti, large variety of plants, fruits and seeds.

**Enemies:** Lions, coyotes, bobcats. Hawks occasionally take piglets.

*Continued on page 33*



COATI MUNDI  
TEMPERA • 24" x 30 1/2"

*Playtime*



BLACK BEAR  
OIL • 24" x 36"



GRAY FOX  
TEMPERA • 19½" x 32"

*The Rock that Moved*



*Roaming House Rock Valley*

BUFFALO  
OIL • 24" x 36"



KAIBAB MULE DEER  
OIL • 24" x 36"

*Monarch of the Winter Range*

FROM THE COLLECTION OF MR. AND MRS. JAMES CUCCURELLO



*Defender of the Harem*

ELK  
OIL • 24" x 36"



*Spring Parade*

JAVELINA  
OIL • 22" x 30"



ANTELOPE  
OIL • 24" x 36"

*Champions of the Grasslands*



CHIPMUNK  
TEMPERA • 15" DIAMETER  
FROM THE COLLECTION OF  
MRS. LARRY TOSCHIK



*Antelope Ground Squirrel*



COLOR VARIATIONS IN THE SAME SPECIES

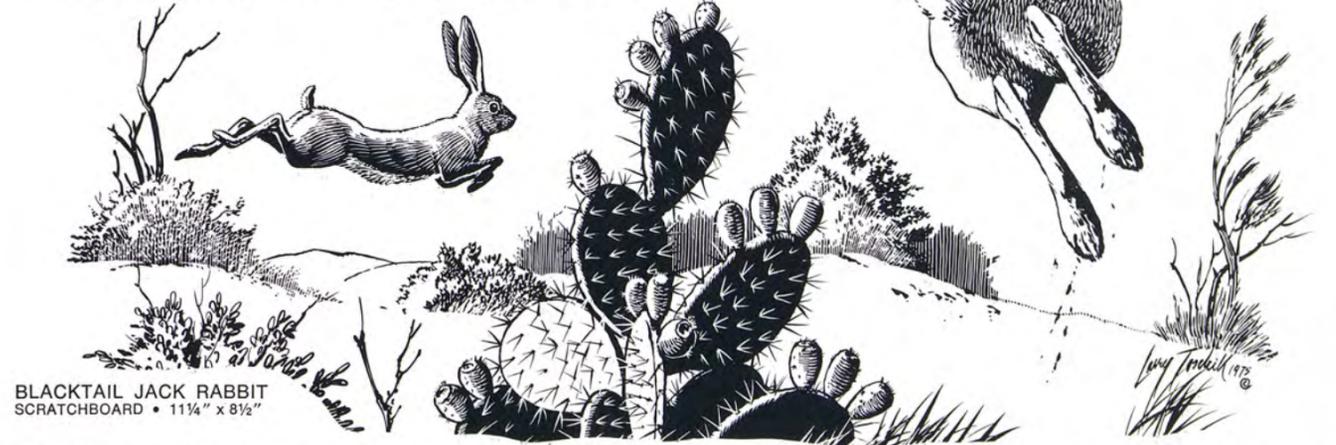
*Child of the Sun*



Over thousands of years, summer storms, by their natural power, have carried down the silt and gravels and sands that built the fanning soil mantels that skirt the mountain bases. Upon this mineral-rich apron the marvelous Arizona plant life survives. The variations of plants and grasses is another key to the differences of animal and bird life.

In spite of a long history of unbelievable human destruction to the land of Arizona it is most surprising that the wildlife is still so varied. Certainly their numbers have been changed and in some cases devastated, but by outstanding work by the Game and Fish Department and the Fish and Wildlife Service the assortment is pretty much intact.

Desert bighorn sheep, with their backs to the wall, are still holding out and might even increase in numbers. The Game and Fish Department in cooperation with the Fish and Wildlife Service has done much research and waterhole improvement for these wild sheep. Most of their efforts are confined to the fierce mountain ranges that loop around Yuma. Sheep captured alive from these crags have been moved to Aravaipa Canyon east of Safford to re-establish the herd that was decimated in the early 1900's. They are doing exceptionally well. "The Desert Bighorn Sheep Society" a sportsmen's group has done intensive work to aid government agencies to improve the lot of these grand animals. "Super-protective" groups accuse them of doing this just so they will have more animals to kill. Not so! Most of the members have already collected the one animal they are allowed to take in their lifetime. So there is something far more sound than that to keep these men going back again and again into the throbbing furnace of sheep country doing back breaking labor to improve habitat.



BLACKTAIL JACK RABBIT  
SCRATCHBOARD • 11 1/4" x 8 1/2"

ANTELOPE (*Antilocapra americana*), see pages 30-31; *American Antelope (A. a. americana)*; *Sonoran antelope (A. a. sonoriensis)*; *Mexican antelope (A. a. mexicana)*.

*Habitat:* Antelope are found widely scattered on the high open plains and plateaus of north central Arizona. The Sonoran antelope, an endangered species, is found along the Arizona-Mexican border in the Organ Pipe Cactus National Monument, Cabeza Prieta Game Range and adjacent areas. Small bands are found in the southeast.

*Description:* Length: 50 to 55 inches; Height: 38 inches; Weight: 80 to 120 pounds. They are the most colorful of the cloven-hoofed animals in the state. It is the only horned mammal in Arizona that sheds horns annually. The horn is forked, or pronged. The hairs on the rump patch are longer than elsewhere and the antelope has the ability to erect the hairs causing a large flare of white to be shown.

*Habits:* Antelope band in herds. They are curious animals that will watch from a distance for long periods. When alarmed they flare their white rump patch and run off. They move about early in the morning and late in the evening and rest during the midday. Antelope above the Mogollon Rim migrate to lower elevations in the winter. There are usually two fawns born in late spring or early summer.

*Food:* Weeds, browse and grass.

*Enemies:* Coyotes and bobcats. Eagles on young fawns.

To add to the problem and to the hazards to the sheep are the ridiculous Federal regulations protecting burros that have gone wild. Laws passed in the east by men who do not know this kind of country . . . by men who yielded to the suffocating sentimentality of cocktail society "wild animal lovers" are imposing severe hardships on the already hard pressed bighorns. Without experiencing first hand the task of desert bighorn sheep conservation it is impossible to understand the scale of the project. This animal has made its last stand in the most anti-human terrain in the world. A nightmare of heat, thirst,

CHIPMUNK (*Eutamias sp.*), see page 32. Five species and four sub-species of chipmunks are found in the state.

*Habitat:* Mostly in the woodland and pine forests, and extending onto the plains of the higher elevations where brushy type plants are found. Although they live in timbered areas they prefer climbing and living about shrubs, downed trees and rocky outcroppings. They use trees and are expert climbers.

*Description:* Chipmunks are small rodents, 6 to 9 inches long including the tail which is almost half the total length.

*Habits:* Chipmunks prefer to spend their time on the ground and usually live in burrows dug into the earth around the roots of large brush or trees, or they live among the rocks. They have a network of connecting holes and tunnels. Within the burrows they have a comfortable nest and store food nearby. They will forage about for food, filling their cheek pockets and return to the burrows to deposit their gatherings. They are curious animals and learn quickly to take handouts. They are active year around and only become inactive during storms or severe cold spells.

*Food:* Seeds, fruits, insects, mushrooms, nuts, and bark of woody plants.

*Enemies:* Hawks, owls, snakes, badgers, coyotes, bobcats, and foxes.



*Neighbors Passing*

BADGER  
TEMPERA • 20" x 24"

FROM THE COLLECTION OF THE ARIZONA BANK

thorns, wavering mirages and furnace winds. Here, if left to their own resources the natural slow attrition of habitat and the continual loss of it to human exploitation would lead to their extinction.

Now, not only does nature strike its toll but so do man's misconceptions. In an area where miles of deadly terrain separate water holes it is conservation insanity to not control domestic animals gone wild.

Feral burros are a romantic link to the lusty past. They symbolize the conquest of the West . . . the hardy, intrepid prospector . . . the thought of sudden wealth, riches beyond dreams . . . of empires built. In reality they are charming to look at and to contemplate when seen from your car as they thread their way through cactus and boulders. In *reality* they lose their charm when seen eating all available forage around a water hole and fouling the only water supply for miles around. Suddenly this reality brings forth compassion for the deer, doves, quail, javelina, bighorn sheep and countless other birds and beasts that must drink there or die . . . and lord help the unfortunate human who might have a desperate survival need. I've seen water holes so stinking and be-fouled that only the most terminal of last resorts could force me to take of that water.

No thoughtful person is opting for total eradication of these animals . . . just common sense management of their numbers. There is room for all species just so they are in balance with the habitat.

Desert Bighorn Sheep at one time lived in scattered populations over 40,000 square miles of Sonoran Desert through much of the forest country and throughout the Grand Canyon. Much early mining was done in Bighorn Sheep country and the miners, ranchers and others utilizing the country lived off the land. There were no considerations of seasons or limits then. Anything edible that moved on four legs was a valuable source of groceries. Bighorn was also a top item in the Indian diet from the Hopis down throughout the tribes of the south to the Colorado River. Any growth of progress in early Arizona had a direct impact upon these sheep. Fence lines, roads and canals prevented movement of sheep from range to range. Eventually their numbers were reduced to remnants holding their ground in the wildest, most remote lands of the desert. To add to their woes these wild sheep were forced to compete with domestic sheep. These came in such numbers that they ravaged the land and brought in a scourge of diseases that still take their toll of the wild sheep.

From the late 1800's until 1953 the desert bighorn finally came under full protection of game laws and no hunting was

permitted. In spite of persistent poaching during the depression years, their numbers have rebounded to the point that very limited hunting is allowed. A full curl head is one of today's most prized trophies.

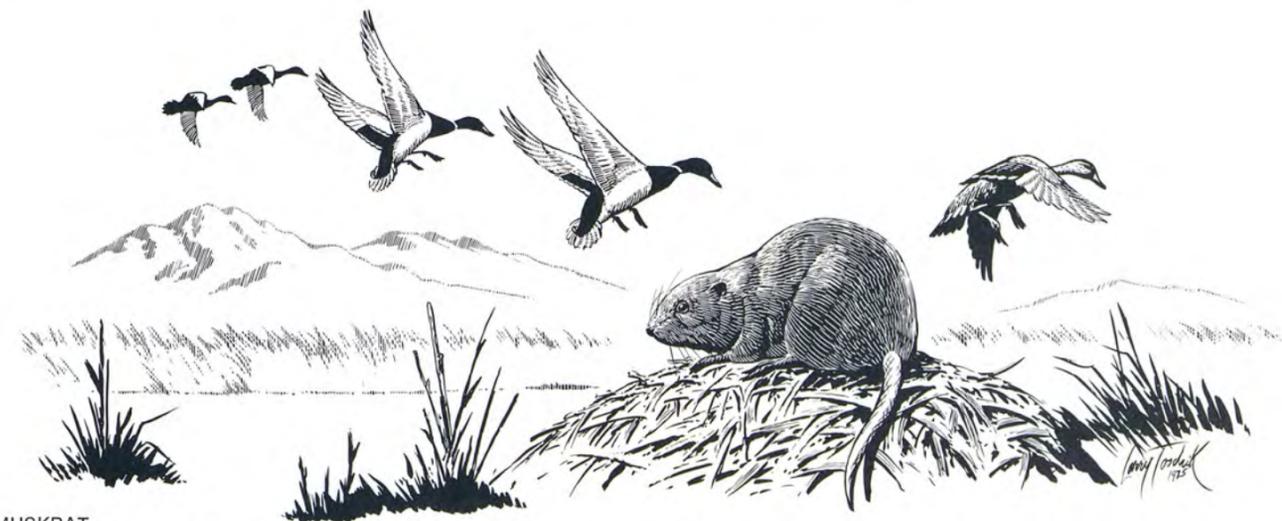
To an easterner, or a mid-westerner accustomed to verdant, moist greenery, the first view of the stomping ground of desert bighorns is an absolute shock to the senses. This is harsh land by any measurement. Mostly blown into existence by the violence of volcanoes, the rock formations are bleak, sun-hot and miserably sharp and the soil is abrasive.

Most of the vegetation is cruelly barbed or thorned or spined and spaced stingily across the land. In the full blast of an August noon with ground temperatures reaching 150° plus and the air quivering with heat waves it is nigh impossible to believe that anything could live in such a place. But then, at that time of day, a bighorn sheep will not be standing in the bleaching blaze of the sun speculating on his lot in life. He or she will be bedded down in a shadowed shallow cave with continuous canyon breeze to make things pleasant and not be fussing about on the sun-hot rocks. That's for two-legged ninies in the foothills with mouths agape looking up to the crags while sunburning their tongues.

Only when the sun is low and shadows long will the desert-wise sheep do most of their moving around. And the same will hold true for the deer and coyotes and bobcats and the very rare Sonoran antelope that can still be observed in remote areas should you be extraordinarily lucky. Because the heat of high day builds excellent thermals the soaring birds: eagles; hawks and vultures will ply the skies. The savage land below them is also the home of rabbits, and desert rodents in sufficient quantities to make flying for lunch a rewarding experience. So a greenhorn visitor, if he's observant or with a person who knows this land, will gradually shed his revulsion at the violence of the view and turn into an admirer of the wonder of God's creation and how it makes do.

Rainfall is the catalyst for survival for most desert animals. But some (and it's hard for humans to accept this) can go their entire lives without a drink of water. They get all they need from "dry" seeds and other forage. To hold one of these gentle, living, warm, furry creatures and seemingly as moist as a household pet and know that it never needs to drink *ever*, is a point of wonder.

Most of these tiny animals are creatures of the night. Here they swap the dangers of the sun and daytime predators for the eerie hazards of the dark. Then they run the gauntlet of rattlesnakes, owls, foxes and all other starlight prowlers and still manage to survive.



MUSKRAT  
SCRATCHBOARD • 10½" x 6"



Sonoran Desert habitat. Dense vegetation, along the arroyos that meander through this land, is important for all wildlife.



KIT FOX  
SCRATCHBOARD • 7" x 8 1/4"



Erosion . . . the implacable destroyer. Vast areas of the world have been laid to permanent waste from poor land use. Arizona has its share.

On one trip into the hinterland we made camp on a soft spot of ground high enough from the wash to be free of flash flood danger. As twilight was fading, the campfire and Coleman lamp took over the lighting chores and I saw a quick furtive movement near my foot. In spite of the fact that I've camped out too many times to count I must confess that I still get spooky as night advances and if there is a full moon all the prehistoric superstitions fight to take over and I hunker closer to the fire. In spite of the fact that I jumped, the kangaroo rat that was investigating my shoe didn't run off. So for a little while I enjoyed his little "busyness" around my feet. He even went under the bridge made by the instep of my boot.

Many of these campouts are serenaded by coyotes . . . mostly solo performances but sometimes by groups of unknown size. It's a sound to make any field trip more complete. This hold-out from wilder days, harassed as few other creatures are harassed by men determined to exterminate them, is a grand link to a past when all this land was theirs. To hear them caterwauling and yipping under the full blaze of the Milky Way with Orion and the Pleiades glowing brilliantly and great stars pulsing light from a billion miles away is to become an integral part of all the ages past.

Bobcats that prowl the same night lanes do it silently and are seldom seen by casual visitors. A mountain lion's scream can make the still of the night splinter into a panicky flash of fear, but they do it so rarely that I've never heard it. I've only seen their tracks and I long for the day when I can share the same ridge or canyon and meet one under the full light of the sun. Jaguars make rare incursions into southern Arizona from Mexico and because of their scarcity are on the protected lists. But, in truth a jaguar is a serious threat to livestock, so . . .

Skunks . . . well, I've met them . . . fortunately under amiable conditions. But, even then there is a high degree of tension. They do have the advantage. If you wonder how the "poor" little creatures fare in the wild when rains drench the desert or forest, save your concern. A splendid, prime-furred, striped

skunk kept my wife Ceil and I in our car for quite a while one night in front of Keegan's cabin in Oak Creek. It was pouring a deluge. As a matter of fact the creek leaped into flood and kept us joyfully marooned in the snug cabin for 3 days. But the wall of rain didn't faze our nose inspector and his fur was not matted but just glistened with tiny droplets sparkling on the ends of the hairs. It could have been a balmy moonlit night for all he cared. It's the same with squirrels. We watch them raid our bird feeder rain or shine. When the skies leak, they simply flatten their tails up over their backs and far enough over their heads to get out of the shower and carry on. Most animal fur is sufficiently waterproofed with oil to shed everything but a full dunking.

The rain-forming process in the Sonoran Desert can be sheer drama. In "good" winters, long days of widespread rains bring hope for a glorious spring. Winter rains can be violent, but for the most part they are too massive and widespread to put on a good show. Summer rains are another matter. They are full of pomp and glory and march to the stunning drums of heaven. Some grow so huge as to rim the horizon linking one storm to another and you sense that power crowns the land.

Around scorched noon on a pulsing summer day, white puffs of Cumulus clouds will slowly appear in the startling blue of the heated sky. All the land will seem saturated by the gold of sunlight. Velvet, blue-black, cloud-shadows will roam the mountain slopes and show you the folds of the land. By mid-afternoon the Cumulus will have packed the sky, and having massed around the peaks, will grow to stupendous cloud columns and finally into million-ton cloud ships whose guns begin to rumble. By sunset, thick, brilliant bolts will snake around through the bulging monuments and with broken rhythm begin smashing to the ground. From afar the sight is awesomely beautiful. Sundown will gild the mass in golden glory. All the blue shadows and violets and reds ever written about will be radiant in these cloud sculptures massing thirty or forty thousand feet up into the crisp cobalt dome of the heavens.

Some of these giants will prowl the land accompanied by the rowdy camp-followers of high wind and blinding dust. Others will stand, eventually towering 50,000 feet into heaven and form huge anvils ablaze in reflected sun and proceed to savagely drop millions of gallons of water, billions of ice balls, and drive bolts of brimstone onto a single patch of land. This translates immediately into terrifying flash floods, leaping and plunging along desert washes, moving tons of sand and rock, sometimes many miles from the storm center.

Almost as soon as these floods attack, they are gone, leaving behind the broken debris of battle. By morning the air will be purely sweet and crystally clear. The only sign of last night's chaos will be the new unmarked banners of drying sand and

windrows of woody slashings caught in the grip of mesquite or ironwood roots. In another few hours the animals and birds will write in desert script the notice of their passing. And in another few hours small Cumulus will begin to form in the flawless blue sky.

The way wild animals test the air with flexing nostrils to check on intruders or even just the sounds of intruders is a reminder to us humans about how much we've lost of that sense with which we were endowed. Yet on an early spring day, when the last of the winter's snow has pulled back into the shadows to expose the moist earth to the blessing of the sun, the smell of thawing ground is a fragrance we can still perceive. This fresh, clean scent goes with gentle winds and warm sunlight.



#### GROUND SQUIRREL (*Citellus sp.*), see page 32. Six species and 13 subspecies occur in the state.

*Habitat:* Statewide.

*Description:* Often confused with chipmunks, the ground squirrels do not have a striped face. Ground squirrels are small, about 9 inches long; slender tail; gray to reddish-brown; underparts lighter to white. Thirteen-lined ground squirrels (*C. tridecemlineatus*) are the only striped and spotted ground squirrels; tail is short and narrow; body marked with alternating dark and light brown stripes with light spots along the dark stripes.

Whitetail (*C. leucurus*) and Harris' (*C. harrisi*) ground squirrels are similar; they have a single white stripe down each side; tail is short and flat which is carried over the back when running; underparts are light or white; the whitetail squirrel's tail is white underneath and dark on top; the Harris' squirrel has a salt and pepper appearance; tail longer and not white below.

Spotted ground squirrels (*C. spilosoma*) are gray to reddish-brown with light spots over the back; underparts lighter to white.

Roundtail ground squirrel (*C. tereticaudus*) are sandy colored and lighter underneath without markings.

Golden-mantled ground squirrels (*C. lateralis*) are the largest; gray-brown to buff with a lighter brown about the shoulders and head;

a wide, dirty white stripe runs from the shoulder to the hip; the white stripe is lined with darker stripes which are variable.

*Habits:* Active during the day searching for food. In the fall they become very fat, and become dormant in the cold winter. They stay near their burrows and live in communities. Ground squirrels have 4 to 6 young in a litter. The young are hairless at birth.

*Food:* Plants, seeds and insects.

*Enemies:* Hawks, owls, snakes, badgers, coyotes, bobcats and foxes.

#### BADGER (*Taxidea taxus*), see page 34.

*Habitat:* Statewide. The badger prefers the open areas of the plains, deserts, and forested plateaus where they seek the parks and meadows, or sparsely timbered regions.

*Description:* Length: 28 inches; Height: 9 inches; Weight: 12 to 15 pounds; larger specimens weigh over 20 pounds. A powerful animal, the badger is heavy-bodied with a short, thick neck; short powerful legs; large well-developed claws, especially on the forefeet.

*Habits:* Relatively open areas where rodents are found. They dig them out with their powerful legs and long claws. Badgers are more active during the day. They are fearless and take the offensive if threatened. The shape of a badger burrow tends to be wider than high. Food supply determines the number of badgers inhabiting an area. They



Fires temporarily sear the landscape. Except for the loss of valuable timber the low growth quickly comes back, if conditions are favorable, and renews the life cycle of plants and animals.



Mixed stand of Ponderosa pine and oaks. Acorns, seeds, fruits, provide excellent food for deer, bear, squirrels, rodents, predators, turkeys and other bird life.

Spring edging deeper into shaded pockets of the forest and shepherding the last of the snow into tidy piles sends out the samplings of other woodland perfumes. Incense from the pines flows in wraiths upon the breeze. Buds, some of them fragrant, shed their scales. They have been straining all winter to burst their bonds. Now rich in vitality they split to show skirtings of the mellowest greens which will in a few days be the most dainty of dress, light and lacy as a new spring blouse.

The aromatic breath of this season builds rapidly until a late April or a new May morning is heady with joyous charm. Streams now run full and boisterous. The one behind the studio dashes along, bashing through the windfall tree trunks and among the rocks like a miniature Colorado, red with sand-

stone silt. But most streams are clear and frothy. In deep pools the water gleams black and alive surrounded by the quilted snow. Brown trout are less wary during these days. Water from off the forest floor brings good things to eat now that spring has released them. This is the time of the year for big ones to strain tackle. It is also a good time of the year for rainbow trout to fill your creel, hard and fat and full of fight.

Moist ground records the activity of many creatures. Fresh deer tracks, brim full of water, shine like tiny pendants draped along the forest paths. Yellow-shafted flickers probe busily into the mat of last autumn's litter searching for . . . whatever . . . and leaving a pattern of craters in patches here and there. Squirrels in plumes dash about digging up hidden treats.



are very clean and will bury food and dig it up later. One to 5 young are born each year and they remain in the nest for about 6 weeks. Nests are located in the burrows and are usually lined with dry grasses, leaves or pine needles.

**Food:** Rodents, particularly ground squirrels, reptiles, fish, amphibians, eggs, birds and carrion.

**Enemies:** None as adults, except for the mountain lion.

**MUSKRAT** (*Ondatra zibethicus*), see page 35: *Arizona muskrat* (*O. z. pallidus*); *Sonoran muskrat* (*O. z. bernardi*).

**Habitat:** The Arizona muskrat is found along the Gila River and its tributaries east of Gila Bend, and in the White Mountains. The Sonoran muskrat inhabits the lower Colorado River and the Bill Williams—Santa Maria River. Muskrats also live in irrigation ditches

**Description:** Length: 15 to 18 inches; Weight: 1½ pounds. In every respect, the muskrat looks like an overgrown rat. They are robust animals with short forelegs; small ears; a laterally flattened scaly tail about 8 inches long; broad feet partly webbed and specialized for swimming. The under fur is dense with darker glistening guard hairs; the upper parts are dark brown becoming lighter on the sides, to a light brown on the undersides; lighter markings on the throat and belly are not unusual; dark chin and feet and black tail.

**Habits:** Muskrats are active year around and at any time of the day.

They spend their lives in and near water. A month after birth the young can take care of themselves and are often driven from the den by that time. Their houses are large constructions made of rushes, reeds and other nearby plant growth. In Arizona the muskrats make burrows along canals and river banks. The entrance to the burrow is under water, but the nest is safe and dry above the waterline. Nests have several entrances. Muskrats collect food and swim to feeding platforms to feed or store food. They have glands that give off a musky odor that is penetrating but not unpleasant. Several litters are born annually, usually 3 or 4 to a litter.

**Food:** Cattails, bullrushes, arrow-weeds and grasses, fish, frogs, crayfish and mussels.

**Enemies:** Coyotes, foxes, bobcats, hawks and owls. Snakes on the young.

**KIT FOX** (*Vulpes macrotis*), see page 36: *Desert kit fox* (*V. m. arsipus*); *New Mexico kit fox* (*V. m. neomexicana*).

**Habitat:** Mostly confined to the lower elevations, the kit fox prefers the hot, sandy desert areas along the fanning arroyos and the desert floor where it is cut by outwashes from the mountains. The desert kit fox is found in the western and southern parts. The New Mexico kit fox occurs in the southwestern corner of the state.



Noble Master

ARIZONA WHITETAIL DEER  
OIL • 24" x 30"



Desert habitat. Ideal for javelina, ringtail cat, mule deer, rodents, fox and coyote.



San Rafael Valley along the Arizona-Mexico boundary. Whitetail deer are found up in the mountains, Mule deer lower down. Coyotes, coatis, skunks, badgers, and rodents make this their home. It has the typical look of the antelope country farther north in Arizona.

But this is not the last of the snowfall. Deer linger on their way back to the highlands seeming to be aware that some of the late snows can be the worst of the season. So, sunny hill-sides are best to drift around on until the dawn starts earlier and a little farther to the north. Both the snow and mud record the tale of animal movement. Raccoons range industriously leaving a crisscrossed and wandering trail . . . clearly defined. Fox trails are more direct and squirrels and rabbits mimic each other in the tracks from their busy bounds. Skeins of ducks and geese returning to the Canadian prairies and to the trackless arctic will be weaving their tapestries in the sky. New varieties of song birds show up day after day. Juncoes, towhees, grosbeaks, robins, and hummingbirds flit about

searching out old haunts. Then the big storm comes. Fifteen, twenty, thirty inches in a few short hours.

The evening before may have been brilliantly aglow with rich wintery starlight from skies so lushly black and so clear that you forget the chill and gaze in reverent wonderment at the mystery of it all. But then sometime during the night as silent as those stars, the clouds move in. By morning a downy-soft blanket of the purest white will have turned everything into a gathering of new sculptures. Even the most delicate twig will have its mitten of snow. If the sun breaks through as you awaken you'll find yourself in an Eden of powdered diamonds. New storms pile up upon the last until all is buried in silent white with shadows of gray-blue or violet and your heart turns

to concern for the little warm things that now must spend each waking moment searching for food.

Flickers, jays, robins and towhees will be spending their time upside down hanging from limbs as much as the chickadees of the East will. That's how they'll find the remnant seeds and berries . . . under the canopies of snow that lay like pillows upon the limbs.

Chipmunks are hilarious. All their movements are at full throttle. Even if they only want to move 12 inches they do it with all stops open. Snow seemingly holds no peril to them. They leap headlong into it nearly disappearing in a cloud of crystals to bob up in golden plunges as they scurry about. But a new attitude occurs. Whereas in summertime a chipmunk

or a squirrel at the bird feeder will tolerate no companions furred or feathered, they will share it with any and all during these trying days. My wife and I have watched with keen delight the antics of squirrels, chipmunks, stellar jays, towhees, three varieties of juncoes and nuthatches at the feeder or on the ground beneath it all at the same time when the snow is deep. Their struggle for survival mimics human actions when social barriers are lowered by serious common need.

Spring snow yields quickly to the touch of sun. Even the newly charged warmth from the ground radiates up into the snow. Great clumps of it slip in miniature avalanches from the trees in an ever increasing tempo. First, lichened rocks show up through the white carpet, then bubbles of the green moss

*Continued on page 44*

**Description:** Length: 30 to 33 inches; Height: 12 inches; Weight: 3 to 5 pounds. One of the smallest of the foxes, the kit fox is a slender animal; the long, bushy tail is about a third the total length; ears are large. Color varies but is generally grayish-buff, darker on the back and lightest almost to white on the underside; legs and feet are light; the fine overhairs are darkly tipped, the base hairs are gray; the tail is dark on the tip.

**Habits:** Kit foxes are mostly nocturnal. They live in burrows which are usually in groups, and more than fifteen feet in length. Dens are located half way from the entrance. Sometimes badger diggings are used. They will carry captured animals to their burrows to eat, as evidenced by the debris of bones, fur and other remains scattered about the ground. During the hot days the kit fox remains in the cool burrows, 4 to 6 feet underground. The 4 to 8 young have a thick woolly undercoat with some fine long overhairs.

**Food:** Small rodents and birds, insects, snakes, lizards and some vegetation, carrion and garbage.

**Enemies:** Coyotes, bobcats and eagles.

**WHITETAIL DEER (*Odocoileus virginianus couesi*), see page 39.**

**Habitat:** Mostly a desert and semidesert dweller of the southern and southeastern areas, the Arizona whitetail deer also inhabits the

ranges through the central parts and up into the timbered plateau above the Mogollon Rim and east into the White Mountains. They prefer brushy hills, well-vegetated steep slopes and rugged canyons.

**Description:** Length: 50 to 60 inches; Height: 32 to 36 inches; Weight: 80 to 120 pounds; does are smaller. Coloration varies with the seasons. The winter pelage is a rich gray, or brownish-gray with yellow-brown on the lower sides and thighs; white underneath; a white bib; a white or grizzled band across the nose and light hairs around the eyes. The summer coat is similarly marked, however, in a brownish-red or grayish-red color. The tail is long, bushy white underneath and gray-brown on top; rump is white. Fawns are reddish-brown with white spots. Bucks have antlers, the main beam with tines as opposed to the mule deer with branching antlers.

**Habits:** They are cautious animals, moving about early in the morning and in the afternoon, spending the middle of the day resting. When running they are exceptionally quick. Whitetail deer "flag" — that is, they hold their tails upright most times when bounding off. This exposes the flashing white underside of its tail and the white rump area, which makes the whitetail look much larger than it really is. The doe usually has 2 fawns each year.

**Food:** Weeds and browse.

**Enemies:** Lions, coyotes and bobcats. Eagles on fawns.

**COTTONTAIL RABBIT (*Sylvilagus sp.*), see page 42: Nuttall's cottontail (*Sylvilagus nuttalli*); Eastern cottontail (*S. floridanus*); Desert cottontail (*S. auduboni*) Seven subspecies are found in Arizona.**

**Habitat:** Statewide. Found in all types of habitat from desert to mountains.

**Description:** Length: 14 to 16 inches; Weight: 2 to 3 pounds; Somewhat smaller on the desert.

Possibly the best known mammal, easily recognized and appropriately named for its fluffy white tail. They vary slightly in size and color depending on the area and race.

**Habits:** Highly adaptable to all forms of environments, the cottontail adjusts to civilization. They frequent open areas to feed. Although they are active at all hours, they prefer the late evening, night and early morning hours. Cottontails find shelter and protection in heavy brush and dense undergrowth. They are highly prolific and may bring on litters at any time of the year. Litters generally have 4 to 6. The young are able to get around and fend for themselves at an early age.

**Food:** Vegetation. They seek young, tender plants to feed on, which sometimes creates a problem for the farmer or gardener.

**Enemies:** Coyotes, lions, foxes, bobcats, snakes and raptors.

**TASSEL-EARED SQUIRREL (*Sciurus aberti*): see page 47; Abert squirrel (*S. a. aberti*), Chuska squirrel (*S. a. chuscensis*); Kaibab squirrel (*S. a. kaibabensis*).**

**Habitat:** Abert squirrels are found in the ponderosa pine type from the South Rim of the Grand Canyon south and east into the White Mountains. The Chuska squirrel occurs only in the Chuska Mountains on the Navajo Indian Reservation.

**Description:** Length: 20 inches; Weight: 1½ to 2 pounds; Tail: half the length of the body.

They are dark gray or grizzled gray, lighter on the sides; a broad chestnut or rust colored saddle extends from the shoulders to the hind legs; the underparts are white; feet are whitish; ear tufts dark; the tail is dark on top and white underneath.

**Habits:** Tassel-eared squirrels build large bulky nests high in ponderosa pine trees. They do not hibernate in the winter but may become inactive during stormy weather. During the day they move about from tree to tree spending considerable time on the ground.

**Food:** Inner bark of terminal ponderosa pine branches, apical buds, mushrooms, cone seeds and flowers.

**Enemies:** Hawks, owls, coyotes, foxes and bobcats. Logging operations reduce habitat.



DESERT COTTONTAIL RABBIT  
TEMPERA • 19" x 23"

*Setting up Housekeeping*

FROM THE COLLECTION OF MR. AND MRS. JAMES CUCCURELLO



BEAVER  
SCRATCHBOARD • 12¾" x 9½"



**GRAY SQUIRREL** (*Sciurus spp.*), see page 2: Arizona gray squirrel (*S. arizonensis arizonensis*); Catalina gray squirrel (*S. a. catalinae*); Huachuca gray squirrel (*S. a. huachuca*); Apache gray squirrel (*S. apache*).

**Habitat:** Gray squirrels are confined to the forest-topped mountains in a semi-desert habitat in the south and southeastern parts of the state. They often occur as isolated "island communities." Arizona gray squirrels are distributed widely from the White Mountain area in eastern Arizona along the Mogollon Rim complex and north into central and north central parts.

**Description:** Length: 20 to 24 inches; Height: 3 to 4 inches; Weight: 1 to 1½ pounds; Tail: half the length of the body. Color is predominantly gray. The upper parts are black and white. A broad rufous saddle blends into the gray from head to tail. The dark tail is fringed with light hairs and the belly is white. In winter the longer hairs take on sharper coloration.

**Habits:** Gray squirrels are active year around, spending considerable time on the ground searching for food. They do not store large quantities of food and they are never too far from the safety of trees. Nests are built with twigs, needles and leaves located in the crotch of a tree high above the ground. The same nests are used season after season. Two to 4 young are raised each year. Young

remain in the nest for 8 to 12 weeks. During prolonged cold spells they do not move about.

**Food:** Buds of deciduous trees, seeds, nuts and berries.

**Enemies:** Coyotes, foxes, bobcats, lions, eagles, hawks and owls.

**GRIZZLY BEAR** (*Ursus horribilis*), see page 4.

**Habitat:** No longer a resident of the state, the grizzly was once found in many of the mountainous and wooded regions.

**Description:** Length: about 7 feet; Height: 36 to 42 inches; Weight: 500 pounds. Largest of the carnivores, the Arizona grizzly is a large bodied animal. The front claws are twice as long as the hind claws; noticeable hump above the shoulders; dished face and head wide. The grizzly varies from brownish-yellow to dark brown, darkening along the back, top of the head and limbs; grizzled tipping on hair on the back.

**Habits:** Grizzly bears travel about at anytime of the day or night, usually alone, unless it is a sow with cubs. They establish a home range. Their dens are in caves, or they dig out dens in hillsides where they spend the winter. Female gives birth to 1 to 3 cubs during hibernation; cubs weigh about a pound and a half at birth.

**Food:** Wildlife, fish, vegetation and domestic stock.

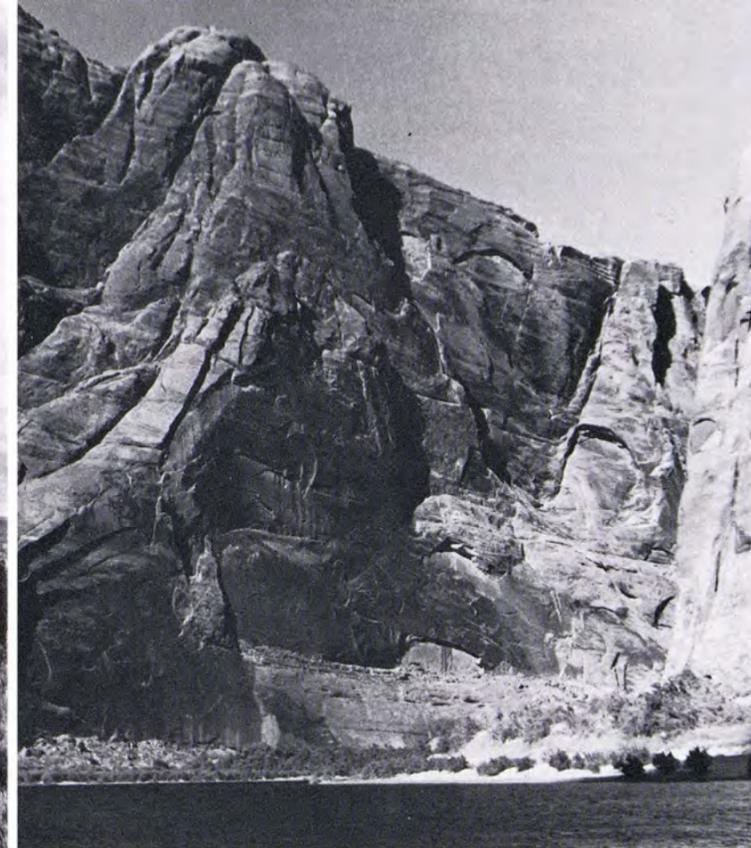
**Enemies:** Man.



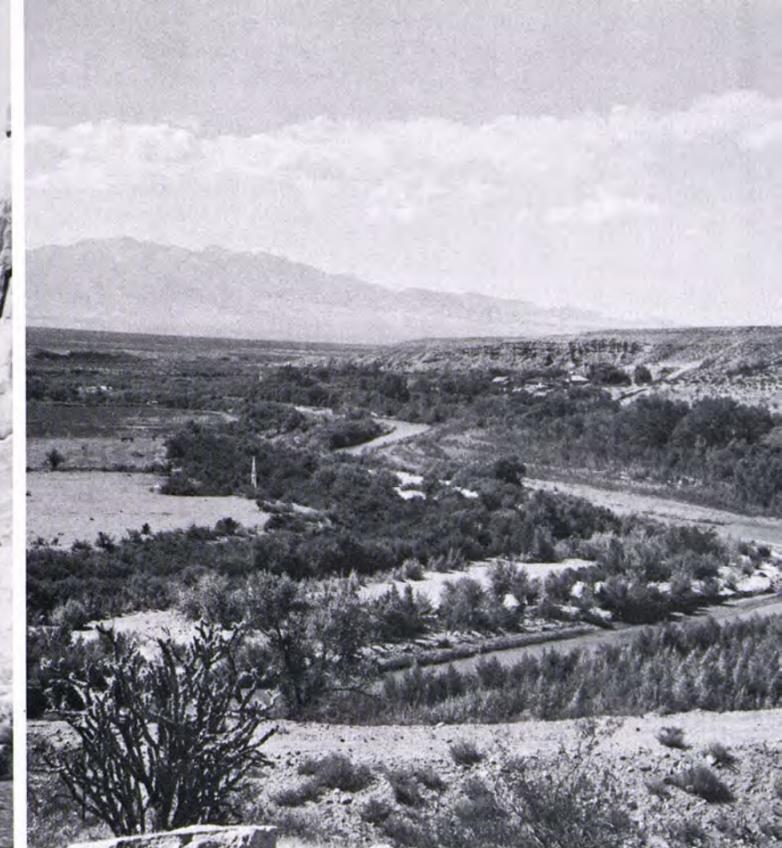
Desolate, rough country, typical of the Kofas, Cabeza Prietas and other bighorn sheep ranges of the Southwest corner of Arizona.



Buffalo on the Raymond Ranch range. It has the classic look of the buffalo country of the old west.



Grand Canyon of the Colorado River. Bighorn sheep, mule deer, fox and feral burros are found deep in the gorge of the canyon.



Virgin River Valley. Typical of the farm-stream-desert combination found in much of Arizona. Ideal for raccoon, bobcat, skunks, rodents, beaver and muskrat. Bird life abounds and mule deer thrive.

around their bases glow luxuriously in the sun, then depressions in the ground will gather the melt water and become mirrors that reflect the cloud spattered sky. Again each tiny canyon will roar with the gathering flood. Those deep pools in sheltered ravines will be so dark and clear that they'll hold you spellbound. Steep embankments on the north facing slopes with overhanging rocks will put on a glittering show of giant icicles that eventually fall from their own weight in a shower of high musical notes. Even before all of this snow is gone, green things will push up through it impatient to get on with the year's work.

Farther down the slopes, beyond the chaparral, where saguaros dominate the skyline, spring will be in full force. If

it's a good season, spring rains will drench the desert. From this will come a seeming miracle. Drab hillsides will burst forth with such a garden of flowers that certain pockets of them will put you into a speechless contemplation . . . such unbelievable color and variety. As the season progresses so will the flowering plants change. Palo verdes will become an explosion of gold. Ironwood trees will put on a garment of pale violet the exact complement to the light silvery gray-green leaves and the lightly tarnished silver of the bark. Not only will these remarkable trees be alive with blossoms but they will hum with a host of insects in ecstasy over the nectar and perfume . . . such a fountain of life in a seemingly lifeless place. Yuccas transform hillsides into cathedrals along with cloud arches and pure blue

windows. These candelabra of the desert inspire peaceful introspection and silent prayers to our God of such genius, such creativity, such beauty.

Arizona has many other kinds of animals than have been shown here. Porcupines, red squirrels, antelope jackrabbits, ground squirrels, mice, bats and others that I do not know about. When you consider all of these along with the birds of the sky, the fish of our streams, ponds and lakes, the reptiles and insects combined with the plants you get a good grasp of the threads of life that weave such a beautiful tapestry for us.

We seem to know for sure now that no other planet in our solar system has what this earth has. Mars is barren, Mercury is an aching hot cinder; Venus is suffocated under steaming

blankets of deadly gases; Jupiter, a giant of violent winds, hideous radiation and poisonous air; Saturn is a riddle; Uranus, Neptune and Pluto . . . frozen enigmas hurling their secrets in orbits so distant from the sun that their surfaces are only vague curiosities to the average man.

Space exploration has shocked us into falling in love once again with our land . . . our *Mother* earth. She has provided one unique patch on the North American continent for all to marvel at. On it She has allowed the sun to work its miracles through a virtually cloud-free sky. Then, with knowing care, lets the rains roam the land sufficiently to spread their gifts to all growing things. Nodding and bowing with celestial grace She changes the seasons throughout the year so that variety



**GRAY WOLF** (*Canis lupus*), see page 6: *Mogollon Mountain wolf* (*C. l. mogollonensis*); *Mexican wolf* (*C. l. baileyi*).

**Habitat:** The Mogollon Mountain wolf is thought to have occurred in the north, northeast and central parts of the state. The Mexican wolf was found in the southeastern part of the state. Wolves inhabited the forested plateaus and plains of the north, and the high desert mountain ranges of the south.

**Description:** Length: 45 inches; Height: 24 inches; Weight: 100 pounds or more; Tail: about 16 inches.

In Arizona the wolf is believed to have been a smaller version of its northern cousin. It is also felt that the coloration was lighter gray, somewhat like the coyote, and the hair shorter and not as heavy.

**Habits:** Wolves move about at all hours. Usually they hunt in packs, or at least in family groups, and develop strong family bonds that remain together. Their large size makes them formidable killers, and they can take down larger animals like cattle, horses, bison and elk.

**Enemies:** Man.

**BEAVER** (*Castor canadensis*), see page 43: *Sonoran or broadtail beaver* (*C. c. frondator*); *Arizona beaver* (*C. c. repentinus*).

**Habitat:** Beavers are found in rivers, lakes and irrigation canals, and they prefer waterways where trees and other vegetation provide food, and building materials for houses and dams. Most beavers in Arizona build dens along the banks. The burrow entrances leading to houses are underwater and provide protection from predators. The Sonoran beaver occurs along the San Pedro River and its tributaries, the upper Gila River, and lakes and streams in the White Mountains. Arizona beaver are found in the Colorado River, lower Gila, Bill Williams and Little Colorado Rivers.

**Description:** Length: 35 to 40 inches; Height: 15 inches; Weight: 30 to 45 pounds. Beaver have a heavy, rich pale brownish-yellow underfur and long, shiny, chestnut-brown guard hairs. The underparts are lighter color; ears are small; front feet smaller than the hind feet which are webbed; well-developed, prominent incisors are yellow-orange in color; tail is broad, flat and scaly, 12 to 15 inches long and 6 to 8 inches wide.

**Habits:** Beavers spend all their lives in or near water and are active at all times, but more so at night. They build extensive dams and houses of logs, twigs and mud and fell trees by gnawing around the trunk. They have as many as 8 young but usually 4. The young do not leave the family unit until the following year. When the new litter is about to arrive they are driven off. The beaver's greatest



defense is its ability to escape in the water. At the sign of danger a slap of their broad tail is a warning to all beavers. When on land they are vulnerable to attack by predators.

**Food:** Twigs, wood and bark of trees especially willow, cottonwood and aspen, and other deciduous trees.

**Enemies:** Lions, coyotes and bobcats. Raptors on young beavers.

**JACKRABBIT** (*Lepus* sp.), see page 33. *Antelope jackrabbit* (*Lepus alleni*); *Texas jackrabbit* (*Lepus californicus texianus*); *Desert jackrabbit* (*L. c. deserticola*); *Arizona jackrabbit* (*L. c. eremicus*).

**Habitat:** Statewide. The antelope jackrabbits occur only in the south central part. Desert jackrabbits occur in the western half of the state. Texas jackrabbits are found in the northeastern part and the Arizona jackrabbits occur in the southeastern parts of the state where they extend into Arizona from Mexico. Antelope jackrabbits are closely associated with desert type habitat and live in the saguaro studded foothills and cactus covered valleys.

**Description:** Length: 20 to 24 inches; Weight: 4 to 7 pounds. There are few variations in the blacktail jackrabbits. The upper parts are dark gray-brown to ash gray; hairs are tipped black along the back lighter on the sides to almost white underneath; shoulders and legs are a rust color; ears are 4 to 5 inches long, grizzled and dark on

the tips; underside of the tail is light, the top black or dark. The antelope jackrabbits are larger and heavier than the blacktail and may weigh 9 pounds; the ears are very long, about 8 inches; white rump and tail, and lacking the black markings of the blacktail jackrabbit.

**Habits:** Jackrabbits live in groups and are active throughout the day, but more so early and late in the day. Ungainly when hopping about, they are fast runners and can outrun most dogs. Eyesight and hearing are excellent. When running they take several short leaps, then a long 15 to 20 foot leap. When closely pursued, they change directions abruptly. During the day they enjoy laying around in forms (dust holes) or in the shade. Males become very territorial, especially during breeding season. They stand on their hind legs and fight by kicking with their powerful legs, pushing and biting. Badger holes, coyote diggings or hollow depressions are used for resting or dens. Litter size is usually 3 or 4. Jackrabbit populations are cyclic. When they become over-populated, disease and predators take over and the rabbit numbers decrease sharply.

**Food:** Sometimes detrimental to a range when the population is high. Large patches of land can look stripped and torn up. Grasses, annuals, brush, woody plants and cacti.

**Enemies:** Lions, coyotes, bobcats, foxes and raptors.

gives joy to our lives. This . . . the home of Arizona's animals . . . a treasure so precious that we cannot allow it to be squandered is put into our custody for now and all time to come.

What is needed from us is the simple recognition that among the order of things the creatures of the wild have their rightful place. Whether they are hunted or not is not the issue . . . the issue is that whatever we do is, in the long run, the best to insure their perpetuity, and in the process bring interest and joy to our lives, glory to God, and a heritage to pass on to those who are yet to come.

Human Beings, the most ingenious, the most remarkable, the most complex animal to ever roam the earth are hopelessly caught up in the grip of a superior natural function known as progress.

Alone among all living things, this *animal*, this human being shares this nature of the Creator. Because His works are the works of progress so are the works of man. To enable us to direct this function He has endowed us with the unlimited capacity to learn. This superb activity helps us to rise above the enormous survival pressures that confuse our lives . . . the babble of tongues . . . the mire of the seven deadly sins . . . the weakness of the flesh; naked by itself helpless against the elements; poorly armed with soft nails and blunt teeth; limited to relatively weak muscles; with only fair eyesight, fair hearing and a dull sense of smell. We are forced to rely upon a greater consciousness . . . intellect. Through it we are learning to regard *all* of nature as an integral part of the plan for our survival.

THANKS to the Almighty for this new awareness. THANKS for the men and women worldwide who dedicate their lives to the work of land management; forestry; wild-life management, soil conservation, and intelligent farming. THANKS too to the growing list of members of private wild-life organizations which have a scientific base to their philosophy and work with skilled professional wildlifers in maintaining our resources. THANKS to Arizona where one matchless day after another gives life to the wilderness, and to this magazine that has shown this land to the peoples of the world.

Larry Toschik



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**MOUNTAIN LION OR COUGAR** (*Felis concolor*): see inside back cover: Kaibab cougar (*F. c. kaibabensis*); Mexican cougar (*F. c. azteca*).

**Habitat:** Statewide. They prefer rugged and heavily vegetated canyons, ledges, and rim rocks. The most common race, the Mexican lion, is found throughout the state except in the extreme southwestern part, where the Yuma subspecies is found, and on the Kaibab North where the Kaibab subspecies occur.

**Description:** Length: 6 to 8 feet; Height: 30 inches; Weight: 120 to 150 pounds.

Largest of the unspotted cats, mountain lions are long and sleek. Both sexes are a tawny-yellowish brown, washing to a yellowish-white or white underneath. Kittens have dark spots.

**Habits:** Mountain lions are secretive and seldom seen. Although they move about at all hours, they prefer the late evening, night and early morning. Wide-ranging hunters with established territorial limits, they stalk their prey or lay in wait on a ledge or on a game trail. They are clever hunters and cover the remains of a kill with dirt and plant debris, rarely eating animals they have not killed. Their dens are in caves or fissures in the rocks. Cubs generally number 2.

**Food:** All forms of wildlife, and domestic stock.

**Enemies:** Man.

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**KAIBAB SQUIRREL** (*Sciurus aberti kaibabensis*), see back cover

**Habitat:** The Kaibab squirrel is most unique of the tassel-eared squirrels. Until recently the population was confined to the timbered plateau of the Kaibab North, an area about 45 miles by 25 miles. Because of its close association with the ponderosa pine forest, it is seldom seen in other habitat types. They are now also found on Mt. Trumbull on the Arizona Strip.

**Description:** Length: 22 inches, the tail measuring half its length; Height: 3 to 4 inches; Weight: 2 pounds.

**Habits:** Kaibab squirrels do not hibernate in the winter but are often inactive during severe cold or stormy weather. Although they do not move too far from the safety of trees, they spend considerable time on the ground. Kaibab squirrels build large, bulky nests in ponderosa pine trees, the nests are usually built with the terminal ends of branches. Young are born in late spring or summer but are seldom seen on the ground until they are more than half grown.

**Food:** Apical buds and the inner bark of terminal ponderosa pine branches. Peeled twigs which are discarded, are positive evidence of the presence of a Kaibab squirrel. At certain times of the year they feed on staminate flowers, pine seeds and mushrooms.

**Enemies:** Raptors, especially the goshawk, and bobcats. Logging operations greatly diminishes the habitat.



*Delight of the Forest*

ABERT SQUIRREL  
TEMPERA • 19" x 23"

# Yours Sincerely

## Christmas Bouquets

### • Editor:

Having just received the current Christmas number, we are inspired to write one of our few letters of commendation, not that we do not often feel like doing so.

Our career has been in photography and related fields and our family has lived for many years in appreciation of the artistry presented in ARIZONA HIGHWAYS, and with many of its pictures on our walls.

There is also a kindred feeling in our relationship in the Family of God, thru faith in our Savior, the Lord of Bethlehem and of Calvary; and in this respect we can also relate to and appreciate your Christmas editorial which is certainly one of the best, if any can be chosen as such.

Mr. and Mrs. Donald H. Davis  
Eaton Rapids, MI.

### • Editor:

You and your staff are to be congratulated on another outstanding Christmas issue. While we enjoy each issue throughout the year, it is your "Christmas Card to the World" that we love most.

We have always sent numerous copies to friends back in Texas and they always remark "Christmas wouldn't be Christmas without that wonderful magazine." There seems to be a universal envy among our friends in other states because they don't have a magazine like ARIZONA HIGHWAYS.

We can only say thank you ARIZONA HIGHWAYS. Long may you live!

Dante Campos  
Phoenix

### • Editor:

Your Christmas 1975 issue is, as Barry Newman (alias "Petrocelli") says, "The best in fifty years." As a long-time subscriber to the magazine, I would have to agree. However, I must confess that I've said that about every Christmas issue for the past 20 or 25 years!

I'm curious though, as to how long it takes to put this special issue together? Do you begin planning next year's issue as soon as you finish this year's?

However you do it, keep up the excellent work.

Mrs. Barton Jones  
Tucson

### • Editor:

You've done it again!

You put out an even better Christmas issue than last year, and last year's was better than the year before, and that one was better than the previous year, etc.

Surely, you must have some divine help! It comes out as a magnificent tribute to God's country — ARIZONA.

William Siefert  
Sun City

*The 1975 Christmas issue has drawn an unusual number of bouquets. It is a special issue around this office and does occupy the minds of the editorial staff for months throughout the year. It was the work of now retired editor Joe Stacey, and associate editor Wesley Holden.*

*Yes, it does seem that divine help shows up just when you need it.*

*The 1976 Christmas issue is already on our minds. We are continually gathering copy and visual material which will make it distinctive, and hopefully better than the previous edition. Finally, it is an issue that comes together in late October and early November under the pressure of a deadline. — THE EDITOR*

## The Same Photographers

### • Editor:

I want to first compliment you on the splendid Christmas issue. It is truly a magnificent production, and a fitting tribute to your beautiful State of Arizona.

Over the years your magazine has prompted us to take numerous trips to Arizona, and we never cease to marvel at such wonders as your Grand Canyon, the Petrified Forest and the desert. As the years creep on, we find our travel somewhat limited, and so it is that we look with great excitement to the arrival of your magazine — particularly your Christmas issue.

One question though: Why do you only feature the work of a few photographers and artists? I refer specially to the Muench's, Petroff, Manley, De Grazia, Dye, et al. Granted, their work is excellent, but there must be many other photographers and artists doing equally fine work.

D. G. Worth  
Ann Arbor, MI.

*Your kind comments about the Christmas edition and other issues are "music"*

*to our ears. Perhaps you have answered your own question concerning the "regular" photographers and artists. One of the reasons ARIZONA HIGHWAYS enjoys a fine reputation is that we feature the BEST photography and art we can locate . . . regardless of whose name is attached. And the best material month-in and month-out comes from regular contributors, some of whom you have named. They are pro's. They know their business, and our's.*

*Yet we are always looking for new talent. The September, 1965, issue included work from 12 "new" photographers and two writers.*

*So our guide is to select material that is good, so good that it will cause you to rush to your mailbox . . . and cause you to come to Arizona to see for yourself. — The Editor*

## Desert in Bloom

### • Editor:

In past years you have featured stories and photography on your fascinating desert. We particularly are fond of the flowering cacti, and have had the opportunity of seeing this beautiful desert display on two trips into your state.

Mrs. Edna Schultz  
Los Angeles, CA.

*Our April issue will focus on the "desert in bloom." Sixteen pages of color photography will portray the minute detail of delicate desert blooms and overall scenic landscapes. The desert doesn't put on its spectacular spring show every year. It takes the right amount of moisture and narrow range of temperatures to produce the many brilliant and unusual flowers. Thus, the photography in this issue will represent the work of numerous photographers accumulated over a period of years. In addition, one major article will focus on the adaptability of desert plants to their harsh or brutal environment. — The Editor*

### • Editor:

After recently suffering a stroke and another heart attack and being "house confined," I rediscovered the joy of reading.

I can't tell you how elated I was when a buddy brought me some magazines and a copy of your ARIZONA HIGHWAYS. This was my first introduction to your very fine magazine. I'm happy to know a magazine of this calibre is still being published today in the midst of the other trash.

Bernard J. Wolters  
Kansas City, KA.

**"Letters to the Editor" should be marked accordingly and addressed to ARIZONA HIGHWAYS, 2039 West Lewis Avenue, Phoenix, AZ 85009.**



*Canyon Howler*

MOUNTAIN LION  
TEMPERA • 11" x 15½"  
COURTESY OF MR. & MRS. CLARENCE E. BOWE, JR.



KAIBAB SQUIRREL  
TEMPERA • 19" x 23½"

*King of all the Surveys*