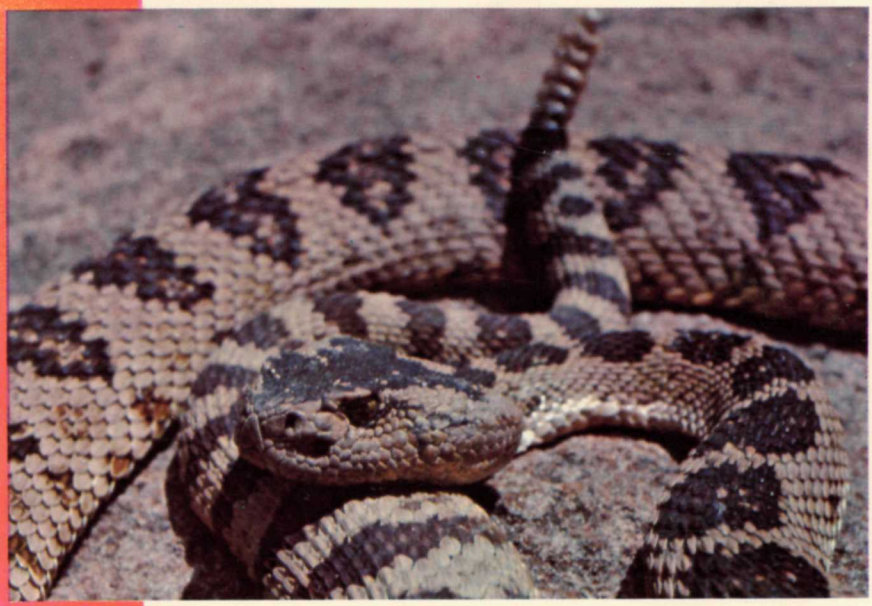
Reptiles and Amphibians of ZION NATIONAL PARK



Western Rattlesnake

by ROLAND H. WAUER

EVERY ROCK, ANIMAL, AND PLANT FOUND WITHIN THESE NATIONAL PARKS SHOULD BE PROTECTED AS IF THEY WERE THE LAST REMAINING WILD THINGS UPON THIS EARTH . . . FOR WHO KNOWS, THEY SOON MAY BE.

Reptiles and Amphibians of ZION NATIONAL PARK

by Roland H. Wauer
Park Naturalist

Photographs by the author unless otherwise noted.

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Contents

Zion Canyon

INTRODUCTION

This booklet is designed to help you enjoy your stay in Zion National Park. It is hoped that, with its aid, you may be able to identify correctly those lizards, snakes, toads, frogs, and salamander you may see. Although they are some of the least understood animals, they are among the more common members of the Zion Park fauna.

Most of us know very little about reptiles and amphibians. We seem far more interested in the false stories we hear than in the facts. Stories about hoop-snakes, uses of horse-hair ropes to keep snakes away, toads causing warts, and snakes that swallow their young are popular. Yet the many true stories about reptiles and amphibians are just as amazing and interesting. Once we learn that warts are not caused by toads and snakes do not grab their tails and roll like a hoop, we may be able to whet our curiosity a little with some facts.

Each of the animals described can be found somewhere within the Park. Most prefer the main Zion Canyon and its many side

canyons, but a few can be found only on the higher platforms of the Park. The various habitats are described in a later section of this booklet.

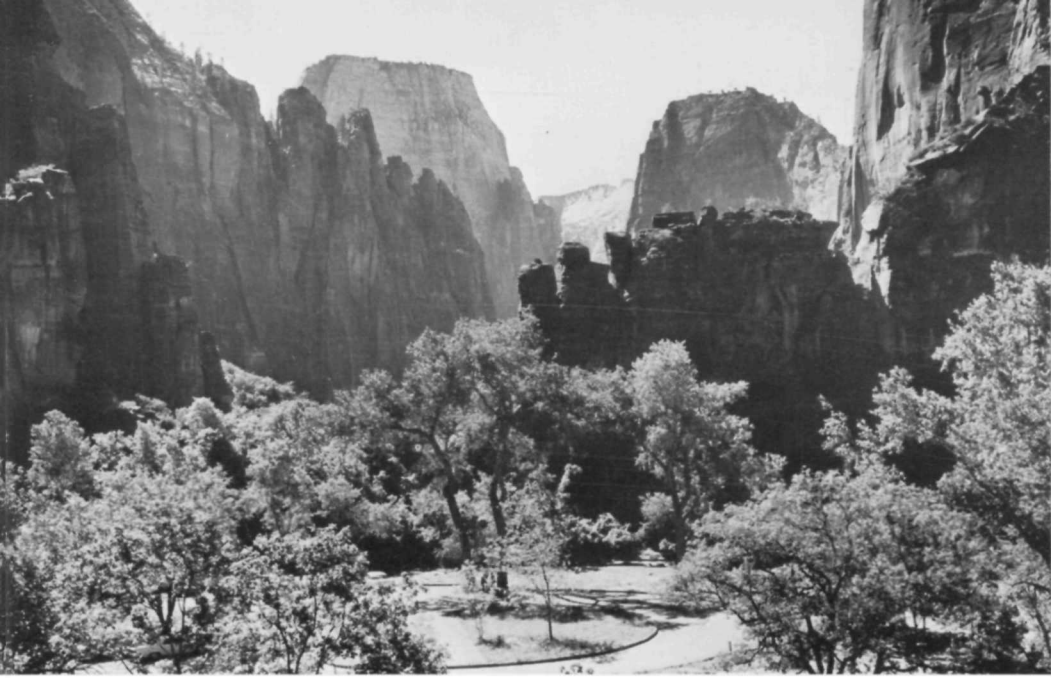
Names of the reptiles and amphibians used are those suggested by the Committee on Herpetological Common Names of the American Society of Ichthyologists and Herpetologists.

I wish to acknowledge and thank the following persons for aid during the preparation of this booklet: Dr. Wilmer Tanner of Brigham Young University, Chief Park Naturalist Carl E. Jepson and Park Naturalist Dennis Carter of Zion National Park for examining the manuscript and for their many suggestions; and Rudy Lueck, Paul Crawford, John Minnich, Jimmy Mardis, John Stevenson, Fred Brueck, Harry Deeter, Jim Dott, Bruce Moorhead, Randy Armstrong, and Dick Rasp for help in obtaining specimens for photographs.

CONSERVATION

All the National Parks have been set aside to protect the natural scene. No rocks, plants, or animals are excluded from this protection. Whether it be a columbine, deer, or snake, each is valuable to the overall scene. Too often are snakes, sunning themselves on a warm roadway, intentionally run over; or a harmless lizard stoned out of ignorance. Just because an animal crawls instead of walks is no justification for maliciousness.

These animals should remain unharmed because of their usefulness in the scheme of things. Reptiles and amphibians consume thousands of tons of insects each year. Snakes are a major predator of rodents and help keep their population in check so that they are not too destructive to man's crops. Both reptiles and amphibians are food for many larger reptiles, mammals, and birds. They are also a great enjoyment to many people. Few animals are as unusual and interesting as reptiles. Each has its own habits and peculiarities. Each has a personality of its own. It often takes only a little more knowledge about an animal, plant, or mineral to increase your interest in that particular subject. With interest comes conservation!



Temple of Sinawava

WHERE TO FIND THE REPTILES AND AMPHIBIANS

The dominant feature of Zion National Park is Zion Canyon and its many side canyons. Here you will probably find most of the reptiles and amphibians that you will see during your visit to the Park. Zion Canyon is one of the many stream-cut canyons that dissect the high Markagunt Plateau, which forms one of the terraces of the larger Colorado Plateau. Elevations within the Park range from 3,650 feet in Coalpits Wash, to 8,742 feet on Horse Ranch Mountain. Between these two extremes can be found a great variety of habitats.

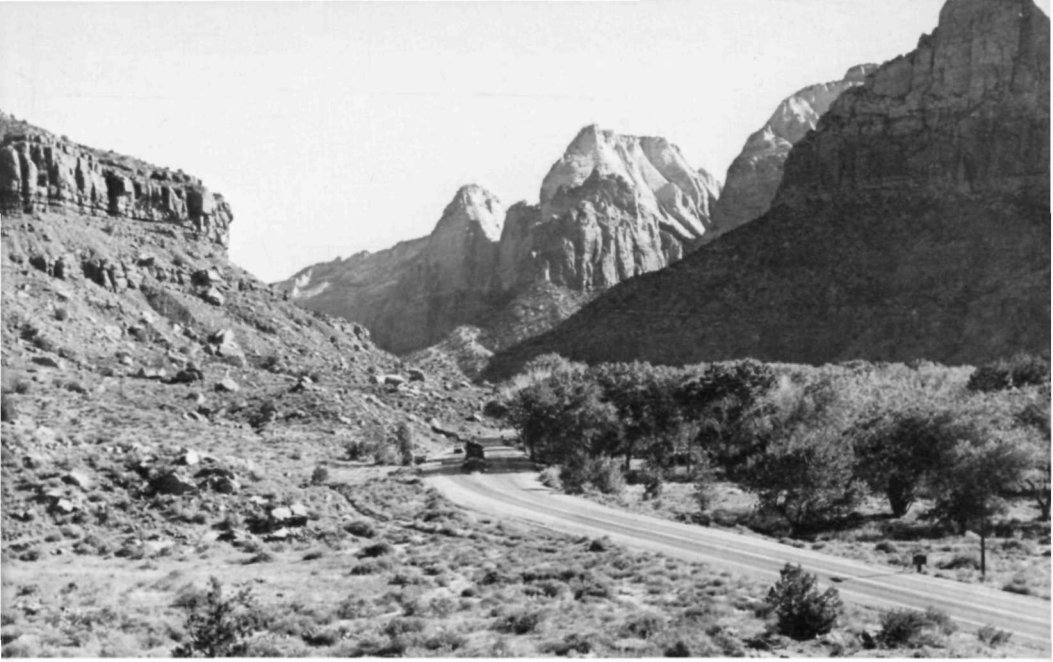
Below the Plateau

Those of you who approach the Park from the east will experience the change of scene so characteristic of Zion. Once you pass through Zion's mile-long tunnel and begin your winding descent down Pine Creek Canyon to the main canyon, the scene becomes one of breathtaking beauty and changing environment. The lower portion of Zion Canyon is typical of the lush green

Coalpits Wash

streamsides of the Southwest. The upper portion of Zion Canyon is typical of that found only in Zion. You may see a true desert habitat, with cacti and other desert plants, next to one of the cooler elevations. Each combines to form an area like that found nowhere else.

As you progress upriver from the lowest parts of the Park, the varied habitats of Zion become apparent. Coalpits Wash is located in the extreme southwest corner of the Park. It is here that the vegetation is typical of the open desertland to the south. Coalpits Wash cuts through an area of old lava flows where creosotebush and blackbrush dominate the open slopes and flats. The banks of the intermittent stream are sandy, but the rocky side slopes reach the stream course in many places. Sand sagebrush, mesquite, and saltbush grow here in sparse to heavy growths. Along the stream are willow, cottonwood, and tamarisk. Arrowweed is abundant along the mouth of the wash, and an occasional juniper occurs throughout and becomes more common in the upper parts of the wash.



View up canyon from South Entrance

The water, the rock banks, sandy flats, and open slopes offer excellent habitats that are used by a large number of reptiles and amphibians. Other low washes and canyons which contain similar habitats are Scoggins and Huber Washes, the Rockville Bench, Shunes Creek, and Parunuweap Canyon. The following species may be expected in these areas:

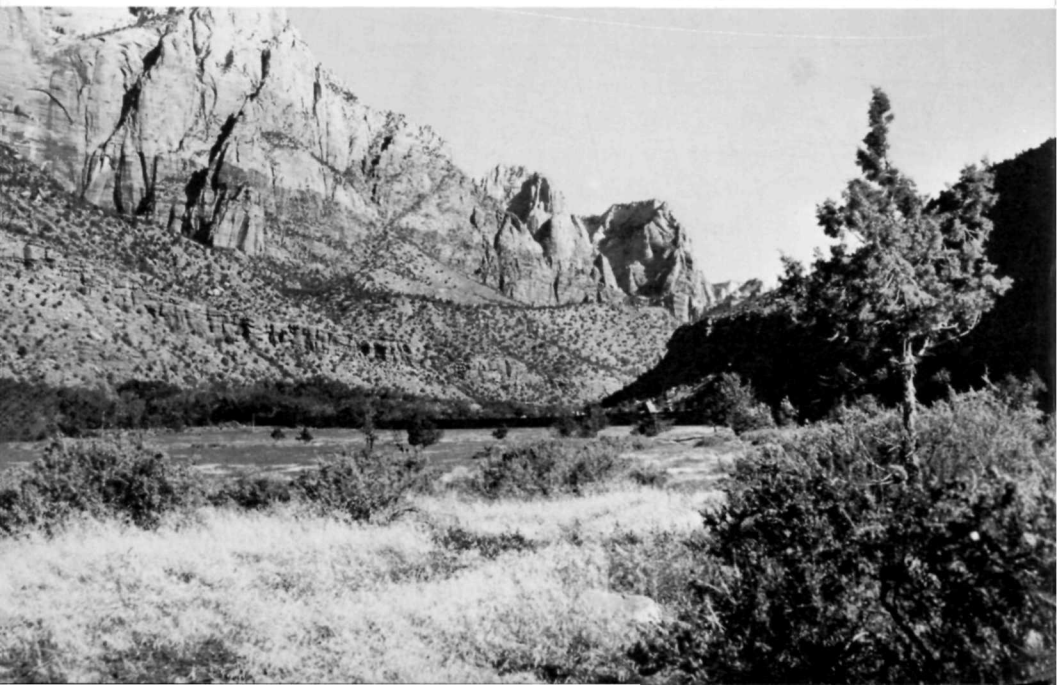
BANDED GECKO
CHUCKWALLA
SIDE-BLOTCHED LIZARD
COACHWHIP
GOPHER SNAKE
NIGHT SNAKE
WESTERN SPADEFOOT
SOUTHWESTERN TOAD
COLLARED LIZARD
DESERT SPINY LIZARD
WESTERN WHIPTAIL
WESTERN PATCH-NOSED SNAKE
WESTERN GROUND SNAKE
WESTERN RATTLESNAKE
RED-SPOTTED TOAD

The Virgin River and the broadleaf woodlands, which crowd its bank, present still another of Zion's environments. This habitat extends from the South Entrance up to and including the Temple of Sinawava. The elevation here is from 3,900 to 4,400 feet. Cottonwood, desert ash, and boxelder make up the dominant vegetation, but willow, baccharis, and tules exist throughout. This type

Cottonwoods along the Virgin River

of area is often referred to as the riparian, or river bank, habitat. It is characterized by a ground cover of leaves and silty soils from the flooding Virgin River. Reptiles and amphibians that may be expected in this habitat include the following:

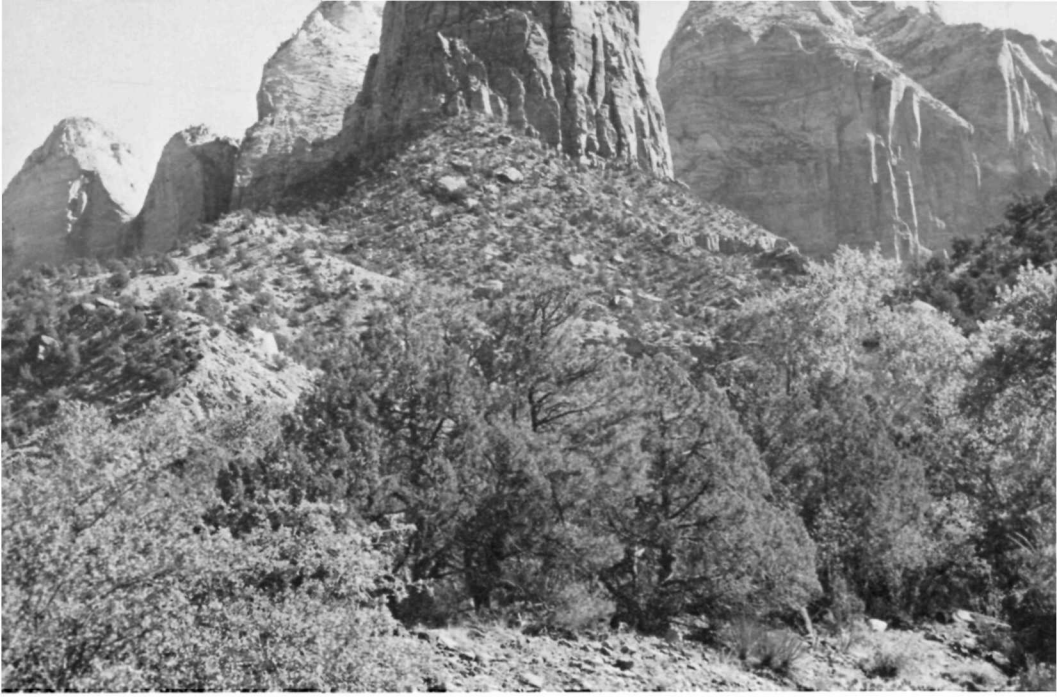
Open grassland in Zion Canyon



Oak Creek Canyon

DESERT SPINY LIZARD	EASTERN FENCE LIZARD
WESTERN WHIPTAIL	PLATEAU WHIPTAIL
WESTERN SKINK	WESTERN GARTER SNAKE
REGAL RINGNECK SNAKE	STRIPED WHIPSNAKE
COMMON KINGSNAKE	NIGHT SNAKE
WESTERN RATTLESNAKE	WESTERN SPADEFOOT
RED-SPOTTED TOAD	SOUTHWESTERN TOAD
WOODHOUSE'S TOAD	CANYON TREEFROG

Between the riparian habitat and the pinyon-juniper communities, which begin in the side canyons and on the upper slopes, there exists another canyon environment. This is the warm open flats and slopes of the canyon proper. It is a varied environment, with oak, juniper, and saltbush being the dominant vegetation. Grasses occur on the open flats and, rarely, a pinyon pine can be expected. The slopes are usually quite rocky, and large boulders occur in some locations. The soil is sandy and loose and is not so well protected as in the riparian habitat. It is a popular habitat for reptiles and amphibians, and the following species may be expected here:



Pinyon woodland below the cliffs of Zion

BANDED GECKO	COLLARED LIZARD
LEOPARD LIZARD	CHUCKWALLA
DESERT SPINY LIZARD	EASTERN FENCE LIZARD
SIDE-BLOTCHED LIZARD	DESERT HORNED LIZARD
WESTERN WHIPTAIL	PLATEAU WHIPTAIL
WESTERN GARTER SNAKE	REGAL RINGNECK SNAKE
COACHWHIP	STRIPED WHIPSNAKE
WESTERN PATCH-NOSED SNAKE	GOPHER SNAKE
COMMON KINGSNAKE	WESTERN GROUND SNAKE
NIGHT SNAKE	SONORA LYRE SNAKE
WESTERN RATTLESNAKE	RED-SPOTTED TOAD
SOUTHWESTERN TOAD	WOODHOUSE'S TOAD

The pinyon-juniper woodlands begin at about 4,300 to 4,500 feet elevation. They continue all the way up to the ponderosa pine forest of the plateau, or to the vertical cliffs of Navajo sandstone which form the steep and narrow canyons of Zion National Park. This vegetative area contains more acreage than any other environment so far discussed. It might be subdivided into two distinct habitats; the pinyon-juniper community and the bigsage flats. However, for simplicity, they are here considered as one. Juniper is dominant in the lower range, and pinyon dominates in the high elevations. Tracts of bigsage are found throughout; and ephedra,

Pinyon-juniper woodland

mountain mahogany, cliffrose, squawbush, serviceberry, and scrub oak are part of the overall scene. In many of the cooler side canyons, however, white fir and ponderosa pine occur. These niches of pine and fir are not typical. Reptiles and amphibians you might expect to find in the pinyon-juniper woodlands include the following:

DESERT SPINY LIZARD
WESTERN WHIPTAIL
WESTERN SKINK
REGAL RINGNECK SNAKE
GOPHER SNAKE
WESTERN GROUND SNAKE
WESTERN RATTLESNAKE
WESTERN SPADEFOOT
CANYON TREEFROG
SAGEBRUSH LIZARD
PLATEAU WHIPTAIL
WESTERN GARTER SNAKE
STRIPED WHIPSNAKE
COMMON KINGSNAKE
NIGHT SNAKE
TIGER SALAMANDER
SOUTHWESTERN TOAD
LEOPARD FROG

Immediately below the rim of the plateau is another environment. This one is very specialized because of its steep cliffs and sparse vegetation. The Tree Lizard is its most common resident. It may best be found on the upper parts of the West and East Rim Trails, on Angel's Landing, and on Lady Mountain. The Canyon

Ponderosa Pine forest

Treefrog also uses this habitat, particularly where it is cool and moist.

Upon the Plateau

This is the high country, or the part of Zion National Park that is known as the "Kolob." It is, generally, above 7,000 feet elevation; and, as a result, has a cooler climate and is not so dry as the lower elevations. Vegetation on the plateau is dominated by ponderosa pine, Douglas fir, white fir, and quaking aspen. Big-sage grows on the warmer flats and willow occurs along the streams and washes that drain the highlands. This is not a habitat suitable for an abundance of reptiles and amphibians, and thus only a few live here.

Two species frequent the plateau lands and are not found in the lower elevations of the Park. They are the Short-horned Lizard and the Sonora Mountain Kingsnake. Reptiles and amphibians that you may expect to see here are the following:

SAGEBRUSH LIZARD
WESTERN SKINK
SONORA MOUNTAIN KINGSNAKE
SHORT-HORNED LIZARD
WESTERN GARTER SNAKE
TIGER SALAMANDER

REPTILES

Reptiles are the most primitive of our land-living animals. They are divided into four distinct groups, or orders: snakes, lizards, tortoises, and alligators and crocodiles. Only two groups, snakes and lizards, occur in Zion. Today, reptiles may not be as abundant as they were during an earlier geological age, the Mesozoic era which is referred to as "the age of reptiles." By this time, reptiles had evolved from their amphibian ancestors and were the first true land vertebrates. Although alligators and crocodiles, some snakes, and turtles have since returned to the water habitat, they must all return to the land to lay their eggs. About 6,000 kinds of reptiles have been found throughout the world and more than 300 exist in the United States. Thirty-six kinds have been reported for Zion National Park.

Reptiles are a very distinct group of animals. All have scales which cover their bodies, are coldblooded, shed their skins periodically, have lungs for breathing, have separate sexes, and, in temperate zones, hibernate. The dry tough skin of reptiles allows a minimum of water loss; and some reptiles never need to drink because their water supply is obtained from their food. Since they are coldblooded, their body temperatures are about the same as their surroundings and they are therefore forced to seek shelter from heat and cold. Only a few live in the highlands of Zion and these must be able to survive shorter summers and hibernate during the long winters. The lowland dwellers, on the other hand, must be adapted to extremes of heat and exposure; they cannot withstand the high summer temperatures, particularly in direct sunshine. Thus they must stay either in cool burrows or in the shade of a rock or plant; or some species cease all activity during the hot summer months. This is known as aestivation and is characterized by retirement to a burrow deep in the soil and remaining there until cooler or wetter weather arrives.

Hibernation is a prolonged period of inactivity in wintertime. All of Zion's reptiles hibernate for at least 4 to 5 months each year. They may retire to a depth of a few inches to as much as 8 feet below the surface. Solitary hibernation is typical of lizards and some snakes. Social denning is more common among larger snakes. A den in Tooele County, Utah, was studied for a 10-year period. From this single den, 930 Western Rattlesnakes, 632 Striped Whipsnakes, 127 Racers, 36 Gopher Snakes, 2 Night Snakes, 2 Regal Ringneck Snakes, and 1 Long-nosed Snake were recorded — a total of 1,730 snakes. Optimum temperatures for

reptiles vary with the species. Air temperatures for night moving species being 65° to 80° F.; and for diurnal species 70° to 90°.

Both snakes and lizards shed their epidermal skins periodically. This includes the entire outer surface, for all the scales are bound together in a continuous armor. In most species, each scale is projected backward to overlap the one behind. Shedding may be continuous throughout the year, however, some individual lizards shed their skins about every 30 to 40 days. Shedding is accomplished in two different ways. Lizards "creep" out of their skins while snakes literally turn their skins inside-out. During this process, snakes are sometimes blinded by the loose skin which may cover the head and eyes.

"Horns" of horned lizards are modified epidermal scales, just as are the rattles of rattlesnakes. Each time skin shedding occurs, an additional section is added to the horn or rattle. You cannot, therefore, determine the exact age of a rattlesnake by the number of rattles it possesses, only how many molts have occured.

Lizards

About 90 kinds of lizards have been reported within the United States and 14 of these are known for Zion National Park. They range in size from the small Banded Gecko to the 20-inch Chuckwalla. Lizards are typically four-legged, usually have five toes with claws that are adapted for climbing, digging, and running; usually have visible ear openings, movable eyelids, undersides covered with scales which form one to many rows, and are able to regenerate a lost tail.

The tail of most lizards appears to be very fragile and "breaks-off" when pulled or injured. The muscles of the tail are arranged to separate neatly, and the vertebra is preset by a crack at this point. The frantic writhing of a separated tail appears to attract the attention of a predator while the lizard dashes off to safety. In a few weeks a new tail regenerates, although it is usually not as large or as brightly colored as the original. The tail is important for balance and, in some species, it is also used as a storage area for fats.

Upon emergence from hibernation in the spring, lizards feed for about a week or two. They then enter a period of courtship and mating that may last for several days. From one to twenty-five eggs are laid (depending upon the species) not long after mating and hatch in late summer or early fall. Some lizards do not lay eggs but retain them within their bodies until the young are ready for birth.

Banded Gecko *Coleonyx variegatus utahensis*

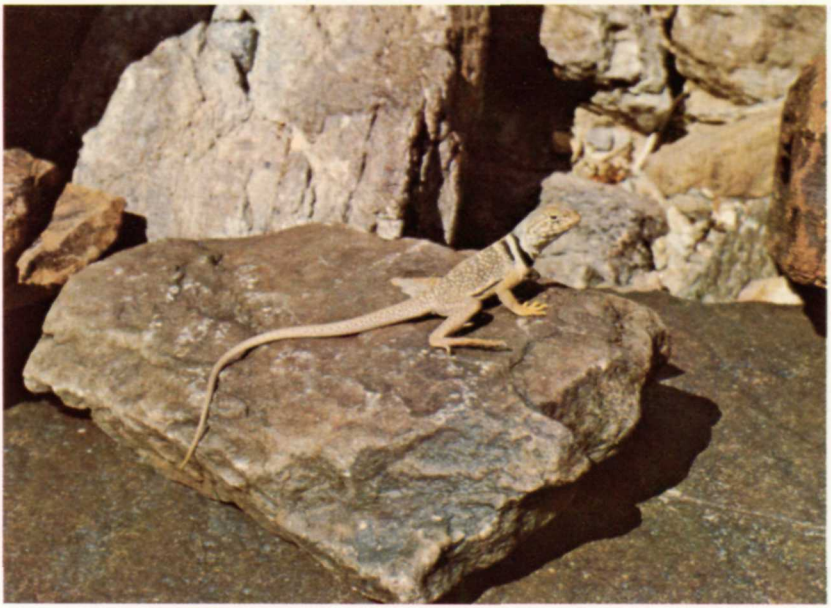
BANDED GECKO

Coleonyx variegatus

This small, delicate lizard is the only member of the family Gekkonidae found in Zion National Park. It is also the Park's only nocturnal lizard. Seldom seen during the daytime, it is occasionally dug up along the rocky hillsides or uncovered from beneath a pile of boards or logs. It also frequents the sandy flats and washes of the lower elevations of Zion's canyonlands.

The gecko is easily recognized because of its extremely fragile appearance and bulbous tail. It seldom exceeds 5 inches in length and is Zion's only lizard with vertical pupils. Its skin is a soft cream to yellow color with brown crossbands on the entire body and tail. A U-shaped stripe of light brown runs around the back of the head. In older individuals, the dark bands become spots or blotches.

Being nocturnal, it may sometimes be found hunting food along the warm roadway at night. Insects of various kinds, spiders, and other small animals are easy prey for the gecko. It is not fast but can run at a reasonable speed, usually with its tail held over its back. It is one of the few lizards with a voice, for when it is disturbed it emits a tink sqeak. It does well in captivity and becomes a very affectionate pet if proper care is provided.



Collared Lizard *Crotaphytus collaris baileyi*

COLLARED LIZARD

The Collared Lizard is seldom seen in the main canyon but frequents the rocky slopes of the side canyons up to about 5,000 feet elevation. It may be expected in Coalpits and Huber Washes, along the Watchman Trail, and on the Sand Bench above and to the north of Zion Canyon Junction. It is nowhere common but may be found by a careful observer during the warm days of April through October.

This is a large lizard that may reach 14 inches in length, the tail being twice the length of the body. It is easily recognized by the two black bands that circle the upper shoulder and neck, thus giving it the name of "Collared Lizard." It is a general olive-brown to green color, with adult males having a blue-green throat. Adult females show red spots on the neck and sides during May and June. The underparts may be tinged with blue. Immature and subadults are not as colorful as the adults but still have the major characteristics of the larger individuals.

This lizard is usually shy and does not permit a close approach. It is primarily a carnivore and runs down its prey, often times running on the hind legs only. Collared Lizards feed upon smaller lizards, snakes, amphibians, insects, spiders, and may even take small quantities of vegetation.

Leopard Lizard *Crotaphytus wislizeni wislizeni*

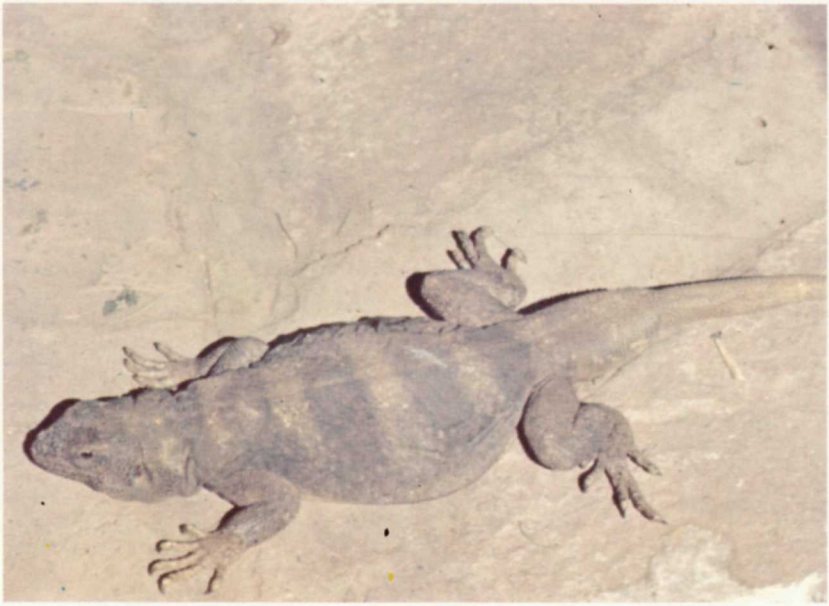
LEOPARD LIZARD

Crotaphytus wislizeni

This lizard is closely related to the Collared Lizard but prefers the open plains and sandy areas rather than the rock-strewn slopes. The Leopard Lizard is rarely seen in Zion. It is occasionally found at the base of the pinyon-juniper woodlands where vegetation is somewhat sparse. Records exist for the Sand Bench, Birch Creek, and the mouth of Taylor Creek.

The Leopard Lizard lacks the black collar of the Collared Lizard but is similar in size and shape. Adults are a gray-brown color with dusky brown spots which give it a "leopard' appearance. Whitish lines run across the body from the shoulder to the tip of the tail. These lines are less distinct in older individuals, and the spots tend to become blotched. The underparts are yellow-white. Some individuals (most apparent in females), especially during the mating season, show red coloration under the tail and along the sides.

Like the Collared Lizard, this species is a carnivore and is even more ferocious in its eating habits. It has been found to eat quite large lizards, such as the whiptails, and has been reported to be cannibalistic. It also feeds on snakes, amphibians, insects, and spiders.



Chuckwalla *Sauromalus obesus obesus*
Photo by Myrl V. Walker

CHUCKWALLA

Sauromalus obesus

This is the largest of Zion's lizards. It is rarely found within the Park, however, but does frequent the rocky ledges of the low canyons and washes. Watch for this species as you enter the Park from the south. It may be seen sunning itself atop a large rock or ledge during the warm mornings of the summer. Chuckwalls have been reported from the Rockville Bench, Oak Creek Canyon, and in Zion Canyon to about 4,100 feet elevation.

The Chuckwalla may reach 20 inches in length and is quite drab in appearance. Adults are a brown to black color and are spotted and flecked with gray and white. Loose folds of skin are present on the neck and on the sides of the body. The tail, blunt and thick in adults and black-banded in juveniles, is used in defense and is capable of striking sharp blows to an enemy. It is not breakable as in other species.

This lizard is usually shy and will quickly slip away into a crack or crevice at the first sign of approaching danger. It can actually inflate itself by gulping air into the lungs and distending its body so that it may become wedged into a rocky crevice. Its rough scales make it difficult to dislodge. The Chuckwalla is entirely vegetarian. It feeds upon leaves and flowers of many desert plants such as ephedra, euphorbia, mallows, and many members of the sunflower family.

Desert Spiny Lizard *Sceloporus magister uniformis*

DESERT SPINY LIZARD

Sceloporus magister

This lizard is found from the low dry washes into the upper parts of Zion Canyon and its many side canyons. It is occasionally found in the open but is never far from the safety of a pile of rocks or a tree or shrub, whether it be a mesquite, cottonwood, juniper, or pinyon. It is a common resident in the broadleaf woodlands along the Virgin River and ranges up into the pinyon-juniper forest. Its habitats may include sandy benches, rocky slopes, and the leaves and debris of the forest floor.

Most of the *Sceloporus* group are rather stout and strong-looking lizards, and this one is no exception. It is not like the sleek and streamlined whiptails, which use many of the same habitats. The Desert Spiny Lizard seldom exceeds 11 inches in length. It has a short rounded snout and black shoulder markings edged with yellow or white. The scales look large, and its colors vary in age and sex considerably. It is a general gray to brown and is usually mottled with yellow, green, brown, and metallic blue.

This species is primarily insectivorous, although it has been known to take vegetation. It is a good climber and spends a part of its hunting time in trees and shrubs. Ants, flies, bees, grasshoppers, and other insects seem to be its main diet, but occasionally it will capture a small lizard.

Eastern Fence Lizard *Sceloporus undulatus elongatus*

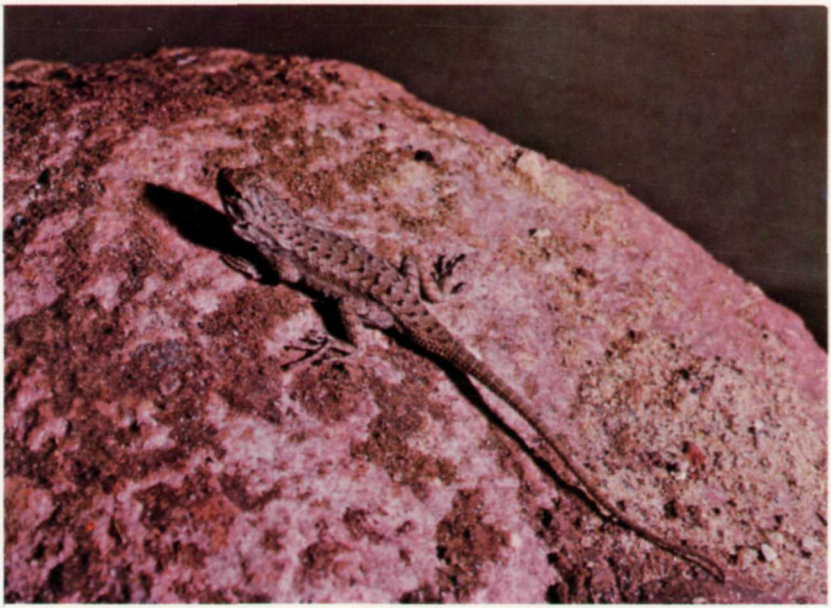
EASTERN FENCE LIZARD

Sceloporus undulatus

This is, no doubt, the most common lizard of Zion Canyon and its many side canyons. It is abundant along the canyon bottoms and on the slopes to about 5,200 feet elevation. You may expect to find it anytime during the summer along the Narrows Trail or Weeping Rock Nature Trail.

It is not a large lizard but may reach 6 inches in length. The tail is usually about 1½ times the length of the body. This is the lizard that is often called "the blue-bellied lizard" because of the bright blue patches on each side of the belly. Although it is a good identifying characteristic of the species, other lizards also possess the blue patches. Its upperparts are usually a plain gray to brown with yellow to green blotches. A blue spot is also present on each side of the throat. The spot is lighter in females and occasionally absent altogether.

The Eastern Fence Lizard is agile and is an excellent climber. It can climb a tree at a great speed. When frightened, it will usually run to a shrub or tree and move up the trunk opposite from the intruder. It probably secures a great percentage of its food in trees and on cliffs. Although it is primarily insectivorous, it also feeds on spiders and other small arthropods.



Sagebrush Lizard *Sceloporus graciosus graciosus*

SAGEBRUSH LIZARD

Sceloporus graciosus

This lizard looks very much like the Eastern Fence Lizard but prefers the higher elevations. It is seldom found below 5,000 feet elevation. A ground-dwelling species, it is abundant on the sage flats and upper slopes throughout the Park. It is usually found above the range of the former species, but in some intermediate areas you may expect both to occur. One of these areas is along the Watchman Trail. Places where you may expect the Sagebrush Lizard in abundance include the East and West Rim Trails, Lady Mountain, and along Taylor Creek.

The Sagebrush Lizard is slightly smaller than the Eastern Fence Lizard. There are three good distinguishing characteristics which help to tell them apart. The Sagebrush Lizard always has blue patches on the throat in contrast to the laterally placed blue patches of the Eastern Fence Lizard. The Sagebrush Lizard has granular scales on the back of each thigh while the Eastern Fence Lizard possesses heavily keeled scales. Also, the Sagebrush Lizard usually has some rust, light orange, or yellow on its side. The Eastern Fence Lizard lacks this side color.

The Sagebrush Lizard is almost wholly insectivorous. Although it is a ground-dweller, it often climbs into bushes or on rocks in search for food. When frightened, however, it seeks shelter in burrows, under rocks, and in crevices.

Side-blotched Lizard *Uta stansburiana stansburiana*

SIDE-BLOTCHED LIZARD

Uta stansburiana

If you visit Zion National Park during the first warm days of spring, this will probably be the only lizard that you will see. Common from the lower washes and canyons up to about 5,500 feet elevation, it utilizes a wide range of habitats.

This lizard is usually less than 4½ inches in length, the tail being less than twice as long as the body. All Utas are characterized by 1 or 2 gular folds — folds of skin across the throat. The Side-blotched Lizard is overall gray to brown and has a distinct black spot on each side, just in back of the front leg. During the mating season, the males are extremely colorful, possessing a mottled back of rust, blue, and white flecks.

Its small size enables it to be one of the earliest lizards to become active in the spring. Larger lizards must await the warmer weather to heat their body before they become active. The Side-blotched Lizard is usually the most common lizard where it occurs. It is preyed upon by many predators such as birds, snakes, and larger lizards. Although it is primarily insectivorous, it also feeds upon spiders and other small arthropods.

Tree Lizard *Uta ornata wrighti*

TREE LIZARD

Uta ornata

You will probably not see this small lizard unless you hike some of Zion's trails. The Tree Lizard is a cliff-dweller that frequents the high cliffs just below the rim of the plateau. It has been found on Angel's Landing, along the upper parts of the West and East Rim Trails, in upper Emerald Pools area, and on Lady Mountain. It has rarely been reported in the lower canyons.

The Tree Lizard is about the same size as the Side-blotched Lizard and possesses the gular folds but lacks the side-blotches. It is gray to brown and has a strip of enlarged scales down the center of the back. The male is characterized by a blue patch on each side of the abdomen.

This lizard is more commonly found on the cliffs of Zion than in trees. It utilizes both, however, while searching for food, which consists of insects, spiders, and other arthropods. The Tree Lizard is very curious, and this often leads to its downfall. It is easy prey for many predators. Even man can successfully capture it by moving slowly and placing the hand carefully above the watching Tree Lizard. A quick grab, slightly in front of the head, usually results in a captured lizard.

Short-horned Lizard *Phrynosoma douglassi hernandesi*

SHORT-HORNED LIZARD

Phrynosoma douglassi

Almost everyone recognizes a horned lizard. Two kinds occur in Zion National Park. One is resident of the low canyons and one of the high plateau. The Short-horned Lizard is the one you will see on the Kolob. It frequents the open sage tracts above 6,000 feet elevation. It is not common, however, but may be found from Lava Point and Home Valley Knoll to Horse Ranch Mountain.

Horned Lizards have broad and flat bodies and short tails. "Horns" are evident at the back of the head, and the snout is blunt. The Short-horned Lizard is characterized by having extremely short head spines or "horns." It has irregular dark and light markings of brown, red, and gray and an indefinite line down the center of the back.

This species is usually found only during mid-summer because of its high country habitats. It is primarily an insect eater but also feeds on spiders and other arthropods. Horned lizards have very interesting adaptions to help them escape from their enemies. Their flat shapes allow them to squeeze into very thin cracks and crevices; their protective coloration is remarkably effective; and as a last resort they can actually squirt blood from the back corner of each eye. The blood comes from a sinus at the base of each eyelid which is ruptured when the lizard is in need of a good defensive mechanism.

Desert Horned Lizard *Phrynosoma platyrhinos platyrhinos*

DESERT HORNED LIZARD

Phrynosoma platyrhinos

This is the horned lizard of the low canyons and washes of Zion National Park. It is never common but has been found in Coalpits Wash, Parunuweap Canyon, and in the lower part of Zion Canyon. The species rarely occurs above 5,500 feet elevation and seems to prefer the open flats where vegetation is low and scanty.

The Desert Horned Lizard differs from the former species in that this is the horned lizard with long "horns." There are other differences, but its range within the Park and its long head spines are sufficient to help you distinguish Zion's two horned lizards. Their habits and food preferences are very similar.

WESTERN WHIPTAIL

Cnemidophorus tigris

This is one of the more common ground-dwelling lizards in Zion. It is found in all of the low canyons, from Coalpits Wash into the side canyons to an elevation of about 7,000 feet. You

Western Whiptail *Cnemidophorus tigris tigris*

cannot hike far on the Emerald Pool or West Rim Trails before you hear it scurrying through the dry underbrush. It seems to use a wide range of habitats, from the sandy flats, to the broadleaf woodlands, into the pinyon-juniper communities.

Two kinds of whiptails occur within the Park. This one is the larger of the two and may reach 13 inches in length, the tail being about twice the length of the body. Whiptails are very streamlined-looking lizards but with well developed limbs. The Western Whiptail is a general gray to brown, adults may have a considerable amount of orange color on the posterior back and base of tail. It usually has mottled black to brown blotches which form indefinite lines down the back and sides. Its underparts are marked with slaty to black spots. The scales on the tail are noticeable and are gray in adults and blue to green in juveniles.

Whiptails can be identified by their characteristic movements at a considerable distance. They creep forward in a jerky manner, dragging their tail which leaves a definite track in sand or loose dirt. If frightened, however, they can run with great speed with their tail held off the ground streaming along behind. The Western Whiptail has been estimated to run as fast as 18 miles per hour. It is a poor climber and seldom attempts to climb, even when being pursued. It is primarily an insect eater but also takes other small reptiles and has even been found to be cannibalistic.

Plateau Whiptail *Cnemidophorus velox*

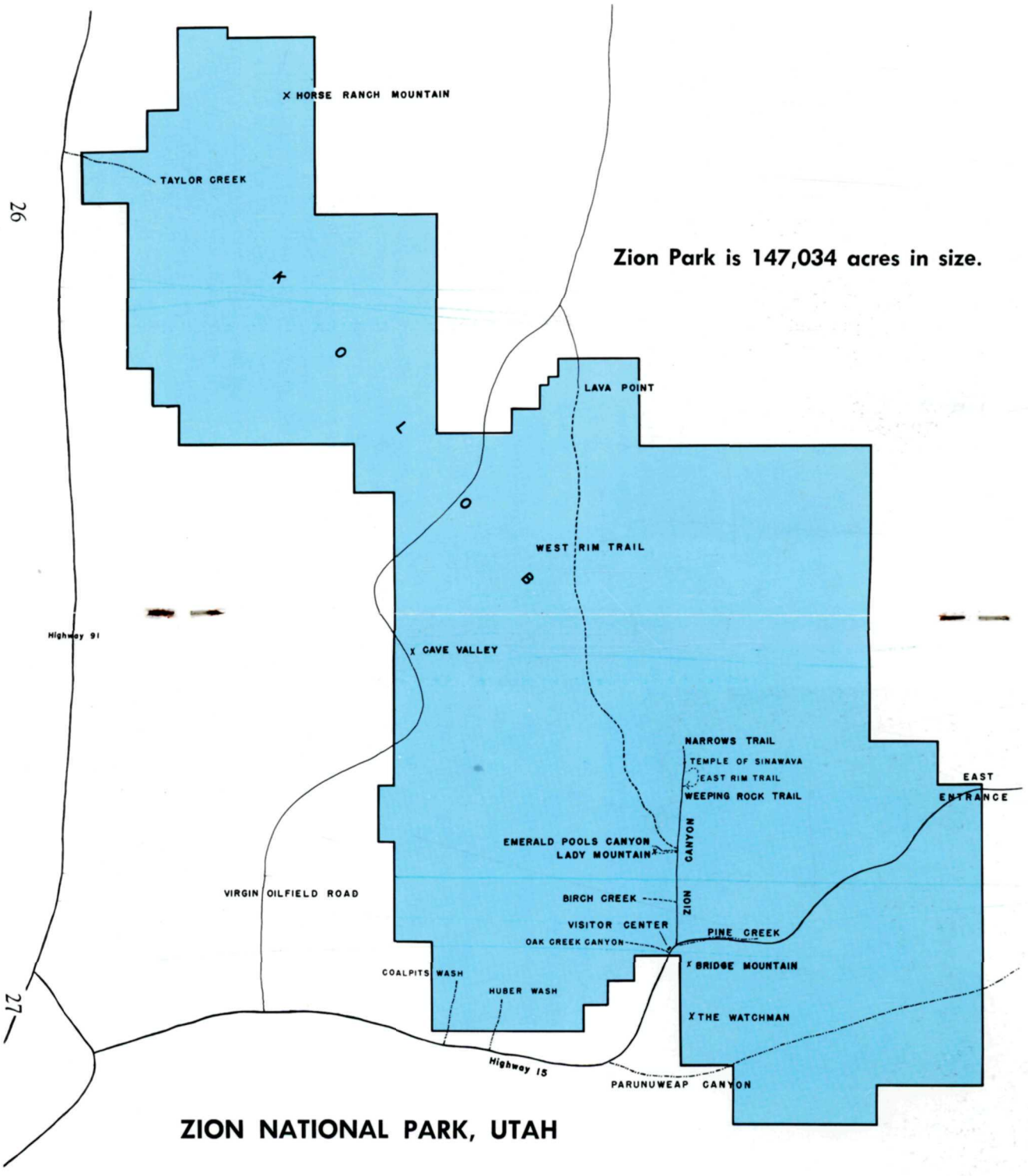
PLATEAU WHIPTAIL

Cnemidophorus velox

This is the smaller of the two whiptails found in Zion National Park. It frequents about the same habitats as the Western Whiptail, but does not range into the low arid washes and sandy flats where the former species may be expected. The Plateau Whiptail prefers the open flats and slopes of Zion Canyon and the many side canyons to an elevation of about 6,500 feet. It is especially common in the Temple of Sinawava, and may even use the sage flats of the pinyon-juniper woodlands and the ponderosa pine forest.

It is shaped like the former species but is somewhat slimmer and shorter. A better name for this lizard might be "the striped whiptail" because it has a very definite series of stripes running the length of the body. Inside the black to brown stripes are white to cream spots which give it its name. With age, the spots and stripes become more suffused and, like the former species, the juvenile's blue tail becomes darker gray to brown.

Its habits are similar to the Western Whiptail, but it has not been found to be cannibalistic.



ZION NATIONAL PARK, UTAH

Western Skink *Eumeces skiltonianus utahensis*

WESTERN SKINK

Eumeces skiltonianus

This is the only skink found in Zion National Park. One of the most colorful lizards, it is sometimes confused with immature whiptails. It is never common, but can be found near the springs and in the cooler canyons below the plateau, and on the open flats of the Kolob.

The Western Skink is seldom over 6 inches in length, the tail being about 1½ times the length of the body. The body is long and rounded and the limbs are somewhat small and weak. The smooth scales give it a slick appearance. The upper half of the body is cream to light brown, with a dark stripe on each side of the body and a light stripe on top which runs the length of the body. The underparts are tan and sometimes tinged with blue. The tail is brilliant blue in juveniles and brownish or greyish in adults.

This lizard is very secretive in behavior and is seldom seen except by a careful observer. During the warmer days of summer, it stays under logs or bark or burrows into the forest debris. You may sometimes detect its presence by listening carefully for the rustle in the underbrush. You must be very careful when handling this lizard, for the tail is easily separated. Its diet consists of insects, spiders, and other arthropods.

Snakes

About 250 varieties of snakes have been reported within the United States, and 12 species have been found in Zion National Park. Only one of these, the rattlesnake, is poisonous. Snakes are among the best known reptiles, yet only a few kinds are usually seen by the average person. This is because many snakes are nocturnal and all are rather secretive. Snakes are typically long and slender. They have no external legs and are able to move about by the use of the belly scales, called "scutes," which are in a single row. The scutes are projected forward and cling against a surface while the rest of the body is brought forward by lateral undulations.

The forked tongue of snakes is used as a sensory organ to detect heat and odors. Vibrations also play an important part in a snake's sensory perception. Snakes have no eardrums, however, and so cannot hear, but they receive vibrations through their body from the earth. Eyesight is well developed in some snakes, especially the nocturnal ones. They use their eyesight in obtaining food and for detection of enemies. Another characteristic of snakes is the ability to swallow prey several times their own diameter. The jaws are connected by elastic tendons in such a way as to allow their independent movement and elasticity.

A snake's tail is firmly attached, and when it is severed it cannot be regenerated. Some snakes are able to produce a loud "hissing" noise, but most do not have this ability. The majority of snakes lay eggs. The egg is similar in size to that of lizards but usually more elongated. One to 100 may be laid. The young of garter snakes and rattlesnakes are born alive.

Western Garter Snake *Thamnophis elegans vagrans*

WESTERN GARTER SNAKE

Thamnophis elegans

This is one of Zion's most common snakes. Watch for it along the Virgin River, along the streams in the many side canyons, and at the ponds and streams of the Kolob. It is seldom found far from water and may be expected throughout the Park, except in the low warm canyons below 4,200 feet elevation.

The Western Garter Snake is rather dull looking and is seldom over 30 inches in length. It has a light yellow broken line along the top of the body and a mottled yellow line on each side. The underparts are slaty gray, the head is brown to black, above, and white to cream underneath.

This is the snake that is oftentimes called a "watersnake" because of its constant association with the riparian habitats. There are no water snakes in Zion, however. Its food consists primarily of animals found about the water areas, such as frogs, toads, salamanders, insects, and other arthropods. It has been found to eat lizards as well.

Regal Ringneck Snake *Diadophis regalis regalis*

REGAL RINGNECK SNAKE

Diadophis regalis

If you are fortunate enough to see one of these beautiful reptiles during your visit to Zion, you may consider yourself quite lucky. The ringneck snake is never common and has been reported for the Park only a few times. It is a snake that prefers the cottonwood and oak growths of the canyons, and the aspen and fir habitats of the higher parts of Zion. The ringneck snake may be found in damp places and may be discovered hiding under a rock or log during the daylight hours.

It is not a large snake and is usually 18 to 26 inches in length. Its yellow-orange underparts are very striking and the color deepens toward the tail. The underside of the tail is a coral-red. The upper half of the body is olive-green. The overall appearance is one of smooth gracefulness. Zion's ringneck snake does not have the characteristic "ringneck" of those to the south.

This snake is often called "thimble snake" and for good reason. When aggrevated by a predator or a human, the tip of the tail forms a tight thimble-shaped coil. This waving, brightly colored tail may attract a predator's attention away from more vulnerable parts of the body. Its food consists of insects, amphibians, smaller reptiles, and other small animals.

Coachwhip *Masticophis flagellum piceus*

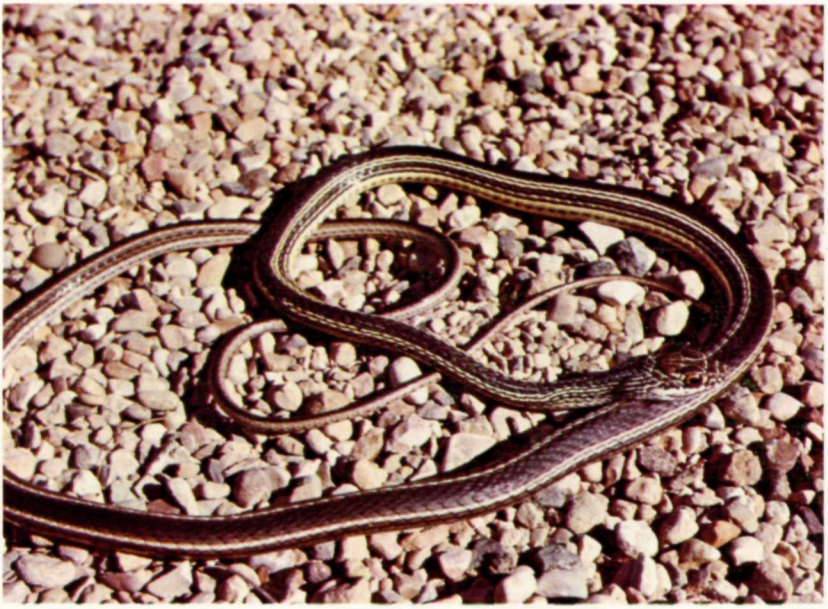
COACHWHIP

Masticophis flagellum

This is the "whipsnake" of the hot arid parts of Zion National Park. It frequents the open flats and slopes where vegetation is sparse, such as Coalpits Wash. The Coachwhip has also been reported for Parunuweap Canyon, the Sand Bench, and in the lower parts of Zion Canyon.

It is a long slender snake that may reach 4 feet in length. It is generally pinkish, but some individuals are tan to brown. The pinkish ones are often called "red racers." It has faint cross-bands over the body with those bands near the head being much darker, almost black, in some specimens. It is yellow to tan on the underparts, and oftentimes flecked with red.

This is one of the fastest and most graceful of Zion's snakes. It is adept at tree-climbing and often climbs high in a tree or shrub in search of food. It eats birds, amphibians, lizards, and smaller snakes.



Striped Whipsnake *Masticophis taeniatus taeniatus*

STRIPED WHIPSNAKE

Masticophis taeniatus

This species is common below the plateau in Zion National Park. It frequents the cooler parts of Zion Canyon and its many side canyons. It has not been found on the higher platforms, but has been reported from the East Entrance, which is 5,800 feet elevation. It prefers the brushy stream sides, oak-covered canyon slopes, the pinyon-juniper woodlands, and sage flats of the higher slopes and valleys.

The Striped Whipsnake is a slender sleek snake that may reach 5 feet in length. It is easily identified by the 4 narrow stripes running the length of the body on each side. The upper two stripes are usually noticeable, but the lower two may be less distinct. The top of the body is black to brown and the underparts are cream to pink. The side stripes disappear on the tail.

This is another of the fast moving daytime hunters. It appears to be equally at home on the ground and in the foliage of trees and bushes. It climbs through the foliage almost as fast as it "glides" through the grass. It is difficult to capture because of its speed and agility. When cornered it may whip itself viciously, thus the name "whipsnake." It can and will bite if captured and the bite may be hard enough to tear the skin. Its food is similar to that of the Coachwhip.

Western Patch-nosed Snake *Salvadora hexalepis mojavensis*

WESTERN PATCH-NOSED SNAKE

Salvadora hexalepis

The Western Patch-nosed Snake is rarely seen in Zion but is occasionally found along the south entrance approach road or in the lower parts of Zion Canyon. It seems to prefer the open sandy to rocky areas where there is low and sparse vegetation.

It is a light tan to ground-colored snake which is seldom more than 3½ feet in length. A wide brown-black stripe runs the length of the body on each side. The underparts are yellow to cream. It receives its name from the large scale on the nose which forms a blunt shield. This patch, or shield, is used to pry up sticks and rocks in its search for food. It also uses the patch to dig in sandy or loose soils.

The patch-nosed snake is usually active at dusk and during the early morning. It hunts on the ground but occasionally is found in bushes and trees. It feeds on lizards, amphibians, and small mammals. Because of its similar appearance and swiftness, it is sometimes confused with the whipsnakes.

GOPHER SNAKE

Pituophis catenifer

The Gopher Snake is probably the most commonly seen snake of Zion National Park. It may be expected from the hot arid lower

Gopher Snake *Pituophis catenifer deserticola*

washes to an elevation of about 7,000 feet in the cooler side canyons. It frequents a great variety of habitats throughout its range. In the low washes, such as in Coalpits Wash, it may be found on the sandy banks or rocky slopes. In Zion Canyon, it may be found along the Virgin River, in the grasslands, or even on the higher slopes in the pinyon-juniper woodlands. It is common at the Temple of Sinawava and along the Weeping Rock Nature Trail.

This snake may occasionally reach 6 feet in length, yet it is one of the most gentle and easily captured snakes. Its color varies considerably from a yellow-gray to red-brown. It has dark brown to black blotches along the back, which form, more-or-less, elongated six-sided patches. A brown or black line is usually evident across the top of the head from eye to eye. The underparts are yellow-white.

You may see the Gopher Snake during the daylight hours or at night. It hunts its food from the sandy washes to the foliage of the trees and bushes. Prey is killed by constriction and it has been found to eat lizards, many kinds of mammals, other snakes, birds and their eggs. It can produce a loud "hissing" noise and may even vibrate its tail when alarmed. The vibrating tail among the leaves sounds similar to the rattle of a rattlesnake and acts as a good defensive mechanism.

Common Kingsnake *Lampropeltis getulus californiae*

COMMON KINGSNAKE

Lampropeltis getulus

Kingsnakes are some of the more easily recognized snakes of the Zion region. This black-and-white ringed snake is abundant on the farmlands to the south and west of Zion National Park, and it also inhabits the warmer washes and canyons of the Park. The species has been reported to about 4,500 feet elevation.

It is not a large snake, generally, but some individuals may reach 5 feet in length. You may expect most kingsnakes to be about 3½ feet long. Its black-and-white bands, which circle the entire length of the snake, are the best identifying marks. The same species, ranging into southern California and Arizona, has brown-and-white bands. Only black-and-white individuals have been found in southern Utah.

The Common Kingsnake is one of the most gentle of Zion's snakes. Normally a daytime hunter, during mid-summer it may become nocturnal in its habits and rest during the daytime. It is usually found on the ground but occasionally may climb into a bush or tree in search of birds and their eggs.

Kingsnakes are well known for their occasional predation upon rattlesnakes, a habit that is probably over emphasized, however, because they do not seem to prefer rattlesnakes over other snakes. Kingsnakes are relatively immune to rattlesnake venom,

Sonora Mountain Kingsnake *Lampropeltis pyromelana infralabialis*

but most other snakes are also resistant. Snakes are an important item in this snake's diet, but other animals are utilized as well. Small mammals, such as mice, rats, and gophers, are frequently eaten.

SONORA MOUNTAIN KINGSNAKE

Lampropeltis pyromelana

You will be fortunate indeed if you see one of these beautiful snakes during your visit to Zion National Park. It does not occur in the canyons of the lower part of the Park, but frequents only the forested slopes of the Kolob. It has not been found below 6,500 feet elevation, and seems to prefer the semidry slopes in the ponderosa-fir forest or the high chaparral-covered areas.

This brightly colored snake is rarely over 2 feet in length. It is banded with black, cream, and coral-pink colors. The coral-pink bands are widest, and a thin band of black, cream, and black exists between each coral-pink band. A black mask covers the eyes and top of the head, but the snout is usually white to cream.

Little is known about the habits and life history of this snake. It is active during the daylight hours and is known to feed on lizards, small mammals, and other snakes.

Western Ground Snake *Sonora semiannulata isozana*

WESTERN GROUND SNAKE

Sonora semiannulata

This is small colorful snake which frequents the warmer portions of the Park. It may be expected to occur from the arid washes into the pinyon-juniper woodlands. It has been found in the lower portions of Zion Canyon and in Oak Creek and Pine Creek Canyons.

The ground snake is seldom over a foot in length. It is banded with red and black on the back which blends into the yellow color of the sides and creamy underparts. Because this snake looks somewhat like the coral snake, it is probably persecuted more than any other of Zion's snakes, except the rattlesnake. There have been no coral snakes reported for Zion, however.

The Western Ground Snake is rarely seen in Zion because of its nocturnal habits. On occasions, it is abroad on overcast days. Its food consists primarily of insects but spiders and other small arthropods are also eaten.

Night Snake *Hypsiglena torquata deserticola*

NIGHT SNAKE

Hypsiglena torquata

The Night Snake is well named because it is rarely seen during the daylight hours. It is a nocturnal snake that frequents the rocky slopes and drier habitats into the pinyon-juniper woodlands. The species has been found in Coalpits Wash, the lower parts of Zion Canyon, and in Pine Creek Canyon.

This is another of the small gentle snakes, seldom exceeding 16 inches in length. It is overall gray to tan, with dark brown spots over the entire upper parts and a single blotch on each side of the neck. Another good identifying characteristic is the elliptical pupil of the eye, for this is Zion's only snake with such a peculiarity.

The Night Snake is active at dusk and is best found then. It is sometimes discovered during the daytime by searching under rocks and logs. Its food consists of lizards, toads, and insects.

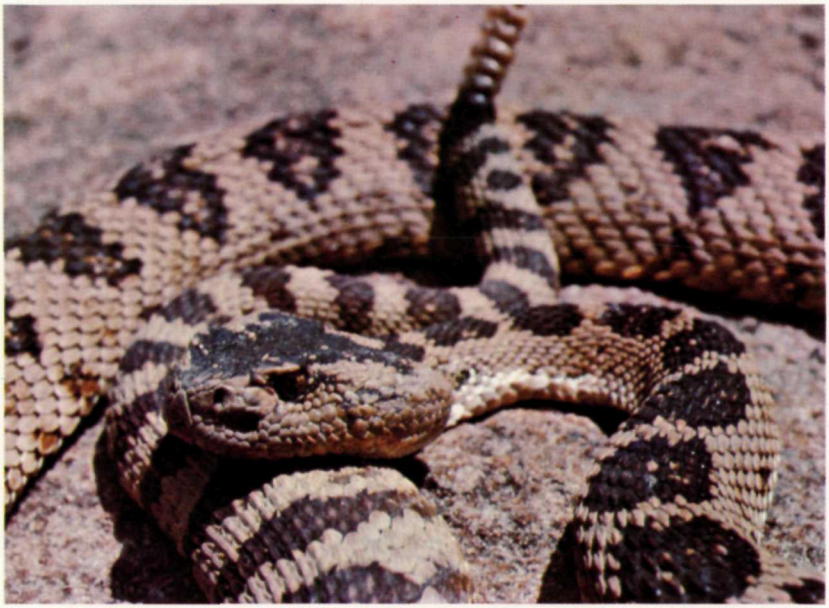
Sonora Lyre Snake *Trimorphodon lambda*

SONORA LYRE SNAKE
Trimorphodon lambda

This is one of the less common snakes of Zion. It has been found in Zion Canyon, Oak Creek Canyon, and in Pine Creek Canyon to an elevation of about 5,100 feet. It seems to frequent the pinyon-juniper woodlands and the dry washes in the lower parts of the Park.

The lyre snake is seldom over 3 feet in length. It is a general gray color with brown blotches edged in black over the upper half of the body. The brown and gray colors form a "lyre-shaped" pattern on top of the head. This head pattern and the wide head are good distinguishing characteristics for the species.

This snake is venomous but is not harmful to man. The captured prey is killed by a bite before eaten. Venom reaches the prey via grooved teeth at the back of the mouth. The lyre snake is most active at dusk and early morning, and its food consists of lizards, small mammals, and other snakes.



Western Rattlesnake *Crotalus viridis lutosus*

WESTERN RATTLESNAKE

Crotalus viridis

This is Zion's only snake that is dangerous or venomous to man. It is common in the canyons and on the slopes to about 7,000 feet elevation. It is most common in the low dry washes and canyons, such as Coalpits Wash, but can also be expected throughout Zion Canyon and its many side canyons. It has a wide range of habitats, for it has been found on the arid flats, the riparian habitat, the grasslands, the broadleaf and pinyon-juniper woodlands, and even on the sagebrush flats of the ponderosa forest.

It may reach 5 feet in length. You will recognize it first by the rattle at the end of the tail and the wide flat head. It is a general gray to brown, but some may be olive to yellow. A series of black to brown hexagon-shaped patches run along the top of the back. The underparts are yellow-white.

The Western Rattlesnake is not usually seen by the average visitor. However, there are probably more rattlesnakes present than you would expect. It is primarily nocturnal and does most of its hunting at night. During the warm daylight hours it usually retires to burrows or crevices in rocks or under logs or boulders. Food consists of small mammals, lizards, and birds. It strikes its prey with the fangs depositing enough venom to kill the animal

in a matter of seconds. The rattler then tracks its food down and consumes it.

As strange as it may sound, this "dreadful" creature is relatively docile and mild mannered. It is, probably, afraid of man; and as a result gives the impression that it is aggressive with its rattle and defensive mannerisms when frightened. If left alone, however, it will soon depart from the scene seeking shelter. Although the protection of the human visitor to the National Parks is the first and most important consideration, this snake should not be harmed when found in the back-country where there is little chance that it will again encounter man. The right to live extends to all of the animals under the National Park protection.

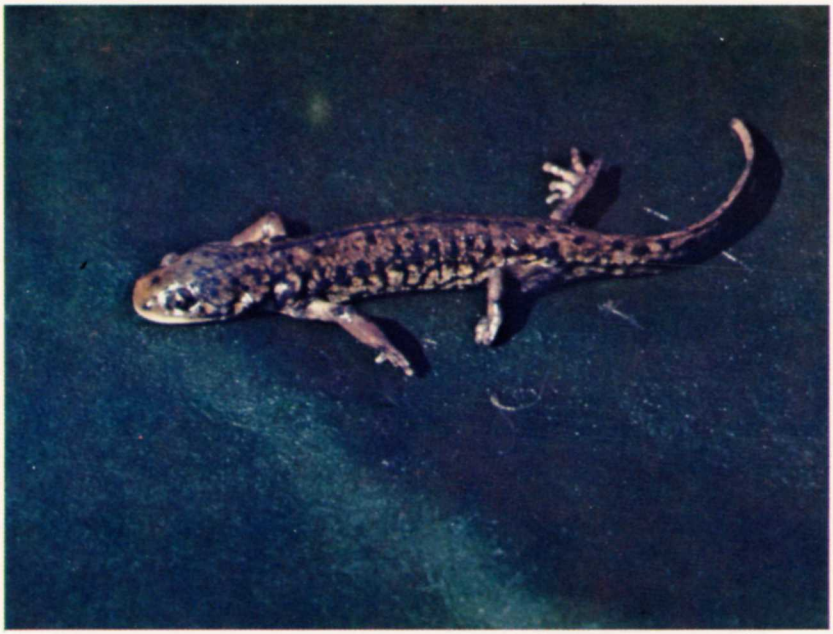
AMPHIBIANS

Amphibians were the first vertebrate animals to venture away from the water. This was only partially successful, however, as they must return to an aquatic environment to lay their eggs. This double life has given them their name, "amphi" or both — "bios" or life. Amphibians are divided into two orders: salamanders, and toads and frogs. About 2,500 kinds of amphibians exist today, and about 700 have been reported for North America. Only 7 species have been found in Zion National Park.

Amphibians are unique in many ways. Structurally, they are between fish and reptiles. They have undergone many modifications, developing limbs in the place of fins, lungs for gills, and some skin changes to allow them to exist on land. The larvae must have an aquatic environment and so have retained gills. Some, such as the salamander, may utilize its gills throughout life. Basically, amphibians possess a backbone, are coldblooded, are without a hard covering on the body, and thus have smooth skin which must be kept moist by means of skin or water glands. Their eggs lack a shell and are laid in layers of jelly either singly, in clusters, or in strings. The eggs hatch into larvae (tadpoles in the case of toads and frogs) and remain in this state until they have developed legs and lungs at which time they undergo metamorphosis and leave the water as small adults.

Salamanders

Salamanders are often confused with lizards because they are similar in size and shape. They have a tail, as do lizards, but lack the scales and clawed toes. Their skin is smooth and they have only four toes on the front feet. Only one species has been found in Zion National Park.



Tiger Salamander *Ambystoma tigrinum utahense*
Photo by Myrl V. Walker

TIGER SALAMANDER
Ambystoma tigrinum

This individual is rarely seen below the plateau but occasionally does appear in the cooler canyons. It is more common about the ponds and streams of Zion's Kolob. The author has seen larval forms in the ponds near Lava Point and along the Virgin Oilfield Road at about 8,000 to 9,000 feet elevation.

Adults may reach 8 inches in length. They are generally a sooty color with spots or blotches of yellow to cream on their back and sides. Their underparts are gray. They have short weak legs, small eyes, and a tail that is flattened vertically. The larval forms look similar to adults except they possess gills and have weaker legs. The very young larvae look like tadpoles.

Adults migrate to their breeding ponds in early spring. It is likely that they return, year after year, to the same ponds where they were hatched. Females usually outnumber the males and so they must bid for attention. The eggs are laid in small round masses and are attached to twigs or similar objects in quiet pools. The females may lay 200 eggs in a period of 30 to 45 days. The larvae which hatch out are called "axolotls" and may metamorphose into adults within 2 or 3 months. Young salamanders can be expected, generally, from July to September.

During dry weather, the adults live in animal burrows, in rotted stumps and logs, and in other moist localities. They feed on insects and other small arthropods.

Toads and Frogs

Toads and frogs are similar in appearance. Both have well developed hind legs and mucous glands in their skins. These glands are used to keep their skins moist and also as a defensive mechanism; they produce poisons which are extremely distasteful and poisonous to their predators. The poison is not harmful to man, except that it can cause severe irritation if it comes in contact with man's eyes or other mucous membranes. Toads are characterized by warty skin, and frogs have smooth slimy skin. Toads are heavy set and broad while frogs are usually streamlined in appearance.

Both toads and frogs are primarily carnivorous and consume large quantities of insects, insect larvae, earthworms, spiders, and other arthropods. They even may consume tadpoles and smaller frogs and toads. They obtain their food by the use of their very capable tongue which can be flipped out of the mouth quite suddenly. The tip is sticky, and when coming in contact with an insect or other food item, a reverse flip brings the food into the mouth.

They are coldblooded animals so must hibernate during the colder months of the year. For this they are capable of burrowing in mud or sand to avoid freezing temperatures. They emerge from hibernation in early spring and mate in April and May. Eggs are laid in pools or streams, and young tadpoles are evident in a few weeks. Social animals, large numbers of frogs and toads may be found at the breeding ponds and streams.

Toads and frogs have internal ears which primarily provide a sense of balance; hearing is secondary. They have the ability to hear but perhaps cannot distinguish tones of various pitches. Their eyesight is not good on land as they are nearsighted on land but farsighted in water. They cannot close their eyelids, but the eye can be pulled back into the socket, allowing the lids to overlap the eye.

Western Spadefoot *Scaphiopus hammondi intermontanus*

WESTERN SPADEFOOT

Scaphiopus hammondi

This is one of Zion's less common amphibians. It frequents the side canyons of the Virgin River drainage from Coalpits Wash to upper canyons just below the plateau. It is most common along the streams during the first warm days of spring. A search during the early hours of the evening may reveal several pairs. Later in the summer, however, each moderate to heavy storm may produce water-filled potholes along the stream courses which may be utilized by spadefoots.

The spadefoot has a single black sharp-edged ridge on the inner side of the hind foot. The "spade" and the vertical pupil are characteristics of the species. The Western Spadefoot is usually 1½ to 2½ inches in length. It is gray-green to brown with some dark blotches that cover its upperparts. Its voice is a low pitched rasping snore.

During the dry weather and during the daytime, this species hides in burrows which it digs in the soft sand or gravel. It uses the spades to dig backward into the earth, and the sand or gravel falls in to cover the spadefoot in a cool protective burrow. During extremely dry weather it is able to secrete a gelatinous coat about itself.

Red-spotted Toad *Bufo punctatus*

RED-SPOTTED TOAD

Bufo punctatus

This small toad has been found in the lower washes, such as Coalpits Wash, and in the many side canyons of Zion Canyon to about 5,200 feet elevation. It frequents the streams and waterways below the plateau in all but the coolest canyons.

The Red-spotted Toad is seldom over 3 inches in length. It is well named because of its rusty to red warts which cover its back and legs. Its general color is gray to brown. One of the best distinguishing features of toads is the large parotoid gland located just behind the eye. The Red-spotted Toad is Zion's only toad with a round parotoid gland.

You can hear this toad calling from a considerable distance, and it is easily recognized by the high pitched trilling call which is in C or C-minor. This species is active at night, and small choruses of 4 to 10 individuals are not uncommon during the warm spring evenings. They feed on insects and other small arthropods.

Southwestern Toad *Bufo microscaphus microscaphus*

SOUTHWESTERN TOAD

Bufo microscaphus

This is the most common toad of the Zion region, but it is only occasionally found in the main Zion Canyon. It is abundant in all of the side canyons, however. Large choruses of these toads congregate along the streams from Coalpits Wash to the upper canyons below the rim of the plateau. The author found 14 in a 50 feet length of Oak Creek in May. Similar numbers were also found in Coalpits Wash and in Pine Creek.

The Southwestern Toad is somewhat larger than the Red-spotted Toad; adults are usually over 3 inches in length. It is yellow-gray to brown, with warts that are sometimes red to dark-brown. The parotoid gland is elongated and may be half an inch in length in large adults. Another identifying characteristic of this species is the broad light-colored V-shaped mark between the eyes.

This toad prefers the very shallow streams during the breeding season and may be found half submerged during its nightly choruses. Its call is lower than that of the Red-spotted Toad, but is similar in its manner of delivery, although not as clear.

Woodhouse's Toad *Bufo woodhousei woodhousei*

WOODHOUSE'S TOAD

Bufo woodhousei

This is the common toad of the main Zion Canyon. It can be found almost any night during the summer. It prefers the wooded canyon bottoms and breeds in the Virgin River and its side pools. The Woodhouse's Toad has not been reported for the high side canyons but seems to confine its activities solely to the vicinity of the main canyon.

It is larger than the other 2 toads of Zion, being over 4 inches in length. It has a distinct light stripe down its back and elongated parotoid glands as the Southwestern Toad. The bony crest, which is evident between the eyes, is another good characteristic of the Woodhouse's Toad. It is an overall yellow-brown to gray, with light-colored warts which are pink to light brown.

This toad is most active during the night hours but occasionally is seen during the daytime. Its call is less trilling than the two previous toads and is more of a "baaing" sound. Insects, insect larvae, and other arthropods are eaten.

Canyon Treefrog *Hyla arenicolor*

CANYON TREEFROG

Hyla arenicolor

This is probably the most common amphibian of the Park. It is abundant in all of Zion's canyons from 4,100 feet elevation to the rim of the plateau. It frequents the rocky canyons where there is sufficient moisture; however, they are sometimes found a considerable distance from open water. The writer found an individual on Bridge Mountain at 5,800 feet elevation, about a mile from the nearest spring.

Once you have heard this treefrog you will never forget its strange voice. It sounds very much like a frightened goat. It is not uncommon to have someone ask one of the rangers about the "wild goats" heard in one of the canyons of Zion. The treefrog is seldom over 2½ inches in length. It is gray to brown with faint scattered dark patches of gray to black covering the back. The inside of the back legs and groin are yellow. A suction disk exists on each toe.

Watch for this amphibian as you walk along the river and streams. You may see it perched on a rock along one of the paths in Zion Canyon. Sometimes 4 to 8 individuals use the same rock or log. You can get quite close to it by moving slowly and carefully. When it finally jumps into the water, it will swim quickly to the bottom and hide in the mud and debris. Its food consists of insects, insect larvae, and other small arthropods.

Leopard Frog *Rana pipiens brachycephala*

LEOPARD FROG

Rana pipiens

This is the only true frog that has been found in Zion National Park. It is a common resident of Birch Creek, in the Court of the Patriarchs; and occasionally is seen along the Virgin River in the vicinity of the South Campground. The Leopard Frog has been seen as early as February; and it may be found along Birch Creek any day during summer and fall.

Adults may reach 4 inches in length, and their long legs may increase their overall length another 3 or 4 inches. This is the typical frog that is green above with brown to gray spots, centered with black, over the upperparts. Two cream to white stripes run the length of the body on each side of the back.

A chorus may produce some unbelievable sounds. Their chuckling low-pitched calls sound more like sour grunts than a chorus of frogs. They feed on insects and many other kinds of small athropods found in their aquatic environment.

CHECKLIST AND INDEX TO THE SPECIES

The following is your checklist of all of the lizards, snakes, and amphibians known to occur in Zion National Park. If additional species are found, please report them to the Chief Park Naturalist.

Lizards

Snakes

Amphibians

NOTES:

PHOTO HINTS

There are several things necessary to obtain good pictures of reptiles and amphibians. You must have good photographic equipment, the subjects themselves, and, probably most important, patience.

First, it is necessary to have the proper photographic equipment. The more complete the equipment, the better the chances for good photographs. I, personally, use a single-lens reflex camera with a 40 mm lens or a 135 mm lens. I prefer closeup pictures and find that the 40 mm lens allows me to move right in close for a photograph of the animal and its immediate habitat. When you don't want to become too friendly with your subject, such as the Western Rattlesnake, the 135 mm lens is far superior.

Second, it is necessary to obtain the animals you wish to photograph. By using this booklet and suggestions from the Park Naturalist, you may search for these animals in the proper habitats. It is most enjoyable to obtain photographs on the spot. A good picture of a lizard in his natural environment is most rewarding. Since the animals are protected and it is contrary to park regulations to capture and take them away from their natural habitats, photographing them on the spot is a must. Sometimes you can pose a toad, salamander, or lizard as you wish, but this is extremely difficult with most frogs and snakes. This suggests the third need of a good photographer of reptiles and amphibians — patience.

The searching-out and photographing of these animals can be a great enjoyment. It is amazing what a little patience can produce. A walk along the Virgin River or into one of Zion's many side canyons may be an awakening experience. You must walk slowly and carefully, however, so that you will not frighten the animals before you have the opportunity to see them first. Nighttime, too, is a good time to look for toads and frogs. You can find them quite easily by listening and searching with a bright flashlight. The light seldom disturbs their nightly activities.

One of the most enjoyable results of a visit to the National Parks is a good set of pictures to show your friends. A full coverage of Zion National Park — its animals, plants, and beautiful scenery — will allow you to relive your visit and to enjoy many more hours of remembering and learning at home.

Suggested Reading

Handbook of Salamanders, Sherman C. Bishop. Comstock Publishing Company, 1943.

A Field Guide of North American Snakes, Raymond L. Ditmars. Doubleday, Doran and Company, 1939.

Field Book of Snakes, Karl P. Schmidt and D. Davis. G. P. Putnam's Sons, 1941.

Handbook of Lizards, Hobart M. Smith. Comstock Publishing Company, 1946.

Amphibians and Reptiles of Western North America, Robert C. Stebbins. McGraw-Hill Book Company, 1954.

A Field Guide to Western Amphibians and Reptiles, Robert C. Stebbins. Houghton-Mifflin Company, 1964.

The Reptiles of Utah, Angus M. Woodbury. University of Utah, 1931.

Reptiles and Amphibians, Herbert S. Zim and Hobart M. Smith. A Golden Nature Guide, 1953.

This booklet is published by the

ZION NATURAL HISTORY ASSOCIATION

which is a non-profit organization to promote the scientific, educational, historic, and interpretive activities of the National Park Service.

The Association lists for sale many interesting publications, post cards, and colored slides of Zion National Park. May we recommend the following items which give additional information on this canyon land of color. All prices are subject to change.

ANCIENT LANDSCAPES OF THE GRAND CANYON REGION (The geological story of Zion, Bryce, Petrified Forest, Painted Desert, and Grand Canyon), McKee, 51 pages, illustrated ..... $ .50

ARCHEOLOGY OF ZION NATIONAL PARK, Schroeder, 212 pages, illustrated $2.25

EXPLORING OUR NATIONAL PARKS AND MONUMENTS, Butcher, 288 pages, illustrated in color $3.85

GEOLOGIC SKETCH OF ZION — BRYCE CANYON NATIONAL PARKS, 36 pages, illustrated in color ..... $ .50

HISTORY OF SOUTHERN UTAH AND ITS NATIONAL PARKS, Woodbury, 110 pages, illustrated $1.00

NATIONAL PARKS AND MONUMENTS OF UTAH, 56 pages, illustrated in color $1.00

NATIONAL PARKS AND MONUMENTS, WHAT THEY MEAN, Tilden, 362 pages, illustrated in color..... $5.00

SOUTHERN UTAH'S LAND OF COLOR, Bruhn, 67 pages, illustrated in color $1.25

WILDFLOWERS OF ZION, BRYCE, AND CEDAR BREAKS, Jepson and Allen, 72 pages, 109 illustrations in color $1.25

You can obtain a complete listing of publications available from the Zion National History Association by asking at the Visitor Center desk or writing to the Association.

ZION NATURAL HISTORY ASSOCIATION

Zion National Park, Utah