

Gila Conservation Education Center's (GCEC) Share With Wildlife Final Report

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- *The trunk developed in the first year will be used to teach concepts regarding desert grassland ecology.*

A Chihuahuan Desert Grassland trunk was developed for use in 1st through 7th grade. Contents include books, posters, a stuffed animal prairie dog, desert animal tracks and scat, a curriculum guide explaining two food web activities with pictures of animals and species accounts and one activity highlighting the black-tailed prairie dog, a keystone species. Species of Greatest Conservation need were included in all of the activities.

- *Coordinate with local school districts to contact teachers regarding the availability of native wildlife trunks and related conservation education programs and materials.*
- *Educate and train volunteer educators to give educational presentations utilizing native wildlife trunks.*

GCEC sends teacher request forms for trunk presentations on 12 different conservation topics to all elementary school teachers in the Silver and Cobre Consolidated School Districts in the fall. Teachers typically request up to three trunk presentations for the year. GCEC then provides training on curriculum and materials for those trunk topics requested. Community volunteers (often retired professionals teaching in their area of expertise or passion), GCEC staff (often AmeriCorps members), and Aldo Leopold High School students receive training to give the classroom presentations. The Chihuahuan Desert Grassland trunk was not developed in time for the 2007 trunk trainings, but training for it will occur in the fall of 2008.

- *Schedule school presentations utilizing native wildlife trunks, and supervise volunteers conducting presentations. A minimum of 25 classrooms will receive hands-on presentations utilizing native wildlife trunks.*

The Chihuahuan Desert Grassland Trunk was developed in the fall and winter of 2007-2008, so presentations and training happened later. Approximately 417 students were taught about desert grasslands through the 5th Annual Children's Water Festival. At the Festival, eleven 4th grade classes participated in the Desert Grassland Food Web Chase Activity. Seven 7th graders were trained to present the same activity to twelve 5th grade classrooms the following day. Lessons from the trunk were presented to 25 students at Jose Barrios Elementary School (mixed grades) and a second and third grade classroom are scheduled for presentations in May.

Mammals



Banner-tailed Kangaroo Rat (*Dipodomys spectabilis*)

Kangaroo rats eat seeds from different plants such as grasses, mesquite, creosote, ocotillo, etc.

They live in deep burrows where they store food and escape from extreme temperatures. Banner-tail kangaroo rats are nocturnal and territorial. Kangaroo rats have a huge impact on the composition of the grasslands by controlling the large-seeded plants they prefer to eat.

Adaptations to arid environment: Kangaroo rats are able to extract water from the seeds they eat. They do not waste water either—kangaroo rats do not sweat or pant to cool down and their kidneys are specially designed to dispose of waste with a minimum output of water. Burrowing protects the animal from extreme temperatures.



Chihuahuan Grasshopper Mouse (*Onychomys arenicola*)

AKA: Mearns's grasshopper mouse, scorpion mouse

Unlike most mice, the grasshopper mouse eats meat including insects, small mammals, small snakes, and scorpions.

This mouse ambushes its prey, grabbing and killing with a quick bite to the neck. At night, grasshopper mice will stand back on their hind legs, with their head raised and “howl.” They mark their territory with dust baths to leave their scent on the ground. Male and female grasshopper mice cooperate to raise their young. Like all predators, the young mice need to be taught how to hunt and kill prey.

Adaptations to arid environment: Burrowing protects the animal from extreme temperatures. This mouse probably gets most of its water from dew, insect larvae, and animal fat.



Kit Fox (*Vulpes macrotis*)

The kit fox eats rabbits, prairie dogs, kangaroo rats, mice, birds, reptiles, amphibians, berries and grasses. In the summer, adults eat large amounts of insects including beetles and grasshoppers.

The kit fox is the smallest canid in North America. Kit foxes live in dens, often enlarging rodent dens or old fox dens instead of digging their own.

Adaptations to arid environment: The kit fox is nocturnal, sleeping in their cool dens during the hot day. Its large ears help it to hunt at night as well as providing large surface areas of skin through which it loses heat.



Mexican Long-tongued Bat (*Choeronycteris mexicana*)

This bat feeds on pollen and nectar from night-blooming flowers such as agave, some cacti, Mexican bird-of-paradise, etc.

They roost individually or in small groups of 15-50 in caves, mines, rock crevices, and abandoned buildings. This bat lives in thorn scrub, palo verde-saguaro desert, semidesert grassland, oak woodland and tropical deciduous forests. **Species of greatest conservation need.**



Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)

This bat eats moths, ants, wasps, hoppers, and other insects.

It roosts in colonies of less than 100 bats in rocky crevices. **Species of greatest conservation need.**



White-sided Jackrabbit

This jackrabbit eats grasses and sedges.

The white-sided jackrabbit is found only in southern New Mexico and northwestern Mexico. It does not like areas with lots of shrubs, preferring open grassland. It is a nocturnal animal and will flash its white sides at predators when running away.

Adaptations to arid environment: The ears of this jackrabbit catch breezes and act as a fan. **Species of greatest conservation need.**



Javelina (*Pecari tajacu*)

AKA: Collared Peccary

Javelina eat roots, bulbs, beans, nuts, berries, grass and cacti. Primarily, they depend on agaves and prickly pears.

Javelina travel in bands of 6-12 with a dominant male leader. The razor-sharp tusks are used for defense. These tusks are referenced in the common name—in Spanish javelin means spear. Javelinas prefer to stay near permanent sources of water and during the hot midday they bed down in the shade.



Mountain Lion (*Felis concolor*)

AKA: puma, cougar

The mountain lion is a generalist predator eating everything it can catch from insects to large mammals. They show a preference for ungulates such as deer and bighorn sheep.

Mountain lions are solitary and aggressively territorial. They can be dangerous to humans



Coyote (*Canis latrans*)

Coyotes eat mammals, snakes, birds, insects, carrion, fruits and vegetables.

Coyotes are found across North and Central America. They dig their own dens or enlarge old badger dens. They are very adaptable and have even started to move into urban areas.

Adaptations to arid environment: Coyotes that live in the desert are much smaller and leaner than other coyotes—weighing 20 pounds compared to the 50 pound coyotes in mountains. During the dry parts of the summer, coyotes may dig for water. They also obtain water from their prey and from eating coyote melons.

Other



Organic material from dead plants and animals is an important part of any ecosystem. It provides food for many different animals and also, with the help of decomposers like bacteria and fungi, releases nutrients into the soil for plants.

Birds



Roadrunner (*Geococcyx californianus*)

Roadrunners eat lizards, insects, and snakes. They are even quick enough to kill and eat rattlesnakes.

The roadrunner prefers walking or running to flying and can reach speeds of up to 17 mph on the ground. It is the state bird of New Mexico.

Adaptations to arid environment: The roadrunner gets water from its prey. It gets rid of extra salt through glands near its eye rather than through urination.



Grasshopper Sparrow (*Ammodramus savannarum*)

Grasshopper sparrows eat insects in the summer and seeds in the winter.

These birds nest on the ground, hidden by tall grasses. Grasshopper sparrows will not nest in areas with dense shrub or tree cover. Its song sounds like an insect chirping or buzzing in the grass. **Species of greatest conservation need.**



Scaled Quail (*Callipepla squamata*)

AKA: blue quail, cottontop quail

Scaled quail primarily eat seeds, preferring native woody plants such as mesquite and forbs. In the summer, they eat more insects.

Scaled quail live in small flocks, separating into pairs during the breeding season (which is during the monsoon.) They are very sensitive to both drought and heavy rains, leading to a fluctuation in population numbers from year to year. **Species of greatest conservation need.**



Aplomado Falcon (*Falco femoralis*)

These raptors mostly eat other birds and insects.

The habitat range of the aplomado falcon is very closely matched by the range of the black-tailed prairie dog. In 1986, this falcon was federally listed as an endangered species in the U.S. and Mexico. **Species of greatest conservation need.**

Reptiles



Western Hog-nosed Snake (*Heterodon nasicus*)

Hognose snakes eat amphibians, lizards, and small mammals.

They have an upturned snout (“hog-nose”) which they use to dig in the soil and make burrows or enlarge abandoned mammal burrows. This snake is diurnal and when threatened may hiss and pretend to strike. A very frightened snake will play dead, flipping on to its back and letting its tongue hang out of its mouth. These snakes are 38-90 centimeters in length.



Texas Horned Lizard (*Phrynosoma cornutum*)

AKA: Horny Toad

Common to the Chihuahuan Desert, these lizards eat insects such as butterflies, sow bugs, and beetles, but their primary food source is ants.

If threatened, the lizard will puff up its body. It can also shoot a stream of blood and a chemical that tastes bad to canines out of its eye up to 5 feet.

Horned lizards bury themselves in the sand during the night and winter to avoid low temperatures.

They prefer very high temperatures but in the middle of the day they might hide in the shade.



Ornate Box Turtle (*Terrapene ornata*)

AKA: desert box turtle

This turtle eats carrion, beetles, grasshoppers, caterpillars, berries, prickly pear cactus and other succulent vegetation.

Adaptations to arid environment: This turtle creates burrows in loose soils or uses mammal burrows and bannertail kangaroo rat mounds for shelter. The burrow protects it from extreme heat and from drying out.

Species of greatest conservation need.



Desert Massasauga (*Sistrurus catenatus edwardsii*)

This small rattlesnake eats mostly lizards, as well as small mammals and frogs.

The desert massasauga is mostly found in desert grasslands and reaches a maximum length of 53 cm. Massasauga have been observed resting in kangaroo rat mounds.

Adaptations to arid environment: This snake is nocturnal, although it can sometimes be found sunning itself in the middle of winter. **Species of greatest conservation need.**



Collared Lizard (*Crotaphytus collaris*)

The collared lizard eats insects (mostly beetles and grasshoppers) as well as small lizards and mammals.

Collared lizards can run on their hind-legs, reaching speeds on up to 16 mph. Collared lizards prefer to live on rocky outcrops. They are highly territorial and aggressive and will bite hard if disturbed. **Species of greatest conservation need.**

Insects

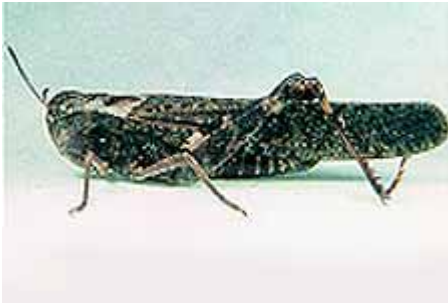


Gray Bird Locust (*Schistocerca nitens*)

This grasshopper eats many different feeds on many plants, from mesquite and creosote to crops like alfalfa.

Grasshoppers can jump up to 20 times their own body-length. Bird locusts are the largest grasshoppers and the strongest flyers in the southwest.

Adaptations to arid environment: Adults have special thin patches on their abdomens that allow evaporation of water for cooling.



Red winged Grasshopper (*Arphia pseudonietana*)

This grasshopper feeds on grasses and sedges.

When it flies, a large orange-red spot shows on its wings. During the day, the grasshopper basks in the sun and feeds. It sleeps on the ground at night.



Red Harvester Ants (*Pogonomyrmex barbatus*)

Red harvester ants collect seeds and dead insects and store them in the nests as food for the colony.

They build mounds of gravel and dirt for their nests and strip surrounding vegetation for three to six feet around the mound in order to remove competition for the nest site by roots. Ants also change the grasslands by keeping some smaller-seeded grasses from dominating.



White-lined Sphinx Moth (*Hyles lineate*)

AKA: hawk moth, hummingbird moth

Sphinx moths pollinate flowers such as evening primroses, petunias, and agave flowers while sucking their nectar through a proboscis or feeding tube.

Sphinx moths are sometimes mistaken for hummingbirds because of their large size and habit of hovering over flowers in the evenings.

Adaptations to arid environments: These moths seek flowers that have large amounts of water and sugar.



Pinacate Beetle (*Eleodes* spp)

AKA: darkling beetle, stinkbug

The pinacate beetle eats grasses and forbs.

This beetle defends itself by sticking its rear end in the air and squirting a foul-smelling substance into the air. The grasshopper mouse is known to attack the beetle, stick its rear end into the ground, and eat it head first.

Plants



Tobosa grass (*Hilaria mutica*)

Tobosa is an *indicator species* for desert grasslands. It is very coarse when mature but when young it is succulent and protein-rich. After a fire, foragers show a preference for tobosa regrowth.



Blue grama (*Bouteloua gracilis*)

Blue grama is the state grass of New Mexico. It can grow up to 18 inches tall. Blue grama is important because its dense, shallow roots hold down the soil and keep it from eroding. This shallow root system also helps it quickly absorb any rain in arid climates.



Lechuguilla (*Agave lechuguilla*)

The lechuguilla's nectar provides food for insects, especially moths, and bats. Its roots are often eaten by deer or javelina. The lechuguilla is one of the indicator plants for the Chihuahuan Desert. Its fibrous leaves can be used to make rope and clothing. Lechuguilla bloom once in their lives, after they have built up enough nutrients—which may take up to 30 years. When it is ready, the lechuguilla sends up a stalk 6-16 feet high, covered with flowers. When the plant is done flowering, it dies.



Creosote (*Larrea tridentata*)

Creosote is an evergreen shrub. The roots of creosote bush are so efficient at absorbing water that other bushes have a very hard time growing near them. The leaves are small with a high surface-volume ratio and are covered with a waxy, resinous coating which helps retain water.



Prickly Pear (*Opuntia* spp.)

The fleshy pads of the prickly pear are modified branches—not leaves. They serve for water storage, photosynthesis, and flower production. Both the fleshy pads and the fruits are edible. Most prickly pear species have yellow, red, or purple flowers.



Honey Mesquite (*Prosopis glandulosa*)

Mesquite are legumes and their pods provide food for people, coyotes, birds, rodents, etc. Honey mesquite produces creamy yellow flowers in the spring and may grow up to 20 feet tall. In especially good conditions, honey mesquite can reach up to 60 feet. They have sharp thorns to deter herbivores.

Adaptation to arid environments: Mesquite trees have long taproots which reach into groundwater, sometimes 200 feet below the surface. The leaves are small and waxy, minimizing transpiration.