

The Prairie Dogs of Chihuahua Their Biological Importance And Conservation

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Fine dust that clung to your whole body had been a problem for the last part of the long trip, particularly for those at the end of the caravan. It was the intense heat, however, sometimes as high as 43 degrees Celsius, that had made the journey so hard. Major Edgar A. Mearns wiped the sweat from his face and was glad to see the San Luis Mountains on the horizon, the border between New Mexico in the United

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States and Chihuahua and Sonora in Mexico. The scenery was surprisingly beautiful: wide plains dotted with mountains like islands; the fauna, abundant and magnificent. He decided to camp in a poplar-filled gallery forest near a seasonal stream, and stay a few days. Mearns was the army surgeon in charge of the health of the American mission of the U.S.-Mexico International Boundary Commission. His interest in natural history had prompted him to obtain permission from the U.S. government to also collect plants and animals between

1892 and 1894 as the commission set the monuments that would mark the new boundaries between the two countries. During his work at the San Luis Mountains camp, he was able to observe mule deer, white-tailed deer, peccaries, great herds of pronghorn antelope, bighorn sheep, wolves, black and grey bear, beaver and many other mammal species. However, what surprised him the most were the immense prairie-dog towns (*Cynomys ludovicianus*) stretching for hundreds of kilometers. In the foothills of the San Luis Mountains and in the Las Animas

Valley in New Mexico, he found a town of millions of prairie dogs, a sight he would never forget.

INHABITANTS OF THE PRAIRIES

Prairie dogs are mammals of the squirrel family (*Sciuridae*); they have stocky little bodies and weigh about one kilogram. Mexico is home to two of the five species of this kind of rodent: the Mexican prairie dog (*Cynomys mexicanus*) and the black-tailed prairie dog (*Cynomys ludovicianus*). The Mexican prairie dog is endemic to Mexico and lives in an area of less than 1,000 square kilometers in the states of San Luis Potosí, Nuevo León and Coahuila. The black-tailed prairie dog is the species that has spread the most in the hemisphere, living as it does in the area from southern Canada to northern Mexico, where it inhabits exclusively the grasslands of northwest Chihuahua and northeast Sonora.

The prairie dogs' color varies between a yellowish and a reddish grey buff—sprinkled with black hairs here and there—their bellies are lighter and the ends of their tails are black. They are herbivore rodents with semi-digging habits, their ability to dig being one of their most noteworthy characteristics. Their burrows form elaborate tunnels up to 34 meters long and five meters deep, with a variable number of chambers used for different purposes. The earth that they dig out of their tunnels is accumulated at the entrance to the burrows, forming cone-like mounds, giving their colonies a very special look. Among other things, these mounds serve both as observation posts to detect the presence of predators and as barriers to protect them from hail and rain dur-

ing the frequent downpours that completely flood the prairie during the rainy season.

Prairie dogs are gregarious creatures: they live in groups of thousands and even millions, which has an important impact on the structure and composition of prairie vegetation. They have a high degree of social organization; their behavior is one of the most important factors for their adaptation and survival



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in the great prairies. The colonies, also called “towns,” are made up of family groups usually composed of an adult male, from one to four adult females and their young under the age of two. These family groups display very aggressive territorial behavior vis-à-vis other groups, with the males in constant alert to keep other males out of their territory.

Another aspect of prairie dogs' gregarious life is their communication through different “calls.” This keeps them in contact with the rest of the colony and also prevents attacks by predators. When

a predator enters the colony, the sentinel makes a sound like a bark, which is what gave them their name. This sound indicates to the predator that he/she has been discovered and alerts the other prairie dogs, who quickly run back to their burrows. A few minutes later, they cautiously peep out of their holes to inspect the horizon and renew their activities. Other behavioral traits involve corporal contact between indi-

viduals, whether it be touching noses, bodies or occasionally incisors to identify or recognize each other.

CURRENT DISTRIBUTION

Mearns did not know it, but when he visited the San Luis Mountains, densely populated colonies of prairie dogs still occupied about 400 million hectares of grasslands. That would change drastically in the following decades. By the 1960s, their distribution had been reduced by



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98 percent, and they only occupied about 600,000 fragmented, isolated hectares of prairie lands. By 1980, it had already been decades since the last colonies in Arizona and New Mexico had been exterminated. What had happened to the prairie dogs in Chihuahua? The latest available reports—from 1972—situated them in the Casas Grandes area, on the plains near the San Luis Mountains.

In 1988, we organized an expedition to Chihuahua to search for them. We decided to use Nuevo Casas Grandes as a base camp. Grasslands around the city are scanty, most having been turned into fields for cultivation, which means that very little of the natural environment survives. Approximately 60 kilometers north of Nuevo Casas Grandes is Janos, a town we passed through on the way to the mountains along a dirt road in terrible condition. Lost in the labyrinth of dirt roads, we left several Mennonite towns and collective *ejido* farms behind. The landscape was a mix of brambles and different kinds of grass, with cattle scattered as far as the eye could see. After

several hours on the road, as the sun began to set, when we had almost lost hope, the landscape began to change. Little by little the arid brambles began to break up giving way to a huge prairie, sprinkled with mounds and countless prairie dogs. The spectacle was amazing. We had found the prairie dogs of Chihuahua, a complex made up of hundreds of towns and millions of animals. We called it Janos-Nuevo Casas Grandes. We did not know then that we were looking at the last great prairie-dog town in the hemisphere, a scene out of the nineteenth century.

AN ECOLOGICALLY KEY SPECIES

Prairie dogs are closely associated with prairies and grasslands, which are characterized by grass and low bush. Their towns are usually surrounded by high grass and brambles with abundant bushes. They are considered an ecologically key species because when they establish themselves in colonies thousands-

or millions-strong, they have a great impact: they change the landscape, increase environmental heterogeneity, and have an impact on biological diversity. Their activities, particularly digging burrows and destroying high, standing vegetation, have a direct influence on the environment's physical characteristics, on the physical and chemical properties of the soil, on the hydrological cycle, on the structure of vegetation, the decomposition of vegetable matter and on the specific interaction of vertebrates and invertebrates. Prairie dogs are essential for maintaining grasslands and impeding desertification and the invasion of mesquite, since they destroy both mesquite and other plants that invade grasslands and that proliferate in over-grazed areas.

The environmental heterogeneity caused by prairie dogs' foraging and burrowing activities propitiates colonization and permanent residence of many species of vertebrates and are the basis for maintaining regional biological diversity. In the Janos-Nuevo



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Casas Grandes Complex, species such as the bison (*Bison bison*), the badger (*Taxidea taxus*), the kit fox (*Vulpes velox*), the golden eagle (*Aquila chrysaetos*), the bald eagle (*Haliaeetus leucocephalus*), the ferruginous hawk (*Buteo regalis*), the burrowing owl (*Athene cunicularia*) and the mountain plover (*Charadrius montanus*) are closely dependent on the prairie dog towns.

THE CONSERVATION OF PRAIRIE DOGS

Since we found the Janos-Nuevo Casas Grandes Complex prairie-dog towns, we have carried out different studies in the area about these animals' distribution and ecology with our colleagues Eric Mellink, Rurik List, Patricia Manzano, Mario Rollo, Andrés García, Erika Marcé and Georgina Santos. These studies have shown that these colonies constitute the largest remaining prairie-dog complex in North America, covering almost 40,000 hectares. However, this area is diminishing due to the deterioration

and fragmentation of their habitat. This brings with it a loss in the biological diversity associated with their colonies. The fragmentation of these colonies makes them susceptible to extinction through disease, in-breeding or natural catastrophe. The study and preservation of the prairie dogs of the Janos-Nuevo Casas Grandes Complex could be the basis for the design and instrumentation of management programs suited to maintaining the grasslands in the short, medium and long term, which would benefit both wild animal species and local inhabitants. The project's goal is to establish a biosphere reserve that would permit the conservation of regional biodiversity, the preservation of the native ecosystem and the maintenance of evolutionary processes. **NM**

FURTHER READING

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