

Prairie dogs may have the most complex language

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Prairie dogs. Image: Wikimedia Commons.

(PhysOrg.com) -- Prairie dogs may have a vocal communication system more complex than that of dolphins, whales and non-human primates, according to a new study.

Gunnison's prairie dog (*Cynomys gunnisoni*), also known as the Zuni prairie dog, is actually a rodent belonging to the ground squirrel family, but like the other four prairie dog species (Utah, white-tailed, black-tailed, and Mexican) it gained its name because of its bark-like call. It lives in semi-desert grasslands and prairies in northern New Mexico and

Arizona and southern Utah and Colorado, where it lives in colonies of hundreds of animals.

Professor Con Slobodchikoff, from the Northern Arizona University, has been studying and recording the calls of the Gunnison's prairie dog for three decades. The calls contain varying numbers of frequency modulations, barks, squeals and squeaks, and each animal has unique tonal qualities. The same "words" can be understood by all the members of the colony. Slobodchikoff believes they may have evolved a complex language because they have a complex social structure and live in large colonies in vast and complicated burrow systems.

Slobodchikoff says with a single call prairie dogs can warn others of the type of predator, its direction, and even its color, and believes they are able to include this much information in a single call by varying the modulation and harmonics in the call.

Slobodchikoff and colleagues recorded the sounds made by the animals in response to coyotes, badgers and hawks. They also made observations of their behavior in the presence of each predator, and found that for example they react to coyotes by retreating to their burrows and standing up to avoid surprise attack, while they respond to badgers by lying low to avoid observation.

The scientists later played back the recordings to other groups of prairie dogs to test their response. In each case the rodents responded to the playbacks in the same way they respond to the predator, showing that each call was understood to mean a different predator.

Professor Slobodchikoff describes his vocal experiments in a BBC natural history TV program called [Prairie dogs](#), *talk of the town*. Prairie dog numbers have plummeted in recent decades as ranchers view them as pests competing with livestock for resources. They are increasingly

endangered even though they are a keystone species providing food for a wide range of predators, aerating the soil, adding organic matter and increasing water penetration, and creating habitat for other animals when they abandon their burrows.

More information: [BBC article](#)

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