

# PRAIRIE DOG FACEBOOK: RESEARCH ON SOCIAL RODENTS IN GRASSLANDS NATIONAL PARK



Photo credit: Colleen Crill

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Black-tailed Prairie Dogs are one of five species of prairie dog, and the only species found within Canada. In fact, their distribution is limited to one national park in southern Saskatchewan: Grasslands National Park. Currently, these prairie dogs are being studied by Dr. Jeffrey Lane and two graduate students at the University of Saskatchewan to investigate their hibernation patterns, their social relationships, and their stress response to predation risk in an effort to understand the current population and how it may change in the future.

The Canadian population of prairie

dogs is limited to 19 colonies and is listed as threatened by COSEWIC due to isolation from its southern neighbours in Montana and declining population size. Prairie dogs are an important species for grasslands habitat as they are beneficial for more than 100 species including providing habitat for Burrowing Owls and bison, while functioning as prey for badgers, rattlesnakes, Ferruginous Hawks, eagles, Swift Fox, coyotes, as well as the specialist predator, Black-footed Ferrets. Of great note, many of these dependent species are also endangered or threatened.

Black-tailed Prairie Dogs are small, herbivorous ground-dwelling squirrels. They are highly social and live in colonies together. These

colonies are separated into coterie of related individuals. A coterie is a polygynous unit typically containing one dominant male, several adult females, as well as yearlings and juveniles of both sexes. Individuals within a coterie often exhibit positive social behaviours including allogrooming and communal nursing to aid in survival of neighbouring individuals. Prairie dogs are considered a charismatic species that draws visitors to the park where social antics like kissing and jump-yips are observed (jump-yips are a contagious communication action where a prairie dog throws its body vertical and lets out a unique call to inform other prairie dogs of their presence and to learn which other animals are currently present as the action is repeated throughout a coterie).

In order to preserve our prairie dog population, I study how social behaviours between prairie dogs influence individual success, and ultimately, population success. An individual's ability to cooperate to gain access to preferential food resources, as well as defend these resources when there is high competition, likely affects their overwinter survival as well as their ability to provide sufficient parental care to offspring. Prairie dogs also use their social behaviour to communicate the presence of potential predators and assist with parasite removal through grooming.

Each prairie dog is live-trapped and given a unique alphanumeric symbol on its back so they can be individually recognized from a distance. I then observe all social



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encounters and record what type of encounter it is, which prairie dogs were involved, and how often the same individuals interact. I also look at the seasonal variation in this social behaviour, as they may be more important at certain times when accessing or defending vegetation is most impactful to their

survival. The collected data can then be used to understand the social landscape of the colony. This social landscape is analogous to social media applications like Facebook that can look at how information moves through friend groups or across global networks.

The data for this project was

## POETRY

### Autumn's Serenade

Far distances, made dreamlike by a soft whispering of smoke, are background to near vermilion-hued rose briars, to tawny orange leaves of willow and dogwood filled with tweaking warblers.

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collected in 2016 and 2017, and will be analyzed in the coming fall to create a social network using graphics software. This research will use social network analysis as a potential conservation tool, which has not been done in the past and could provide a framework for similar studies in the future. These social networks might tell us something about their ability to be successful given their limited dispersal ability and isolation from southern populations. In addition, we may learn important details of maintaining social links for successful reproduction after potential translocations of animals as a management strategy.

*Jillian is a MSc student in the Lane Lab at the University of Saskatchewan. She is a recent recipient of the Margaret Skeel Graduate Scholarship through Nature Saskatchewan. She will also be presenting the results of her studies at an upcoming Nature Saskatchewan meeting, so stay tuned!*



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