

Are We Doing Enough to Protect Black-tailed Prairie Dogs?

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Research Question

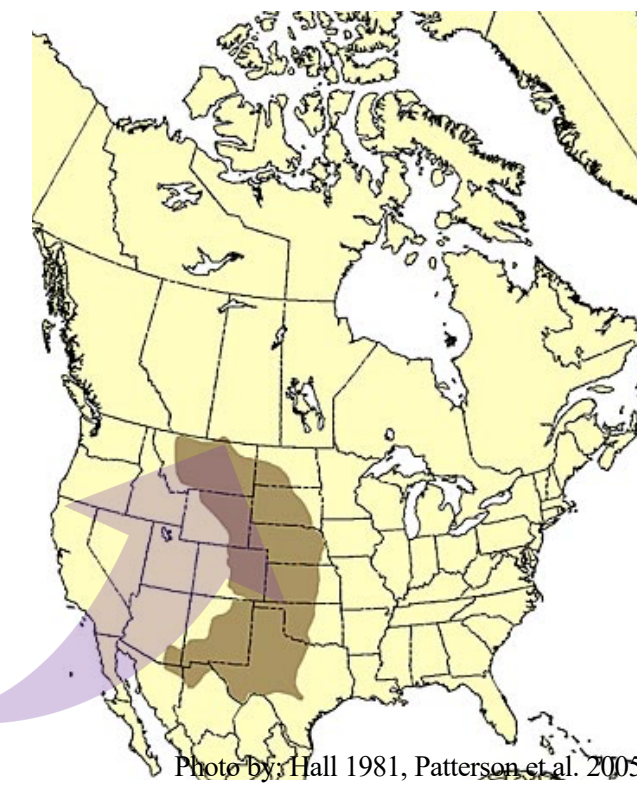
Why are black-tailed prairie Dogs threatened and are our conservation attempts enough to preserve their population?



Available Research

Range

The range is distributed across west-central North America. However, the Canadian distribution is limited to the **extreme south of Saskatchewan** (Environment Canada, 2018).



Habitat

- The habitat tends to be broad, dry, flat, river valleys and grasslands.
- They usually colonize areas with short vegetation to increase predation efficacy
- They dig burrows close together to form colonies called towns.
- Burrows are usually U-shaped with chambers connected by tunnels, and can go 7 to 15 feet deep (Environment Canada, 2018).

Ecological Role

- Keystone species
- Though grazing and burrowing in search for prey, they maintain nutrient and moisture-rich soil for plant species.
- The burrow sites built by these organisms provide shelter for a variety of animals including two endangered species
- Important prey for several rare and endangered species (Valentine-Darby 2009).



Abstract

According to COSEWIC, the Black-tailed Prairie Dog is a profoundly threatened species with a drastically declining population leaving only a small Canadian group remaining in southern Saskatchewan. This scoping review identifies their ecological role, high impact threats, the proposed management plans, and the gaps in the effectiveness of these plans. Through our analyses, we argue that the existing management plan is not sufficient to protect these species, given the projected increase of extreme climate events.

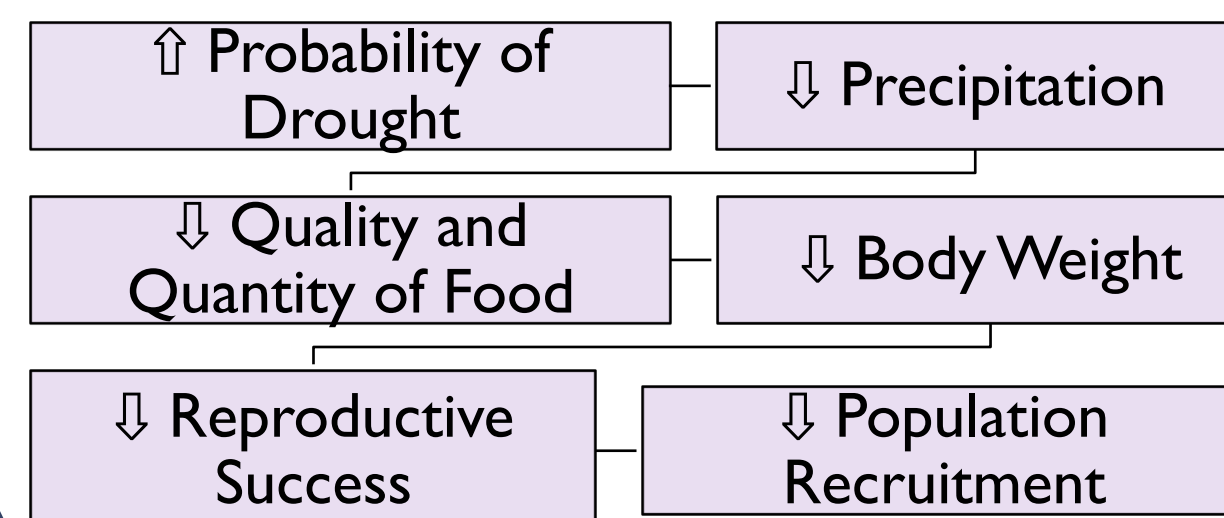
Methods

We conducted a scoping review of literature concerning the conservation of black-tailed prairie dogs in Canada. We looked through journals with high impact factors such as Biology, Nature, Ecology, Conservation Biology and etc., as well as the proposed management plan designed by COSEWIC, in order to learn more about their population and the conservation efforts put in place for them in Canada. Then we evaluated the effectiveness of these plans based on the current driving factors impacting Prairie Dogs and synthesized some major critiques.

High Impact Threats

Droughts

Impact: May reduce prairie dog densities by up to 80% in Grasslands National Park.
- Predictions indicate increased drought conditions in prairie dog habitats



↑ Droughts = ↑ Plague

Fleas are 200% more abundant when conditions are dry compared to when there is high precipitation.

- Prairie dogs have a 27% of being in a better condition with high precipitation as they can devote more time to grooming and as a result carry 40% fewer fleas.

Being limited by food and water due to drought conditions, weaken defenses against fleas. (Eads & Hoogland, 2016)

Sylvatic Plague

Impact: Infection of most, if not, all colonies within several years of introduction.

- The social nature of prairie dogs facilitates rapid spread of the diseases
- Plagues outbreaks typically result in 90-100% mortality in infected colonies
- Each colony in Canada is <10 km from another colony

Chances of recovery: Unlikely

How They are Being Protected

These species are being held within the range of Grassland National Park (Environment Canada, 2018).

Parks Canada Action Plan (2009)

- ❑ Allowing the populations within Grasslands National Park fluctuate in response to natural processes of their surrounding environment such as drought or predators
- ❑ Regularly monitoring the activities and population changes of the species so that action can be taken if the numbers drop significantly or expands in areas detrimental to other species.
- ❑ Dusting their burrows with insecticide to destroy fleas that carry plague.
- ❑ Develop a better understanding of prairie dog population dynamics in Canada.
- ❑ Develop and maintain broad sector support around prairie dog conservation, with emphasis on key stakeholders and the local community.
- ❑ Identify management strategies and field methods to strategically initiate, increase or restrict prairie dog colonies.
- ❑ Integrate prairie dog management into larger, unified conservation planning and actions for co-existing prairie species
- ❑ Monitor prairie dog population trends to ensure management goals are met and maintained.

Results

While the existing management plan (made in 2009) has been effective at monitoring the population of Prairie Dogs and maintaining a healthy population, we believe that we've outgrown it. New data about the species biology and disease prevalence are available, and new regulations need to be made to assure the fecundity of their population. We need a new paradigm that recognizes Prairie dogs as wildlife and gives them the ability to move more freely within an area of land while also having a source of vegetation and a habitat that they can survive in throughout the years.

Although closely monitoring their population in Grassland National Park is useful for preventing human-induced threats (hunting and intentional poisoning by landowners), high concentration in such a small area makes the threat of a plague outbreak among these highly social creatures much more devastating and likely irreversible. As the impacts of climate change inevitably become more severe, the frequency of droughts will rise, which will simultaneously weaken their defenses against the plague. This will ultimately leave the Black-tailed Dog population much more vulnerable than presently expected. Upon the absence of these significant creatures, there is bound to be a cascading population collapse within species in their community.