

Boulder City Council “Hotline” questions

Open Space and Mountain Parks received the following “Hotline” questions regarding prairie dogs from City Council members in mid-April. The Boulder Council Hotline is an email "conversation" among Boulder City Council members and city staff. Council prairie dog questions have been grouped by topic for easier interpretation. OSMP reached across multiple workgroups within OSMP and in several occasions, across city departments, to formulate these answers below, which was delivered through the “Hotline” email on Saturday, May 4. Community members who would like to receive City Council “Hotline” emails, should visit:<https://bouldercolorado.gov/city-council/the-boulder-council-hotline>

What is the number of acres in AG leases vs. the number of acres in true Open Space where PDs can live?

Across the OSMP system, 17,062 acres are leasable (although due a variety of circumstances, not all of those are leased each year or currently). These include both irrigable hayfields and cropland as well as native and non-native grazed lands. The areas where prairie dog occupation is seen as incompatible with the agricultural use is the irrigable lands, which cover 6,641 acres of OSMP. Staff recently completed a quick, and relatively basic analysis of suitable habitat for prairie dogs. This analysis is not a comprehensive, highly detailed model like the one included in the grassland plan (which is out-of-date, and will be updated as part of a grassland plan update). However, it is useful for looking at approximate scale of suitable habitat system-wide. This analysis showed approximately 5,986 acres are suitable for prairie dogs. These may overlap grazing lands, but do not include irrigable lands, which were considered unsuitable for the purposes of this analysis.

Please refresh my memory as to why the group was formed.

Response prepared by Peak Facilitation. Objectives of the Prairie Dog Working Group (PDWG):

- The PDWG was created shortly after Council addressed a controversial proposal to use lethal control methods to remove prairie dogs from the Armory in 2016.
- The purpose of the PDWG was to provide recommendations for adaptable management practices that can be implemented under existing policy, as well as longer-term policy changes.
- The first task for the PDWG was to determine relocation methodologies under existing plans and policies that could be used in 2017. This was Phase 1 of the PDWG’s work.
- The second task was to determine relocation methodologies under existing plans and policies that could be used in 2018 and beyond. The third task was to determine longer-term ideas that might need further exploration or require changes to city plans and policies. These two tasks comprised Phase 2 of the PDWG’s work.

What was the PDWG group charter and scope?

Response prepared by Peak Facilitation. Summary of PDWG protocols:

- The PDWG agreed to operate under consensus decision-making, with no reserve majoritarian voting process. It was the job of PDWG members to help each other reach an agreement that everyone can live with. If an agreement was not possible, the written report of the working group's recommendations offered the reasons why certain members could not agree to the recommendations.
- There was time at the beginning of each meeting for both electronically submitted and verbal public comment.

Who served on the group and what, if any, affiliation did each individual have?

Response prepared by Peak Facilitation. PDWG Members: The city manager selected working group members based upon participants' ability to meet established criteria and represent broad interests and community perspectives. Criteria for selection included:

- A clear commitment to attend six, three-hour meetings.
- The ability to think broadly about the subject matter and represent the community as a whole, rather than singularly representing a particular issue of concern.
- An assessment of how applicants demonstrate collaboration, innovation and respect as part of the working group. The selection committee also considered previous collaborative experience with community and city groups

Dan Brandemuehl: Neighbor to public land	Val Matheson: Planning, Housing and Sustainability
Kristin Cannon: Colorado Parks and Wildlife	Amy Masching: Wildlife conflict specialist (only Phase I)
Pat Comer: Resource conservation expert	Joy Master: Parks and Recreation
Aaron Cook: Interest in a development site	Andy Pelster: OSMP
Elle Cushman: Current agricultural tenant	Carse Pustmueller: Prairie dog advocate
Keri Konold: OSMP	Eric Sims, Jr.: Lawyer interested in affordable housing issues
Jeff Edson: Former public lands manager	Lindsey Sterling-Krank: Prairie dog advocate
Deborah Jones: Prairie dog advocate	Heather Swanson: OSMP
Amber Largent: Student in environmental science	John Vickery: Conservation ecologist

What was the context and content of any conversation that occurred among group members regarding lethal control?

Response prepared by Peak Facilitation. Framing of the impact of prairie dogs on agricultural operations in the PDWG:

- During the second PDWG meeting on March 6, 2017, OSMP staff provided presentations on agricultural operations in the City of Boulder. This included an overview of Boulder's agricultural program as laid out in the Grassland Ecosystem Management Plan, as well as the Agricultural Resource Management Plan objectives.
- When the PDWG set criteria for future recommendations, several criteria related to agriculture, including:
 - "It minimizes the potential for a controversy or conflict."
 - "It does not prioritize one land use over another in the multiple objective areas."
- In Phase 2 (policy change recommendations), the PDWG brainstormed guiding principles to serve as rules of engagement for suggested prairie dog management goals. ***Two related to agriculture:***
 - "Minimize conflict between prairie dogs and irrigated land."
 - "Minimize conflicts with neighbors."

Lethal control discussion in the PDWG:

- During the second PDWG meeting on March 6, 2017, OSMP staff provided presentations about the use of lethal control in Boulder.
 - In 2000, the City of Boulder developed an ordinance prohibiting lethal control in the Boulder revised code. Staff also noted that in 2003, the State of Colorado informed the City that the City's ordinance was inconsistent with State law and that the City could not prohibit a licensed person from killing prairie dogs. In 2005, the City developed a new prairie dog Wildlife Protection Ordinance that complied with State law (6-1-11/12). This ordinance placed a limit on lethal means of control for prairie dogs.
 - The City requires any developer to go through a permit application process for the use of lethal control to demonstrate an effort to relocate the prairie dogs and prove that the land will be developed within 15 months or be adversely impacted by the presence of prairie dogs. The landowner must also have an adequate plan to prevent prairie dog reentry onto their property.
- When the PDWG set criteria for future recommendations, several criteria related to lethal control, including:
 - "It is both directly and indirectly humane and non-lethal."
 - "It focuses on the long-term survival of colonies."
- When the PDWG brainstormed guiding principles in Phase 2, ***two related to lethal control:***
 - "Minimize lethal control."
 - "Emphasize humane treatment of prairie dogs."
- Although some PDWG members expressed concern about the impacts of prairie dogs on agricultural land, the value of OSMP water rights, and agricultural production and livestock, there were no proposals by PDWG members for the group to consider recommendations for lethal control on OSMP properties. Additionally, while there was a

dissenting view regarding some of the Phase 2 PDWG recommendations, the concerns raised about the recommendations did not address issues related to lethal control.

- Lethal control was proposed by multiple community members through both written and verbal public comment during Phase 2 of the PDWG process.

Could staff provide a table with a list of leases and p dog occupation of the land?

2018 OSMP Agricultural Leases and Prairie Dogs							
Lease Area	Leased Acres	Acres Prairie Dog Occupation		% Occupied by Pdogs	Acres Irrigated	% Irrigated + Occupied by Pdogs	
		Acres (2018)				Acres Irrigated Pdogs	
Boulder Valley Ranch	1480	845		57%	575	279	49%
Axelson / Johnson	678	327		48%	636	309	49%
Teller	510	110		22%	301	20	7%
DeLuca / Stratton	153	29		19%	86	10	12%
Lookout Rd.	356	38		11%	105	0	0%
Hester / Campbell	241	18		7%	182	16	9%
O'Connor	1779	76		4%	472	13	3%
Anderson	386	13		3%	328	12	4%
Southern Grasslands	7304	147		2%	1006	4	0.40%
Totals	12887	1603			3691	663	
Vacant Lease Properties Not Leased							
Properties Not Leased	Acres						
Belgrove	81	66		82%	76	64	84%
Bennett	119	69		58%	69	46	67%
Oasis	70	64		91%	65	59	91%
Hartnagle	30	17		56%	26	17	65%
Steele	94	65		69%	28	22	77%
McKenzie	26	19		72%	25	19	74%
Minnetrissa / Canino	97	68		70%	84	59	70%
Totals	518	368			373	285	

Other Questions from Council Members Received by Staff, primarily at CAC

How does the presence of prairie dogs impact the ability to carry out soil health efforts? (See below). **Can these efforts be ‘scaled up’ in the north with prairie dogs present on the landscape?**

Active prairie dog colonies and the co-requisite burrow protection ordinance increase the time it takes to deploy soil regeneration practices, because burrows must be avoided with machinery. This increases the time it takes to do any one field task four-fold and doubles the amount of labor required. Therefore, the number of acres that can be treated because of the limited budgets currently available for these activities remains small-scale. Staff do not have data on long-term success of any of these practices in the presence of prairie dogs, or the feasibility of larger scale implementation.

What do we mean when we say our lands are “Degraded”? What conditions exist when we would label land “degraded”?

Soil degradation is a decline in soil quality, meaning its physical, chemical and biological properties. In the context of OSMP lands, when we talk about soil degradation, we are talking about the reduction of the soil surface horizon, which is where the highest organic matter and nutrient content occurs. The soil surface is an important component of any land because it often controls water infiltration and available plant nutrients and it is where seed germination and plant establishment occur. When land is degraded, there is a reduced thickness or elimination of the surface horizon, a reduction in plant cover, an increase in bare ground, a change in vegetation from desirable species to undesirable species and/or noxious weeds, an increase in runoff with a concomitant decrease in water infiltration and structural changes in the soil reflected by a reduction in the number, length or size diversity of soil pores and/or soil aggregates.

What caused the degradation?

Land use history certainly has an impact on a parcel of lands’ resilience and response to disturbances. For example, a long history of tillage has likely led to degraded soil conditions on some OSMP agricultural properties. However, staff believes recent degradation in many cases has been caused by persistent occupation by prairie dogs. As grasses and other desirable species are continuously grazed by any species including--prairie dogs--they lose the ability to regrow from root reserves and eventually die. These desirable plants are replaced by species that can either tolerate heavy grazing or are unpalatable to herbivores. These species have different function and structure than the plants they succeeded and do not provide the same litter cover of the soil. Over time, the soil is eroded by wind and precipitation events, further selecting for species that can thrive in droughty, thinning soils.

In the context of irrigated hay or grazing areas, it is likely that a combination of factors including previous plowing/tilling of the native prairie plant communities, past drought cycles and inefficient application of water combined with current prairie dog populations have led to current degradation. The suite of factors varies from property to property, as does the intensity of degradation.

OSMP is currently exploring a collaboration with the USDA Agricultural Research Service to implement its “Land Potential Knowledge System” and land assessment and monitoring tools to associate OSMP’s assessments to a recognized protocol being implemented around the world. Initial work on this is just beginning in 2019.

Do cattle play a role in soil degradation?

Improperly managed cattle grazing can certainly play a role in soil degradation. However, there is substantial evidence that cattle grazing managed under current OSMP guidelines is able to maintain stable plant communities.

What are the costs of having degraded lands?

The environmental cost for degraded lands ultimately depends on the lands capability to support the soil food web and above ground productivity prior to degradations as well as any costs incurred by soils moving off site because of wind and water erosion. In the short-term, there is a loss of productivity and lease revenue for the lessee and the department. As properties become unproductive and therefore unleaseable, the department is responsible for assuming the requisite maintenance of a property, including fences, gates, laterals and other irrigation infrastructure. In the long-term, the biotic integrity and hydrologic function of the soils collapses and requires investment to either manage these sites in their new state (e.g. managing noxious weeds) or investing significant resources to import organic matter and re-establish desirable vegetation.

A preliminary assessment of the costs of land degradation is being compiled as part of the 2019 survey of degraded lands and treatment options. In addition to the loss of revenue and the potential loss of water rights, there will be additional costs for land restoration and regeneration. OSMP is experimenting with developing land regeneration contracts in which contractors will be paid for regeneration services.

What are the costs of improving conditions?

There is insufficient experience to-date to develop a clear expectation for these costs but we would anticipate full regeneration of currently degraded sites to cost anywhere from \$50-\$500/acre depending on the conditions. This is in many cases in addition to the costs of materials such as compost. The application of just a ¼” thickness of compost—one of the treatments developed by the Marin Carbon Farming project currently being tested for land regeneration—would cost \$350-\$400/acre (not counting the cost of application). The compost alone would cost over \$400,000 on the 1,000 acres of degraded lands already identified in the OSMP inventory. This does not cover the other costs associated with land recovery noted above. More information on land recovery costs will be developed through the assessments conducted this year.

Please provide information on the County’s Plague Management Program including information on plague management in the North.

Staff has reached out to Boulder County and will provide an answer when available.

If more aggressive plague management would take place throughout the open space systems in Boulder County would we likely see an alteration of the traditional cyclic nature of peaks and valleys of prairie dog populations?

This is uncertain. It is likely that plague management would change the degree to which plague impacted populations and moved through the landscape. It is likely that widespread plague

management would reduce the cyclic nature of populations, at least in the areas where it was used. Most plague management efforts do not fully prevent mortality from plague if an epizootic is present. Possible impacts to plague presence and impacts on surrounding, non-treated areas is less certain.

Would we still likely see large plague events in the future under a management system where plague management was being carried out?

This is uncertain. Impacts would likely depend on the type of plague management and scale of implementation.

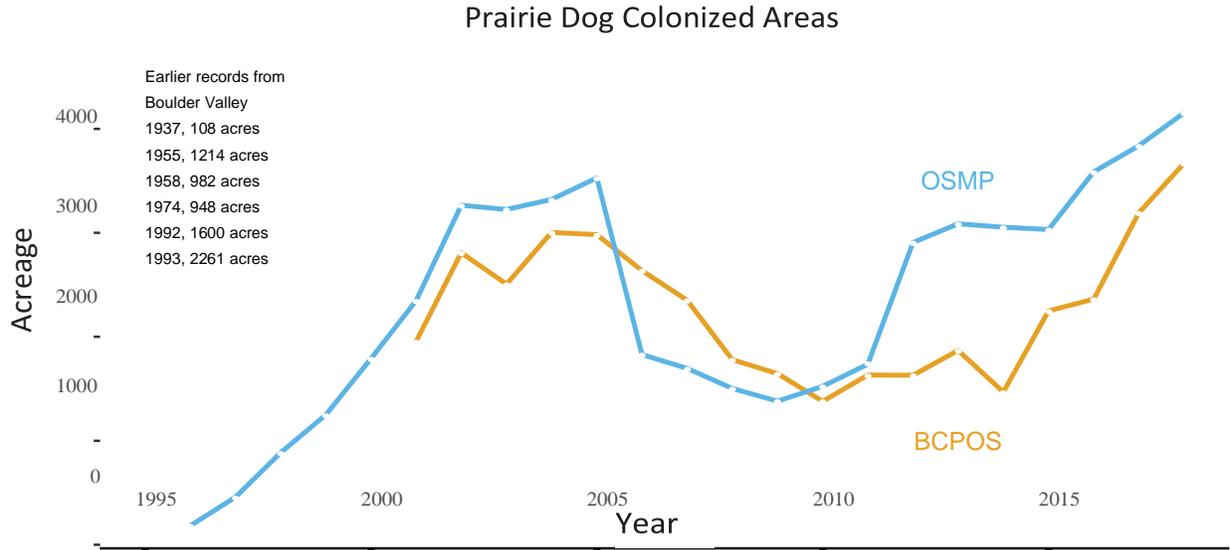
How many cases of human plague have occurred in Colorado?

City staff posted information to the hotline on April 30th answering this question

How is the plague transmitted to humans?

City staff posted information to the hotline on April 30th answering this question

Please provide a graph that shows cyclic nature of prairie dog populations.



OSMP and BCPOS map the perimeter of all active prairie dog colonies each year, using similar protocols. In 2005, 3,527 acres of OSMP grassland habitat was inhabited by black-tailed prairie dogs. Successive sylvatic plague events from 2006-2009 reduced the OSMP occupation to a low point of 1,380 acres, as mapped in the fall of 2009. Since then, the number of acres occupied has increased to an all time high of 4,153 acres occupied on OSMP land in 2018.

Earlier (pre-1995) records that OSMP staff have found are shown in the inset table. Note, these earlier records are unstandardized estimates compiled from various anecdotal sources. These earlier estimates are all much lower than the current extent of prairie dog colonized acres.

Will Therese G. from the County could attend the meeting?

Yes, Therese has indicated she will attend.