

**Request for Comment and Responses for Public Comment Period (January 4-12, 2010)  
Grassland Ecosystem Management Plan: Proposed Revisions to Open Space Board of  
Trustees Approved Draft**

**Distributed to the Open Space Board of Trustees  
Meeting Date: January 13, 2010**



Open Space and Mountain Parks Department  
City of Boulder, Colorado

P.O. Box 791 Boulder, Colorado 80306  
303-441-3440

January 4, 2010

Dear Grassland Plan Mailing List Member:

The Open Space and Mountain Parks department appreciates your past participation in the development of the Grassland Plan. I am writing to inform you about two changes that staff is proposing to make to the plan before it is presented to City Council in February. Staff will be presenting these changes to Open Space Board of Trustees' (OSBT) for their consideration on January 13, 2010.

The first recommendation is to change the designation of two prairie dog colonies west of Foothills Park from "Transition Areas" to "Removal Areas". This change is being recommended to make the Grassland Plan consistent with the council-approved Urban Wildlife Management Plan (UWMP). Staff is also recommending that the OSBT approve a change to the prairie dog relocation criteria that would allow staff to consider prairie dog relocation onto OSMP lands after **one year** of plague-free conditions on city OSMP lands. The draft plan currently requires two years of plague-free conditions on OSMP prior to considering relocation onto OSMP.

The Open Space Board of Trustees approved the draft Grassland Plan in August 2009. Since then has been working to present the plan to City Council for their acceptance. OSMP staff will present the Grassland Plan as part of a City Council study session on February 23, 2010. In preparation for this study session, conversations about the interaction of the Grassland Plan and the UWMP revealed the need to improve plan coordination by making the previously described management designation changes. Details about these changes are attached and will be available on the Grassland Plan webpage [www.grasslandplan.net](http://www.grasslandplan.net) (note new address).

**OSMP will be hosting an Open House on Monday January 11, 2009 to discuss and gather feedback on these changes. The Open House will be held at OSMP's Cherryvale offices (66 South Cherryvale Road Boulder 80303) from 6:30 to 7:30 pm. You can also email your comments to me directly at [gershmanm@bouldercolorado.gov](mailto:gershmanm@bouldercolorado.gov), or fax comments to 720-564-2095. Comments received by 5 pm on Tuesday January 12 will be provided to the OSBT at their January 13 meeting.**

The January 13 OSBT meeting is open to the public. There will be a public hearing on the proposed changes to the draft Grassland Plan.

Feel free to contact me for more information.

Sincerely,

Mark Gershman  
Environmental Planning Supervisor  
Grassland Plan Project Manager  
720-564-2046 [gershmanm@bouldercolorado.gov](mailto:gershmanm@bouldercolorado.gov)

## **PROPOSED DRAFT GRASSLAND PLAN CHANGES**

**January 4, 2010**

Staff is proposing that the Open Space Board of Trustees move to **change the designation** of the prairie dog colonies on the ERNI and Mary Moore properties from “transition area” to “removal” area

Staff is also proposing that the OSBT move to **change relocation criterion #3** for Prairie Dog Conservation Areas or Grasslands preserves to read: “At least one year has passed since presence of active plague on OSMP system or bordering properties and proper flea dusting has been conducted in the burrows slated for introduction and a surrounding buffer area as designated by health officials.” The draft plan approved by the Open Space Board of Trustees included an option of waiting two years without burrow dusting.

### **Prairie Dog Management Designation Changes**

The proposed designation changes affect a total of 29 acres of occupied prairie dog habitat west of the Foothills Park site. Attachment A is a map showing the location of these two properties and the most recently mapped extent of prairie dogs. These areas were designated as “near term removal” sites in the Urban Wildlife Management Plan (2006) and removal areas in the Open Space Prairie Dog Habitat Conservation Plan (1996). The major factor affecting designation was incompatibility with the operation of the proposed (now partially developed) Foothills Park. Past public opposition to plans by Parks and Recreation to construct a barrier separating the park site from nearby prairie dogs colonies and questions about effectiveness of such a barrier also contributed to the designation of all surrounding lands as a “near term removal area” in the UWMP. While the Grassland Plan is consistent with the UWMP in that it allows for removal of prairie dogs from these areas,—the transition area designation relies upon relocation for removal of prairie dogs and therefore the availability of relocation sites. The UWMP calls for near-term removal, and although relocation is the preferred alternative, allows for lethal control as well. In order to have the Grassland Plan designation allow for lethal control, the designation needs to be changed to “removal area”. Attachment B provides descriptions of the various management area designations from the OSBT-approved draft Grassland Plan.

The Grassland Plan includes a process by which lands occupied by prairie dogs can be designated into one of five management categories (*see box--below*). Staff developed this approach as an objective, criteria-based tool to integrate various types of ecological conservation, sustaining agricultural productivity, as well as seeking to address adjacent land uses. This tool was used uniformly to designate prairie dog management in the Grassland Plan and represents a significant step in the development of OSMP’s prairie dog conservation activities. At other sites, the designations resulting from the use of this tool have been consistent with the UWMP. The changes being recommended in this memo represent the need to make a single site-specific change because of the importance already assigned to the Foothills Park by City Council.

### **Prairie Dog Management Designations in the OSMP Grassland Plan**

- Grassland Preserve
- Multiple Objective Area
- Prairie Dog Conservation Area
- Transition Area
- Removal Area

Changing the designation of these colonies may have implications for OSMP land management. Currently, the removal of prairie dogs from these properties is not a departmental priority. Several properties where agricultural uses have been eliminated or curtailed because of prairie dogs activities or where other sensitive ecological communities are threatened by prairie dog occupation have been identified as priorities for prairie dog removal. OSMP has approximately \$15,000 allocated in the 2010 budget. At this level of funding, staff was anticipating addressing small prairie dog populations where removal would leverage significant conservation benefit—in this case, returning lands to agricultural productivity.

The existing 2010 OSMP budget allocation is insufficient to fund removal of the current populations on these properties. If prairie dog removal from the Mary Moore and ERNI properties becomes a city, and therefore, departmental priority OSMP would need to find other sources of funding (i.e., partnerships with Parks and Recreation, re-allocation of 2010 funding from other priority projects, or supplemental appropriation to the 2010 budget).

Another implication could be the need for receiving sites in 2010. OSMP will not know about the extent of available receiving sites until late summer 2010. Staff also places a priority on using any city OSMP relocation sites for prairie dogs from city OSMP removal or transition areas and making city OSMP lands available to “non-OSMP” prairie dogs once staff has brought OSMP lands into compliance with the Grassland Plan designations.

Using OSMP lands as receiving sites for prairie dogs parks and recreation property will reduce the availability of prairie dog receiving sites for relocation needs from city OSMP removal and transition areas—delaying the implementation of the Grassland Plan.

### **Prairie Dog Relocation Criteria Change**

Prairie dog relocation is a way to remove unwanted prairie dogs from a site. Relocation has significant implications for the receiving site. In addition to its benefit as an alternative to lethal control, the reintroduction of prairie dogs can create conditions that support other desirable species. Prairie dog relocation under the wrong conditions can have undesirable effects upon prairie dog survival, vegetation, wildlife habitat, agricultural activities, and soil conservation. In order to minimize adverse effects, OSMP staff developed a set of criteria to guide prairie dog relocation onto OSMP lands. Relocation criteria represent a series of conditions that must be met before OSMP-managed lands can receive black-tailed prairie dogs through active relocation. Attachment C includes the prairie dog relocation criteria from the OSBT-approved draft Grassland Plan.

The proposed modification of the prairie dog relocation criteria would apply to the 24,000 acres of the Grassland Planning Area. Staff’s original version of this relocation criterion was for

one-year, plague-free conditions on the OSMP system and bordering properties prior to considering relocation. The duration of plague-free conditions was increased to two years in response to public comment, a request from prairie dog advocates to consider plague a more serious threat, and a specific request to increase the duration of plague-free conditions by the Prairie Dog Coalition. Prairie dog advocates have subsequently indicated that they would prefer a shorter plague-free interval.

The existing criterion allows relocation after one year if burrows are dusted with insecticide (to kill plague carrying fleas). Removing the two-year plague free period from the criterion means that burrows must be as part of all prairie dog relocations. The Colorado Division of Wildlife frequently requires dusting as a condition of their prairie dog relocation permits. Consequently changing this criterion has little management or logistical impact.

Some community members raised concerns that even a one-year plague-free standard may make for long waiting periods for prairie dog receiving sites. The lack of receiving sites could result in greater use of lethal control.

The relocation criteria related to “time since plague” was intended to avoid plague mortality of relocated prairie dogs and minimize the chances of moving plague around the landscape artificially—thereby *decreasing* prairie dog mortality. Because plague is expressed seasonally—typically during warmer weather, a full year is needed to determine if plague is active or just seasonally dormant. OSMP staff maintains that a one-year plague free standard is needed to avoid mortality of prairie dogs already living on city OSMP lands.

There was also community concern that requiring the entire OSMP land system to be plague free was an unreasonable standard that could lead to greater use of lethal control because relocation sites would be unavailable.

Given the uncertainty in how plague spreads among prairie dogs, moves from place to place, and the unusual behavior of the current epizootic around Boulder, staff felt that predicting whether plague was present on either a receiving site or source site would be difficult while plague is active in the broader landscape. The return of plague to one an OSMP site suggests that passage of time since plague moved through a localized area such as a receiving site might not be a good predictor of the potential for plague to re-occur. However, the absence of plague on a larger landscape such as the OSMP land system seems to be a more reliable indicator of plague risk. In addition, the unpredictable spread of plague makes it difficult or impossible to assume that plague is not present in prairie dogs being captured at the removal area if plague is active somewhere nearby.

Dusting of animals with insecticide has been viewed in the past, as a reliable way to ensure that plague is not transported by the relocated animals. However, the recent evidence that some individual prairie dogs infected by plague live on for extended periods casts doubt on this assumption.

As a result, OSMP staff feels that the best way to ensure that prairie dogs moved to a receiving site did not succumb to plague present on the receiving site or transport plague to the receiving

site and nearby healthy colonies, was to wait until the entire OSMP land system appeared clear of plague.

The proposed changes the Grassland Plan have potential implications for conservation of OSMP lands and the implementation of the plan. There may be an expectation that changes resulting from the modification of the relocation criteria will result in greater availability or receiving sites from outside the city OSMP land system. Staff is concerned that it will be difficult to find suitable relocation sites for prairie dogs in priority removal and transition areas on city OSMP lands. Staff will need to carefully manage and track relocation opportunities over the next ten years. Doing this while simultaneously providing relocation opportunities for prairie dogs from off city OSMP lands will make it more difficult to achieve the conservation objectives in Grassland Plan and conserve the ecological and agricultural values of city OSMP grasslands during the 10-year planning horizon.

Developing policies and practices for prairie dog relocation onto city OSMP lands that are compatible with both the Urban Wildlife Management Plan and the conservation of OSMP grasslands is identified as an early implementation step in the Grassland Plan.



## **Attachment B**

### **Descriptions of Prairie Dog Management Designations from the OSMP Grassland Plan**

#### **Grassland Preserves (GP)**

Grassland Preserves are areas where prairie dogs and their associated species are part of large and ecologically diverse grassland habitat blocks. These areas are considered the best opportunity to conserve prairie dogs and their associated species. In most cases, prairie dogs will be allowed to persist without removal in Grassland Preserves. However, removal will be allowed for the purposes of maintaining existing irrigation facilities such as headgates, ditches, lateral ditches, reservoirs, and irrigated fields. In addition, to ensure protection of habitat within Grassland Preserves, the need for limited removal from a Grassland Preserve will be assessed if prairie dogs occupy more than 26% of the Grassland Preserve (i.e. viability drops below “Good”) and indicators of vegetation composition fall below thresholds identified in relocation criteria (*contained in Appendix I of the draft Grassland Plan*). Inactive, previously occupied colonies within Grassland Preserves could serve as relocation receiving sites (where there is an existing burrow infrastructure) and if the area meets relocation criteria (*contained in Appendix I of the draft Grassland Plan*). However, prairie dogs will not be relocated into irrigated fields nested within Grassland Preserves. Following a die-off or other disappearance of prairie dogs from an area, they could be excluded to allow for habitat restoration or to protect existing habitat restoration projects.

While Grassland Preserves contain significant extents of habitat suitable for prairie dogs, they also contain less suitable habitat as well (*illustrated in Figure 25 of the draft Grassland Plan*).

#### **Multiple Objective Areas (MOA)**

In Multiple Objective Areas, preservation of prairie dogs and their associated community is one of several management objectives. Prairie dogs will be allowed to persist without removal except for the purpose of maintaining existing irrigation facilities such as headgates, ditches, lateral ditches, reservoirs, or irrigated fields. MOAs will not be used as receiving sites for relocated prairie dogs. Exclusion of prairie dogs attempting to re-colonize an MOA could occur to allow habitat recovery.

#### **Prairie Dog Conservation Areas (PCAs)**

PCAs are areas where the conservation of the prairie dog is the primary management objective and are managed opportunistically for associated species. These areas would serve as receiving sites for relocation with the minimum requirements described in the relocation criteria. No removal of prairie dogs would occur in PCAs except for the purpose of maintaining an existing irrigation facility such as a headgate, ditch, lateral ditch, reservoir, or irrigated field. Prairie dogs will not be relocated into irrigated fields within PCAs.

#### **Transition Areas**

Transition Areas are grassland areas where the preservation of conservation targets other than the prairie dog and associated community takes precedence. Prairie dogs may inhabit transition areas, but will be relocated away from the property when feasible (i.e. relocation receiving site

available). Following relocation, die-off, or other natural events such as dispersal that leads to a reduction of the population and result in uninhabited areas, re-colonization could be prevented or discouraged using barriers, re-seeding, grading, burrow destruction, passive relocation, or other methods available to the department. After efforts are made to trap and relocate all remaining prairie dogs, removal through lethal control will be allowed in accordance with applicable regulations and policies, and if numbers do not exceed 20 individuals. Removal would be allowed at any time for maintenance of existing irrigation facilities such as a headgate, ditch, lateral ditch, reservoir, or irrigated field. Continued irrigation will also be allowed in irrigated fields regardless of prairie dog occupancy.

#### Removal Areas

In removal areas, prairie dogs are incompatible with OSMP management objectives. The designation of a property as a Removal Area provides the option to remove prairie dogs from the property in accordance with applicable regulations and policies. Following removal, efforts would occur to prevent re-colonization including restoration or irrigation of the property, destruction of burrow system, exclusion structures, etc. Continued irrigation will be allowed in irrigated fields regardless of prairie dog occupancy.

**Attachment C**  
**OSBT-Approved Grassland Plan Draft Prairie Dog Relocation Criteria**  
(From Appendix I of the Draft Grassland Plan)

**Prairie Dog Conservation Area (Basic Criteria)**

1. Existing burrow structure or evidence of previous occupation
2. Average prairie dog density below 15 animals/acre based on sampling plots
3. At least 2 years has passed since presence of active plague on OSMP system or bordering properties or;  
At least 1 year has passed since presence of active plague on OSMP system or bordering properties and proper flea dusting has been conducted in the burrows slated for introduction and a surrounding buffer area as designated by health officials.
4. Relocation will follow regulations set out in City of Boulder's Wildlife Protection Ordinance and associated city policies
5. All appropriate state, federal permits obtained and conditions of permits followed

**Grassland Preserves (Full Criteria)**

1. Existing burrow structure or evidence of previous occupation
2. Average prairie dog density below 15 animals/acre based on sampling plots
3. At least 2 years has passed since presence of active plague on OSMP system or bordering properties or;  
At least one year has passed since presence of active plague on OSMP system or bordering properties and proper flea dusting has been conducted in burrows slated for introduction and a surrounding buffer area as designated by health officials.
4. Relocation will follow regulations set out in City of Boulder's Wildlife Protection Ordinance and associated city policies
5. All appropriate state, federal permits obtained and conditions of permits followed
6. Grassland preserve is below 10% threshold occupancy- as identified in Grassland Ecosystem Management Plan Black-tailed Prairie Dog and Associates viability standards
7. Vegetation and habitat within receiving site meets the following minimum standards based upon data from at least three transects within **each** habitat type on the receiving site:
  - a. Average bare ground no more than 22% cover
  - b. Average native species richness at least 18 species (with exception of non-native grassland patches)
  - c. Average relative cover of perennial graminoid species at least 60%
  - d. Average sensitive/conservative species richness at least 4 species (with the exception of xeric tallgrass or non-native grassland patch types)
8. Majority of receiving site has been identified as exhibiting Good or Very Good Habitat Suitability in OSMP's prairie dog HSM. Relocation should begin in areas with highest suitability.

**From:** Dean E Biggins [bigginsd@usgs.gov]  
**Sent:** Tuesday, January 05, 2010 3:27 PM  
**To:** Gershman, Mark  
**Cc:** Lindsey Sterling Krank  
**Subject:** Plague discussions in the Grassland Ecosystem Management Plan  
**Attachments:** VBZ-2009-0049-Biggins\_1P.pdf; VBZ-2009-0053-Matchett\_1P.pdf

Hello Mark:

I had a chat with Lindsey Sterling Krank this morning, and she encouraged me to look at portions of the Grassland Ecosystem Management Plan. It is obviously a daunting task to create a plan like this, and the plan certainly cannot be designed to please everyone. As you aptly point out in the sidebar on page 1, conservation itself can become a conservation issue, with competing interests that are impossible to satisfy simultaneously. I have not taken the time to look in detail at the entire plan, but feel compelled to comment on a couple of sections that about prairie dogs and plague.

Appendix I:

The criteria relevant to plague seem to be based on the presumption that *Yersinia pestis* is not present when it is not discovered using conventional sampling and diagnostic tools. Our recent studies (I will attach the galley proofs of the two papers to be published soon in *Vector-Borne and Zoonotic Diseases*) suggest that plague might be present much more often than previously thought. These two papers present a case for maintenance of plague in an unexpected way (within colonies of highly susceptible prairie dogs), although the mechanisms remain speculative (fleas as reservoirs, slow transmission rates, etc.). These studies emphasize that plague is having large impacts on prairie dogs of several species and endangered black-footed ferrets even when it does not erupt into epizootic form. Plague management (via flea control) improved prairie dog survival by 31-45 %, and flea control or an experimental vaccine improved ferret survival by 82-91 %, respectively, when epizootics were not present. Use of the vaccine as a treatment in the ferret experiment precludes explanations other than plague (which flea control alone does not), and the 5-year experiment with prairie dogs on 15 sites in Montana and Utah demonstrates how widespread the phenomenon might be. Plague was rarely detected using common diagnostic tests on hundreds of potential rodent hosts and thousands of their fleas at these study sites, implying that lack of detection does not imply low risk.

If plague also is endemic and pervasive along the Colorado Front Range (which seems likely), allowing translocation of prairie dogs only if one or two years has passed since detection of the disease seems too conservative. It would seem more realistic to assume that *Y. pestis*, in some form, is present in both the recipient and donor communities of animals, and/or in surrounding habitats. I believe you have correctly identified dusting as the reasonable tool (presently) to manage the risk of plague. You appear to have selected prairie dog conservation areas where management of a natural prairie dog community has high priority. The results of our studies suggest prophylactic flea control might be necessary on these sites to maintain prairie dog population growth rates that will be most suitable to sustaining a relatively stable population of prairie dogs and the associated species they support. If dusting is used in this way at recipient sites, and fleas are removed from prairie dogs to be translocated, I think you will have done an adequate job of managing risk.

Risks might be segregated into those that affect public health and those that affect populations of wildlife, although the two categories are clearly related. This management scenario involving prophylactic dusting (before translocations and after them) should reduce both categories of risk to levels lower than those attainable by monitoring plague and reacting to it when it is detected. This strategy also will allow prairie dog translocation to be expedited whenever it is beneficial for the donor or recipient sites.

P. 91 of the Grassland Ecosystem Management Plan:

The discussion in the first paragraph above also seems germane to some of the text on p. 91 of the Plan. Our results from the Montana black-tailed prairie dog and ferret habitat in particular cast doubt on the statement that "...mortality is nearly complete when plague infects a colony..." Plague clearly was present for some years (at least) in the UL Bend complex in Montana, causing noteworthy mortality in the ferret population without being detectable or noticeably reducing the black-tailed prairie dog population. Population explosions of *Y. pestis* might give the appearance of an invasion even if their origins are local. Notwithstanding these intricacies of enzootic plague and the transitions to epizootics, the latter

are obviously catastrophic, as the Plan states. However, I would suggest your consideration of preventing, rather than reversing, their effects (at least on the high priority areas for prairie dogs), as suggested above using prophylactic treatments. Prophylactic dusting should reduce or eliminate both enzootic and epizootic effects. Perhaps this management scheme could be considered as a test case or a demonstration of concept on areas where management of prairie dogs is of highest priority, defining a test period after which the strategy will be re-evaluated. Given the nature of plague, any such test should be of reasonably long duration (> 5 years?).

Given the large effects of relatively cryptic levels of plague that we found in our studies of prairie dog communities, it would not be surprising to find similar impacts on other species of mammals if we were to look more closely. More scrutiny might transform plague from a medium ranked conservation issue into a highly ranked conservation issue **as a whole**.

It is interesting that small, isolated, colonies, have remained apparently unaffected by repeated epizootics of plague in surrounding areas. It would be fascinating to examine the comparative attributes of these colonies. Is the isolation itself important, or perhaps it is other factors associated on unassociated with that isolation?

Please contact me if something I've mentioned is unclear or seems to need further discussion.

Cheers,

Dean

Dean E. Biggins, PhD  
U.S. Geological Survey (BRD)  
Fort Collins Science Center  
2150 Centre Avenue, Building C  
Fort Collins, CO, USA 80526-8118

970-226-9467 (Phone)  
970-226-9230 (FAX)  
dean\_biggins@usgs.gov



A program of The Humane Society of the United States

2525 Arapahoe, #E4-527  
Boulder, CO 80302  
720-938-0788 / (f) 720-565-9096  
[www.prairiedogcoalition.org](http://www.prairiedogcoalition.org)

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January 12, 2010

Mr. Mark Gershman  
Environmental Planning Supervisor  
Open Space and Mountain Parks Department  
City of Boulder  
Boulder, CO

Dear Mr. Gershman:

Re: Grasslands Plan

On behalf of Keep Boulder Wild we wish to provide comments to you regarding the above referenced.

The focus of these comments involves three primary areas:

1. Prairie Dog Management Designation Changes; and,
2. Prairie Dog Relocation Criteria; and,
3. General Discussion of Plague

Prairie Dog Management Designation Changes:

Staff proposes to change 29 acres of occupied prairie dog habitat west of the Foothills Park site from the current "Transition Area" designation to "Removal Area" designation. While we understand that prairie dogs occupying these areas have moved into undesirable areas, we are concerned about the following issues with this change in designation:

1. Prairie dogs designated in Transition Areas relies on relocation for removal where the designation Removal Area means that prairie dogs are subject to lethal control if relocation areas are not found. Understandably, there are various constraints in finding receiving sites for these animals, and we believe that changing this designation prior to OSMP's ability to review receiving sites by late summer 2010 is a premature action.
2. While we do understand that the costs and questioned effectiveness of barriers is a potential issue, we believe this matter should be revisited. We understand that prairie dogs have moved towards the southern end of the Foot Hills Community Park system and that the idea of erecting a barrier along the entire north/south trail had some contentious issues: that is, residents expressed concerns about aesthetics, costs and effectiveness of barriers. It may still be possible to explore alternative barrier configurations to maintain prairie dogs on the northern side of the trail.
3. Additionally, Keep Boulder Wild recommends the original proposed barrier be revisited.

4. Finally, removing the prairie dogs from these areas will not ensure prairie dogs will not return to the site, just as they have since the last plague outbreak. It may be best to manage them where they are.

**Recommendation:** We oppose this designation change and suggest the Urban Wildlife Management Plan change their designation to align with OSMP's designation of Transition area. We also believe that alternative barrier designs and the OSMP inventory of potential release sites should be completed first before changing any designation.

#### Prairie Dog Relocation Criteria

Keep Boulder Wild proposed several relocation criteria changes to staff. We did so based upon extensive relocation experience with prairie dogs on multiple landscapes situations. In our opinion, this criteria may be too restrictive, hence, it will be difficult for prairie dog relocations to occur; we do not think this is staff's intent.

Specifically, we are highly concerned about the following addressed in Attachment C under the Grassland Preserves (Full Criteria) heading:

1. Existing burrow structure or evidence of previous occupation

Comment: We believe that given the enzootic nature of plague (*please see General Discussion of Plague below*) that OSMP may not want to limit themselves to only areas that have been previously occupied by prairie dogs. We believe that areas where prairie dogs have never been introduced may be a good conservation alternative in protecting prairie dogs from enzootic plague which may result in epizootic outbreaks. Additionally, prairie dog relocations have been successful in areas without existing burrow structure or evidence of previous occupation.

**Recommendation:** Delete requirement of existing burrow structure or evidence of previous occupation.

2. Average prairie dog density below 15/animals per acre based on sampling plots

Comment: OSMP may want to consider looking at this from a management prospective but we need to keep in mind that prairie dog densities can vary widely on any given site. For example, rocky sites may have a lower density of prairie dogs where loamy areas may have a higher density of prairie dogs. In addition the time of year that the population assessment is conducted significantly fluctuates from the time periods of May through mid December for example. We believe the OSMP may want to change this average density per acre as a "guideline" to review but should be flexible given the time of year and soil composition of each prairie dog site.

#### **Recommendation:**

- Remove criteria 2; or
  - Change average density per acre to become a 'guideline', but should be flexible given the time of year and soil composition of each prairie dog site.
3. At least 2 years has passed since the presence of active plague on OSMP system or bordering properties or; at least one year has passed since the presence of active plague on OSMP system or bordering properties and properly flea dusting

has been conducted in burrows slated for introduction and a surround buffer area as designated by health officials.

Comment: We have provided staff with expert consultation, comments and scientific literature saying this guideline is too conservative and not necessary (*please refer to literature provided to OSMP by Dr. Dean Biggins, Research wildlife biologist/ USGS*). Given the discussion of plague as a potential enzootic, it does not make any biological sense to restrict the entire OSMP “system” from potential relocations. Instead, OSMP should consider adhering to a one year rest period and then require that all burrows be dusted prior to reintroduction of new prairie dogs on the specific release site under consideration for relocation

Furthermore, waiting for extended periods of time may cause unoccupied tunnels in the burrows to collapse making relocation much more difficult and expensive (Personal comm.. P. Wanek).

**Recommendation:** Change this criteria to read: At least one year has passed since the presence of active plague and that the release site and take sites have been properly dusted prior to reintroduction.

4. Relocation will follow regulations set out in City of Boulder’s Wildlife Protection Ordinance and associated city policies.

Comment: None

5. All appropriate state, federal permits obtained and conditions of permits followed.

Other items to consider is that CDOW may not approve of sites you are interested in reintroducing prairie dogs into. This is most likely to occur in the “Prairie Dog Conservation Areas” because these properties are closer to urban areas which may result in wildlife conflicts. We cannot stress strongly enough that OSMP needs to avoid rigid guidelines and have some flexibility for the long-term plan as has been presented here. For example if CDOW does not allow for the relocation OSMP may need the flexibility to redesignate the original PCA’s to another category and then consider other properties to replace the original PCA.

**Recommendation:** Add language that OSMP staff is allowed to redesignate prairie dog management area designations with a typical 30 day public comment period and notification

- Additionally, we would like to clarify some comments made in the 4 letter dated January 4, 2010 from Mark Gershman to the Grassland Plan Mailing list members. On page 4 it is mentioned: “that the Colorado Division of Wildlife frequently requires dusting as a condition of prairie dog permits.”

Comment: Please be advised that for any “Wild to Wild Relocation” that the Colorado Division of Wildlife **always** requires dusting of the take site burrows. The Division also requires that prairie dogs are sprayed again with flea insecticides prior to releasing the animals. Wild to Ferret, Wild to Raptor and Scientific Research permits do not require such rigorous dusting and insecticide use requirements.

- Also mentioned on the bottom of page 4 it states: “Dusting of animals with insecticide has been viewed in the past as a reliable way to ensure plague is not transported by relocated animals. However, the recent evidence that some individual prairie dogs infected by plague live on for extended periods casts doubt on this assumption.”

Comment: While this incident may be true, this rhetoric casts doubt on the effectiveness of dusting to prevent a plague epizootic. Published literature shows that dusting has prevented plague epizootics in areas where plague lives in the system. Both sides need to be displayed in OSMP’s commentary to Council and OSBT.

6. Grassland preserve is below 10% threshold occupancy-as identified in Grassland Ecosystem Management Plan Black-tailed Prairie Dog and Associates viability standards.

Comment: While we can appreciate that OSMP wishes to manage a well functioning grassland system, we are concerned that maintaining such a threshold could result in the act of “thinning” prairie dogs or refusing lands for prairie dog relocation to achieve OSMP goals. Additionally, we need to appreciate that the vegetative community in prairie dog towns vastly differs from grasslands communities that are void of prairie dogs. Understanding this difference is best explained by what humans perceive as viable versus what is viable for the prairie dog community. We attempt to explain this dichotomy below in understanding the difference between biological carrying capacity and cultural carrying capacity.

Biological carrying capacity vs. Cultural carrying capacity

In our human quest to create the best situation, we continually move back between two primary types of carrying capacity. One is biological carrying capacity that is defined as the number of animals and plants that any area can support at one time where the other is cultural carrying capacity which is the number of animals that people are willing to tolerate. For prairie dog populations, carrying capacity can be low in some years or high in others; these fluctuations are typically affected by climate, vegetative quality, topography, predation and competition among other prairie dogs. We believe the real question is whether prairie dogs are in fact able to sustain themselves through the years and this involves an understanding of the nature of Black-tailed prairie dogs.

Additionally, these criteria should reflect the internal dynamics of each prairie dog colony more so than the grassland characteristics. Unstable colonies occur where prairie dogs are expanding into a new area, that is, they have not reached the land boundaries of their expansion. In unstable colonies there are higher successful birth rates and less territorial aggression among coterries (a family of prairie dogs) members. When these two key elements (lack of boundaries and clearly defined coterries) are not present, prairie dogs will continue to expand until they have reached some element that blocks the expansion. In the natural environment expansion is hindered by varying vegetation or topographic elements.

In stable colonies ones where territorial expansion is limited, yearlings (prairie dogs under 20 months old) are less likely to breed or have successful births, infanticide is high and females are less likely to successfully conceive. In essence, the biological dynamics of the prairie dog population itself has created a situation where populations level off and remain relatively constant over long periods of time. While unstable colonies provide a good mix

for genetics, stable colonies provide a better constant for overall prairie dog management. We believe the delineations of stable and unstable colonies are an important factor to consider in prairie dog management.

Prairie dog colonies can fluctuate year to year based upon vegetation and other factors.

**Recommendation:** This number be used as a guideline only and provide some flexibility for total occupancy. This threshold should be in the approximate range of 10 to 26%, but prairie dog occupancy not lower than 10%..

7. Vegetation and habitat within receiving site meets the following minimum standards based upon data from at least three transects with each habitat type on the receiving site:
  - a. Average bare ground no more than 22% cover
  - b. Average native species richness at least 18 species (with the exception of non-native grassland patches)
  - c. Average relative cover of perennial graminoid species at least 60%
  - d. Average sensitive/conservative species richness at least 4 species (with the exception of xeric tall grass or non-native grassland patch types)

Comment: There are multiple concerns about vegetation and habitat requirements. First, while we do not want to relocate prairie dogs onto less than desirable vegetative conditions and we do believe that some guidelines are important, we also believe that the guidelines that have been considered here are too restrictive and will require a great deal of time and expense on behalf of OSMP staff to correctly identify areas as adequate receiving sites given these parameters. Additionally, plant communities are greatly affected by seasonal and yearly weather patterns.

We believe that OSMP should adopt more flexible standards and focus on what prairie dogs really need for vegetation. In addition, many OSMP properties have weeds that are readily consumed by prairie dogs.

In multiple published studies, prairie dog grazing promotes a heterogeneous mix of plant species. If OSMP waits too long for recovery after a plague epizootic it is quite possible that graminoids will again rebound to the point where their extensive rhizomes and roots will choke out bare areas that are needed for forb species to thrive. The longer a site sits without prairie dog activity, the lower the heterogeneous mix of plants. Additional studies indicate that prairie dog consumption patterns change throughout the year and this observed behavior is simply explained by the change of plant palatability through its' growth cycle. So, what we need are plants capable of sustaining prairie dogs throughout the year. This should be a basic assortment of warm and cool season graminoids, forbs and succulents.

In addition, while we do appreciate that OSMP will recognize non-native graminoids in the calculation for vegetative requirements, it is also important to recognize non-native forb species that are readily consumed by prairie dogs such as Russian thistle, kochia and bindweed.

**Recommendations:**

- a. Average bare ground no more than 22% cover

- b. Delete this recommendation
  - c. Change this criteria to read: Average graminoid cover (nonnative and native), forb (native and nonnative) and succulent cover at least 60%
  - d. No comment currently
8. Majority of receiving site has been identified as exhibiting Good or Very Good Habitat Suitability in OSMP's prairie dog HSM. Relocation should begin in areas with highest suitability.

Comments: none

### Discussion of Plague

The following is a general discussion of plague in prairie dogs. Plague (*Yersinia pestis*) is a complex bacterium that substantially devastates prairie dogs. Historically, it was assumed that since prairie dogs die and fleas need a continued blood source to survive then the reservoir host must be another mammal that breeds continually to maintain a blood source for the fleas. The mammal most thought to provide this source were mice.

Plague is an enigma but science has indicated conclusions about the bacteria in prairie dog colonies.

1) Plague seems to reappear on previously plagued sites, sometimes many years later. This pattern in plague brought out more research in looking for reservoir hosts or looking for other sources that may reintroduce plague into colonies that reached epizootic stages many years later.

2) Newly published research indicates plague actually sustains itself between two continuums. One is the epizootic stage (rapid and progressive demise of large numbers of susceptible hosts) and the second is the enzootic stage (where plague remains persistent but remains at low almost undetectable levels as it interacts with hosts and fleas). Epizootic plague is easy to detect where enzootic levels require much difficult to ascertain. The thought here is that at the enzootic level, plague can remain in a "dormant" state for many years. (Wimsatt, Biggins, A review of plague persistence with special emphasis on fleas. Vector Borne Dis 46, June 2009, pp85-99).

- Given this information, is it possible to ever completely eradicate plague from the OSMP system? We believe that given this new science it may impossible to attain that goal; therefore, it is highly likely that plague would ever be completely eradicated from the OSMP system and prairie dog relocations could never occur.

If the plan wishes to avoid plague situations it may be important to place more emphasis on colonies that have never plagued. According to published research, in 1994 Boulder experienced a major plague epizootic which caused die offs in most of Boulders prairie dogs. However, it was noted that plague negative colonies were surrounded by a higher cover of streams and lakes then were plague positive colonies (Collinge, Johnson, Ray, Matchett, Grensten, Cully, Gage, Kosoy, Loye, Martin). Landscape structure and plague occurrence in black-tailed prairie dogs on grasslands of the western USA. Landscape Ecology (2005) 20:941-955).

- This research suggests that even though plague can be a frustrating disease to work with on large landscapes that there are opportunities to retain plague free colonies by properly situating colonies away from other colonies that have experienced plague epizootics.

**Recommendation:** Dust is applied to prairie dog colonies located in the Prairie Dog Conservation Areas and Grassland Preserves when plague is detected in the OSMP system until a better alternative is developed to prevent plague epizootics