Appendix B: Proposed Approaches to Prairie Dog Management

Management approaches in this appendix clarify how the Forest Service intends to implement the proposed plan amendment for prairie dog management. The responsible official may choose to adopt these management approaches as part of the amended grassland plan.

The 2012 Planning Rule allows for inclusion of optional content in the plan such as potential management approaches or strategies and partnership opportunities or coordination activities (36 CFR 219.7(f)(2)). The planning rule does not require project consistency with optional content in the plan (36 CFR 219.15(d)). Optional content in the plan can be changed after public notification under the planning rule provision for administrative changes (36 CFR 219.13(c)).

- **Management Approach -** A management approach can describe the principal strategies and program priorities the responsible official intends to employ to carry out projects and activities developed under the land management plan. The management approaches are related to the desired conditions for the alternative. Management approaches can convey the management emphasis, relate to desired conditions and may indicate the future course or direction of change. These may discuss potential processes such as analysis, assessment, inventory, project planning, or monitoring.

Collaborative Stakeholder Group

Interested parties have been working together for decades to improve management of prairie dog colonies on the Thunder Basin National Grassland. Since the 2009 grassland plan amendment, stakeholders have come together to develop conservation agreements (2010), as part of an interdisciplinary planning team (2013–2014), to revise the prairie dog conservation assessment and management strategy (2015), to assess the situation surrounding prairie dog management (2015), and to develop recommendations for the 2020 plan amendment (2018). A collaborative stakeholder group continues to discuss management challenges, provide management recommendations, and consider the most effective ways for stakeholders to participate in prairie dog management.

Working with a third-party collaborative stakeholder group may be the best way to achieve strategic long-term solutions and pragmatic short-term decisions for prairie dog colony management (Reading et al. 2002). A grassland-wide "objective" is proposed for amendment in all action alternatives to emphasize the importance of meeting regularly with Federal, State, and county agencies and governments, individuals, and non-governmental organizations for seeking collaborative solutions to prairie dog management (Table B-1). Forest Service personnel will work actively with and accept input on prairie dog management and monitoring from a third-party collaborative stakeholder group. The district ranger will share relevant information with the group and be responsive to information the group presents. Forest Service personnel will meet with the group or representatives of the group a minimum of one time per year, and often more frequently. The collaborative stakeholder group is expected to include a diverse group of stakeholders representing a wide range of perspectives that work together toward recommendations. Diverse stakeholders include State and local agencies and governments, educational and research institutions, ranching groups, grazing association members, environmental organizations, individuals with expert knowledge on topics such as rangeland and wildlife management, private landowners, and other interested parties.

Grassland personnel will work with members of the collaborative stakeholder group throughout plan implementation. They will likely discuss topics such as inventory and mapping of prairie dog colonies, lethal and nonlethal prairie dog control within 1 mile of residences and in boundary management zones, management considerations for managing colonies toward the target acreage (including translocation and rodenticide use), lethal and nonlethal prairie dog control outside of boundary management zones, sylvatic plague management, prairie dog density control, and public outreach.

Table B-1. Proposed plan components relevant to working with a collaborative stakeholder group

Component number	No-action alternative	Proposed action, grassland-wide alternative, prairie dog emphasis alternative	Preferred alternative
Ch. 1, Goals and Objectives, Goal 4.b, Public and Organizational Relations, Objective 2	Objective: Work in cooperation with Federal, State, and county agencies, individuals, and nongovernment organizations for control of noxious weeds and invasive species and animal damage.	Objective: Work in cooperation with Federal, State and county agencies, individuals, and non-governmental organizations for control of noxious weeds and invasive species and for seeking collaborative solutions to prairie dog management.	Objective: Meet annually with Federal, State, and county agencies and governments, individuals, and non-governmental organizations to determine priorities and approaches for control of noxious weeds and invasive species and for seeking collaborative solutions to prairie dog management.

Priorities for Prairie Dog Control

When funding available for prairie dog control is insufficient to meet all needs or requests for prairie dog control, the use of funding for prairie dog control will be prioritized according to the list below. This list of priorities adds detail to the prioritization of the 1-mile buffers around residences found in the plan components. Beyond prioritization of the 1-mile residence buffers, the listed priorities will guide use of funding generally, but recommendations from the collaborative stakeholder group or extraordinary on-the-ground circumstances could warrant deviation from this prioritization structure. In addition to these priorities, the responsible official will consider whether adjacent landowners are engaging in concurrent control efforts of prairie dog control done to prevent encroachment onto non-Federal land to ensure effective treatments (Table B-2).

Detailed priority lists were not developed for other action alternatives, but proposed plan components describe some prioritization (Table B-2).

Preferred Alternative Prioritization of Use of Resources for Prairie Dog Control

1. Control in 1-mile residence buffer anywhere on grassland.
2. Control to prevent damage to private and public facilities such as cemeteries, dams, ditches, and buildings anywhere on grassland.
3. Control in boundary management zones within management area 3.67.
4. Control in management area 3.67 outside of boundary management zones, or control outside of management area 3.67.
    - Prioritized on an annual basis and informed by collaborative recommendations. Could address issues such as areas where prairie dogs are impacting other important habitat (e.g., greater sage-

grouse priority habitat management areas), encroaching on private or State lands, or occupying the Cheyenne River-Antelope Creek Zoological Special Interest Area, or to address forage availability.

- Control work in management area 3.67 outside of boundary management zones is contingent on total colony acreage in the management area exceeding 7,500 acres.

Table B-2. Proposed plan components relevant to priorities for prairie dog control

Component number	No-action alternative	Proposed action, grassland-wide alternative, prairie dog emphasis alternative	Preferred alternative
Chapter 1: GPA-FW-ADM-GL-06 (PA); GPA-FW-ADM-GL-09 (GW); GPA-FW-ADM-GL-06 (PDE); GPA-FW-ADM-ST-06 (Preferred)	N/A	Control of prairie dogs within 1 mile of residences will be the highest priority for control, and all lethal and nonlethal control tools not otherwise restricted in this plan are available within 1 mile of residences at any time. To ensure effectiveness of treatments, prairie dog control efforts by the Forest Service should be prioritized where the adjacent landowner engages in concurrent control efforts. Guideline	Requests for control of prairie dogs within 1 mile of residences will be the highest priority for control, and all prairie dog control tools not otherwise restricted in this plan are available within 1 mile of residences at any time. Standard
Chapter 1, Standards and Guidelines, Biological Resources, H.2 (NA); Ch. 1, Standards and Guidelines, Biological Resources, H.3 (PA, GW, PDE, Preferred)	N/A	To ensure effective treatments in boundary management zones, prairie dog control efforts by the Forest Service should be prioritized where the adjacent landowner engages in concurrent control efforts. *[This language also appears in the proposed action and grassland-wide alternatives in chapters 1 and 3 wherever components describe direction for boundary management zones.]*	Before implementing prairie dog control, the responsible official should consider whether adjacent landowners are engaging in concurrent control efforts to ensure effective treatments. Guideline

Sylvatic Plague Management

Sylvatic plague (*Yersinia pestis*) was first detected on the Thunder Basin National Grassland in the mid-1990s, and the first landscape-scale plague epizootic among the black-tailed prairie dog population began in 2001. Since that time, plague has likely been continuously active in prairie dog colonies on the grassland. Two subsequent landscape-scale epizootics began in 2005 and 2017.

Plague dynamics in prairie dog colonies are not well understood, especially the mechanisms for enzootic and epizootic phases of plague in a location after it first enters a colony. Several management tools to minimize the transmission of plague can help reduce the likelihood of epizootics, including use of insecticides to control vector flea populations and vaccines for prairie dogs and other susceptible species.

The Forest Service has used the insecticide deltamethrin to mitigate plague on the Thunder Basin National Grassland. In the proposed plan direction (Table B-3), the use of available plague mitigation tools would be allowed in the proposed action and grassland-wide alternatives, and required in the no-action and prairie dog emphasis alternatives. Under the preferred alternative, an integrated approach to plague management (e.g., using tools such as deltamethrin and fipronil) would be implemented annually in management area 3.67, and may be implemented outside of management area 3.67. Consistent with other forms of integrated pest management, this would not mean that action must be taken every year, but that action would be taken when and where it is determined to be appropriate following consideration of

many aspects of plague management. For example, fleas can develop resistance to insecticides such as deltamethrin or fipronil, and an integrated approach to plague management may include alternating application of these products on a specific colony or not applying insecticides to a colony for 1 or more years. Plague mitigation tools may be used during the same years that control tools are used to maintain the 10,000-acre objective for prairie dog colonies in management area 3.67.

In the preferred alternative, an objective would be included as a new plan component to develop a plague management plan for management area 3.67 within 3 years of the plan amendment. Implementation of other alternatives would also include developing a more detailed strategy for prioritizing plague control and selecting plague control tools. This plan should be developed based on the best available scientific information and in collaboration with knowledgeable partners including the collaborative stakeholder group. The intent of the plan is to identify the techniques and priorities for plague management and develop an outyear plan for how to use integrated plague management to achieve the desired conditions and acreage objectives for management area 3.67.

Table B-3. Proposed plan components relevant to plague management

Component number	No-action alternative	Proposed action	Grassland-wide alternative	Prairie dog emphasis alternative	Preferred alternative
Chapter 1: GPA-FW-FWRP-GL-02 (PA); GPA-FW-FWRP-GL-04 (GW); GPA-FW-FWRP-GL-03 (PDE); GPA-FW-FWRP-GL-02 (Preferred)	N/A	To mitigate the risk of epizootics caused by sylvatic plague, plague control tools such as deltamethrin or sylvatic plague vaccine may be used in prairie dog colonies. Guideline	*Same as proposed action*	Plague management tools (e.g., deltamethrin or vaccination) will be used where practical and effective to control plague within prairie dog colonies. Guideline	An integrated approach to plague management (e.g., using tools such as deltamethrin and fipronil) may be implemented to mitigate the transmission of sylvatic plague. Guideline
GPA-MA3.67-FWRP-ST-18 (Preferred)	N/A	N/A	N/A	N/A	An integrated approach to plague management (e.g., using tools such as deltamethrin and fipronil) will be implemented annually. Standard

Component number	No-action alternative	Proposed action	Grassland-wide alternative	Prairie dog emphasis alternative	Preferred alternative
Chapter 3, MA 3.63, Desired Conditions (NA); Ch. 3, MA 3.67, Desired Conditions (PA, GW, PDE, Preferred)	N/A	Prairie dog colonies vary in size and density. Intercolony distances of 4.5 miles or less are maintained where possible to develop colony complexes. Plant community composition varies over time on colonies. Colonies are managed to provide habitat for associated species such as mountain plover, burrowing owl, other grassland birds, and swift fox. Colonies are also managed to prevent undesired encroachment onto adjoining lands and to minimize occurrence of sylvatic plague.	Prairie dog colonies vary in size and density. Plant community composition varies over time on colonies. Colonies are managed to provide habitat for associated species such as mountain plover, burrowing owl, swift fox, and other grassland birds. Colonies are also managed to prevent undesired encroachment onto adjoining lands and to minimize occurrence of sylvatic plague.	While land uses and resource management activities are conducted in a manner that is compatible with maintaining large prairie dog complexes, colonies are also managed to prevent undesired encroachment onto adjoining lands and to minimize occurrence of sylvatic plague.	Prairie dog colonies are present and vary in size and density. Colonies provide habitat and landscape-scale connectivity for species associated with prairie dog colonies such as mountain plover, burrowing owl, other grassland birds, and swift fox. Plant community composition varies over time on colonies, and colonies may exhibit characteristics of short stature vegetation and bare ground communities. Colonies are also managed to prevent undesired encroachment onto adjoining lands and to minimize occurrence of sylvatic plague.
Appendix G Glossary, Prairie Dog Colony Conservation Tools (PA, GW, PDE); Appendix G Glossary, Prairie Dog Conservation Tools (Preferred)	N/A	**Prairie Dog Colony Conservation Tools** – Actions used to promote the growth or prevent the shrinking of prairie dog colonies. Tools may include, but are not limited to: translocation of prairie dog coteries; plague control tools, such as deltamethrin or sylvatic plague vaccine; prohibitions on recreational shooting; and vegetation management, including prescribed fire.	*Same as proposed action*	*Same as proposed action*	**Prairie Dog Conservation Tools** – Actions used to promote the growth or prevent the reduction of prairie dog colonies. Tools may include, but are not limited to: translocation of prairie dogs; plague mitigation tools, such as deltamethrin and fipronil; restrictions on recreational shooting; and vegetation management, including prescribed fire.

Component number	No-action alternative	Proposed action	Grassland-wide alternative	Prairie dog emphasis alternative	Preferred alternative
Appendix N	Plague management tools (e.g., dusting and vaccination) will be used where practical and effective to control plague within prairie dog complexes.	N/A	N/A	N/A	N/A

Prairie Dog Density Control

Prairie dog density control is a specific type of prairie dog control that reduces the density of prairie dogs within a colony rather than eliminating a colony or reducing the extent of a colony. Density control would likely most often occur using rodenticides, but could also occur using translocation or physical disturbances to the soil that might cause prairie dogs to disperse away from an area or act as a deterrent from re-occupying an area (e.g., levelling and filling in mounds). Density control could occur in different spatial patterns and at different intensities. The objectives of density control would be site-specific and could include influencing colony growth and dispersal, preventing undesirable vegetation state changes, and promoting forage availability.

Little is known about how different methods of density control affect prairie dog biology and vegetation response, with outcomes potentially being quite variable. Therefore, density control is proposed as an experimental activity on the Thunder Basin National Grassland. Proposed plan direction has been developed to address the use of density control for the proposed action, grassland-wide, and preferred alternatives (Table B-4). The proposed action and grassland-wide alternative would allow the use of density control regardless of the total colony acreage, but would restrict density control to 50 percent of a colony if the total colony acreage in management area 3.67 or across the grassland is less than minimum thresholds for all non-density control rodenticide use. The preferred alternative would not allow density control if total colony acreage is less than 7,500 acres in management area 3.67 until scientific information becomes available to indicate that density control can meet site-specific objectives and maintain habitat for species associated with prairie dog colonies. Because density control would be exploratory under these alternatives, the Forest Service intends for site-specific objectives and monitoring protocols to be developed for each instance of density control. This will help to ensure that each instance contributes to an understanding of the effects of density control and provides insight into how future use of density control might affect prairie dogs and vegetation. However, in colonies where all non-density control types of prairie dog control would be already authorized, constraints on the spatial pattern of rodenticide application would not apply, and density control objectives and monitoring protocols would not be required to be able to treat portions of a colony.

In the preferred alternative, to facilitate the exploration of density control, develop an understanding of its effects, and be precautionary in its use, the Forest Service would adopt general rules for its approach to density control. For all density control projects under the preferred alternative, the Forest Service would:

- map colony extent before and during density control;
- treat no more than 50 percent of a colony, by acres, in any year;
- treat no more frequently than every other year; and
- use monitoring information to inform annual decisions on whether to continue density control.

Initially, density control (both lethal and nonlethal) would be allowed in colonies outside of management area 3.67, and in colonies inside of management area 3.67, if total colony acreages were more than 7,500 acres. For initial density control projects, Forest Service personnel would:

- work with the collaborative stakeholder group to identify potential pilot sites, objectives, and methods of control;
- partner with research institutes to design pilot projects and develop understanding of effects of density control;
- collect pre-treatment vegetation and ground cover data on the density control site and an experimental control site, and collect monitoring data for a minimum of 2 years following treatment; monitoring techniques may include, but would not be limited to line point intercept, clipping by species, plant census, Daubenmire frames, and photopoints;
- avoid density control work on sites occupied by associated species during the most recent monitoring effort; and
- establish pilot sites on high-productivity sites to understand effectiveness for achieving vegetation objectives. The initial use of density control would be limited to more productive ecological sites such as the loamy and lowland sites where the likelihood of achieving vegetation objectives is higher. Density control would be considered when grass/forb ratios are shifting toward a community dominated by forbs and increased bare ground. This information would be recorded as pre-treatment monitoring data.

Under the preferred alternative, density control work could be expanded to be allowed in management area 3.67 if the total colony area were less than 7,500 acres if the best available scientific information indicated that density control achieved objectives and maintained habitat requirements for associated species. A National Environmental Policy Act "Section 18" review or a supplemental information report (Forest Service Handbook 1909.15, chapter 10, section 18.1), may be used to document this information, including when and where the tool could be applied. If density control were used in management area 3.67, colonies in which density control had been implemented would continue to contribute to the 10,000-acre colony acreage objective.

Table B-4. Proposed plan components relevant to density control

Component number	Proposed action	Grassland-wide alternative	Preferred alternative
Chapter 1: GPA-FW-FWRP-ST-02 (GW); GPA-FW-FWRP-ST-01 (PDE)	N/A	Prairie dog colonies will be managed toward a target range of 10,000 to 15,000 acres across the grassland. To work toward acreage targets, a variety of conservation and control tools may be used. When the total area of prairie dog colonies across the grassland is less than 10,000 acres, lethal control is prohibited, except in the following situations: • Lethal control in boundary management zones • Density control. • During drought conditions, to mitigate prairie dog colony expansion, manage toward the lower end of the range (10,000 acres) of prairie dog colonies across the grassland. Standard	N/A
Chapter 1: GPA-FW-FWRP-GL-05 (GW)	N/A	Density control (for example, using rodenticides, translocation, or collapsing of burrows) may be used to maintain desired vegetation conditions within a prairie dog colony. Desired vegetation structure and composition may vary by ecological site or colony. Where density control occurs, pretreatment data must be collected, and monitoring data must be collected for a minimum of 2 years after treatment. Guideline	N/A
Chapter 1: GPA-FW-FWRP-ST-06 (GW)	N/A	When the total area of prairie dogs across the grassland is less than 10,000 acres, density control will not occur in more than 50 percent of the area of any colony. Standard	N/A
Chapter 1: GPA-FW-FWRP-ST-03 (PA)	In prairie dog colonies designated as satellite colonies: • Recreational shooting of prairie dogs is prohibited February 1 through August 15. Lethal prairie dog control is prohibited with the following exceptions:	N/A	N/A

Component number	Proposed action	Grassland-wide alternative	Preferred alternative
	• Lethal control may be used to prevent a satellite colony from exceeding the area it occupied at the time it was designated as a satellite colony. • Density control may occur in no more than 50 percent of the area of a satellite colony. The designation of satellite colony will be removed only when the total acreage of prairie dog colonies within management area 3.67 has reached 7,500 acres. Standard		
Chapter 3: GPA-MA3.67-FWRP-ST-08 (PA); GPA-MA3.67-FWRP-GL-09 (PA)	Prairie dog colonies within management area 3.67 will be managed toward a target of 10,000 acres to support associated species such as mountain plover, burrowing owl, and swift fox. Management that adapts to fluctuations of colony acreage may occur while managing toward the 10,000-acre target. All prairie dog colony management tools not otherwise restricted by this plan will be available for use when the colony acreage in management area 3.67 is more than 7,500 acres, and during drought, to mitigate colony expansion, the total acreage may be managed toward a temporary alternate target of 7,500 acres. When the acreage of colonies within management area 3.67 is less than 7,500 acres, lethal control tools will not be used except in the following situations: • Use in boundary management zones. • Density control	N/A	N/A

Component number	Proposed action	Grassland-wide alternative	Preferred alternative
	• If the responsible official determines that lethal control beyond density control is warranted and the total area of prairie dog colonies is less than 7,500 acres within management area 3.67, then satellite colonies may be identified outside of management area 3.67 to temporarily allow lethal control within management area 3.67. The sum of satellite colony acres and colony acres in management area 3.67 should be greater than 7,500 acres before allowing lethal control within management area 3.67, so that at least 7,500 acres remain following control. Standard		
Chapter 3: GPA-MA3.67-FWRP-ST-10 (Preferred)	N/A	N/A	Do not authorize use of control tools when prairie dog colony acreage is less than 7,500 acres, except in boundary management zones or if approved for density control based on best available scientific information. Standard
Chapter 3: GPA-MA3.67-FWRP-GL-11 (PA); GPA-MA3.67-FWRP-ST-15 (Preferred)	Density control (for example, using rodenticides, translocation, or collapsing of burrows) may be used to maintain desired vegetation conditions within a prairie dog colony. Desired vegetation structure and composition may vary by ecological site or colony. Where density control occurs, pretreatment data must be collected, and monitoring data must be collected for a minimum of two years after treatment. Guideline	N/A	Do not authorize prairie dog density control activities in management area 3.67 when total colony area is less than 7,500 acres, unless best available scientific information indicates that density control activities will achieve site-specific objectives and maintain habitat requirements for species associated with prairie dog colonies. Colonies treated for density control will continue to count toward prairie dog colony acreage targets. Standard

Component number	Proposed action	Grassland-wide alternative	Preferred alternative
GPA-MA3.67-FWRP-ST-12 (PA); GPA-MA3.67-FWRP-GL-16 (Preferred)	When the total area of prairie dogs in management area 3.67 and satellite colonies is less than 7,500 acres, density control will not occur in more than 50 percent of the area of any colony. Standard	N/A	To ensure conservation of habitat requirements for species associated with prairie dog colonies, density control of prairie dog colonies (i.e., using prairie dog control for site-specific objectives related to reducing the density of prairie dogs within a colony) should not occur in more than 50 percent of any colony, by acres, in any year. Density control should occur no more than every other year. Guideline
Appendix G, Glossary, Prairie Dog Density Control	**Prairie Dog Density Control** – A management action or set of management actions implemented with the intent to reduce the number of live prairie dogs within a prairie dog colony or some portion of a colony without reducing the total area of the colony. Such management actions would occur most often via the use of rodenticides but other control tools may be used.	*Same as proposed action*	**Prairie Dog Density Control** – A management action or set of management actions implemented with the intent to reduce the number of live prairie dogs within a prairie dog colony or some portion of a colony without reducing the total area of the colony. Such management actions would occur most often via the use of rodenticides, but other control tools may be used. Objectives for density control are site-specific and include influencing colony growth and dispersal and preventing undesirable vegetation state changes.

Drought Management

Drought is a periodic driver of vegetation characteristics on the Thunder Basin National Grassland. Droughts occur at different spatial scales and with different frequency, intensity, and duration across the grassland. Because they affect the availability of forage resources, droughts may affect prairie dog dispersal and colony movement. Colonies may expand especially rapidly during drought, when forage is scarce within colonies, as individuals spread outward to find food. Colony population density likely decreases when colonies expand during drought. See the biological evaluation for additional information about prairie dog responses to drought (appendix E).

Because of the effects of drought on forage availability and prairie dog movement, drought can heighten conflicts related to prairie dog occupancy and livestock grazing. Drought can also affect the risk of colony encroachment onto non-Federal lands. To address these issues, the proposed action, grassland-wide alternative, and preferred alternative each include a plan component that allows for managing toward the minimum colony area thresholds for rodenticide use during drought conditions (Table B-5).

The definition of drought from the 2002 grassland plan, as stated in the glossary, and which applies to all alternatives, is, "Any year or sequence of years when annual precipitation amounts are less than 75% of normal." The drought contingency plan component in the preferred alternative expands upon this definition in the context of prairie dog management, stating that the identification of annual precipitation amounts will be "based on local climate data and in consultation with the United States Drought Monitor" (Table B-5).

To implement the drought contingency plan components, the timing of precipitation, prairie dog colony mapping, and prairie dog control would all be considered. Use of the alternate lower prairie dog colony acreage objectives during drought would be triggered by 2 consecutive years of less than 75 percent of normal precipitation. In the second year of less than 75 percent of normal precipitation, the responsible official would consider control measures to limit colony expansion, especially on productive ecological sites. Annual precipitation amounts would be calculated at the end of the spring growing season (approximately June 1), and any subsequent colony control efforts would occur during the following rodenticide use season (October 1 through January 31).

Table B-5. Proposed plan components relevant to drought

Component Number	Proposed Action	Grassland-wide Alternative	Preferred Alternative
Chapter 1: GPA-FW-FWRP-ST-02 (GW)	N/A	Prairie dog colonies will be managed toward a target range of 10,000 to 15,000 acres across the grassland. To work toward acreage targets, a variety of conservation and control tools may be used. When the total area of prairie dog colonies across the grassland is less than 10,000 acres, lethal control is prohibited, except in the following situations: • Lethal control in boundary management zones • Density control • During drought conditions, to mitigate prairie dog colony expansion, manage toward the lower end of the range (10,000 acres) of prairie dog colonies across the grassland. Standard	N/A

Component Number	Proposed Action	Grassland-wide Alternative	Preferred Alternative
Chapter 1: Standards and Guidelines, Biological Resources, I.3	Adjust management activities to account for the effects of natural processes (e.g., drought, fire, flood, grasshoppers, prairie dogs, etc.) on forage availability and to prevent or minimize impacts to biotic integrity, soil and site stability, and hydrologic function. Guideline	*Same as proposed action*	To prevent or minimize impacts to biotic integrity, soil and site stability, hydrologic function, and forage availability, adjust management activities to account for the effects of natural processes (e.g., drought, fire, flood, grasshoppers, prairie dogs, etc.). Guideline
Chapter 3: GPA-MA3.67-FWRP-O-07 (Preferred)	N/A	N/A	Manage toward 10,000 acres of prairie dog colonies in the management area each year during the life of the plan. In drought years, temporarily manage toward an objective of 7,500 acres of prairie dog colonies. Objective
Chapter 3: GPA-MA3.67-FWRP-ST-08 (PA); GPA-MA3.67-FWRP-GL-09 (PA) GPA-MA3.67-FWRP-GL-12 (Preferred)	Prairie dog colonies within management area 3.67 will be managed toward a target of 10,000 acres to support associated species such as mountain plover, burrowing owl, and swift fox. Management that adapts to fluctuations of colony acreage may occur while managing toward the 10,000-acre target. All prairie dog colony management tools not otherwise restricted by this plan will be available for use when the colony acreage in management area 3.67 is greater than 7,500 acres, and during drought, to mitigate colony expansion, the total acreage may be managed toward a temporary alternate target of 7,500 acres. When the acreage of colonies within management area 3.67 is less than 7,500 acres, lethal control tools will not be used except in the following situations: • Use in boundary management zones. • Density control	N/A	During drought, to mitigate prairie dog colony expansion, the total colony acreage in the management area may be managed toward a temporary alternate objective of 7,500 acres. Drought is defined as any year or sequence of years when annual precipitation amounts are less than 75 percent of normal, based on local climate data and in consultation with the United States Drought Monitor. Guideline

Component Number	Proposed Action	Grassland-wide Alternative	Preferred Alternative
	• If the responsible official determines that lethal control beyond density control is warranted and the total area of prairie dog colonies is less than 7,500 acres within management area 3.67, then satellite colonies may be identified outside of management area 3.67 to temporarily allow lethal control within management area 3.67. The sum of satellite colony acres and colony acres in management area 3.67 should be greater than 7,500 acres before allowing lethal control within management area 3.67, so that at least 7,500 acres remain following control. Standard		

Satellite Prairie Dog Colonies (Proposed Action only)

The satellite colony concept would apply only under the proposed action. A satellite prairie dog colony would be a temporary designation that could be applied to prairie dog colonies occurring anywhere on the grassland outside of management area 3.67. The satellite colony designation would allow for lethal control of prairie dog colonies inside of management area 3.67 if the total area of colonies within management area 3.67 were lower than the minimum threshold for lethal control (7,500 acres). If the Forest Service were to receive a request for lethal control of a colony within management area 3.67 when the total area of colonies within management area 3.67 was less than 7,500 acres, satellite colonies would have to be identified and designated before the lethal control within management area 3.67 could occur. Plan components have been developed to address designation and management of satellite colonies under the proposed action (Table B-6). The management approach for use of satellite colonies would include:

- Potential satellite colonies would have to be of sufficient size that the total area of satellite colonies and colonies remaining in management area 3.67 after lethal control has occurred would be at least 7,500 acres.
- Once a colony has been designated as a satellite colony, restrictions on lethal control that would result in a reduction in colony size or exterminate the colony would apply. The colony would have to remain a satellite colony until the total area of colonies within management area 3.67 reached at least 7,500 acres.
- The satellite colony designation would be removed automatically from a colony when the total area of colonies within management area 3.67 reached at least 7,500 acres and no further lethal control was requested within management area 3.67.
- If a satellite colony were to grow, lethal control could occur on that colony's perimeter, if requested, to reduce the colony to its size at the time of designation.

The Forest Service would intend that the process for the designation of satellite colonies would be collaborative among affected parties and the Forest Service. For example, permittees using any pastures containing a potential satellite colony should be fully aware that the colony could become temporarily protected from lethal control because lethal control has been requested in management area 3.67. The Forest Service would intend to involve the third-party collaborative stakeholder group in the satellite colony designation process to facilitate identification of colonies eligible to become satellite colonies and mediate prioritization of lethal control among colonies within and external to management area 3.67.

The satellite colony designation would differentiate satellite colonies from other colonies outside of management area 3.67. While all colonies on the grassland are additive for habitat conservation value, not all colonies would contribute to management objectives under the proposed action. Colonies outside of management area 3.67 could be subject to lethal control at any time (in accordance with restrictions on rodenticide use contained in chapter 1, section H), unless designated as a satellite colony. The satellite colony designation would allow a colony to contribute to long-term habitat availability for prairie dogs and associated species.

Table B-6. Proposed plan components relevant to management of satellite colonies

Component Number	Proposed Action
GPA-FW-FWRP-ST-03 (PA)	In prairie dog colonies designated as satellite colonies: • Recreational shooting of prairie dogs is prohibited February 1 through August 15. Lethal prairie dog control is prohibited with the following exceptions: • Lethal control may be used to prevent a satellite colony from exceeding the area it occupied at the time it was designated as a satellite colony. • Density control may occur in no greater than 50 percent of the area of a satellite colony. • The designation of satellite colony will be removed only when the total acreage of prairie dog colonies within Management Area 3.67 has reached 7,500 acres. Standard
GPA-MA3.67-FWRP-ST-08 (PA)	Prairie dog colonies within management area 3.67 will be managed toward a target of 10,000 acres to support associated species such as mountain plover, burrowing owl, and swift fox. Management that adapts to fluctuations of colony acreage may occur while managing toward the 10,000 acre target. All prairie dog colony management tools not otherwise restricted by this plan will be available for use when the colony acreage in Management Area 3.67 is greater than 7,500 acres, and during drought, to mitigate colony expansion, the total acreage may be managed toward a temporary alternate target of 7,500 acres. When the acreage of colonies within Management Area 3.67 is less than 7,500 acres, lethal control tools will not be used except in the following situations: • Use in boundary management zones. • Density control • If the responsible official determines that lethal control beyond density control is warranted and the total area of prairie dog colonies is less than 7,500 acres within management area 3.67, then satellite colonies may be identified outside of management area 3.67 to temporarily allow lethal control within management area 3.67. The sum of satellite colony acres and colony acres in management area 3.67 should be greater than 7,500 acres before allowing lethal control within management area 3.67, so that at least 7,500 acres remain following control. Standard
GPA-MA3.67-FWRP-ST-12 (PA)	When the total area of prairie dogs in management area 3.67 and satellite colonies is less than 7,500 acres, density control will not occur in more than 50 percent of the area of any colony. Standard
Appendix G, Glossary, Satellite Prairie Dog Colony (PA)	**Prairie Dog Colony, Satellite** – A prairie dog colony that occupies National Forest System lands outside of management area 3.67 and has been designated for the purpose of meeting colony acreage targets.

Inventory, Monitoring, and Mapping

Prairie Dog Colony Inventory and Mapping

Mapping of prairie dog colonies to inform management decisions is critical to successful implementation of all alternatives. Under the proposed action, prairie dog emphasis alternative, and preferred alternative, the Forest Service and partners, working with and through the collaborative stakeholder group, would map the locations and extent of prairie dog colonies annually in management area 3.67. Outside of management area 3.67, the Forest Service and partners would map the location and extent of prairie dog colonies at least every 5 years. The Forest Service would encourage annual inventory and mapping of colony location and expansion through landowner and livestock grazing permittee reporting. Under the grassland-wide alternative, the Forest Service and partners would map the locations and extent of prairie dog colonies across the grassland annually. Across the grassland in all alternatives, all prairie dog control and plague mitigation treatments will be mapped and documented annually.

Monitoring protocols have been developed collaboratively with partners and based on best available scientific information for sampling and protocol design. These protocols and sampling locations were adapted annually based on inventory and mapping needs. The 2019 sampling protocol is posted to the project website. In the future, the Forest Service will continue to explore alternative methods for inventory and mapping work that achieve an acceptable level of precision and are cost effective. For example, satellite imagery (Sidle et al. 2002) or aerial photography (McDonald et al. 2015) may be practical for use to meet certain inventory objectives. High-resolution, remotely sensed imagery from unmanned aircraft systems as well as other options for data collection are also being explored to collect more precise data and decrease the cost of inventory and mapping work. Monitoring protocols and sampling designs for each data collection technique would be developed based on best available scientific information and intended to be used consistently on an annual basis.

Monitoring of Recreational Shooting

The Thunder Basin National Grassland will document phone calls and check-ins of individuals and groups participating in recreational shooting of prairie dogs, including dates and size of parties. This information can be used to inform evaluations of management toward the 10,000-acre objective for prairie dog colonies in management area 3.67. Because this information will not be able to be collected in a comprehensive manner, it cannot be used to attribute causation of growth or decline of colony extent, but can contribute to a general understanding, along with information on other influencing factors.

Methods used from previous experiences monitoring recreational shooting such as in Nebraska and South Dakota may be referred to in the future if the uncertainty of impacts leads to a need for more information on recreational shooting use and pressure.

References

McDonald, L.L., J. Mitchell, S. Howlin, and C. Goodman. Range-wide monitoring of blacktailed prairie dogs in the United States: Pilot Study. 2015. WEST, Inc. 101 pp.

Reading, R.P., T.W. Clark, L.A. McCain, and B.J. Miller. 2002. Black-tailed prairie dog conservation: A new approach for a 21st century challenge. Endangered Species Update. 19:162-170.

Sidle, J.G., D.H. Johnson, B.R. Euliss, and M. Tooze. 2002. Monitoring black-tailed prairie dog colonies with high resolution satellite imagery. Wildlife Society Bulletin 30(2):405-411.