

Urban Development/Wildlife Conflict

The management of black-tailed prairie dogs (*Cynomys ludovicianus*) Stapleton (Northeast Denver Community): A perspective

March 2013 (revised 3.13.2013 – updated definitions of park types)



Stapleton Prairie Dogs

Patricia N. Olson, DVM, PhD¹

¹ Patricia N. Olson – Diplomate American College of Theriogenologists and American College of Animal Welfare, 2690 Hanover Street, Denver, CO 80238 (970-222-0881). Dr. Olson serves as Chief Veterinary Advisor for the American Humane Association, was a former AAAS Congressional Science Fellow and former President/CEO of Morris Animal Foundation. Her prior works includes an advisory role for the International Air Transport Association on the humane transportation of animals, including wildlife species. She has consulted for several corporations, banks, investors, non-profit organizations and pet-related industries.

Background Information

The Community: The Stapleton community is located in northeast Denver, on the site of a prior international airport (Stapleton International Airport). Stapleton comprises approximately 4,700 acres and is located within six miles of downtown Denver. A variety of wildlife exists on the site (e.g., birds of prey, prairie dogs, burrowing owls, coyotes, etc.). A development plan (referred to as the “Green Book”) was prepared by the Stapleton Redevelopment Foundation, City and County of Denver and the Citizens Advisory Board in 1995². After a decade of development, the community has more than 14,000 residents and several corporations.

The developer of the Stapleton community is Forest City Stapleton, a division of Forest City Enterprises, Inc. Forest City Enterprises, Inc. is a NYSE-listed national, real estate company with nearly \$11 billion in assets³. Many groups and agencies have been involved in managing, providing oversight and/or providing advice to the developer; additional groups have strong interest in protecting natural habitats and wildlife located in the community (Appendix A). In addition to the Stapleton project, Forest City Enterprises, Inc. is also developing the 184-acre Colorado Science and Technology park at Fitzsimmons which is anchored by the University of Colorado Hospital and the Denver Children’s Hospital⁴. Due to the proximity of the Fitzsimmons campus, many residents in the Stapleton community work at one of the nearby area hospitals.

The Wildlife: Goals for Forest City Stapleton included a long-term commitment to reducing consumption of natural resources and impacts on the natural environment. The “Green Book” describes the integration of nature and wildlife with urban environment on a permanent basis⁵:

“The open space system planned for Stapleton is rich and diverse. The system includes a wide range of opportunities, from urban parks, trails and recreational facilities, to extensive natural areas that support significant wildlife and allow the restoration of native plant and animal communities that have been displaced or eliminated. This focus represents a return to Denver’s natural heritage as a city established on the prairie. It its scale and diversity, the Stapleton system is unlike anything undertaken by this community since the City and County’s basic urban and park systems were established roughly a century ago”.

Many residents purchased homes in the Stapleton community due to the developer’s commitment to conserve natural environments and associated wildlife. The community’s monthly newspaper, Front Porch⁶, publishes information from wildlife

² Stapleton Development Plan, Forest City Stapleton, 7351 East 29th Avenue, Denver, CO 80238, 303-382-1800

³ www.Stapletondenver.com/community/meet-the-team, 11-19-2012

⁴ Q3 2012 deck – Investor Update – December 2012

⁵ Stapleton Development Plan, p 5-5

⁶ The Stapleton Front Porch, LLC, 2566 Syracuse Street, Denver, CO 80238

biologists on species in the area (e.g., prairie dog communications), allowing children to learn about the animals in their backyard.

Prairie Dogs: On January 12, 2000, the Stapleton Development Corporation issued a report, “*Black-Tailed Prairie Dog Management Plan*”⁷. Groups acknowledged in the plan included Friends of Bluff Lake, Forest City Stapleton, Inc., Colorado Native Plant Society, Stapleton Citizen’s Advisory Board, The Wild Place, Inc., Denver Health Department, Parks and Environment, Rocky Mountain Animal Defense, Rocky Mountain Arsenal, Colorado Division of Wildlife, Audubon Society of Greater Denver, and Denver Parks and Recreation. An interested citizen was also acknowledged. The plan assumed that the Stapleton Development Corporation believed prairie dogs are an important part of the native fauna of certain grasslands of the Colorado piedmont and accommodations should be made to preserve the species and their habitat to the extent possible. The plan also indicated that most, if not all, of the existing colonies were on areas slated for new development and would need to be relocated to other areas on-site, relocated to other areas off-site, or exterminated. Colorado law (SB 99-111) prevents easy relocation of prairie dogs from one county to another and the Stapleton community spans more than one county. The plan suggested that >1,000 acres of land would be developed and managed as open space and some of this land might be preserved as future prairie dogs/grassland habitat⁸. To date, exact locations for conserving prairie dog habitat have not been identified by the developer.

Pilot Sites: Two potential sites exist in the Stapleton community whereby a planned prairie dog park (approximately 20 acres/site) could be developed. One area is south of 26th Avenue and resides in Arapahoe County. It is currently a site of keen citizen interest with 2 acres of the site already being developed for a traditional children’s playground. This site has prairie dogs, some of which survived aluminum phosphide poisoning in 2011 and others who have repopulated the site. It is also the site where aluminum phosphide canisters were found by citizens in 2012, prompting an investigation by the Colorado Department of Agriculture (see below). The second site is near the intersection of Martin Luther King Blvd and Peoria and resides in Denver County. This site is near the Bluff Lake Nature Center. Goals for a planned prairie dog park would include management of prairie dogs and associated wildlife and providing area children with educational opportunities about urban wildlife.

⁷ Stapleton Development Corporation, *Black-Tailed Prairie Dog Management Plan*, January 12, 2000, Prepared by: Guthrie and Associates, 509 Collyer Street, Longmont, CO 80501

⁸ Ditto; pp 5-6

According to a recent report from Wild Earth Guardians⁹ prairie dogs have lost between 93-99 percent of their historic range in the last 150 years. Prairie dog burrows provide habitat for numerous reptiles, amphibians, and invertebrates. Prairie dogs are an important food source for a wide variety of species including hawks, eagles, coyotes, foxes, black-footed ferrets, and badgers. Approximately 150 species benefit from prairie dogs and the habitat they create. According to Canisius Ambassadors for Conservation¹⁰, the number of prairie dogs in the U.S. has declined to 2 percent of historical numbers. Loss of habitat due to agricultural purposes, plague decimating entire colonies, and people poisoning and shooting them has contributed to this decline¹¹. Habitat loss for residential and commercial development in urban communities, coupled with lethal methods to eliminate colonies, has further decimated numbers of this keystone species¹². According to the Prairie Dog Coalition (Boulder, CO), 72 percent of Colorado voters favor requiring developers to pay mitigation fees for destroying prairie dog colonies¹¹.

South Denver: Magle et al., (2010) used 5 years of patch occupancy data for 384 habitat fragments to evaluate population and habitat numbers of black-tailed prairie dogs in south Denver¹³. Between the years of 2002 and 2007, 117 of the 384 fragments (30%) were eliminated by development. Magle and co-authors discussed the phenomenon of “extinction debt” which refers to food shortages, competitive interactions, or demographic or genetic instabilities. Urban prairie dog colonies frequently appear denuded of vegetation¹⁴, leading to speculation on the part of citizens and some urban wildlife managers that colonies will eventually deplete the forage in these areas and succumb to starvation. In their work involving Highlands Ranch, neither starvation of colonies nor notable inbreeding effects¹⁵ were supported by data.

Prairie dogs live in social breeding groups of related individuals called coterries (2-4 adult females that are usually related, 1 or 2 unrelated adult males, and a variable number of yearlings and younger offspring) within colonies. Prairie dogs can live as

⁹ Report from the Burrow – Forecast of the Prairie Dog, 2013; released on February 2, 2013 by Wild Earth Guardians

¹⁰ www.conservenature.org

¹¹ HSUS – Prairie Dog Coalition information; www.humanesociety.org

¹² Keystone species - A species whose presence and role within an ecosystem has a disproportionate effect on other organisms within the system

¹³ Magle SB, Reyes P, Zhu J, Crooks, KR: Extirpation, colonization, and habitat dynamics of a keystone species along an urban gradient, *Biological Conservation* 143 (2010): 2146-2155

¹⁴ Magle SB and Crooks KR: Interactions between black-tailed prairie dogs (*Cynomys ludovicianus*) and vegetation in habitat fragmented by urbanization, *Journal of Arid Environments* 72 (2008) 238-246

¹⁵ Magle SR, Ruell EW, Antolin MF, Crooks KR: Population genetic structure of black-tailed prairie dogs, a highly interactive species, in fragmented urban habitat, *Journal of Mammalogy*, 91(2), 2010

long as 7 years, with an average generation time of 1.5 years¹⁶. Females generally do not leave the colonies but yearling males will normally disperse. Adults of both sexes will, however, occasionally both disperse. Magle and Crooks documented 18 colonizations of previously unoccupied patches while monitoring fragments during the 5 year period¹⁷. Urban prairie dog colonies are characterized by extremely high densities, approximately 32-187 prairie dogs/ha (or 2.5 acres) compared to 22-35 prairie dogs/ha in unfragmented habitat¹⁵. Determining colony numbers and dispersal numbers will be important data for any long-term management plan which assesses controlling reproduction.

Boulder: Boulder, Colorado, is part of the front-range and has experienced climate change as identified in 110 year precipitation records. Lawton¹⁸ reported that the most recent 30 years of records had winter precipitation 122% of the previous 70-year average. Monthly temperatures in Boulder now average above freezing yearlong and the percentage of snow is less and will melt rather than be retained for a significant period of time. Both environmental change and grazing and burrowing by black-tailed prairie dogs favor invasive plant species, such as field bindweed¹⁹. The combination of non-native plants and prairie dogs has led to winter dust storms along the Front Range, leading authors to question the “keystone species” status under changing environmental conditions. In the fall of 2008, several prairie dog colonies in Boulder County were observed that consisted largely of recently germinated annual plants accompanied with senescent fields of bindweed. By spring these fields were devoid of vegetation. Soils were sampled at one site and compared to 1999 data collected for a vegetation study. The top 10 cm of soils had lost 25% of their organic carbon and nitrogen over the time period. The work by Seastedt and co-authors¹⁹ illustrate the complexity of changing community and ecosystem processes.

Stapleton (Northeast Denver): Prairie dogs living in several fields in Stapleton have been poisoned in recent years, causing considerable concern by community dwellers. A common poison used by developers and Denver Park and Recreation was aluminum phosphide (e.g., Fumitoxin, Weevil-cide). Aluminum phosphide rodenticide has been implicated with the death of children in Utah²⁰. Phosphide rodenticides have the potential to cause respiratory distress and death in humans. A phosphide rodenticide appears to have caused the recent death of a pet dog in Erie, Colorado. Emissions from the dog’s vomitus sent veterinary staff to an emergency room for respiratory distress. Stapleton community members, many of whom are health

¹⁶ Hoogland JL: The black-tailed prairie dog: social life of a burrowing mammal. University of Chicago Press, Illinois

¹⁷ Magle SB and Crooks KR: Investigating the distribution of prairie dogs in an urban landscape, *Animal Conservation* 12 (2009) 192-203

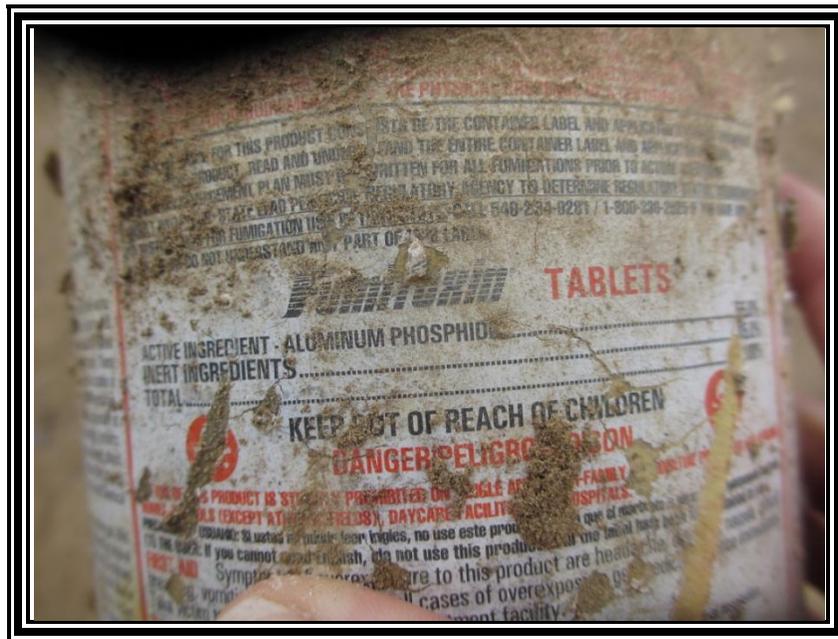
¹⁸ Lawton WC: Global environmental change factors and noxious weed management shape a novel grassland ecosystem on the Colorado Front Range. MSc thesis, University of Colorado, Boulder, 2010

¹⁹

Seastedt TR, Hartley LM, Nippert JB: Case study: Ecosystem transformations along the Colorado Front Range: Prairie dog interactions with multiple components of global environmental change, In: Hobbs et al. *The Novel Ecosystems: Intervening in the New Ecological World Order*, John Wiley & Sons, Ltd., 2013

²⁰ Pesticide Action Network. www.panna.org

professionals, have been extremely concerned by the use of poisons that pose a public health threat for humans. Anxiety increased when citizens found Fumitoxin canisters that had not been properly removed from one field (26th Avenue). This prompted an investigation by the Colorado Department of Agriculture. Forest City Stapleton has publicly announced that it will no longer use aluminum phosphide to poison prairie dogs. Denver Park and Recreation has not publicly announced a similar decision. In addition to the potential harm to children and adults, poisonings with aluminum phosphide seems far less than 100% successful. Survivors may repopulate the fields in several months, or suffer from organ failure and die over a prolonged period of time, causing concerned citizens to question the entire process of inhumane population control in a community designed to preserve habitat and wildlife.



Canister found in the field south of 26th Avenue
November 2012

Two types of parks are being developed in Stapleton: Trunk open space is intended to serve a more regional need and population. It includes a broad range of parks and open space land uses from active, intensively used recreation and play areas, to restored natural areas and buffer zones. It amounts to 1116 acres of Stapleton land. Trunk open space is developed by the Park Creek Metropolitan District (PCMD) with the intent of being transferred to Denver Parks and Recreation (DPR) for long-term City ownership and management. Intract parks are typically small size 1-3 acres park sites within residential neighborhoods and are intended to serve nearby resident of Stapleton. These range from passive turf areas used for informal play and picnicking to neighborhood pools and playgrounds. Intract parks are developed and owned by the PCMD and managed by the Master Community Association (MCA). The one exception is the 24 acre 26th Avenue Park. The park is not trunk open spaces primarily because it is in the City of Aurora and cannot be transferred to DPR. The City of Aurora Parks

Department is not willing to accept ownership or management of the park, therefore it will become an intract park to be managed by the MCA. There will be a minimum of 108 acres of intract park land at Stapleton²¹.

Proposed Plan Development for Stapleton Prairie Dog Park – Phase I (Expert Panel)

On February 27, 2013, a group of experts (Appendix B) met at Colorado State University to discuss the possibility of developing a prairie dog park in the Stapleton community. As urban development and wildlife conflicts are likely to continue, this issue seems timely and appropriate for scientists, animal advocates, commercial/residential developers and industries in the Front Range. If a prairie dog park could be developed in a neighborhood committed to wildlife conservation, it might offer the possibility for managing animal numbers without lethal control, allow children to be educated about the wildlife in their backyards, and mitigate the issues and complaints now facing developers, park managers and government officials who would like to have practical and economical solutions for managing wildlife (along with positive public relations).

The goal for the expert panel was to consider the development and stability of a natural park in NE Denver (e.g., Stapleton area) that supports native wildlife (e.g., prairie dogs and associated species).

The objectives to be considered by the expert panel were:

1. Develop a park plan for a 20 acre site
2. Manage prairie dog number (and associated wildlife) without lethal control
3. Consider entire ecosystem (plant barriers, food sources, buffer zones, etc.)
4. Identify educational/interactive activities for children

Dr. Patricia Olson, a veterinarian and Stapleton resident, described the Stapleton prairie dog issue and provided questions that the expert panel might want to consider:

- How will prairie dogs, negatively and positively, affect a 20 acre site and surrounding areas? >>> Invasive plants, dust, water erosion, affect on associated wildlife, movements/traffic
- How will the prairie dogs be affected? >>> Genetic diversity, food supply, plague, dispersal to new sites, relocation, humane euthanasia
- How will prairie dogs affect associated wildlife species and domestic animals? >>> Continue to be a keystone species? Affect on pets (dogs, cats)?
- Can prairie dogs be successfully contracepted with minimal adverse effects on health or coterie dynamics?

²¹ Communication, Dennis Piper, March 2013

- Could a prairie dog park offer educational opportunities for children? >>> Education, safety
- How might a community look at a wildlife research study? >>> Longitudinal study?

The meeting (expert panel) was the first gathering to begin dialogue on whether such a concept had merit. Dr. Mark Stetter, Dean, College of Veterinary Medicine and Biomedical Sciences welcomed the group and offered his support for similar convening's to address issues of high significance to the Front Range and to Colorado. Because of Dr. Stetter's considerable background in wildlife biology, his insight into urban/wildlife conflict was especially welcomed.

Attendees were asked to introduce themselves and provide information on their specific expertise as we address goals and objectives for the meeting (Appendix B). Dr. Jill Baron, author of Rocky Mountain Futures: An ecological perspective, and incoming President, Ecological Society of America, stressed that ecologists should be working with landscape architects as development occurs. She noted that elk are moving down to the plains with several now being observed in Loveland, CO – cautioning us to consider the changing landscape of our communities and impact on wildlife.

Dr. Tim Seastedt, University of Colorado, discussed his work on non-native plant species (e.g., bindweed) and impact on prairie dog colonies. While high in alkaloids and poisonous to other species, prairie dogs are able to utilize bindweed forage (“bindweed bales”) in the winter. Prairie dogs can erode top soils and facilitate winter dust storms. He questions whether prairie dogs on a 20 acre site would require supplemental feeding and doubts whether natural landscape (natural plants) could be sustained. A review of plants of the proposed park sites would need to be conducted. Prairie dog health would need to be monitored.

Dr. Jim Detling, Professor Emeritus, Colorado State University, described how prairie dogs move-out in a donut-like manner to gain more land (peripheral expansion). He indicated that many types of visual barriers do not work well for controlling a population within a specified area. Dr. Dan Smeak questioned the efficacy of noise emitters (they do not work well). Tall grasses can prevent migration as a visual barrier in some situations (example given on how tall grasses prevented prairie dogs moving into a horse lot). Dr. Kathleen Fagerstone mentioned that if animals have high density and high reproduction rates they are more likely to move. Dr. Laurel Hartley mentioned that many urban communities along the Front Range are struggling with this issue.

Dr. Dan Salkeld, Post-doctoral Fellow, IUCN, discussed some of his prior research on Pawnee Natural Grasslands and gave us a review on plague. From 1959 to 1999, the Colorado branch of the U.S. Centers for Disease Control and Prevention (CDC) recorded 393 cases of plague in humans. Of the 240 cases (61 percent) for which a source of infection was identified, 31 (13 percent) were attributed to contact with prairie dogs or their fleas, from actually handling the animals. Two (both in Colorado) of the 31 cases were in areas where the black-tailed prairie dog is the only species of prairie dog (www.fws.gov/mountain-prairie/species/.../btprairiedog/plague.htm). Coyotes can

serve as sentinels for plague through serological testing (coyotes are predators for prairie dogs and not as likely to succumb to plague). Scientists at the USGS National Wildlife Health Center, in collaboration with colleagues at the University of Wisconsin, have developed a sylvatic plague vaccine that shows promise in protecting prairie dogs against plague. While plague can wipe out populations of prairie dogs, this also occurs with other urban wildlife. It has been found in 76 species of mammals²². In 2007, an outbreak of plague occurred in Denver rock and fox squirrels, but has not reported in urban prairie dogs since 1982²¹. The expert panel did not know of more recent plague outbreaks in Denver prairie dogs. John Eisemann discussed research into the development of an oral flea control product, something that might be more efficacious and easier to administer than dusting animals. All experts stressed education of the community – no citizen should handle any dead wildlife found.

Dr. Salkeld also mentioned a study that evaluated movement of prairie dogs²³. Prairie dog connectivity in a complex landscape matrix is sustained by pasture, cropland and small roads, but impeded by large highways and heavy urbanization. Dispersal corridors among populations may promote the spread of pathogens. Recent plague events in Boulder County (2002, 2005-2009), confirmed by the Centers for Disease Control, appeared to be more geographically restricted than in the past, possibly due to disruption of migration corridors caused by urbanization.

Dr. Laurel Hartley provided information on digital educational materials about prairie dogs and showed pictures of playground equipment and an observational deck (below) that would help educate children but also prevent their direct exposure to prairie dogs. She recommended that the School of Science and Technology (located in Stapleton) be contacted for assistance in park planning.

²² Denver Parks & Recreation Black-Tailed Prairie Dog Management Plan, DRAFT, 2010

²³ Sackett LC, Cross TB, Jones RT et al., Connectivity of prairie dogs colonies in an altered landscape: inferences from analysis of microsatellite DNA variation, *Conserv Genet* (2012) 13:407-418



Excavated burrowing system
Source: Internet (provided by Dr. Laurel Hartley)



Playground equipment that mimics burrowing system



Cathy Fromm Prairie
Blind for wildlife viewing

The group discussed natural predators. Raptor poles might help but will not completely control prairie dog populations. Predators include hawks, coyotes, foxes, and black-footed ferrets. The black-footed ferret is an endangered species that hopefully might one day be reintroduced into natural lands. A federal program has been established whereby ranchers and farmers might receive subsidies for allowing prairie dogs to remain on their land as a source of food for the reintroduction of black-footed ferrets.

Dr. Kathleen Fagerstone, Technology Transfer Program Manager, National Wildlife Research Center, discussed her work on contraceptives to manage prairie dog colony numbers. She discussed two products that could be used to contracept prairie dogs. One would require repeated oral baiting. The second (GonaCon) would offer two years of contraception for most animals for up to two years, but would require an injection. Since prairie dogs can be captured relatively easily, she believes GonaCon offers promise in controlling prairie dog numbers and believes it more reliable than poisons. Census counts could be conducted on the 20 acre site and followed as a longitudinal study. For GonaCon to be registered for this use (it is already registered for white tailed deer and wild horses), it would require the support of the Farm Bureau, State Game Commission and regional animal advocacy groups. The general consensus of members of the expert panel was that use of GonaCon as a contraceptive was likely the best method of controlling prairie dog populations in parks of this size (~20 acres).

Dr. Fagerstone also provided her thoughts on Denver prairie dog populations. Prairie dog colonies in Denver and other urban centers expand in concentric rings. This can occur as farmland is purchased and lays fallow for years prior to development. This disturbed land provides perfect habitat for prairie dogs to establish colonies, which often persist until the land is then developed. She provided a review article on rodents that discusses the prairie dog relationship with overgrazed and disturbed habitats²⁴. She also discussed prairie dog contraception as a viable management tool and has published work on using culling, contraception and a combination of both²⁵.

²⁴ Fagerstone KA and Ramey CA: Rodents and Lagomorphs, 1996. In: PR Krausman, ed., Rangeland Wildlife. Denver. The Society for Range Management: 83-132

²⁵ Yoder CA, Miller LA and Fagerstone KA: Population modeling of prairie dog contraception as a management tool, Proc, 23rd Vertebr Pest Conf (RM Timm and MB Madon, Eds), University of CA, Davis, 2008, pp 229-234

Summary: The expert panel thought the goal and objectives had merit and offered the possibility of a research study that might benefit the entire Front Range as many communities address urban/wildlife conflict issues

Some issues to consider as the plan evolves:

1. Gather information from various stakeholders (community members, developers, regulators, scientists, public health officials, etc.)
2. The prairie dog population must be managed (non-lethal controls are possible)
 - a. Census of animals to be obtained & population number monitored
 - b. Health of prairie dogs to be assessed
 - c. Community to be informed about the planned park
 - d. Disease control will need to be addressed (public health input)
3. Vegetation must be monitored, analyzed, and managed (native and non-native)
4. Extra nutrients might be required, pending population number of animals
5. Educational opportunities to be identified that also provide for children's safety
6. Ongoing management will be required and oversight agency needs to be supportive of initiative (e.g., Denver Park and Recreation, Stapleton Master Community Association, etc.)
7. Consider opportunity to include research on the site, with opportunities for graduate students and local schools performing citizen science
 - a. Longitudinal study
 - b. Excellent mentor/advisor oversight
 - c. Excellent opportunities for K-12 and undergraduate internships or citizen science
 - d. Consider contraceptive component
 - e. Consider plague control component
 - f. Consider influence of prairie dogs on vegetation, hydrology, other wildlife
8. Engage developers in next stage as budget and plan is developed
 - a. Pre-plot analysis: \$1K
 - b. Graduate student (3 year study): \$150K
 - c. Contraceptive cost: \$1.5K (100 animals at \$15/dose)
 - d. Park design (educational component): Discuss with Denver School of Science and Technology; budget TBD
 - e. Consider foundations, individual donors who might be interested in funding the project
9. Experts offered their assistance if the plan continues to be developed

Appendix A

Partial listing of entities with interest in urban (Front Range) development and associated wildlife issues

- **Aurora, County**
- **Audubon Society of Greater Denver**
- **Colorado Department of Agriculture (pesticide control)**
- **Colorado Native Plant Society**
- **Colorado Division of Natural Resources**
- **Colorado Parks and Wildlife**
- **Colorado State University**
- **Commerce City**
- **Consulting Firms/Teams - several**
- **Denver, City**
- **Denver, County**
- **Denver Health Department**
- **Denver International Airport**
- **Denver Parks and Recreation**
- **Denver Urban Renewal Authority (DURA)**
- **Forest City Stapleton - Developers**
- **Friends of Bluff Lake**
- **Greater Stapleton Business Association (GSBA)**
- **Master Community Association**
- **National Wildlife Refuge**
- **National Wildlife Research Center – USDA-APHIS**
- **Rocky Mountain Animal Defense**
- **Rocky Mountain Arsenal**
- **Park Creek Metropolitan District**
- **People for the Ethical Treatment of Animals (PETA)**
- **Prairie Dog Coalition – Humane Society of the U.S.**
- **Southern Plains Land Trust**
- **Stapleton Advocates for Wildlife**
- **Stapleton Citizens' Advisory Board (CAB)**
- **Stapleton Development Corporation**
- **Stapleton Development Foundation**
- **Stapleton United Neighbors (SUN)**
- **The Wild Places, Inc.**
- **University of Colorado**
- **University of Colorado - Denver**
- **U.S. Department of Interior – Fish and Wildlife Services**
- **U.S. Department of Transportation**

- **U.S. Geological Survey**
- **Westerly Creek Metropolitan District**
- **Wild Earth Guardians**

Appendix B

Expert Panel – Convened at Colorado State University on February 27, 2013

Jill Baron - ; Ecosystem ecologist with the U.S. Geological Survey and senior scientist, Natural Resource Ecology Laboratory at Colorado State University – Fort Collins, CO; Author, Rocky Mountain Futures: An Ecological Perspective, which addresses the human influence on Rocky Mountain ecosystems. Among her professional interests is fostering sustainable human societal/environmental interactions

jill.baron@colostate.edu

Jim Detling – Professor Emeritus, Department of Biology, Colorado State University; Elected Fellow AAAS (lifetime special recognition and award); his research includes work on how biotic and abiotic factors affect both structure and function of grassland ecosystems. He has been especially interested in determining the direct and indirect effects that herbivores, particularly prairie dogs, have on individual plants, plant populations, plant communities, associated animal communities, and nutrient cycling processes. He has served on the editorial board for Frontiers in Ecology and the Environment

James.Detling@colostate.edu

Doug Eckery – Project Leader, USDA-APHIS, National Wildlife Research Center, Fort Collins, CO; research background in fertility control of wildlife, in particular the effects of GnRH immunizations to control fertility of bushtail possum in New Zealand. His 2012 seminar at CSU was “The Possum that Ate New Zealand – Control of an Introduced Species”. Currently investigating the development of oral/mucosal vaccine technologies.

douglas.c.eckery@aphis.usda.gov

John Eisemann – Registration Manager, USDA-APHIS, National Wildlife Research Center, Fort Collins, CO; oversees pesticide and drug registration projects, involved in projects for developing contraceptive vaccines and other products for conservation purposes, reproductive control, and managing zoonotic diseases in wildlife

John.D.Eisemann@aphis.usda.gov

Kathleen Fagerstone – Technology Transfer Program Manager, USDA-APHIS, National Wildlife Research Center; some of her work has included publishing results on black-tailed prairie dog colony dynamics in South Dakota over a 10-year period. With colleagues at the National Wildlife Research Center, Dr. Fagerstone has worked to develop and register contraceptive products for controlling reproduction in geese, pigeons and white-tailed deer. She has studied prairie dog population dynamics when animals were culled by lethal controls, contraception or a combination (her master’s thesis addressed prairie dogs)

Kathleen.A.Fagerstone@aphis.usda.gov

Laurel Hartley – Department of Integrative Biology, College of Liberal Arts and Sciences, University of Colorado Denver; her expertise and degrees are in the areas of ecology and science education. She has worked to develop K-12 learning progressions for environmental literacy. Dr. Hartley is currently examining the effects of prairie dog burrowing and grazing on the establishment of non-native species in urban areas.
laurel.hartley@ucdenver.edu

Patricia Olson – Chief Veterinary Advisor, American Humane Association and founder of the Animal Welfare Research Institute; former President/CEO of Morris Animal Foundation; former advisor for the International Air Transport Association; AAAS Congressional Science Fellow (1994-1994); Stapleton resident and member of Stapleton Advocates for Wildlife
patricia.olson@comcast.net

Dan Salkeld – Research Scientist, Colorado State University. Principal research is in community ecology and wildlife diseases and implications for conservation and public health. His PhD involved developing a model for understanding disease in wildlife systems. Work on plague in prairie dogs and small mammals has been ongoing for the last 8 years, in collaboration with CSU, California State University - Fullerton & Stanford University
dansalkeld@gmail.com

Tim Seastedt - Professor, Department of Ecology and Evolutionary Biology, University of Colorado, Boulder, CO; Fellow, Institute of Arctic and Alpine Research; has worked to address some of the complex causes of biotic change, such as global environmental change, changes in native grasses and intensive grazing by native prairie dogs in the Front Range
timothy.seastedt@colorado.edu

Dan Smeak – Professor and Head, Small Animal Surgery, Department of Clinical Sciences, Colorado State University; Diplomate American College of Veterinary Surgeons; President of a Fort Collins home owners association addressing non-lethal control of prairie dogs; former director of the CSU Veterinary Teaching Hospital
dan.smeak@colostate.edu

Mark Stetter – Professor and Dean, College of Veterinary Medicine and Biomedical Sciences, Colorado State University; former member and chair of Morris Animal Foundation Wildlife Scientific Advisory Board; former Director of Animal Operations, Walt Disney Co. At Disney, Dr. Stetter oversaw the health and daily care of several thousand animals at the company's programs and parks around the world, and manages a team of more than 500 people and oversaw the company's international wildlife research and conservation programs.
mark.stetter@colostate.edu