

2006 Wildlife Management Activities Avian and Small Mammal Elements

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Overview

Significant time and resources were spent on prairie dog management and related prairie dog issues in 2006. Sylvatic plague outbreaks sporadically occurred in the northern part of the county, but were not truly epizootic in nature. Overall management productivity, though, was still high, since most affected colonies were again on HCA properties and not on agricultural NPD properties targeted for removal. We continued to work with adjoining homeowners on prairie dog management issues on some properties to keep them from moving onto the private properties. We continued to work with the Colorado Division of Wildlife (CDOW) to monitor and manage Canada geese on County properties. We are continuing to communicate with CDOW to possibly re-implement plains sharp-tailed grouse reintroductions in southern Boulder County in the future. Breeding bird surveys are continuing on a cyclic pattern, covering major POS properties or property groups in both the plains and foothills. Surveys have also been established on some habitat recovery sites, including reclaimed farmlands. Existing raptor nests were again monitored for productivity, and new bald eagle nests were monitored on Keyes North and the Wambsganss properties.

Many research projects were conducted on POS properties in 2006. A few ongoing research projects continued, with some implementing new phases of previous studies. Projects included bat ecology, a butterfly distribution and habitat investigation, and numerous studies on prairie dog ecology and disease transmission.

Other major accomplishments in 2006 include: coordination with the City of Longmont on prairie dog management on McIntosh Lake; assisting in the planning and development of numerous trails and other recreational use projects on POS properties; working with the Town of Superior to develop agreements on prairie dog management actions on regional POS properties; wildlife habitat development on Sisters of St. Francis property; discussion with CDOW regarding possible cooperative habitat improvement projects on POS sites; review and comment on proposed mitigation for habitat impacts from a planned CDOT expansion of Boulder Turnpike; site investigation for the acquisition of the Williams CE; continued communication with BCNA regarding a proposed stewardship program, and assistance in the application for a WHIP grant for riparian habitat improvement work on the Gage property.

Objectives for 2006

Objective 1

Continue active management of prairie dogs and remove prairie dogs on at least ten incompatible sites, including sites requiring removal for resource management needs. The Prairie Dog Management Team will determine specific properties for trapping and removal prior to the commencement of the active management season.

Results: In 2006, 1621 prairie dogs were removed from 10 properties by POS staff (Admor, CHP/RCF, Hodgson/Harris Reservoir, A. Dawson, Monarch Park, Quicksilver, Keyes North, Hillside Estates, Liley and Dodd properties). Multiple trapping attempts were made on some of these properties, including CHP/RCF and Monarch Park. Contractors trapped and removed 110 more prairie dogs from the Lagerman Reservoir property. These were contributed to the Rocky Mountain Raptor Program in Ft. Collins. Most of the prairie dogs trapped by POS staff (1426) were contributed to the US Fish and Wildlife Service, Black-footed Ferret Recovery Program. Forty prairie dogs were contributed to the USDA National Wildlife Research Center in Ft. Collins, to be used in the continuing research for an effective immunocontraceptive for prairie dog management. The remaining 195 were contributed to the Birds of Prey Foundation raptor rehabilitation facility. Contractors removed an additional 110 prairie dogs from Lagerman Reservoir. They were all donated to the Rocky Mountain Raptor Center in Ft. Collins.

Chicken wire barrier was installed on the southern boundary of CHP/RCF adjoining the Lac Amora Park, and along a portion of the boundary between McIntosh Lake (City of Longmont) and the Lohr Agricultural Center, south of the Oligarchy ditch. This is being done in cooperation with the City of Longmont, who has management control of that portion of POS property between the ditch and the legal boundary with McIntosh Lake. Similar barrier was also installed on the southern boundary of CHP/RCF adjacent to the Lac Amora Park in Broomfield in cooperation with that entity.

Objective 2:

Complete the breeding bird and small mammal monitoring protocol by April 1st.

Results: A revised survey objective and protocol has been developed for 2007. Surveys will focus on species occurrence and relative abundances of moderate sized mammals, such as Abert's squirrels, pine martens and other mustelids, and lagomorphs, instead of rodents. This will yield data relative to ecosystem function in our forested and prairie lands to which staff can respond with habitat management recommendations that will be critical to these mammals.

Properties or groups of properties that will be targeted for long term monitoring will be at least 500 acres in size. This will include all currently monitored sites. At least one major agricultural area will be included, most likely southeast of Longmont. Staff will be working to determine any need to add, remove or otherwise adjust current transects and survey points on all of these monitored properties during the first year of implementation.

Objective 3:

Conduct breeding bird and small mammal surveys on established transects, using methodology and timing intervals/durations established in a monitoring protocol being developed in 2005.

- *Caribou, Betasso Preserve, HVR-Overland Burn, CHP/RCF (third year of baseline data)*
- *Goshawk nest surveys on HVR, Caribou Ranch*
- *New survey transect on Liley property (restoration site).*

Results: Third year breeding bird surveys were conducted on Betasso, HVR (Overland burn areas), Caribou Ranch and CHP/RCF in 2006, following the existing survey protocol developed by Rocky Mountain Bird Observatory and used by POS staff since 1999 (Tables 3,4). Goshawk taped call-back surveys were conducted five times at Caribou Ranch and seven times at HVR, to try and determine if nesting was occurring anywhere on those properties. No successful results came from either property, although POS staff has still intermittently sighted adult goshawks on HVR during the year.

Some new survey points were established on the Liley restoration parcel east of 120th St and north of the Northwest Parkway. No permanent survey markers are being placed, since this land will be actively cultivated, cut, sprayed and/or planted during the next few years. Points were established with survey markers on rebar, and saved as GPS waypoints for reorienting back to. POS staff will install permanent Carsonite posts on these points following reclamation, if deemed feasible.

Personnel changes in the latter part of the 2006 field season prevented us from completing any small mammal surveys in the late summer-fall of this year.

Objective 4:

Determine the feasibility, by the end of February, of starting an eagle monitoring research project on POS properties, in cooperation with CDOW.

Results: A discussion of this potential project with the CDOW raptor research biologist and avian research program manager did not result in an agreement to work with POS on such a project in 2006. CDOW researchers were starting a new burrowing owl research project that, along with all the ongoing projects in that work unit, would not leave any time or budget for CDOW cooperation in 2006. POS offered to contribute staff time, vehicle support, and equipment support (split costs of radio transmitters and program existing radio telemetry receiver for the assigned frequencies). CDOW still would not agree to any involvement in 2006.

The CDOW raptor research biologist did band and wing-tag the eaglets on the bald eagle nest on the Braly property in June. This was a pre-scheduled activity that is done on bald eagle nests that have had at least three consecutive years of successful nesting.

Dialogue has already started again on the feasibility of initiating a golden eagle radio-telemetry monitoring project in 2007 or 2008.

Objective 5:

Work with the Agricultural Specialist, Weed Specialist and Plant Ecologist to develop a new habitat management plan for the Southeast Buffer properties, for potential re-establishment of plains sharp-tailed grouse populations in the near future.

Results: An initial planning meeting resolved that the Agriculture Division was already planning on a revision of their grazing management plan and prescriptions for the entire Southeast Buffer management area in late 2006 into 2007. Earlier communications with the CDOW Grassland Species Coordinator and the regional Terrestrial Biologist indicated that CDOW has not renewed any interest in reinitiating the failed sharp-tailed grouse reintroduction in the Boulder/Jefferson Counties area within the next five years, if at all. Initial discussions, following the unsuccessful 2003 reintroduction effort, indicated some interest by CDOW to revise the grouse trapping and release protocol to address perceived mistakes made in 2003. Subsequently, though, CDOW biologists and managers have said that they are now focusing their entire sharp-tailed grouse recovery effort in eastern Weld and Morgan Counties, and will be doing so for at least five more years.

The Agriculture Specialist and the Wildlife Specialist will review criteria in early 2007 for grouse habitat, when the grazing prescriptions will be revised for the updated Southeast Buffer grazing management protocol. It was agreed that sufficient vegetation growth would occur on any pasture in this management area within one year of resting to accommodate nesting grouse. Therefore, the revised grazing protocol will include contingency prescriptions and schedules to implement in the event that a request to reinitiate regional sharp-tailed grouse reintroduction is made by CDOW. Plans by the Agriculture Division to install water tanks using CIP funds were already in place prior to the consideration for managing this area for grouse reintroduction. The eventual locations of these tanks will determine the grazing rotation and which pasture to rest for grouse reintroductions. Weed management and overall plant community concerns of the respective Weed Specialist and Plant Ecologist will be incorporated into the plan.

Objectives for 2007

Objective 1:

Continue active management of prairie dogs and remove prairie dogs on at least ten incompatible sites, including sites requiring removal for resource management needs.

Objective 2:

Refine and implement survey methodology for appropriate small mammal species, focusing on mustelid, lagomorph and sciurid species.

Objective 3:

Conduct breeding bird and small mammal surveys along established transects or survey routes on properties defined in Appendix A of the Small Mammal, Mesopredator and Avian Monitoring Protocol, using established protocol methodology and timing intervals/durations.

Objective 4:

Conduct bat use surveys of historic mines on foothills properties and historic buildings as appropriate. Coordinate survey needs with appropriate Acquisitions staff and Cultural Resource Specialist.

Objective 5:

Continue efforts to investigate the use of newly approved chemo sterilization agents on local non-migratory Canada goose breeding populations on POS properties.

Objective 6:

Continue coordination efforts with USDA research biologists to possibly test the efficacy of new prairie dog chemo sterilization compounds on POS colonies on NPD and/or MOA properties.

Objective 7:

Continue communications with CDOW to initiate a research project investigating territory and habitat use by golden eagles in Boulder County.

Projects

Small Mammals

Prairie Dogs

We trapped and removed prairie dogs from eleven separate properties in 2006. POS staff trapped ten of these properties, and an outside contractor trapped one property under agricultural lease. An abundant and growing population of prairie dogs on our HCA sites still precluded us from relocating any prairie dogs to them from these removal sites. Some mortality from plague continued to occur around Rabbit Mountain/Dowe Flats and HVR. However, prairie dogs will not be immediately relocated back to these areas in order to allow the Plant Ecologist and Weed Manager to work on habitat recovery in those areas. Prairie dogs that were trapped and removed from NPD or MOA properties were again donated to the black-footed ferret recovery program and two local raptor rehabilitation facilities. No prairie dogs were accepted from non-BCPOS sites for release on BCPOS properties. Table 1 presents the total number of prairie dogs removed, by property.

Table 1- Prairie Dog Removal Data for 2006: June 6-November 17

Property	Dates	Trap-Hours	Total Trapped	Success Index
Admore	June 6 - June 20	1051.3	12	0.0114
CHP/Rock Creek Farm	June 8 - July 12	10527.3	237	0.0225
Hodgson-Harris Res.	June 20 - June 29	3791.0	54	0.0142
Alexander Dawson East	June 30 - July 19	7993.4	117	0.0146
Alexander Dawson West	July 14 - July 27	7280.1	82	0.0113
Keyes North (East)	July 21 - September 5	24627.6	493	0.0204
Keyes North (West)	July 28 - September 6	21161.0	355	0.0168
Quicksilver	August 4 - September 5	1510.0	19	0.0126
Monarch Park	September 8 - November 2	15882.9	112	0.0071
Hillside	September 11 - November 17	28257.5	134	0.0038
Dodd	October 6 - October 25	2667.0	9	0.0249
Liley	November 8-November 16	4418.0	1	0.0010
<i>Lagerman (contractor)</i>	<i>October 22-November 12</i>	<i>3000.0</i>	<i>110</i>	<i>0.0367</i>
TOTAL		82583.45	1731	0.0209
TOTAL (adjusted)¹		79583.45	1621	0.0204

Our active field season ran from early April to late November. One seasonal technician was hired in April initially to apply lethal control methods to small coterries. Three other seasonal technicians were hired later to trap prairie dogs off of designated NPD and MOA properties. Trapping commenced early in June, with overall results surpassing those of all previous years. A total of 1731 prairie dogs were removed in 2006. POS technicians trapped 1621. Roe Ecological Services trapped 110 at Lagerman Reservoir under contract with POS (Table 1).

¹ Indicates only POS personnel results; excludes contractor results

The plague epizootic event that commenced in 2005 sporadically continued to impact colonies on POS properties in northern Boulder County during 2006. More time than usual was spent surveying designated removal properties for any sign of plague die-off prior to trapping, to avoid sending infected animals to the black-footed ferret facility. None of the properties that we trapped on were affected by plague, to our knowledge.

In 2006, the CDOW mandated that any prairie dogs transported away from the site of capture would need to be treated with an approved permethroid insecticide prior to transporting them live anywhere in Colorado. This could be done by dusting the burrows prior to trapping or by applying insecticide directly to the animals upon capture. Neither of the raptor rehabilitation facilities would accept prairie dogs that were exposed to any level of insecticide, but the Fish and Wildlife Service black-footed ferret recovery center required that the prairie dogs be treated with permethroid insecticide prior to delivery. Therefore the seasonal prairie dog crew had to pay considerable attention in coordinating delivery of trapped prairie dogs to these various recipients. We did not dust any burrows prior to trapping, since the decision of where the prairie dogs would be delivered was often made after trapping commenced. Instead, prairie dogs destined for delivery to the ferret facility were treated with insecticide in the traps prior to transporting them to our holding facility on the Peck property. The crew set up a portable euthanization apparatus that was taken to the site in a truck. Prairie dogs destined for the raptor facilities were euthanized on-site, and placed in plastic bags for transport to the Peck facility. They were immediately frozen upon arrival. These are delivered to the Birds of Prey Foundation throughout the year.

The following tables indicate the current status of occupied acreage by prairie dogs, compared to measured acreage in 2005. As in 2005, plague impacted some of our colonies in north Boulder County, almost exclusively on HCA sites (Table 2a). The only notable exception was the die-off on part of the Cushman property designated as MOA. Another notable difference from 2005 was the survival or immediate recolonization of areas impacted by plague in 2006 around HVR and Dowe Flats/Rabbit Mountain. Plague die-off was noted on the east side of Rabbit Mountain and the Cushman property by mid-July, but these colonies had pockets of surviving or recolonizing prairie dogs again by late August or early September. Another major loss of colonies in HCA status occurred at the Beech property early in June of 2006. A major plague epizootic event hit that property and most of the City OSMP properties south of this area in June. There was no subsequent re-colonization or apparent pockets of surviving coteries noted.

In response to the decline in colonies on HCA sites such as Heil Valley Ranch and Rabbit Mountain, POS plant ecologists are implementing vegetation recovery projects on both properties. These projects have been planned for implementation in response to such a sudden decline in colonies on these HCA properties. Until these projects are completed and the vegetation has re-established, no prairie dogs will be relocated back onto these HCA properties from other POS properties.

The more concerning change from 2005 and prior years was the continuing increase in occupied acreage on NPD sites (Tables 2a,b). There was an increase in NPD colony acreage of over 14 percent from 2005, even with the removal of over 1700 prairie dogs from colonies on NPD properties between June and November (Table 2c). In order to meet our agency goal of

eliminating prairie dogs from NPD properties, other management actions will have to be developed beyond trapping and removal.

Table 2a: 2005-2006 Black-tailed Prairie Dog Colony Acres

'05-'06 Colonized Acres	2005	2006
Classification	Acres	Acres
HCA	1,564.55	966.60
MOA	975.62	981.43
NPD	603.13	689.8
NSH	131.33	111.51
TBD	0.69	29.81
Total	3,275.31	2,779.20

Table 2b: 2005-2006 Colony Growth Rate

'05-'06 % Growth	2005	2006 minus '06 CNM in '05	Acres +/-	% Growth
Classification	Acres	Acres	Acres	
HCA	1,564.55	966.60	-597.95	-38.22%
MOA, w/removal	975.62	981.43	5.81	0.60%
NPD, w/removal	603.13	689.8	86.67	14.37%
NSH	131.33	111.51	-19.82	-0.15

Table 2c: Percent Occupancy of Designated Property Management Categories

'06 % Occupancy	Property Total Acreage	2006 Colonized Acres	% Occupancy
Classification	Acres	Acres	
HCA	5,178.90	966.60	18.66%
MOA	4,758.22	981.43	20.63%
NPD	16,159.74	689.8	4.27%
NSH	17,627.46	111.51	0.63%
TBD	772.52	29.81	3.86%

HCA = Habitat Conservation Area
 MOA = Multiple Objective Area
 NPD = No Prairie Dogs
 TBD = To Be Determined
 CNM = Colonies Not Mapped

Most of our NPD properties again were not impacted by plague in 2006. There was some die-off on the southern end of Brewbaker and the western Imel parcel along 63rd St. We continued experienced growth in colonies on NPD properties, even with ongoing removal and other direct control actions, as shown in Tables 2a and 2b. In 2006, we had more than 14% growth over 2005 occupied acreage on NPD properties (Table 2b). The total NPD occupied acreage, while growing each year, is still only approximately 5% of all designated NPD acreage (Table 2c).

Following two consecutive years of local plague activity in the northern portion of the county, we are down to less than 20% prairie dog occupation of our designated HCA grassland acreage (Table 2c). As noted earlier, no efforts to repopulate these areas by relocation of prairie dogs from other sites will be done in the next few years as POS staff works to restore the vegetation on many of these sites.

Preble's Meadow Jumping Mouse

As was stated in the 2005 report, the future of the federal protection status of Preble's meadow jumping mouse is still undecided at the end of 2006. A final ruling on whether the threatened federal status of this species will be retained was to have been made by the FWS by December 2006. That has not yet occurred. It is assumed that, in the event that the status is retracted, protected status will continue in the face of anticipated lawsuits that will be filed by numerous environmental NGOs. These lawsuits will undoubtedly take years to resolve, during which time the protective status of this species will remain in place.

There were no direct surveys conducted by POS or other entities on POS properties in 2006. The Wildlife Specialist did assist in the application for a federally funded Wildlife Habitat Improvement Program grant, to be used for habitat restoration along the South Ditch (St. Vrain River) on the Gage property. One proposed benefit from this proposed project would be improved Preble's habitat in an area that is contiguous with known functioning Preble's habitat downstream from the proposed project site. There has been no progress, to my knowledge, on the refinement and completion of the Boulder County comprehensive Habitat Conservation Plan by Land Use for the Fish and Wildlife Service. More refined data on the presence and population status of this species along the St. Vrain River was collected and reported on in 2005 by contracted biologists. This report was submitted to Land Use as part of the HCP, but to date the final HCP has not been submitted to the Board of County Commissioners for approval prior to being submitted to FWS for acceptance.

The Wildlife Specialist consulted with the Landscape Architects on issues relating to potential Preble's habitat impacts resulting from planned trail development on Pella West at the historic cottonwood tree. Assistance was also given to the Grants Coordinator in applying for a USDA Wildlife Habitat Initiative Program grant for the Gage property, which was awarded to POS. This grant funding will be used to improve riparian habitat conditions, with Preble's habitat being a targeted goal for this project.

Bats

POS staff worked with Dr. Rick Adams to investigate bat use of the historic buildings at Bluebird Mine on Caribou Ranch. There were no bats detected by remote sensing devices on the night of investigation in late September, but this was likely due to the late time of the year and the cold ambient temperatures. Assistance was also given during the year to Dr. Adams, when requested, for his ongoing research into bat species occurrences, populations and breeding ecology on Heil Valley Ranch. Dr. Adams continued to investigate the function of water chemistry upon selection for drinking by nursing female bats. He also continued in his monitoring for Townsend's big-eared bats and especially for nursery sites on Heil Valley Ranch in response to prior captures of lactating female Townsend's big-eared bats on that property. Dr. Adams is also continuing his investigation into the use by bats of recently thinned forest stands in ponderosa pine habitat. Preliminary results over the past two years continue to indicate a rapid response in foraging use by many bat species on these prescribed thinning sites. The results of this research by Dr. Adams in 2006 are described in the section on small grant recipient projects below. Two years of blood sampling for West Nile Virus in bats at HVR has not shown any indication of this disease being prevalent in bats. Two individual bats did have antibodies for the virus, but this was not indicative of any concern for this disease to have a critical impact on local bat species and populations.

The Wildlife Specialist did procure a sophisticated sonar detector and software at the end of 2006 for recording bat sonographs and analyzing the data to determine species. This setup will be utilized to remotely monitor other properties with thinned forests, and to monitor any actively used mine shafts or other structures on POS properties that need to be investigated.

Avian

Plains Sharp-tailed Grouse Reintroduction

Communications with the CDOW early in 2006 indicated that the agency would not be returning to Boulder or Jefferson Counties to continue an initial attempt at reintroducing sharp-tailed grouse in southern Boulder County. All of their efforts are now being focused on reintroductions and recovery of this species in eastern Weld County and Morgan County. CDOW will not even look into this issue again for at least five more years, according to the Grassland Species Coordinator for CDOW.

In the interim, POS staff will continue to develop a revised grazing strategy in the Southeast Buffer properties to create sufficient habitat for releasing grouse. During an initial meeting to discuss developing this plan for grouse recovery, the Agricultural Specialist indicated that he would be revising the grazing management plan and grazing prescriptions early in 2007 for the properties encompassing the Southeast Buffer management area. He also indicated that any of the pastures in this management area would be able to grow sufficient vegetation for grouse cover within one year of removing livestock from it. The Wildlife Specialist, Weed Coordinator and Plant Ecologist will work with the Agricultural Specialist to develop a contingency element

for the revised Southeast Buffer grazing management plan, in the event that CDOW does contact POS to pursue grouse recovery in this area again.

Raptors

Bald Eagle Nest Monitoring

Following the establishment of a breeding pair of bald eagles on the Braly property in 2003, there have subsequently been two other bald eagle nesting attempts on POS properties in eastern Boulder County in 2006. One nest is on the St. Vrain River, east of County Line Road on the Keyes North property. The other is right on the property line between the Wambsganss property and the Canino 7M Ranch conservation easement, east of the Panama Reservoir. CDOW volunteers monitored all three bald eagle nests, with some time spent by the Wildlife Specialist in monitoring these pairs. Of the three, only the Braly pair successfully nested two eaglets in 2006. These eaglets were banded and wing-tagged in June 2006 by the CDOW. The two new pairs on Keyes North and Wambsganss abandoned their nests by mid-June. No known causes were apparent for either failure, although there is significant unauthorized trespass onto the private lands on the north side of St. Vrain River near that nest. The agricultural tenant on the Wambsganss property was made aware of the nest early in its establishment and worked with POS and CDOW to avoid activities proximate to the nest until after fledgling.

The Wildlife Specialist worked with the City of Longmont and the CDOW to best respond to this new bald eagle nest on the St. Vrain River, which is along a planned regional trail. The City of Longmont has agreed to re-route this trail further north from its proposed alignment right along the river, to avoid undue interference with the nesting. If this alternate had not been pursued, this trail could have been closed for almost half the year in order to protect the nesting eagle pair.

Golden Eagle Nest Monitoring

POS staff and a volunteer monitored the four known historic golden eagle nest sites, and one new nest on POS properties in 2006. On Heil Valley Ranch, the Box Canyon and Marietta Canyon sites were active and produced 2 and 1 fledgling, respectively. The Lyons Meadow Park nest site on Hall Ranch produced one fledgling and the Rabbit Mountain nest site produced 2 fledglings. A new nest was discovered late in the season on the Wyn/Forsberg property, north of Lyons, which possibly fledged one eaglet.

Burrowing Owls

Five burrowing owl nests were found either on, or adjacent to POS properties in 2006. A nest located next to the Cradleboard Trail (seasonal closure implemented), on Carolyn Holmberg Preserve / Rock Creek Farm, fledged three owls. A nest on the Liley property fledged four owls. A nest approximately 125 meters east of the Haselwood property fledged three to five owls. A nest approximately 100 meters east of the Stephenson/Neslon property fledged three to four owls. Most of these recent nesting pairs were probably displaced from the adjacent Anthem subdivision in Broomfield County. Six pairs of burrowing owls had nested there prior to the commencement of construction at that site in late 2005.

A nest was also found approximately one meter west of the POS Cohig property on an adjacent private parcel fledged three owls. Another nest, located on private property approximately 200

meters south of Arapahoe Ave. and 10 meters east of East County Line Rd., near an industrial complex, fledged two to three owls.

Osprey

The historic nest site at Lagerman Reservoir was successful again in 2006. The seasonal closure of the west end of the reservoir and trail loop ran from April 1st to the end of August. The nesting pair arrived in late April and was incubating early in May. A total of 2 young were flying by mid-July. All fledglings, and both adults, were still observed around Lagerman Reservoir in September, prior to migration.

The Fairgrounds osprey pair returned in early April and resumed nesting on the artificial platform. Unfortunately the nest failed on approximately 6/14/06. The pair was not observed incubating after this date. The direct cause of the nest failure is not known, however temperatures near 100 degrees at the time may have contributed. There was some pseudo-nest building activity again on the light pole, towards the end of the season, resulting in some woody debris in the light structure and some damaged raptor deterrent structures. The Wildlife Specialist will look into consulting with other biologists and private consultants on other management practices that could be implemented to deter this activity in the future.

Prairie Falcon

There were no known nesting prairie falcons on POS property in 2006. The historic nesting sites on Heil Valley Ranch, Hall Ranch, and Steamboat Mountain were unoccupied. A pair was observed investigating a nest site on Bummers Rock, Betasso Preserve on 4/10/06 and 4/13/06, but was not observed after these dates.

Goshawks

Surveys for nesting Northern Goshawks were conducted on Caribou Ranch and Heil Valley Ranch for the fifth and sixth seasons, respectively, to determine if breeding pairs were present on either property. Standardized taped Goshawk call playback techniques were used. There was no nesting activity detected on either property in 2006 within 0.25 mile of the survey transects.

Caribou Ranch was surveyed 5 times from May through July. Surveys concentrated on the proposed Sourdough trail alignment, the western reaches of the property and the historic Northern Goshawk use areas.

Heil Valley Ranch was surveyed seven times from May through July, concentrating on the historic use areas and areas on the western portions of the ranch. There were no responses to played calls throughout the breeding season. Northern Goshawks once nested east of the current Ponderosa Loop trail, but have not done so since the nest tree fell sometime in 1996 or 1997. There continues to be reports of Goshawks near the former nesting area during the non-breeding season, however no new nest have been found on the property.

Breeding Bird Surveys

In 2006, breeding bird surveys were conducted to collect a third year baseline dataset for Betasso Preserve (BET), Caribou Ranch (CAR), Overland Fire/Heil Valley Ranch (OFH), and Carolyn Holmberg Preserve at Rock Creek Farm (RCF). Additionally surveys were conducted for a first year baseline dataset for the Cemex revegetation project (CEM) and the BCNA Ecosystem Stewards project at Walden Ponds (WAL). This data is presented in Table 3 below.

We currently have monitoring points on ten properties and are beginning to cycle through properties for baseline values and long-term monitoring. Surveys were not conducted on Hall Ranch, Heil Valley Ranch A.B., Rabbit Mountain, Southeast Buffer, and Walker Ranch since three years of baseline data has already been established on them. These properties will be revisited in 2007. Future scheduling of surveyed properties will include three or four long-term monitoring properties and two management activity properties per year. Management activities include prescribed burning and thinning, vegetation and riparian restoration, weed management, and trail development. By targeting these management activity projects, we will have information on the direct effect our management activities have on wildlife populations.

Species listed in Boulder County Avian Species of Special Concern – Boulder County Nature Association (Hallock, Jones 1999) were present on all surveyed properties except the Cemex revegetation project (Table 4). Rare and Declining species included an American Bittern at Walden Ponds and Burrowing Owls fledging three young from a nest along the Cradleboard Trail, which was closed for the nesting season.

Point count surveys were conducted, using Rocky Mountain Bird Observatory protocol, from June 1 through July 15. A Relative Abundance Index (RAI) was determined for each property surveyed using the following formula:

Total Number of Observations of Birds / Total Number of Census Periods

Only birds seen or heard during a five-minute survey period and within 50 meters (100 meters for Grassland habitats) of the stations were tallied in the RAI (Tables 3,4). An X indicates birds reported outside of these parameters, but during the survey period of June 1st – July 15th. An R indicates any additional species reported on the property during the survey period. These additional species reports are included in species richness calculations but not in RAI calculations.

Species richness was determined by counting all species reported on the property surveyed during the survey period of June 1st through July 15th. The highest to lowest species richness values per property were as follows: Caribou Ranch=48, Betasso Preserve=40, Overland Fire/HVR=40, Walden Ponds=38, Rock Creek Farm=32, and Cemex=16.

Table 3: Relative Abundance Index¹ (RAI) for BCPOS Breeding Bird Surveys, 2004-2006

Species	BET n=30			CAR n=60			CEM n=9	OFH n=30			RCF n=27			WAL n=9
	2004 (34)	2005 (40)	2006 (40)	2004 (50)	2005 (47)	2006 (48)	2006 (16)	2004 (36)	2005 (39)	2006 (40)	2004 (38)	2005 (37)	2006 (32)	2006 (38)
Pied-billed Grebe														0.11
Western Grebe												X		
American White Pelican											X	X		1.22
*Double-crested Cormorant											X	X		0.33
*American Bittern														0.11
*Great Blue Heron											X	X	X	0.56
Snowy Egret												X		
Green Heron														X
*Black-crowned Night-Heron											X			R
Turkey Vulture	X	0.03				X								
Canada Goose					X								X	4.67
Mallard				X	X							X	0.07	1.78
Cinnamon Teal														R
Northern Shoveler														X
Green-winged Teal				X	X									R
Ruddy Duck				X	X									
*Northern Harrier												0.04		
Sharp-shinned Hawk				0.02										
Cooper's Hawk	0.10	0.03	0.03	0.02										
*Swainson's Hawk											0.15	0.26	0.11	
Red-tailed Hawk			X	X	0.02	X	X	X	X	0.03	0.11		0.04	
American Kestrel	0.03		0.03				X	X		0.03		X	0.07	
Blue Grouse					X									
Wild Turkey									X	X				
Killdeer											0.30	0.04	0.11	0.78
American Avocet														0.33
Lesser Yellowlegs														0.11
Greater Yellowlegs														R
Spotted Sandpiper														0.22
Marbled Godwit														R

¹Total # of Detections of Species within 50 meters of points / Total # of 5 min. Point Counts per Property

²Total # of Species per Property. X = Species detected on property, R = Species reported on the property during the survey period

***BOLD** = Species of Special Concern for Boulder County

Table 3: Relative Abundance Index¹ (RAI) for BCPOS Breeding Bird Surveys, 2004-2006

Species	BET			CAR			CEM	OFH			RCF			WAL
	n=30			n=60			n=9	n=30			n=27			n=9
Survey Year ² (Species Richness)>	2004	2005	2006	2004	2005	2006	2006	2004	2005	2006	2004	2005	2006	2006
	(34)	(40)	(40)	(50)	(47)	(48)	(16)	(36)	(39)	(40)	(38)	(37)	(32)	(38)
Wilson's Snipe				0.02	X	X								
Rock Pigeon								X			0.15		0.41	
Mourning Dove	0.03	0.03	0.23	0.07	0.02	X	0.11	0.33	0.27	0.31	0.70	0.04	0.44	0.22
Great Horned Owl											0.19			
*Burrowing Owl												X	X	
Common Nighthawk	0.07	0.30	0.07	0.10	0.02	0.05		0.03	X					
Broad-tailed	0.23	0.23	0.27	0.87	0.77	0.73		0.37	0.17	0.14				
Hummingbird														
Williamson's Sapsucker				0.03										
Red-naped Sapsucker					0.03	X								
Downy Woodpecker				0.07	0.02	0.02				X	0.04			
Hairy Woodpecker	0.07	0.03	X	0.02	0.02	X		X	0.20	0.07				
*Three-toed Woodpecker					X					0.03				
Northern Flicker	0.07	0.07	0.03	0.03	0.10	0.07		0.13	0.03	0.14		0.22	0.11	
*Olive-sided Flycatcher				X	0.02	X				0.03				
Western Wood-Pewee	0.37	0.17	0.17	0.05	0.02	0.03		0.87	0.10	0.62				
*Willow Flycatcher												0.04		
Hammond's Flycatcher	0.10	0.07	0.13	0.10	0.05	0.02		X	X					
Dusky Flycatcher				0.05		0.02			X					
Cordilleran Flycatcher			0.07	0.13	0.07	0.05			0.03					
Say's Phoebe											0.04	X	0.11	
Western Kingbird							X				0.44	0.26	0.11	0.22
Eastern Kingbird											0.19			0.22
Plumbeous Vireo	0.10	0.17	0.13						0.03	0.03				
Warbling Vireo				0.43	0.30	0.18								
Gray Jay						X								
Steller's Jay	0.10	0.17	0.07	0.22	0.13	0.07		0.10	X	0.03				
Clark's Nutcracker				X	X	0.03								
Black-billed Magpie	X	X	0.07	X	X		X	0.13	X	X	0.04	X	0.22	
American Crow	1.13	0.07	0.03	X	X	X		0.07	0.03	0.03	X			
Common Raven		0.13	0.03	X	X	0.05								
Horned Lark											0.30	X	0.33	
Tree Swallow											X			1.78

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Table 3: Relative Abundance Index¹ (RAI) for BCPOS Breeding Bird Surveys, 2004-2006

Species	BET n=30			CAR n=60			CEM n=9	OFH n=30			RCF n=27			WAL n=9
	2004 (34)	2005 (40)	2006 (40)	2004 (50)	2005 (47)	2006 (48)	2006 (16)	2004 (36)	2005 (39)	2006 (40)	2004 (38)	2005 (37)	2006 (32)	2006 (38)
Northern Rough-winged Swallow														0.11
Violet-green Swallow	0.03	0.27	0.20	0.18	0.28	0.13		0.07	0.03	X				
Cliff Swallow							0.11				0.44	0.78	4.59	0.22
Barn Swallow	0.07	0.03				0.02					0.11		0.07	0.44
Black-capped Chickadee											0.11			
Mountain Chickadee	0.93	0.70	0.13	0.78	0.67	0.67		0.03	X	X				
Red-breasted Nuthatch	0.10	0.03		0.12	0.07	0.10			X					
White-breasted Nuthatch	0.33	0.30	0.40	0.07	0.03	0.02		0.23	X	X				
*Pygmy Nuthatch	0.67	0.33	1.30			0.05			0.13	0.07				
Brown Creeper		0.03	0.03	0.18	0.02	X		X						
Rock Wren			X				X	0.37	0.10	0.07				
Canyon Wren								X	0.03	0.07				
House Wren	0.23	0.10	0.03	0.33	0.23	0.27		0.23	0.17	0.31	0.15	0.07	0.11	
Ruby-crowned Kinglet	0.07	0.07		0.38	0.13	0.18								
Blue-gray Gnatcatcher	0.07													
Eastern Bluebird									X	0.14				
Western Bluebird		0.10	0.03					X		0.03				
Mountain Bluebird	0.03	0.07	0.10	0.03	0.03	0.02		0.17		0.24				
Townsend's Solitaire	X	0.03	0.07	0.25	0.10	0.03		0.07		0.07				
Hermit Thrush				0.25	0.12	0.02								
American Robin	0.40	0.23	0.60	0.35	0.37	0.28		0.30	0.37	0.59	0.22	0.11	0.26	1.22
European Starling							0.11				0.11	0.15	0.89	0.33
*Cedar Waxwing												X		
Orange-crowned Warbler								X						
Virginia's Warbler	0.10	X						0.03						
Yellow Warbler											0.19	0.04	0.11	0.56
Yellow-rumped Warbler			X			0.12								
*MacGillivray's Warbler				0.02	0.02	0.02		0.13						
Common Yellowthroat											0.22	0.07		0.56

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***BOLD** = Species of Special Concern for Boulder County

Table 3: Relative Abundance Index¹ (RAI) for BCPOS Breeding Bird Surveys, 2004-2006

Species	BET n=30			CAR n=60			CEM n=9	OFH n=30			RCF n=27			WAL n=9
	2004 (34)	2005 (40)	2006 (40)	2004 (50)	2005 (47)	2006 (48)	2006 (16)	2004 (36)	2005 (39)	2006 (40)	2004 (38)	2005 (37)	2006 (32)	2006 (38)
Wilson's Warbler				X										
Yellow-breasted Chat										X				
*Western Tanager	0.43	0.27	0.13	0.07	0.10	0.02			0.03	X				
Green-tailed Towhee	0.07	X	X	0.05	0.13	0.03		0.10	X	X				
Spotted Towhee		X	X											
Chipping Sparrow	1.37	1.23	0.80	0.10	0.03	0.05		0.33	0.10	0.86		X		
Vesper Sparrow		0.07	0.03				1.67		X	0.03	0.26	0.07	0.22	
Lark Sparrow									X		0.04			
*Savannah Sparrow											0.04		0.07	
Song Sparrow				0.08		X					0.44	0.41	0.44	0.67
Lincoln's Sparrow				0.03	X	0.02								
Dark-eyed Junco	0.30	0.20	0.17	0.88	0.55	0.52		0.17	0.03	0.03				
Black-headed Grosbeak				0.02		X				X			0.04	
Blue Grosbeak							X	0.07	X		0.22	0.04		
Lazuli Bunting								0.03	0.17	0.28				
Indigo Bunting									X					
Red-winged Blackbird				0.03	X	X	X				1.15	0.78	0.67	3.22
Western Meadowlark	X	0.07	0.13				0.44	X	X	X	0.85	0.30	0.48	0.11
*Yellow-headed Blackbird											X	X		0.22
Brewer's Blackbird									X			0.04		
Common Grackle											0.15	0.11	X	2.22
Brown-headed Cowbird		X	X	0.02	0.10	0.13	X	0.03		0.03	0.44	0.85	0.70	0.33
Bullock's Oriole							X				0.07	0.15	0.33	0.44
House Finch			X							0.03	0.22	X	0.04	0.11
Red Crossbill		0.20	1.03	0.60	0.12	0.07			X	0.45				
Pine Siskin		0.37	0.07		0.50	0.05			X					
Lesser Goldfinch	1.23	0.10	0.20			0.08	0.44	0.47	0.33	X				
American Goldfinch				0.02			0.33						0.04	0.11
House Sparrow														0.33

¹Total # of Detections of Species within 50 meters of points / Total # of 5 min. Point Counts per Property

²Total # of Species per Property. X = Species detected on property, R = Species reported on the property during the survey period

***BOLD** = Species of Special Concern for Boulder County

Table 4: ^aRAI of Species of Special Concern (BCNA) on BCPOS Properties Surveyed

BC Species of Special Concern	BET n=30			CAR n=60			CEM n=9	OFH n=30			RCF n=27			WAL n=9
	2004 (34)	2005 (40)	2006 (40)	2004 (50)	2005 (47)	2006 (48)	2006 (16)	2004 (36)	2005 (39)	2006 (40)	2004 (38)	2005 (37)	2006 (32)	2006 (16)
⁴ Double-crested Cormorant											X	X		0.33
^{1,4} American Bittern														0.11
⁴ Great Blue Heron											X	X	X	0.56
⁴ Black-crowned Night-Heron											X			R
^{1,4} Northern Harrier												0.04		
⁴ Swainson's Hawk											0.15	0.26	0.11	
^{1,4} Burrowing Owl												X	X	
⁴ Three-toed Woodpecker					X					0.03				
⁴ Olive-sided Flycatcher				X	0.02	X				0.03				
^{2,4} Willow Flycatcher												0.04		
⁴ Pygmy Nuthatch	0.67	0.33	1.30			0.05			0.13	0.07				
⁴ Cedar Waxwing												X		
⁶ MacGillivray's Warbler				0.02	0.02	0.02		0.13						
⁶ Western Tanager	0.43	0.27	0.13	0.07	0.10	0.02			0.03	X				
⁴ Savannah Sparrow											0.04		0.07	
⁴ Yellow-headed Blackbird											X	X		0.22

¹Rare and Declining. ²Declining. ³Rare. ⁴Isolated or Restricted Populations

⁵Needs Research. ⁶Partners in Flight-Downward Population Trends

^aTotal # of Detections of Species within 50 meters of points / Total # of 5 min. Point Counts per Property

^bTotal # of Species per Property. X = Species detected on property, R = Species reported on the property during the survey period

Bluebird Nest Boxes (Walker Ranch / Betasso Preserve)

IN 2006, twelve members of the Boulder Chapter of the Audubon Society volunteered to monitor 54 bluebird nest boxes on Walker Ranch and Betasso Preserve. The results of the monitoring efforts are being shared with the Cornell Lab of Ornithology – The Birdhouse Network, which monitors nest boxes for the study and conservation of cavity-nesting birds.

Table 5: Boulder County Bluebird Monitoring Project Summary: 1989, 2005 and 2006

Year, (# of Nest Boxes) Species	1989, (20)		2005, (48)		2006, (54)	
	Nests	Fledged	Nests	Fledged	Nests	Fledged
Tree Swallow			3	9	4	8
Violet-green Swallow					2	6
Mountain Chickadee	1	6	2	5	1	7
White-breasted Nuthatch					2	11
House Wren	7	40	7	38	3	18
Western Bluebird			7	28	13	63
Mountain Bluebird	12	48	19	100	20	88
Total	20	94	38	180	45	201

Waterfowl

Winter Waterfowl Survey

The Wildlife Specialist assisted CDOW again in 2006 by participating in winter waterfowl surveys on POS ponds on January 3rd and by conducting breeding Canada goose surveys in the summer. Winter surveys were again conducted on Fairgrounds Lake/Cattail Pond, Lagerman Reservoir, Walden Ponds and Stearns Lake. The results of these surveys are in Table 6.

Table 6- CDOW Winter Goose and Waterfowl Survey Results: BCPOS Locations

Site	% Filled	% Frozen	Canada Geese	Ducks
<i>Fairgrounds Lake</i>	100	70	2500	19
<i>Cattail Pond</i>	100	50	400	14
<i>Lagerman Reservoir</i>	95	100	0	0
<i>Walden Ponds</i>	100	80	221	410
<i>Stearns Lake</i>	100	80	175	178

Walden Ponds, Stearns Lake and Fairgrounds Lake were not completely frozen and were all occupied by waterfowl, concentrating in the relatively small open, unfrozen areas. They all supported a good number of diving and dabbling ducks, with Cottonwood Marsh pond at Walden having the highest concentration. Long-term trends being compiled by CDOW biologists continue to show that overall numbers of wintering Canada geese are steadily increasing throughout the Front Range urban corridor.

Canada Goose Management

POS staff did not conduct any direct Canada goose management activities on either Fairgrounds Lake or Walden Ponds in 2006. Normally, the majority of goose nests are destroyed on these sites by adding eggs early in their incubation. This is done under a Fish and Wildlife Service permit held by CDOW for the regional management of non-migratory geese. Significantly fewer nests were established on Fairgrounds Lake than in previous years, and only a handful of geese were able to nest at Walden Ponds, as a result of severe low water conditions in most of the ponds within that complex. No concerted hazing of geese was done either, which is normally required by CDOW as a management activity to be conducted when adding eggs on nests.

POS staff has continued assisting the CDOW waterfowl research biologist in conducting an analysis of non-migratory Canada goose populations in Boulder County. This was the fourth year of the project. On June 12th and 20th, the Wildlife Specialist assisted CDOW in rounding up and marking geese on Pella Ponds East, Fairgrounds Lake and Walden Ponds. Geese were captured and marked with leg bands and neck collars. This long-term project is examining the demographics of local breeding goose populations and monitoring their movement in the area. Few goslings were banded at any of the sites, and especially not at Walden Ponds.

As noted earlier, no egg adding was conducted by POS staff in the spring, since few nesting pairs of geese were observed at most of these sites. Drought conditions likely played a key part in causing a decrease in non-migratory Canada goose breeding throughout the Front Range, according to CDOW biologists. Certain sites, such as Walden Ponds and Fairground Lake, show a high level of use by breeding, non-migratory geese and high site fidelity, which is the reason POS initiated nest adding activities for local population management. The interpretation of preliminary band recovery and collar re-sighting data by CDOW biologists indicates most of these non-migratory geese (>70%) are not traveling more than 10 miles from their capture site for feeding, and the vast majority remain at their place of capture for nesting and winter refuge.

Cooperative Research Projects

There were five research projects conducted under the guidance of the small mammal and avian Wildlife Specialist in 2006. The Small Grants Program funded two of these projects. One was a continuation of an investigation into the role of mesopredator mammals in the vectoring of sylvatic plague. The second study was a continued investigation of bat ecology on HVR. Some further attention was given to West Nile Virus impacts to bats and to the investigation of preference for calcium-rich water by bats. Much attention was given to the response of bats to thinned forest areas and to the monitoring of Townsend's big-eared bat populations on HVR. The third project continued investigating butterfly species occurrence on both foothills and plains properties. More effort was made this year to identify habitat types and associate species occurrences with habitat parameters. Other projects included an investigation of ant ecology, further investigation of plague ecology, continued bird banding on Lykins Gulch, artificial bluebird nest box monitoring on Walker Ranch and annual Christmas bird counts.

Small Grant Recipient Projects

Bat Ecology on Heil Valley Ranch:

Dr. Rick Adams from the University of Northern Colorado received another small grant to continue his bat research on Heil Valley Ranch in 2006. His major findings this year were:

- 139 bats were captured and released
- Most captures during study period were *Myotis evotis*, approx. 39%
- Two male *C. townsendii* were captured, but no females
- 704 unknown sonar calls was recorded
- More than 100 hand-release calls were recorded for the Colorado bat sonar library
- Most unknowns were recorded in Thinned forest plots
- Most biomass of insects was highest in Thinned plots
- Diptera and Lepidoptera made up the majority of insects captured in light traps
- 8 bats tested for WNV: a single female *M. evotis* tested positive for WNV antibodies
- 41 bats were PIT-tagged, of these 16 (38%) were reacquired at the artificial water hole
- Of 24 female *M. thysanodes* PIT-tagged, 14 were reacquired (54%)
- Of 93 drinking passes, 90 (97%) were at the higher calcium water hole

Dr. Adams captured 139 bats, representing 6 species during his investigations this year. This was another year of high species presence and populations on HVR, indicating that ongoing resource management activities have not negatively impacted local bat populations. He also caught 2 male Townsend's big-eared bats, but no reproductive females as in 2005. This again indicated regular habitat use on HVR by this species, although not necessarily as breeding habitat. Future investigations should hopefully capture more reproductive females, allow some specimens to be radio-tagged to aid in finding any nursery roost sites. Townsend's big-eared bats are considered a species of concern under federal listing guidelines and have been in decline in Colorado.

Table 7. Comparative capture data by male/female across four years at HVR for individuals of known sex.
(BNN = bats per net per night)

Species	2002	2003	2004	2005	2006	Total
<i>MYCI</i>	1 (F)	7 (4F, 3M)	7 (1F, 6M)	5 (1F, 4M)	3 (M)	23 (7 F, 16 M)
<i>MYEV</i>	21 (6F, 11M)	15 (9F, 6M)	34 (9F, 25M)	61 (19F, 42M)	53 (19 F, 34 M)	184 (62 F, 118 M)
<i>MYLU</i>	23 (12F, 11M)	14 (7F, 7M)	9 (1F, 8M)	50 (7F, 43M)	44 (6 F, 38 M)	139 (32 F, 10 M)
<i>MYTH</i>	17 (13F, 4M)	22 (9F, 11M)	14 (11F, 3M)	16 (11F, 5M)	36 (26 F, 10 M)	103 (70F, 33 M)
<i>MYVO</i>	0	1 (F)	4 (F)	14 (6F, 8M)	1 (M)	20 (8 F, 12 M)
<i>EPFU</i>	7 (M)	38 (M)	18 (1F, 17M)	9 (M)	0	72 (2 F, 62 M)
<i>LACI</i>	1 (M)	0	2 (M)	0	0	3 (0 F, 3 M)
<i>LANO</i>	1 (M)	1 (M)	2 (M)	0	0	4 (0 F, 4 M)
<i>COTO</i>	1 (M)	0	2 (F)	3 (2F, 1M)	2 (M)	8 (4 F, 4 M)
Total	32 F, 36 M	30 F, 66 M	25 F, 63 M	46 F, 112 M	51 F, 88 M	556 (185 F, 356 M)
BNN	6.8	5.6	7.3	15.8	11.25	8.17

Dr. Adams also continued to monitor habitat use by all bats on HVR, and tested netted bats for WNV exposure via blood samples taken. He also continued to refine his research into bat preference for water holes with high calcium levels, using experimental and control sites to count passes of PIT-tagged bats. Water hole preference data still shows a preference for high-calcium water holes. It also confirmed that pregnant or nursing female bats showed a preference for the calcium-rich water sources. His investigation also continued to show a higher use of thinned forests for foraging than unthinned forests, although this was still lower than foraging use of open meadows. None of the sampled bats tested positive to WNV, indicating that this disease, which has impacted many bird species and some mammals, doesn't affect mosquito-eating bats.

Mesocarnivore Role in Sylvatic Plague Vectoring:

Robert Jory Brinkerhoff, a doctoral student in the Evolution and Ecology department at CU Boulder, has been investigating the role of small carnivores (coyote, fox, skunk, raccoon, et al) in vectoring sylvatic plague-carrying fleas across the landscape. His research has focused on trapping mammals in the foothills during the spring, and in the plains habitat during the summer, to compare seasonal levels of plague titers and plague-carrying fleas among mesocarnivores.

One key development in the 2006 field work and laboratory analyses of flea samples collected was an apparent association of striped skunks with many of the prairie dog flea species found to carry the *Yersinia pestis* bacteria. This investigator is continuing his research to determine if this is a truly strong correlation that may lead to some conclusions regarding the vectoring of plague across a landscape by this mesocarnivore.

Butterfly Species Occurrence on Heil Valley and Caribou Ranches

Jan Chu and her associates surveyed 10 POS properties for butterflies in 2006, a continuation of a project that they have been working on since 2002. They found a total of 105 species of butterflies on all properties. The survey encompassed the types of habitats listed below, and the properties surveyed. This total is lower than in previous years, which the researcher associates with the extreme drought of 2006 and prolonged high temperatures in June.

The investigator also examined basic plant/butterfly species associations. These can be referenced in the 2006 report from this investigator.

Habitat Types/Associated Properties Surveyed for Butterflies in 2006

Plains	Carolyn Holmberg at Rock Creek, Pella Crossing
Foothills	Anne U. White, Steamboat Mtn., Rabbit Mtn.
Foothill/Montane	Heil Valley Ranch
Montane	Meyer Gulch, Reynolds Ranch
Upper Montane/Lower Sub-alpine	Caribou Ranch, Mud Lake

Other Projects/Activities

McIntosh Lake/Lohr Prairie Dog Barrier

POS staff installed approximately 0.25 mile of chicken wire prairie dog barrier along the northern edge of the new McIntosh Trail adjacent to the Lohr Agricultural Heritage Center. This was done to hinder the migration of prairie dogs from the McIntosh Lake property, which the City of Longmont OST is managing for prairie dog conservation, onto the AHC. The City of Longmont OST will be responsible for installing any additional barrier needed on this property.

Sisters of St. Francis Wildlife Habitat Planting Project

Designs for planting native vegetation on this project site were finalized and plants were ordered from the state forestry nursery. A contractor removed the remaining Russian olive trees and POS staff implemented more noxious weed control measures. Planting of shrubs and grass seeding will begin in the spring of 2007.

Broomfield Prairie Dog Barrier

The Lac Amora Park in Broomfield County is contiguous with the CHP/RCF and is managed as a recreational property with no provision for prairie dog habitat. The Broomfield Open Space director requested our help to prevent expansion of prairie dogs from CHP/RCF onto Lac Amora Park. POS staff and volunteers responded by installing approx. 0.5 miles of chicken wire prairie dog barrier along our common fence in March.

Highway 36 Expansion EIS Planning Team

The Wildlife Specialist worked with CDOT and the City of Boulder on potential habitat impacts and mitigation efforts on public lands impacted by planned expansion of the Highway 36 (Boulder Turnpike) corridor. The focus has been on wetland/riparian impacts, and ways to minimize or mitigate loss to Preble's meadow jumping mouse and Ute's ladies' tress habitat.

Front Range Prairie Dog Working Group

The Wildlife Specialist has been actively participating in this group of local public land management agencies. This group regularly addresses many of the key prairie dog management concerns and challenges that we all face along the Front Range communities. The goal of this group is to work towards consensus on many of the matters pertaining to prairie dog management, including conservation and control efforts, and to offer professional support to each other in helping us address these matters to our respective publics and decision makers.

Planning Division

The Wildlife Specialist again assisted the Resource Planning division with input into the development of management plans for Lagerman Reservoir and Rabbit Mountain/Dowe Flats. Other input was given on trail placement related to wildlife concerns for the Rock Creek trail on the Stephenson-Nelson property and the Niwot Regional Trail planning process. The Wildlife Specialist also coordinated a site visit with the regional CDOW DWM to comment on concerns over the proposed alignment on the Stephenson-Nelson property. The Wildlife Specialist also initiated discussion with the Resource Planning and Acquisitions staff regarding wildlife impact concerns resulting from an increase in permit applications for and active gas and oil drilling operations in eastern Boulder County.