2003 Wildlife Management Activities
Avian and Small Mammal Elements

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Overview

In 2003, prairie dog management and shortgrass species issues again dominated our management activities. Prairie dog management productivity declined from 2002 due to numerous factors. These included a federal prairie dog trapping moratorium due to public health concerns and a wet spring that created locally abundant natural forage for prairie dogs, resulting in low trapping success initially. We also experienced some local prairie dog mortality resulting from West Nile Virus (WNV). We cooperated with the Colorado Division of Wildlife (CDOW) to reintroduce plains sharp-tailed grouse in Boulder County on Parks and Open Space (POS) properties and to trap and collar-band Canada geese for a long-term goose-monitoring project along the Front Range communities. Breeding bird surveys were continued on plains and foothills properties to monitor long-term ecological health of our grassland and ponderosa pine-shrub habitat. Known eagle and other raptor nests were monitored, and nesting habitat for American kestrels on Carolyn Holmberg Preserve at Rock Creek Farm (CHP/RCF) was enhanced with artificial nest boxes to compensate for some tree removal and trimming. An osprey nest at the Fairgrounds was accommodated under an agreement with the U.S. Fish and Wildlife Service (FWS) and CDOW by modification of the outdoor arena activities during the active nesting season. An artificial nest platform was also installed on the Fairgrounds, away from the active arena area, in anticipation of this pair returning to the Fairgrounds to nest in 2004. POS supported numerous outside research projects on birds and small mammals, including ongoing breeding bird responses to trail use and forestry management activities, numerous prairie dog ecological studies and bat ecology in foothills ponderosa pine habitat. A Habitat Conservation Plan (HCP) and Biological Assessment (BA) were completed for trail construction projects in known Preble's meadow jumping mouse habitat on the St. Vrain River and Coal Creek. The Wildlife Specialist assisted the Resource Planner in developing a comprehensive management plan for the St. Vrain River corridor and the St. Vrain Trail and in developing the Jointly Owned Boulder County-Louisville-Lafayette Open Space Management Plan.

2003 Objectives

Continue to actively manage prairie dog colonies on No Prairie Dog areas and other conflict sites, trapping and removing prairie dogs from these sites.

Results: In 2003, POS technicians trapped and removed 744 prairie dogs from 14 properties. Additionally, contractors trapped and removed 79 prairie dogs from one property and volunteers trapped and removed 58 from another property. Prairie dog barrier was installed around two sites, including Rabbit Mountain adjacent to private property whose owner cost-shared this project with the county. Monitoring and maintenance of existing barriers was also done.

Conduct breeding bird and small mammal surveys on at least 3 major fee-owned properties of 500 acres or greater.

Results: Breeding bird surveys were again conducted on Rabbit Mountain, Heil Valley Ranch and Hall Ranch. New survey points were established on Walker Ranch and a breeding bird survey was also conducted on that property in 2003. A protocol for conducting small mammal surveys was created, but not yet implemented, in 2003. This will be tested in 2004. Preble's mouse surveys were conducted on Keyes and Bullock properties by the prairie dog technicians during the time that prairie dog management activities were stopped by the federal moratorium.

Enhance public communication and public participation regarding wildlife management activities on POS properties. This will be done through presentation of annual updates, public outreach efforts, training, etc.

Results: Annual updates on avian and small mammal management activities and on prairie dog management status were presented to the Parks and Open Space Advisory Committee (POSAC) and the Board of County Commissioners (BOCC). The Resource Planning division held three public meetings on trail plans and the St.Vrain River master plan that the Wildlife Specialist participated in. The purpose of attending these meetings was to answer any questions on wildlife resources or potential impacts to these natural resources as a result of implementing these plans.

Objectives for 2004

1- Continue active management of prairie dogs and remove prairie dogs from at least 5 incompatible sites.

2- Establish survey transects on at least one other property of 500 acres or greater and initiate breeding bird surveys on that property; conduct trial of small mammal trapping on at least one site.

3- Continue public communication efforts by presenting annual updates on wildlife management activities to POSAC and BOCC, conducting basic volunteer naturalist training and developing an advanced training program on prairie dogs, and writing an article for Images.

Projects

Small Mammals

Prairie Dogs

We continued to manage prairie dogs in the same manner as we did in 2002. An abundant and growing population of prairie dogs on our Habitat Conservation Area (HCA) sites precluded us from relocating prairie dogs to them from removal sites. Prairie dogs that were removed from No Prairie Dog (NPD) or Multiple-Use Area (MOA) properties were again donated to the black-footed ferret recovery program or to local raptor rehabilitation facilities. No prairie dogs were relocated to any POS property in 2003, nor were any accepted from non-POS sites for release on county properties. Table 1 presents the total number of prairie dogs removed, by property.

Table 1- Prairie Dog Removal Data for 2004: June 1-October 31

Property	Dates	Trap-Hours	Total Trapped	Success Index
Wasson	6/3-6/19	10050.0	154	0.0153
Anderson	6/3-6/11	337.5	3	0.0089
Monarch Park [1]	6/16-8/10	-	58	-
Monarch Park	8/14-8/28	1965.0	23	0.0117
A. Dawson	6/16-6/19	350.0	1	0.0029
Keyes North	6/20-8/28	15323.8	166	0.0108
Quicksilver	7/18-7/24	2835.0	17	0.0060
Keyes W/Sisters	7/25-8/11	13312.5	42	0.0032
Sisters West [2]	8/6-8/14	3713.8	23	0.0062
Brewbaker	8/12-9/17	18541.3	96	0.0052
Fairgrounds	9/12-10/29	1770.0	1	0.0006
Bouzarelos	9/12-9/18	2962.5	1	0.0003
W.Mobile/Toteve[3]	9/12-9/28	22340.0	79	0.0035
Burchfield	9/19-10/23	34078.8	169	0.0050
W.Mobile/Toteve	9/29-10/5	4260.0	14	0.0032
Becky	10/17-10/29	5886.3	34	0.0046
Totals		**127339**	**881**	**0.0069**
Totals (adjusted [4])		**104999**	**744**	**0.0071**

Our active field season ran from June 1 to early November 2003. Three seasonal technicians were hired to trap and manage the prairie dogs off of designated NPD and MOA properties. Two of the technicians had worked on this project in 2002 and returned in 2003, which helped

[1] Trapped by neighborhood volunteer group; trap-hour data not recorded
[2] Mortality in captivity from WNV confirmed in this colony (CDOW Wildlife Health Laboratory)
[3] Removal done under contract by Roe Ecological Services LLC
[4] Indicates only POS personnel results, not contract or volunteer removal results

maintain productivity and efficiency. Trapping commenced early in June, but initial trapping results were poor compared to previous years. It is assumed that this was due to abundant forage on all colonies, resulting from above-normal moisture along the Front Range in late winter and spring. Trapping efficiency increased later in the season as natural forage decreased during the drier summer months. A total of 881 prairie dogs were removed from POS properties during this field season. The seasonal technicians trapped 744 of these; Roe Ecological Consultants, LLC, trapped 79 on Western Mobile/Toteve property under contract with POS, and a coalition of Monarch Park neighbors trapped 58 more on Monarch Park.

In early July, CDOW temporarily suspended all trapping and handling permits for prairie dogs following an order from the Food and Drug Administration (FDA) and the Center for Disease Control (CDC) to cease all transportation of prairie dogs. This was done in response to the discovery of monkeypox virus in people who had handled prairie dogs obtained from the exotic pet trade. We had to suspend our trapping efforts for five weeks until the Wildlife Specialist was successful in obtaining an exemption from this federal moratorium and re-activating our state trapping permit. We did not furlough the prairie dog technicians during this period, since no one knew when, or if, this moratorium would end. During this time, the prairie dog technicians conducted a Preble's mouse survey on St. Vrain Creek while waiting for the moratorium to be lifted or the exemption permit granted. Prairie dog trapping resumed again on August 14th after we obtained an exemption to the moratorium for our local removal efforts.

Another disease-related issue in prairie dog management evolved in 2003. Three prairie dogs that were trapped on the Sisters of St. Francis property south of Quail Rd., near Dry Creek, died in captivity after suffering semi-paralysis and convulsions. The carcasses were turned over to the CDOW wildlife disease laboratory in Ft. Collins for analysis. A positive confirmation of West Nile Virus (WNV) as the cause of death was made for all three. Since this mosquito-borne disease has been a major concern for public health, and its impact on local native wildlife is relatively unknown, the CDOW is conducting further investigations into the prevalence and persistence of this disease in local prairie dog populations. We have trapped 16 more prairie dogs in November, December and January, from the vicinity of this known site, for the CDOW investigators. The results of the analyses of these specimens have not been completed at this time. Any information that the CDOW obtains from these specimens will be forwarded to us and incorporated into future prairie dog management, if necessary.

Since prairie dogs were not relocated in 2003, we trapped and removed prairie dogs during the winter on select properties to reduce those local populations. The Wildlife Technician and Wildlife Specialist trapped 40 prairie dogs from CHP/RCF agricultural fields, 15 from Trillium, 30 from Monarch Park and 10 from Becky in January and February. Due to the time it took one person to move and re-set traps, we did not trap on other sites following those efforts. Future off-season trapping will be limited to small sites where trapping will only require 50 or fewer traps for one or two weeks. All other efforts will be scheduled for the summer field season.

Our annual monitoring of occupied prairie dog colony acreage actually showed a slight decrease in acreage relative to that measured the previous year for the first time since monitoring began in 1998 (Table 2a). There was an actual slight net increase in occupied acres since 2002 resulting from new acquisitions, but this was generally offset by a natural reduction in some colonies. All

of these calculations were based on occupied acreages measured on properties in existing management categories. No new properties were added to any of the three management categories in 2003. Properties acquired in the past year that have prairie dogs on them have been included in the To Be Determined (TBD) category.

Overall, there was a decrease in occupied acreage of 1.3% from 2002 in those colonies which were least impacted by ongoing management activities (Table 2b). The greatest decrease (13.7%) was seen in NPD areas, primarily actively cultivated agricultural lands. Part of this decrease is arguably due to the success of our removal and control efforts on NPD properties over the past few years. These acres were calculated differently (Table 2b) to show the impact of control efforts on the level of NPD area occupancy.

Another factor that probably contributed to this reduction was colony abandonment, or at least abandonment of new fringe colonies on existing complexes, as a result of extensive vegetation growth in the spring of 2002. Much of this growth resulted in areas of tall weedy vegetation that could not be trimmed down by the resident prairie dogs in a timely manner. Since prairie dogs avoid areas of tall and dense vegetation to avoid predation, it is assumed that many of these areas were subsequently abandoned for that reason. This explanation is also plausible for the slight, but measurable (-1.3%) overall reduction in acreage among all other categories, including MOA (-2%), HCA (-1%) and TBD (-0.8%) properties, which have had little or no direct removal of prairie dogs. Some removal has been done on MOA properties over the past few years, but not significantly, as is the case for NPD properties.

Also of note is the continued high percent of colony occupancy of our designated HCA and MOA properties and the relatively small percentage of occupancy on NPD sites (Table 2c). There has not been any major shift in these figures over the past few years, indicating the persistence of a robust prairie dog population on POS properties where appropriate and the maintenance of a minimal impact of colonies on actively cultivated agricultural properties and other NPD sites.

Table 2a- 2002-2003 Colony Acres

2002-2003 Colony Acres	2002 Colonies	2003 Colonies	2003 Newly Mapped Colonies (NMC)	2003 Colonies - NMC
Management Classification	**Acres**	**Acres**	**Acres**	**Acres**
HCA	1,263.5	1,381.2	129.6	1,251.5
MOA	1,139.0	1,124.4	9.0	1,115.4
NPD	523.2	517.3	65.6	451.7
TBD	703.6	758.3	60.1	698.3
Total	**3,629.3**	**3,781.2**	**264.3**	**3,516.9**

Table 2b- 2002-2003 Colony Growth Rate

2002-2003 Growth Rate[1]	2002 Colonies	2003 Colonies - NMC	Acres +/-	% Growth
Management Classification	**Acres**	**Acres**	**Acres**	
HCA	1,263.5	1,251.5	-12.0	-0.95%
MOA	1,139.0	1,115.4	-23.6	-2.07%
TBD	703.6	698.3	-5.3	-0.76%
Total	**3,106.1**	**3,065.2**	**-40.9**	**-1.32%**
NPD	523.2	451.7	-71.5	-13.67%

Table 2c- Percent Occupancy of Designated Property Types Under Management Plan

2003 Percent Occupancy[2]	Classification	2003 Colonies	% Occupancy
Management Classification	**Acres**	**Acres**	-
HCA	5,105.0	1,381.2	27.05%
MOA	4,089.0	1,124.4	27.50%
NPD	15,357.0	517.3	3.37%

1 – Colony Growth Rate Total excludes NPD's due to removals.
2 – Percent Occupancy excludes TBD's due to unmeasured habitat suitability parameters.

Preble's Meadow Jumping Mouse

Federally threatened Preble's meadow jumping mice have previously been found on POS properties along the St. Vrain River upstream from Longmont. This led us to investigate the potential for this species to occupy viable county-owned habitat further downstream from the known population. The status of this species along the lower St. Vrain River needs to be established to assist with the development of a comprehensive county HCP for this species. This information will also be used in the development of a master plan for the management of the POS properties along the St. Vrain corridor and to assist in the development and design of a proposed trail corridor through this area.

The Wildlife Specialist submitted the final edits of a HCP for a trail project on the Mayhoffer-Singletree property, in the Coal Creek riparian area, and a BA for another trail project on the Marlatt Property along the St.Vrain River. Both were accepted by the FWS and incidental take permits were issued in June of 2004 for these projects.

We conducted one clearance survey in July on St. Vrain Creek adjacent to the Keyes North property, during the federal moratorium on prairie dog trapping. There were no Preble's mice trapped during this survey. This section of the creek is immediately downstream from the heavily impacted reach that runs through the city of Longmont. This section of heavily impacted

riparian habitat has likely isolated the upstream population and led to the extirpation of any population downstream from Longmont.

The validity of the federal listing of Preble's meadow jumping mice as threatened has been challenged since the initial listing in 1998. In November 2003, the FWS, in response to earlier challenges, upheld the listing for the immediate future. It will therefore remain our responsibility to continue the management of our riparian habitat under the federal guidelines for this species at this time. However, a recent scientific study conducted by the Denver Museum of Nature and Science has indicated that the taxonomic validity of Preble's, as a separate subspecies of *Zapus hudsonius,* may not hold up under the scrutiny of genetic analysis. As this issue is examined further, we will respond to any subsequent decisions by the Service regarding the continued listing and protection of this species and its habitat in our management of riparian areas.

Bats

We discontinued the volunteer bat-monitoring project in the eastern part of the county in 2003. This project had been originally set up to assist Dr. Rick Adams in his research into water chemistry as a factor in bat use of open water. Dr. Adams has finished that research. We will now focus our work with bats in POS foothills habitat, including various abandoned mines.

No active surveys were done in 2003 on POS properties. Prior surveys by CDOW and the state Department of Mines and Geology (DMG) on Caribou Ranch and Mud Lake have identified Townsends big-eared bats in the Bluebird Mine on Caribou Ranch. All other mine shafts, adits and test pits were considered to be inactive and/or implausible habitat for native bat species. In November, the DMG conducted a site visit for prospective contractors to these abandoned mines on Caribou Ranch and Mud Lake, and also to other previously surveyed mines on the Mehl and Baylin properties that did not support bat use, to bid on closing them. The Wildlife Specialist participated in this site visit to confirm that these mines were not supporting bat populations and that closing them would not be detrimental to bat populations on POS properties.

Dr. Rick Adams also received a small grant for continuing his bat research on Heil Valley Ranch in 2003. This project is described in detail below in the Research section.

Avian

Plains Sharp-tailed Grouse Reintroduction

Following more than 10 years of preliminary planning, the CDOW initiated a project in the spring of 2003 to re-establish locally extirpated populations of the plains sharp-tailed grouse to its native habitat in Boulder County. This species has historically occupied the transitional habitat between the predominant short-grass prairie and the foothills coniferous forests until it was eliminated in much of Colorado due to over-hunting, human development and habitat change from livestock grazing and non-native vegetation encroachment.

In cooperation with CDOW wildlife biologists, POS participated in this restoration effort. The Wildlife Specialist and the Wildlife Technician both traveled to sites in Wyoming and Nebraska

in late April and early May to trap and transport grouse to the release sites on City of Boulder properties in the southern part of Boulder County and northern Jefferson County. The project goal is to have the restored local population eventually use habitat on BCPOS properties in the southern part of the county and possibly beyond.

A total of 28 grouse were trapped in Wyoming and Nebraska for this program. One died in transit, and 7 had to be returned to the trap site after testing positive for exposure to mycoplasma, a blood-borne avian pathogen. Twenty grouse (15 male, 5 female) were released at two sites, one near Eggleston Reservoir 4 and Coal Creek, and the other on the Van Fleet property west of Rocky Flats. This number was less than the CDOW project leader had hoped to trap. A wet and snowy spring in 2003 resulted in a decreased timeframe to trap the grouse at their leks, resulting in fewer birds than what was targeted for release this year (40). All 5 hens were fitted with radio harnesses and tracked via radio-telemetry following their release, as were 12 of the 15 roosters. CDOW technicians and the regional Terrestrial Biologist did most of the tracking. It was anticipated that most of the hens trapped would have been bred prior to trapping and thus clutch and raise their broods near the release sites in Boulder County. Unfortunately, most of the radio-collared birds were found dead within days or a few weeks after their release. The CDOW project leader indicated that spring snowfalls had flattened most of the taller grasses around the release areas and left little protective cover for the released birds. A high level of mortality was expected, but these local environmental conditions probably exacerbated the situation. More releases are currently planned for the spring of 2004.

Raptors

Eagle Nest Monitoring

A dedicated group of 3 volunteers continued to monitor the 3 known historic golden eagle nest sites on POS properties in 2003. Two of these sites were on Heil Valley Ranch (Marietta Canyon, Box Canyon). Early monitoring in March indicated activity around the Marietta Canyon site (courtship flight, new sticks on nest structure), but this activity soon ceased before a clutch was laid. No alternative nest site was found in Marietta Canyon. It is not know what caused this lack of nesting success. The Box Canyon nest site was successful this year, with one known eaglet having fledged. There was some uncertainty whether a second eaglet had initially hatched and was pushed from or fell from the nest early on.

The Rabbit Mountain site was successful, with 2 eaglets fledged by early summer. This site lost one of the adults in late August, possibly to West Nile Virus (WNV). The carcass is currently at the CDOW Wildlife Disease Laboratory in Ft. Collins, pending a necropsy. A second eagle, assumed to be one of the fledged eaglets, was found seriously sick within a few days of the death of the adult eagle and brought to the Birds of Prey Foundation for rehabilitation. It, too, appeared to be suffering from the effects of WNV. It is still at the facility waiting final prognosis that it is well enough for release.

Burrowing Owls

No active burrowing owl nests were found on POS prairie dog colonies in 2003. To our knowledge, none were found anywhere in the county this year. Historic nest sites on POS

properties, plus all active prairie dog colonies, were surveyed and monitored beginning in late April by POS staff, with no sightings made. City of Boulder Open Space and Mountain Parks staff (COSMP) and members of Boulder County Nature Association (BCNA) indicated that none were found outside of POS properties either.

It is not known why this year was not successful for burrowing owls in the county. Active prairie dog colonies were plentiful throughout the county in 2003. Concerns about mortality from West Nile Virus would not be an issue, since any nesting activity would have commenced prior to the earliest mosquito hatch of the year. A possible, but not definitive, theory is that the tall vegetation around many prairie dog colonies during the nesting season, resulting from the abnormally wet spring and heavy growth, kept migrating owls from choosing the historic sites in Boulder County. Reports from other biologists in the state indicated that burrowing owls were nesting in normal numbers in the eastern part of the state, where native shortgrass species did not grow exceedingly tall in the spring. Much of the vegetation found around prairie dog colonies in eastern Boulder County is non-native, including numerous noxious weeds and introduced grasses that grow significantly taller than native grasses and forbs.

Osprey

The historic nest site at Lagerman Reservoir was successful again in 2003. 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 early April and was incubating by the last week in April. A total of 3 fledglings left the nest by late June/early July. All 3 fledglings, and both adults, were still observed around Lagerman Reservoir in September, prior to migration.

In early May, a young, inexperienced pair of osprey established a nest on an outdoor lighting structure in the outdoor arena at the county fairgrounds (Figure 1). The federal Migratory Bird Treaty and the Eagle Protection Act require that any active raptor nest, including ospreys, not be disturbed until the fledgling birds have left the nest. Since the nest was built and the female apparently was incubating by the time this situation became known to staff, the nest was left alone and the pair was accommodated to the best of our abilities. The pair hatched one chick in mid-June, which successfully fledged late July. It was still observed at the nest and the area surrounding the fairground, mostly around Cattail Pond, in September, prior to migrating from the area.

Accommodations were made to protect this nest by department staff, fairgrounds staff and the fairgrounds committee. The light was kept off for the entire breeding season and the Longmont Fire Department modified their Fourth of July fireworks display to prevent debris fallout over the nest area. The chick had fledged the nest by the time of the annual County Fair in August, so the osprey were able to choose alternate roost sites in the area if they were disturbed by the activities. The pair, and the fledged chick, still used the nest site on the pole to roost and hunt from during most of the fair events.

Prior to the osprey migrating from the area, the city of Longmont utility department installed a nest pole and artificial nest platform near the light pole, at the south end of Cattail Pond. During the interim time this winter before the pair possibly returns, the old nesting material will be removed from the light pole nest site and transferred to the new artificial platform. The light

pole structures will then be modified to prevent the pair from re-nesting on them again. It is anticipated that the returning pair will accept this new site and again nest there.

Figure 1- Osprey Nest on Fairgrounds Light Pole

Goshawk Surveys

Both Heil Valley Ranch and Caribou Ranch were surveyed in 2003 again to determine if breeding goshawks were present on either property. Three separate surveys were conducted on each property, in May, June and July. Surveys were conducted along established trails and road corridors on Heil Valley Ranch and in closed areas where the resident caretaker and Resource Protection personnel had seen adult goshawks earlier in the year. Surveys on Caribou Ranch were conducted up Delonde Gulch, along the proposed lower trail corridor, along the historic Switzerland Trail corridor and in known old growth forest stands. Taped goshawk call playback surveys were again used, following the protocol established by the U.S. Forest Service wildlife research division. No positive responses occurred on either property. It is therefore assumed that nests did not exist within approx. 0.25 mile of the survey transects.

This information was given to the Landscape Architects and Resource Planners working on the initial trail plans for Caribou Ranch. Surveys will continue to be conducted on these properties if sightings of goshawks are made in the future. The goal is to locate any known nest site so that recreational development and use can be avoided in the vicinity. Goshawks are considered to be a sensitive species and a species of concern by the FWS.

Breeding Bird Surveys

In 2003, the avian monitoring project expanded with re-established transects on Walker Ranch. Transect points were chosen from historic bird points surveyed from 1985-1987. This will allow for temporal analysis of breeding bird trends, including trends associated with the 2000 wildfire disturbance. The Southeast Buffer was surveyed for a second year, as part of a monitoring effort in shortgrasss and mid-grass prairie avian communities that will be used in the completion of the Grassland Management Plan. Hall Ranch, Heil Valley Ranch and Rabbit Mountain were surveyed for the fourth consecutive year. We now have baseline information indicating species that regularly breed on each of these properties and species of special concern that are not detected every year. With this information we can evaluate the effects of management practices such as forest thinning, controlled burning, and trail use on avian communities over time.

From June 1 through July 15, 6 volunteers and one staff member worked 233 hours, completing point counts at 118 point count locations. Counts were conducted for 5 minutes at each point and were performed 3 times per season at each location. During each count, all birds seen or heard within the intervals of a 50-meter radius, 100-meter radius, and beyond a 100-meter radius were identified and recorded. All counts took place between 05:30 and 10:00, with most counts being completed by 09:00. A Relative Abundance Index (RAI) was determined for each property and tallied in the RAI (Appendix 1).

The highest to lowest average species richness values were as follows: Walker Ranch=37, Heil Valley Ranch=35.5, Hall Ranch=31.25, Rabbit Mountain=30, and Southeast Buffer=18.

Species of special concern have been recorded on all properties surveyed in the past four years. The results are given below in Table 3.

Table 3- Species of Special Concern Found During 2000-2003 Breeding Bird Surveys

Species	Hall Ranch	Heil Valley Ranch	Rabbit Mountain	Southeast Buffer	Walker Ranch
Golden Eagle				X	
Prairie Falcon			X	X	
Lewis' Woodpecker	X				
Willow Flycatcher		X			
Western Scrub Jay	X				
Bushtit	X		X		
Pygmy Nuthatch		X	X		
Gray Catbird		X			
Sage Thrasher			X		
Cedar Waxwing			X		
MacGillivray's Warbler		X			X
Western Tanager		X			X
Lark Bunting				X	
Savannah Sparrow	X			X	
Grasshopper Sparrow	X		X	X	

Future data analysis, using the RAI and Partners in Flight methods for setting bird conservation priorities, will identify points and habitat types that are of significant value to avian conservation on monitored properties. Additionally, the Avian Monitoring Project will be looking at formerly monitored properties and new properties to be monitored for the 2004 season. The goal is to collect at least 3 years of continuous data on each property to form a baseline for future comparisons. Each property will then be re-surveyed on a regular basis, probably every 3-5 years. The actual cyclic duration will depend on how many properties are eventually included in this monitoring program and how many volunteers and/or POS personnel are available in any given year to conduct these surveys. As a result, Hall Ranch and Heil Valley Ranch surveys will not be done in 2004 to allow for other property surveys.

Bluebird Nest Boxes (Walker Ranch)

The Wildlife Technician supervised a volunteer work party from the National Park Service regional administration office in Denver in the installation of 20 bluebird nest boxes on Walker Ranch on September 24th. Twelve existing boxes that were severely damaged were replaced. The remaining 8 nest boxes increased the total number of nest boxes on this site to 32. Nesting success was not monitored this year during the breeding season, but examination of these boxes during the project indicated all were used, but not all by bluebirds. Tree swallows used many of the boxes, and future efforts will be made to pair nest boxes on existing sites, to allow pairs of tree swallows and bluebirds to nest sympatrically. These boxes will be monitored at least twice per season by POS staff.

Waterfowl

Winter Waterfowl Survey

The Wildlife Specialist and the Wildlife Technician assisted CDOW again in 2003 by participating in winter waterfowl surveys on POS ponds in January and by conducting breeding Canada goose surveys in the summer. Winter surveys were conducted on Fairgrounds Lake/Cattail Pond, Lagerman Reservoir, Walden Ponds and Stearns Lake. The results of these surveys are in Table 4.

Table 4- CDOW Winter Goose and Waterfowl Survey Results: POS Locations

Site	% Filled	% Frozen	Canada Geese	Ducks	Bald Eagles
Fairgrounds Lake	100	70	2450	84	
Cattail Pond	100	100	0	0	
Dodd Lake	70	20	658	66	
Lagerman Reservoir	-	-	-	-	
Sawhill Ponds	-	-	157	65	
Walden Ponds	-	-	231	65	1
Stearns Lake	100	40	3000	29	

Stearns Lake and the Fairgrounds Lake were the most heavily used POS sites, undoubtedly due to their high water levels in a time of prolonged drought in the area. These populations will be

analyzed with respect to past patterns of local use and regional trends to help determine if any, and what type of, Canada goose management activities need to be implemented.

Breeding Waterfowl Survey

A dedicated core group of 5 volunteers has continued to collect data on breeding bird use of key aquatic POS habitat in the eastern plains. Sites surveyed include Walden Ponds, Boulder Creek path near 75th St., Stearns Lake, Pella Ponds and Lagerman Reservoir. Surveys run from April through October, and volunteers are required to survey each site at least every other week, and weekly if their schedules and ambition allowed for this. All avian species found on or in the vicinity of the surface water were recorded and assumed to be breeding if they remained beyond June or were present before September. No actual active nest searches were conducted, in order not to disturb actual nest sites. This data will serve as a relative index of waterfowl and other bird use of these sites over time during the breeding season. Data from 2003 and prior years is currently being entered with volunteer help and some use of seasonal and permanent staff time to catch up with 7 years of data.

Canada Goose Management

In 2002, POS became a sub-permittee under a statewide Canada goose depredation control permit granted to CDOW by the FWS, Office of Migratory Birds. This permit allows us to interrupt goose reproduction by addling eggs and thus limiting successful reproduction in problem areas with high goose populations. Although depredation activity was done in 2002, time and opportunity did not allow us to do any nest control activity in 2003. We will retain this sub-permittee status so that this issue of goose populations and control can be addressed in 2004 or subsequent years as it is required.

In June of 2003, the CDOW implemented a large Canada goose population-monitoring project within the Front Range communities, including Boulder County. Geese were trapped during the summer eclipse plumage phase and marked with leg bands and neck collars. This project will examine the demographics of local breeding goose populations and to monitor their movement in the area. On June 19th, the Wildlife Specialist and the Wildlife Technician rounded up and marked on Terry Lake, Fairgrounds Lake and Wally Toeve Pond at Walden Ponds. A total of 177 geese were banded, and 49 of these received individually identifiable green neck collars (Table 5). During the winter of 2004, POS staff will assist the CDOW biologist by monitoring the goose populations at our sites and recording any collared birds.

Table 5- Summary of Canada goose banding results on BCPOS Sites in 2003

Date	Location	Adult males (collars)	Adult females (collars)	Gosling males	Gosling females	Total geese (collars)
6/19	Walden Ponds	12 (9)	33 (11)	0	0	45 (20)
6/19	Terry Lake	37 (10)	77 (10)	0	0	114 (20)
6/19	Fairgrounds Lake	6 (2)	12 (7)	0	0	18 (9)
TOTALS		**55 (21)**	**122 (28)**	**0**	**0**	**177 (49)**

Cooperative Research Projects

There were 10 research projects conducted under the guidance of the small mammal and avian Wildlife Specialist on POS properties in 2003. The Small Grants Program funded 2 of these projects. One was an ongoing breeding bird study on Heil Valley Ranch (HVR) that focused on impacts of recreational development and forest thinning practices to avian reproductive success. The second investigated bat ecology on HVR, with a focus this year on bat community response to forest thinning. Other projects included insect collection and identification, grassland bird and small mammal ecology, and various aspects of prairie dog research, including investigations into plague ecology.

Heil Valley Ranch Breeding Bird Study:

Heather Swanson, under the guidance of Dr. Alexander Cruz, of the Department of Ecology and Evolutionary Biology, University of Colorado-Boulder, continued investigating the impacts of new recreation trails and forestry thinning practices on breeding bird responses. This study, in various forms, is in its sixth year.

Some of the highlights of their work in 2003 and long-term analyses are:

- Trail development and use does not appear to negatively impact most species found
- Some species do show a marked negative impact to trail development
- Large annual variations in weather/precipitation may be more responsible for changes observed year-to-year in most species (preliminary)
- Some species should show continued positive initial response to forest thinning and burning
- Thinning of forests may eventually negatively impact some other species if it results in increased cowbird populations and nest parasitism

It must be noted that most of these preliminary postulations may be complicated by the major drought conditions of the past 3 years. Meteorological information will eventually be correlated with this data and analyzed for the possible effects on bird nesting success and population trends. Another point of consideration is the lack of dogs on HVR. As part of this larger project, concurrent surveys have been conducted on COSMP properties, mostly in the vicinity of the Flatirons. A comparative analysis of this data to HVR data should indicate if there is any level of difference in bird community structure or nest success that is correlated with dog presence on these recreational trails. This information should be available by the summer of 2004 when Heather Swanson completes her dissertation.

Bat Ecology on Heil Valley Ranch:

Dr. Rick Adams of the Department of Biological Sciences, University of Northern Colorado, continued his investigation into the bat species found on Heil Valley Ranch and their habitat associations. His earlier investigations on this property in 2002 only looked at species composition and home range sizes of individually radio-tagged bats. His work in 2003 continued this investigation of home range size, but also focused on the use of the recently thinned ponderosa pine forests by the resident bats.

Some of the highlights of his research in 2003 are:

- New trapping/netting sites were added (Figure 2)
- 7 species were trapped, represented by 74 individuals
- A previously undocumented species on HVR (small-footed myotis) was captured
- 3 individuals (2 fringed myotis females; 1 long-eared myotis female) were radio-tagged
- Sonar detectors used to monitor bat activity in various habitat types
- Plumely Canyon may be an active roosting area for many species
- A very high level of foraging occurred in the thinned forest areas compared to unthinned forest and open meadow sites (Figures 3, 4)
- Unthinned forest stands may be important roost sites for many bat species

Dr. Adams has indicated that forest thinning may have mixed results. Some of the aerial foraging species will benefit from the increased open forested areas while other species may lose roost sites as a result and be more susceptible to predation in these open forests. Both of these aspects of bat use will have to be considered in future forestry management practices.

Other Projects/Activities

St. Vrain Corridor Master Plan/St. Vrain Trail Plan

The Wildlife Specialist assisted the Resource Planner assigned to develop these plans for managing resources and trail design along the St. Vrain River corridor. Numerous site visits were made to determine solutions to issues pertaining to key natural resources and trail placement. Input was given regarding wildlife habitat concerns for wintering and nesting raptors, as well as general habitat considerations for the entire riparian wildlife community and ecological processes that are found in this corridor. Special consideration was given to federal requirements for protection of the Preble's meadow jumping mouse, which occurs along this corridor.

Jointly Owned Boulder County-Lafayette-Louisville Open Space Management Plan

The Wildlife Specialist also assisted the Resource Planner assigned to develop this jointly owned property plan with input regarding wildlife species issues. Site visits were made to these properties with the Resource Planner and POSAC members to describe the issues faced in managing these properties, including wildlife and wildlife habitat issues. The Wildlife Specialist attended public hearings in Louisville and Lafayette with the Resource Planner to answer any questions from members of those communities and from their open space advisory boards and city councils.

Figure 2- Bat Trapping and Surveying Points on HVR

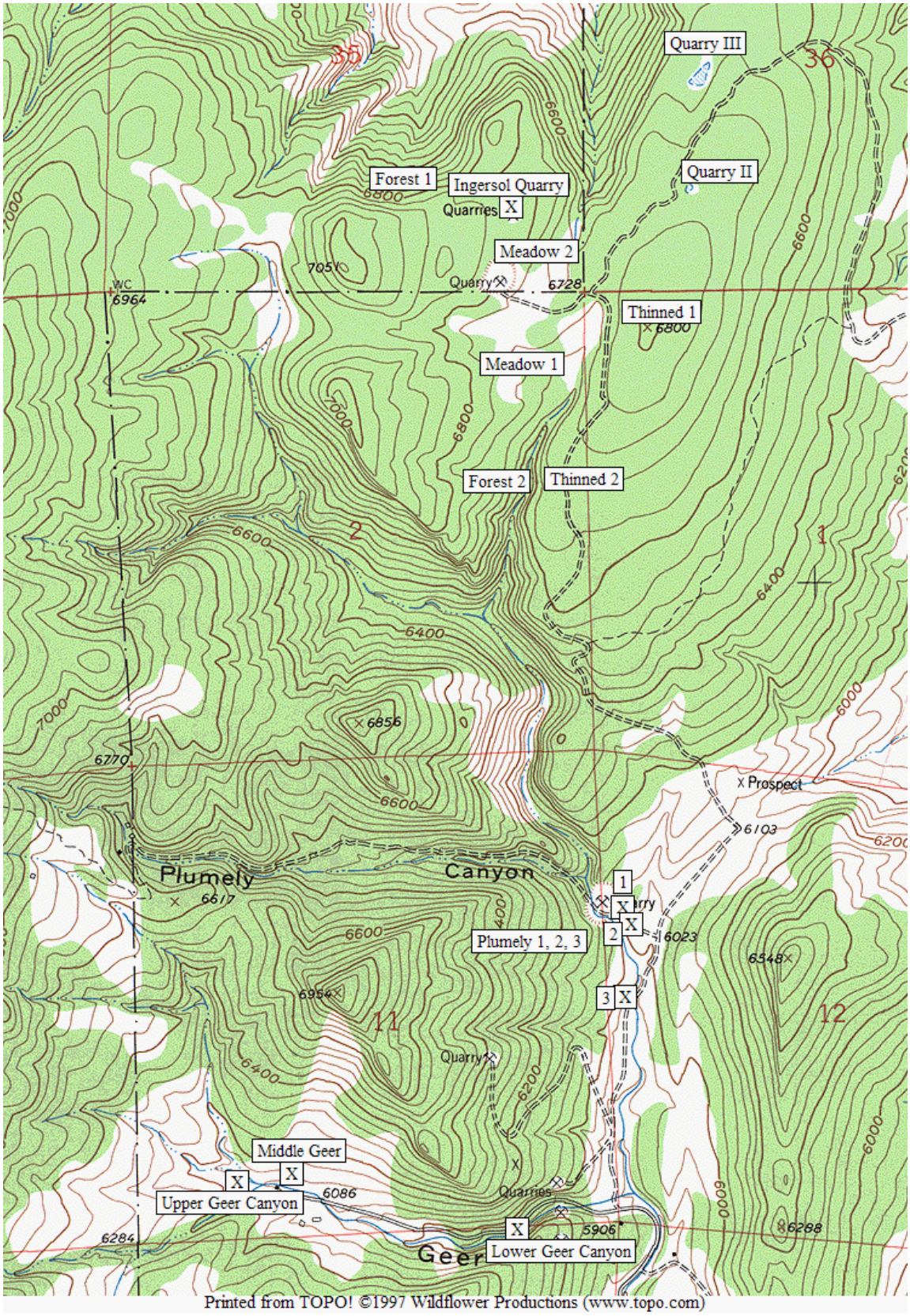

Figure 3, Figure 4- Sonar Detection Results on HVR in 2003

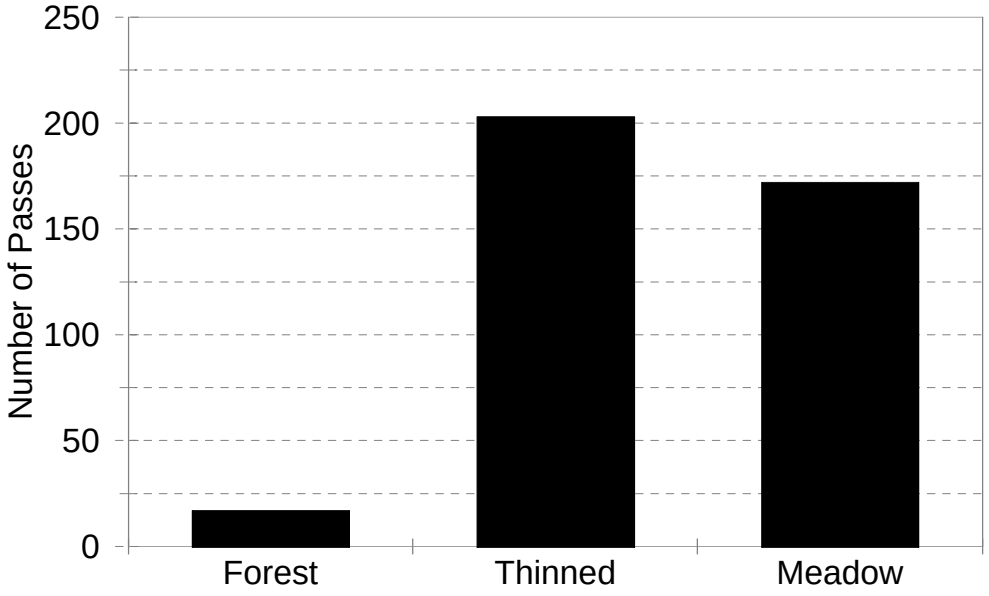

Figure 3. Number of passes from pooled data (n = 392) collected in two treatments of each of three plots. One-way ANOVA gave significant differences between groups (p = 0.005). Bonferroni Pairwise test indicated significant differences between forest versus thinned and meadow. No significant difference was found between thinned and meadow plots.

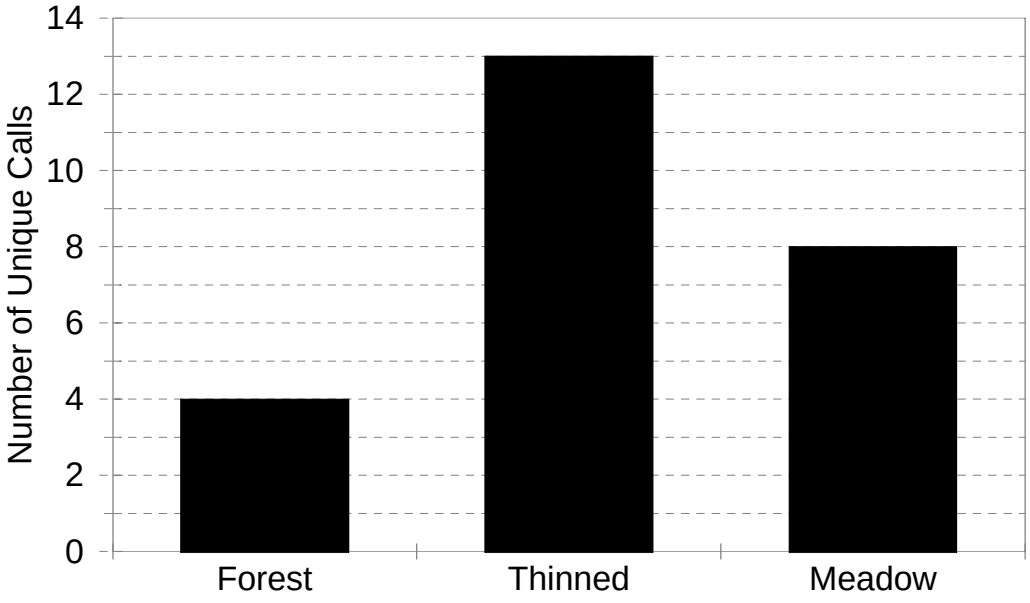

Figure 4. Number of distinctive call patterns discerned from each test plot. Not indicative of number of species, but indicative of diversity of calls used in each habitat type.

Appendix 1- Relative Abundance Index for BCPOS Breeding Bird Surveys (2000-2003)

Appendix 1- Relative Abundance Index (RAI) for BCPOS Breeding Bird Surveys (2000-2003)

Species	Hall Ranch				Heil Valley Ranch				Rabbit Mountain				Southeast Buffer		Walker Ranch
	2000	**2001**	**2002**	**2003**	**2000**	**2001**	**2002**	**2003**	**2000**	**2001**	**2002**	**2003**	**2002**	**2003**	**2003**
[2](Species Richness)>	(36)	(23)	(33)	(33)	(36)	(34)	(36)	(39)	(35)	(28)	(32)	(25)	(19)	(17)	(37)
Mallard	0.01	0.02													
Killdeer	0.03														
Turkey Vulture															0.06
Cooper's Hawk					0.02										
Red-tailed Hawk									0.01	0.01	0.01		0.02		0.02
***Golden Eagle**														**0.02**	
American Kestrel	0.29	0.01	0.01	0.01					0.09		0.07	0.03	0.18	0.02	
***Prairie Falcon**									**0.01**				**0.04**		
Blue Grouse															0.02
Wild Turkey															0.02
Rock Dove								0.03							
Mourning Dove	0.13		0.21	0.11	0.18	0.05	0.18	0.12	0.27	0.11	0.22	0.08	0.04	0.02	
Great Horned Owl													0.04		
Common Nighthawk	0.14		0.01		0.15	0.13	0.02	0.03	0.05	0.02	0.08	0.01			
White-throated Swift	0.11		0.13	0.08											
Broad-tailed Hummingbird	0.07	0.01	0.13	0.04	0.12	0.12	0.25	0.28	0.01		0.01				0.15
***Lewis' Woodpecker**	**0.03**			**0.01**											
Downy Woodpecker							0.02	0.02							
Hairy Woodpecker								0.02							0.04
Northern Flicker	0.04	0.03	0.07	0.03	0.03		0.03								0.04
Western Wood-Peewee	0.01		0.03	0.08	0.17	0.15	0.15	0.18	0.09	0.11	0.20	0.14			0.10
***Willow Flycatcher**								**0.02**							
Hammond's Flycatcher					0.05		0.02								
Dusky Flycatcher					0.02		0.03								0.04
Cordillieran Flycatcher					0.08	0.03	0.05	0.08							0.08
Say's Phoebe				0.03											
Western Kingbird				0.05						0.03	0.02	0.09	0.02	0.02	
Eastern Kingbird									0.02		0.01			0.04	

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Species	Hall Ranch				Heil Valley Ranch				Rabbit Mountain				Southeast Buffer		Walker Ranch
	2000	**2001**	**2002**	**2003**	**2000**	**2001**	**2002**	**2003**	**2000**	**2001**	**2002**	**2003**	**2002**	**2003**	**2003**
[2](Species Richness)>	(36)	(23)	(33)	(33)	(36)	(34)	(36)	(39)	(35)	(28)	(32)	(25)	(19)	(17)	(37)
Horned Lark													1.02	0.35	
Swallow spp.		0.01													
Tree Swallow											0.07	0.02			
Violet-green Swallow	0.06	0.05	0.17	0.08		0.07		0.12		0.01					0.04
N. Rough-winged Swallow	0.11			0.13											
Barn Swallow				0.03							0.01				
Cliff Swallow	0.83	0.03	0.13	0.07					0.58	0.07	0.11	0.03	0.10	0.45	
Steller's Jay	0.04		0.03		0.25	0.12	0.23	0.33							0.02
***Western Scrub Jay**	**0.03**	**0.05**	**0.01**												
Black-billed Magpie	0.52	0.07	0.29	0.29	0.02				0.26	0.19	0.06	0.08	0.33	0.10	0.02
American Crow						0.08	0.02	0.03							
Common Raven				0.08											0.02
Black-capped Chikadee	0.09	0.01	0.04	0.01	0.25	0.23	0.07	0.07	0.12	0.06	0.11	0.01			
Mountain Chikadee			0.01		0.03	0.10	0.10	0.15			0.01				0.08
***Bushtit**			**0.10**									**0.08**			
Red-breasted Nuthatch	0.02				0.05			0.02							0.02
White-breasted Nuthatch			0.01		0.05	0.10	0.17	0.02							0.06
***Pygmy Nuthatch**					**0.32**	**0.28**	**0.25**	**0.32**	**0.08**						
Brown Creeper	0.01				0.03	0.02	0.02								
Rock Wren	0.25	0.06	0.14	0.08	0.05	0.03		0.03	0.08	0.02	0.07	0.03			
Canyon Wren	0.03		0.01		0.02				0.02	0.01					
House Wren						0.02	0.05	0.12		0.01				0.08	0.08
Ruby-crowned Kinglet															0.02
Blue-gray Gnatcatcher	0.11	0.08	0.18	0.15		0.03		0.05	0.30	0.16	0.57	0.34			
Western Bluebird							0.12								0.04
Mountain Bluebird	0.05		0.08												0.04
Townsend's Solitaire					0.05	0.02	0.02	0.02							0.04
American Robin	0.08	0.05	0.11	0.05		0.42	0.23	0.33	0.20	0.02	0.07		0.02		0.06

Appendix 1- Relative Abundance Index (RAI) for BCPOS Breeding Bird Surveys (2000-2003)

Species	Hall Ranch				Heil Valley Ranch				Rabbit Mountain				Southeast Buffer		Walker Ranch
	2000	**2001**	**2002**	**2003**	**2000**	**2001**	**2002**	**2003**	**2000**	**2001**	**2002**	**2003**	**2002**	**2003**	**2003**
[2](Species Richness)>	(36)	(23)	(33)	(33)	(36)	(34)	(36)	(39)	(35)	(28)	(32)	(25)	(19)	(17)	(37)
***Gray Catbird**					**0.30**	**0.003**									
***Sage Thrasher**											**0.01**				
***Cedar Waxwing**									**0.01**						
European Starling									0.01				0.22	0.16	
Plumbeous Vireo								0.17	0.01			0.01			0.02
Warbling Vireo								0.02							0.02
Orange-crowned Warbler					0.02	0.02	0.05								
Yellow Warbler				0.01					0.03	0.01		0.01			
Virginia's Warbler	0.01	0.01		0.01	0.07	0.03	0.02	0.08	0.03	0.04	0.02	0.04			
Yellow-rumped Warbler					0.03	0.08	0.02	0.02			0.01				0.10
Grace's Warbler								0.02							
***MacGillvray's Warbler**							**0.12**	**0.05**							**0.08**
Wilson's Warbler								0.02							
Yellow-breasted Chat	0.09	0.05	0.06	0.07				0.02	0.07	0.22	0.07	0.10		0.04	
***Western Tanager**					**0.22**	**0.10**	**0.20**	**0.15**							**0.15**
Black-headed Grosbeak					0.03	0.07	0.02		0.01						
Blue Grosbeak									0.06	0.02	0.11	0.05			
Lazuli Bunting	0.14	0.14	0.36	0.23	0.07	0.08	0.12	0.05	0.07	0.01	0.16	0.11			0.02
Green-tailed Towhee			0.01		0.02	0.02		0.02							0.17
Spotted Towhee	0.89	0.31	0.67	0.44	0.12	0.05	0.15	0.13	1.17	1.12	1.10	0.83		0.04	
Chipping Sparrow		0.03	0.04	0.03	0.18	0.03	0.23	0.25	0.01	0.02	0.07				0.08
Vesper Sparrow	0.01	0.01	0.01	0.01					0.04	0.03			1.14	0.39	0.02
Lark Sparrow	0.13	0.05	0.19	0.04	0.02		0.02		0.22	0.29	0.66	0.48			
***Lark Bunting**													**0.02**		
***Savanah Sparrow**				**0.03**									**0.08**		
***Grasshopper Sparrow**	**0.01**								**0.01**	**0.01**	**0.04**			**0.14**	
Song Sparrow															0.02
Gray-headed Junco					0.05	0.05	0.02	0.03							0.13

Appendix 1- Relative Abundance Index (RAI) for BCPOS Breeding Bird Surveys (2000-2003)

Species	Hall Ranch				Heil Valley Ranch				Rabbit Mountain				Southeast Buffer		Walker Ranch
	2000	2001	2002	2003	2000	2001	2002	2003	2000	2001	2002	2003	2002	2003	2003
[2](Species Richness)>	(36)	(23)	(33)	(33)	(36)	(34)	(36)	(39)	(35)	(28)	(32)	(25)	(19)	(17)	(37)
Red-winged Blackbird				0.08									0.18	0.16	
Western Meadowlark	0.18	0.11	0.36	0.15	0.13	0.08	0.10		0.59	0.80	0.63	0.83	1.71	0.75	
Brewer's Blackbird			0.14						0.33	0.24					
Common Grackle				0.08											
Brown-headed Cowbird	0.09	0.01	0.07		0.05		0.07	0.03	0.09		0.42	0.14	0.41	0.18	0.02
Bullock's Oriole	0.05	0.03	0.03	0.07							0.03	0.04	0.06		
Red Crossbill						0.10	0.05	0.10			0.08				0.08
Pine Siskin						0.02									
Lesser Goldfinch	0.01			0.04	0.20	0.22	0.08	0.28		0.02					0.02
American Goldfinch	0.05		0.03		0.17	0.07	0.05	0.08	0.17	0.08	0.11	0.03	0.10		

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

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

[2]Total # of Species per Property

Boulder County Parks + Open Space Large Mammals/Fisheries
2003 End-of-year Report

Executive Summary – The year 2003 was a year of public meetings and planning. Wildlife input was important in several general planning efforts: Twin Lakes Management Plan, BLM/Gold Hill Exchange, and Caribou Ranch Management Plan Amendment; as well as specific wildlife-related planning and projects: Caribou Ranch Trail, Parking Lot, and Caretaker Residence, Caribou Ranch Elk Management, Chronic Wasting Disease, and the Fishing-is-Fun Grant at Pella Crossing/Marlatt Trail.

It was also a very wet year. The heavy spring snows promoted high run-off, which allowed many of our ponds and water sources to be replenished. The huge March snowstorm also set back our priority from Excel to provide power to our aeration system at the Wally Toevs senior/handicap fishing pond at Walden Ponds.

This year was also the first attempt to set some objectives relative to performance. These objectives will improve the focus to what is important and provide both direction and feedback for future management. The three broad objectives concerned obtaining better inventories of our larger/important properties, ensuring effective coordination with other agencies and professionals, and maintaining a high level of public involvement and communication. Only the inventory objective was not fully successful in 2003.

Large Mammals

Carnivore Issues

It was a quiet year for large carnivores on Parks and Open Space (POS) properties. A single lion was seen (and photographed) by staff, in the backcountry of the Heil Valley Ranch. Few bear encounters were reported by the public, aside from a troublesome bear on the Ponderosa Loop Trail at the Heil Valley Ranch. We placed a bear warning sign at the trailhead for a period after that. Staff will develop a protocol for dealing with large carnivore/visitor encounters, especially when an animal may need to be hazed or removed, in 2004.

A mountain lion research proposal from the Colorado Division of Wildlife (DOW) proposing capturing and tracking lions on POS lands was canceled in February. The proposal was clouding the Chronic Wasting Disease Protocol discussion, and not essential to the DOW objectives. Staff would like to keep this proposal open for the future, as it is important carnivore research and could showcase POS.

Scent Stations - The scent station surveys for meso-predators were continued at the both the Heil Valley Ranch and Caribou Ranch. The Heil surveys were quite depauperate of carnivores of any size, showing a 27% decrease from 2002. The survey period (May-October) was warm, with heavier public use, and extensive forest thinning operations. Only the Plumely Canyon transect was left relatively undisturbed, as even the Geer Canyon transect had to contend with the restoration work at the barn.

The 3 trail transects totaled only 7 visits out of 162 trap-nights. Only 2 visits were before October. The 3 non-trail transects totaled only 12 visits (n=162), also with 5 in October. The 6 transects totaled 26 carnivore visits over the same period in 2002. October was unusually warm and the Forestry contractors had completed their work in September. Also of note is that the surveys detected bears only 3 times and did not get a lion visit. Bear sightings were also down at Heil this year, perhaps because last year was so hard or because there was a better berry crop and more available water to be able to avoid the trail areas.

The scent station surveys conducted under the Research Funding award at Caribou Ranch were nearly identical to the previous year, detecting the complete suite of carnivores (lion, bear, coyote, fox, marten, bobcat, weasel) in the same locations. Coyotes preferred the Road transect, which foxes seemed to avoid (using the Pipeline/Diversion transect). They were the most commonly detected species (12 each over 216 trap-nights). Bears were found only along the Delonde Gulch and Pipeline/Diversion transects (10 visits out of 118 trap-nights). American Marten were detected most frequently along the Pipeline/Diversion transect (5 visits in 60 trap-nights). Bobcat use was the opposite of bears, using only the Road and House Loop transects. This completed the second year of baseline occurrence and frequency data for carnivores that can be used as a comparison post-opening. Winter surveys (3 trials with 5 baited track-plates) failed to detect American marten. The winter study will be repeated in 2004 utilizing a different tracking medium, the trail camera, and a commercial lure.

Other - There were two important wildlife sightings that occurred on POS lands in 2003. Moose were sighted twice on the Caribou Ranch property by Parks deputies – which underscore their importance on a level other than law enforcement. The October sighting may have long-term impacts to Caribou Ranch if it indicates overwintering or resident moose east of the Continental Divide.

The second sighting involved a bighorn ram on the east side of Rabbit Mountain. It was associating with domestic sheep and was consequently killed by a DOW manager, lest it communicate a disease back to the band. It was precisely this fear that led us to decide against a sheep grazing-cheatgrass experiment in the winter of 2001/2002.

Chronic Wasting Disease (CWD) – the Board of County Commissioners (BOCC) approved a revised Protocol in February. The revisions further defined acceptable procedures and techniques for conducting removals or research. The BOCC also approved deer removal requests from Rabbit Mountain, Dowe Flats, and the Heil Valley Ranch. All removal requests were for sharpshooting. The process included a separate citizen-sponsored CWD-Issues meeting with BOCC.

The DOW wanted very much to sample for CWD in the areas immediately south of Highway 66 to detect the level of prevalence in the deer population. This resulted in a request for the removal of up to 20 deer from the Heil Valley Ranch/Trevarton/Cemex complex of POS lands. Two separate days of removals killed 19 deer on closed areas, none of which tested positive. Because of these results DOW decided against further removal proposals in this area for 2004.

The area north of Highway 66 is an area of continuing investigation for DOW. Some of the highest prevalence rates in the state are around Carter Lake a few miles to the north. The culling at Rabbit Mountain begun in 2002 is part of the scientific testing of experimental models and hypotheses about disease management. The DOW requested to remove 20 deer from Rabbit Mountain and 10 deer from the Dowe Flats ridge POS complex. Nineteen and 10 deer, respectively, were killed on two separate days with 8 total animals testing positive for the disease. The Rabbit Mountain parking lot and trail system were closed on a weekday morning. (See Appendix 1 for summary).

Several issues arose with the expanded removal operations. Coordination and resource protection were handled well, but some of the shooting and retrieval actions could have been done better. Discussions between the wildlife staff and DOW have led to changes in who and how shooting is to be done, hopefully resulting in better accuracy and fewer shots. There will also be more use of ATV's and small trailers to remove culled animals.

Deer – Radiotelemetry studies on deer using POS lands continued in 2003. The DOW merged deer research with CWD investigations by putting out 14 radiocollars and 2 satellite GPS collars on POS lands in northern Boulder County. Mule deer were captured on Hall Ranch, Heil Valley Ranch, and Dowe Flats in February and March. Wildlife staff and the caretakers were instrumental in choosing trap sites, aiding in the captures, and adhering to the Protocol. Three white-tailed deer were captured on or near POS lands along the St. Vrain River, south of Highway 66.

Some of the collared deer showed extraordinary movements that would not have been suspected. A mule deer migrated from Hall Ranch to Granby for summer. And a white-tailed deer moved from the Braly property (west of 59th Street) to an area just east of I-25 in Weld County. Proposals were received in December to again trap POS lands to put more collars out in new areas and to replace collars lost by failure, harvest, and roadkill.

Elk – The north Boulder elk herd maintained 5 functional radiocollars until hunting season, when 1 was harvested. This ongoing research underscored the importance of POS fee lands and conservation easements to this elk herd. **Ninety-four percent** of all non-summer locations were on POS-interest lands (See Appendix 2). The acquisition of the Cal-Wood Academy and Balarat-Denver Public Schools conservation easements (CE) helped this figure rise from last year's 75% figure. Cal-Wood remains a communicating partner in tracking the elk. Staff will offer another elk presentation to Cal-Wood in 2004. Staff will continue working with large landowners along the migration and use areas of this herd.

The importance of the Heil Valley Ranch complex cannot be understated. Nearly all of the heavy snow period (late winter and spring) locations are there, providing key overwinter habitat. Yet only 1 of 12 tracking efforts that had HVR locations detected any elk near the Wapiti-Ponderosa Loop Trail. Summer trail use is not the issue. But the other 3 seasons when elk could (and did in the past) use the area – they don't. The highest single-count of the year (155, with all 5 radios) was made in February as the cow elk aggregated on the Waterstone CE/Heil Valley Ranch boundary. Rutting and bugling activity continued this year in the Geer Canyon (closed) portion of the Ranch. Some great night photos of wallowing bulls were captured with the trail camera. Future tracking may also show impacts or responses of elk to the Overland Fire that burned portions of the Ranch in October.

Radiotracking also pointed out use at critical times or in important areas. Tracking again showed elk use north of Highway 66: on Rabbit Mountain, and the Dowe Flats ridge complex. This use is a source of uneasiness for DOW relative to Chronic Wasting Disease, given its relatively high prevalence in the deer of this area. The radiocollared cow that was using Rabbit Mountain and the Dowe Flats ridge complex, representing approximately 15 animals, was harvested by a hunter off the private CEMEX mine property in late November.

Winter radiotracking showed use at Duck Lake, which is the first documented winter use of this area. This is notable in that the United States Forest Service (USFS) is planning a Brainard Lake redevelopment that may impact this area. All data points in the area will be shared with the Forest Service to aid in their planning effort, as this area is important calving and rearing habitat. POS montane properties like Duck Lake, Barron CE, and Welch CE each had multiple locations and offer important fall and winter habitats.

Fencing – The Fencing Team continued to coordinate projects and budget. There was good cooperation among the Ag Division, Operations Division, and Resource Management Division. Two large project days helped Forestry do some thinning at the Reynolds-Rogers Property to provide poles for fencing projects.

Wildlife-related fencing was designed and contracted for Heil Valley Ranch, but not completed due to a late start and winter weather. Neighboring horses did get in a few times in the fall/winter. Addressing this fence need leaves but one more large section that needs work, and should address the bulk of the horse trespass. Additionally, a wildlife-friendly fence was installed adjacent to an underpass on US36 on the Pierce Property. Several wooden elk-friendly fence passes were built at the Walker Ranch complex. An important spring at Reynolds Ranch was fenced by the Youth Corps (photo).

One priority that was identified in 2003 to be completed in 2004 is to extend the fencing at Cattail Pond to protect the new nest platform for the Fairgrounds osprey pair. A seasonal closure will accompany this fencing.

The Overland Fire in October burned over the southwest corner of Heil Valley Ranch. This area already had some livestock trespass issues and will be looked at for re-fencing in 2004. Another log fence was begun near the Ingersoll Quarry to help keep visitors out of a sensitive (closure) area.

Old, disused fence removal continued to be a focus of the Wildlife staff, with significant progress made with volunteers at Heil Valley Ranch, and by the Youth Corps at Betasso Preserve. Hall Ranch and Caribou Ranch will be targeted for wire removals in 2004.

Habitat Issues – The contract cutting and chipping at Heil Valley Ranch continued, and different disposal alternatives were tried. Wildlife Staff is eager to fund contract research about the effects of the different treatments on forest floor vegetation. Wildlife staff assisted with some of the forestry cut units on Reynolds Ranch. The fall cheatgrass controlled burn at Heil Valley Ranch was postponed due to high winds. Staff is eager to get this burn and a burn in Geer Canyon completed that will benefit many species, including deer and elk. Wildlife staff submitted a new controlled burn plan (for 2004) for some parkland/mixed shrubland at Rabbit Mountain, primarily to benefit ungulates, but also to control cheatgrass and promote native vegetation.

Training – The wildlife staff provided several training or informative sessions for the Volunteer Naturalists (VN) program, Interpretive staff, interested publics, and the media. They included the overview VN training, and several on-site talks by the Heil Valley Ranch caretaker.

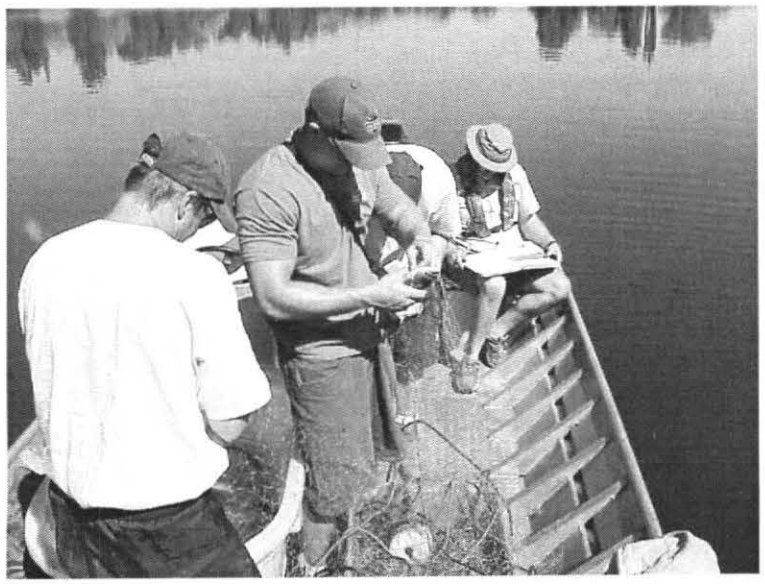
Wildlife staff attended the 7th Annual Mountain Lion conference in Jackson Hole Wyoming, learning more about them and making valuable agency and national contacts.

Fisheries – The wet winter/spring created a large spring runoff. High water levels in Boulder Creek replenished Walden Ponds restoring many acre-feet to Weiser wetland, Bass Pond, Duck Lake, and even Cottonwood Marsh. The first 3 filled to near capacity, adding as much as 4 feet of depth. Cottonwood Marsh refilled to levels similar to 2000 and supported some new marsh vegetation, but was still short of full. Sufficient water levels are the first step to a restored fishery. Stocking and transplants can now go forward at Walden (2004). Staff repeated the annual coordination meeting with Randy Van Buren from DOW in Fort Collins in February. Staff gave a Fisheries overview presentation to the Parks Open Space Advisory Committee in March.

Bottom Mapping – Wildlife staff started to move forward with the ponds at the Braly property. Braly is a part of the St. Vrain Trail corridor and one of several POS properties with potential fisheries. The 3 ponds at Braly were mapped in September with assistance from the Resource Protection staff. Subsequent discussions with DOW and POS Resource Planning arrived at a tentative fisheries set-up. The 2 large ponds will be established as fisheries (the A-Frame pond already has large mouth bass). And the smaller kidney-shaped pond will be offered to DOW as a refugia or rearing pond, perhaps for native Killifish or Topminnow. No fish structures were constructed or placed in 2003. Structures (30) that are part of the Fishing-is-Fun grant (for Pella Crossing/Marlatt Trail) will be placed 2004.

Fishing-is-Fun Grant – The $63,118 grant was approved in late fall, but an administrative hitch prevented the Notice to Proceed from being issued until January 2004. Wildlife staff kept working on the implementation tasks and coordination with DOW, POS Operations staff, and a volunteer group. Wildlands Restoration Volunteers will conduct a large volunteer day in March 2004 to implement the bank stabilization and fish habitat improvement portions of the grant.

Sampling – The Division of Wildlife was very active in Boulder County in 2003. Wildlife staff assisted overnight sampling at Fairgrounds Lake, Heron Lake and Sunset Pond at Pella Crossing, and the Clearwater Pond at Marlatt (photo). Sampling revealed a need for some feeder fish to improve bass size, but showed adequate populations.



Stocking – About 300 fish (mostly bass) were transplanted into the children's fishery at Cattail Pond in September. Staff retrieved these fish from a DOW salvage operation from Erie Lake.

Poor water quality prevented trout from being stocked in the Wally Toevs Pond at Walden. As a result, the Senior Fish-Off was not held. The complex efforts at getting the aeration system (purchased in 2002) installed did not fully succeed in 2003. The key issues were getting power installed (from Excel Energy) and getting the system wired (by POS Facilities). The large, damaging spring snowstorm redirected Excel's priorities for a time, but the power set-up was in place in June. POS Facilities priorities in 2003 were with the Justice Center expansion and other work ahead of the aerator. This should be completed in early 2004.

Transplants – The DOW again had some surplus greenback cutthroat trout in 2003. Two hundred fingerlings were again placed into Delonde Creek and the Beaver Ponds at the Caribou Ranch property in October. Previous field visits did not detect any fish from the 2001 effort. Electroshocking efforts in October did not detect any fish either.

Catfish Nights – This was the 2nd year of summer night fishing at the Fairgrounds. Three midweek nights were offered up to allow fishermen and families a better opportunity to catch catfish. There were 83 participants, 42% of which were kids 18 and under. The final night in August was underrepresented due to significant press and fears about West Nile Virus. We will investigate continuing the program in light of this disease.

Riparian Work – Wildlife staff kept involved in Riparian issues when they arose and on those properties that have water issues.

Lower Boulder Creek – The Lower Boulder Creek restoration process slowed down in 2003, with the reigns being taken over by the Army Corps of Engineers (Corps). Several updates and comments about contracts, design, and deliverables were exchanged. An introductory field visit was conducted with the Corps in April.

Water Monitoring – The water quantity and quality measurements continued at four sites on three POS properties along the St. Vrain River. These sites (Braly, Pella Crossing/Marlatt Trail (2), and Keyes) were visited April-September. Very high flows prohibited attempts in June. Delonde Creek (Caribou Ranch) was also monitored for flow and fish. A peak flush in June helped reestablish water levels in the willow carr/beaver pond area after the previous summer's drought. These readings are establishing baseline data about stream and fishery health.

The Walden-Sawhill Water Complex process moved forward in 2003, primarily behind the Water Specialist. Wildlife staff (in consultation with DOW) made recommendations about the design of the take-out structure to insure safe fish passage.

Other – The springs and water sources database was improved with the aid of the GIS staff, and many new sources were added to it. The Youth Corps built 2 spring exclosures – one near Giggey Lake (Reynolds-Rogers) and one protecting Juniper Spring (Heil Valley Ranch). They also protected 2 other areas in the thinning operations area at Heil Valley Ranch.

Many trees were protected from beaver damage at Braly, Boulder Creek, and Pella Crossing/Marlatt Trail in 2003. Both have little in the way of mature trees prompting the protection. The beaver dam on Hall Ranch was blown out by the spring runoff, and not reestablished.

Wildlife Performance Objectives – Three large-scale objectives for the Wildlife Staff were arrived at mid-year following through with the County's Vision Statement and goals. These objectives address important portions of the program; 1) Habitat, 2) Agency Communication, 3) Public Involvement. They are:

1 – Establish baseline wildlife and habitat inventories and/or assessments, as appropriate, on all fee-simple owned properties greater than 500 acres. This will be done by conducting mammalian and avian surveys on a minimum of 3 properties per year until all such properties have such a survey done to compare subsequent surveys and inventories to.

2 – Meet and/or officially communicate at least annually with local agents of CDOW, US Fish and Wildlife Service, US Forest Service, City of Boulder Open Space and Mountain Parks, and other local agencies to describe, discuss, and coordinate our ongoing wildlife management issues and to plan for future issues and needs. These meetings will cover such issues as CWD, Threatened and Endangered species management and protection, fisheries, prairie dog management, etc.

3 – The wildlife specialists will continue to enhance public communications, public participation, and input into wildlife management on POS properties. This will include continuing to present annual updates on wildlife management issues and activities to POSAC and BOCC, and presenting annual or bi-annual updates on specific projects that develop as directed. Each staff wildlife specialist will also write at least one article per year for Images on wildlife issues or projects. The annual training of volunteer naturalists, who have significant contact with the public regarding wildlife management issues, will be considered an element of this goal toward public outreach and participation in wildlife management on POS properties.

Results - As these objectives were decided upon in mid-year, complete success was not met in 2003, except for the Agency Communication objective.

1) Habitat – Each of the large properties has its own special characteristics and suite of species and habitats. However, some of the standard survey targets are: large mammals, carnivores, fisheries, special status species, agricultural/forestry practices, human presence, general vegetation, and special habitat features (burns, water/riparian, aspen, cliffs/canyons). Complete collection of each of these data sets might not be feasible within a single year, but direction will be focused on specific properties on a yearly basis with ongoing monitoring at others.

Focus properties for 2003 included Heil Valley Ranch, Caribou Ranch, and Rabbit Mountain.

Heil Valley Ranch – Significant data collection is ongoing at Heil Valley Ranch. It is an area of high interest and high activity. Staff is actively collecting systematized data on elk use of the property and mesopredator use of the property (see above discussions of Elk and Carnivores). Both of these investigations have data sets that began before the significant activity (trail building, trail use, forest thinning, barn restoration) and offer Before/After and Treatment/Control interpretations.

Research funding, university and agency studies, and volunteer naturalist data collection is also being conducted on species such as bats, mule deer, prairie dogs, songbirds, and butterflies. Studies have been proposed to investigate the effects of fire and forest thinning on vegetation, and also weed control that will only add to the habitat knowledge. The Overland Fire offers another opportunity for investigation as its impacts continue.

Resource Management staff have already identified several areas for prescribed fire to accomplish a variety of objectives, most of which will improve wildlife habitat and forage. Wildlife staff has already inventoried several dozen springs (2002, 2003) and even protected a few spring sites with fencing (2002, 2003).

Mule deer movements are being documented by CDOW following trapping efforts in early 2003. This data is being collected in to determine local and regional movements and migration. It will also be interpreted relative to Chronic Wasting Disease (CWD) presence and prevalence. Nineteen deer were killed in the northern part of the Heil Valley Ranch/POS complex testing for CWD in this area immediately adjacent to the high prevalence area of Rabbit Mountain. None of those deer tested positive. No requests for removals were received for 2004. Continued trapping and tracking will occur in this area in 2004.

Caribou Ranch – The Caribou Ranch has become a focus area prior to its opening. The same mesopredator study has been conducted there for the past 2 years (2002, 2003) to establish baseline use by these carnivores prior to trail construction, renovation, and visitor use. The mesopredator study is being supplemented by a winter American marten survey.

The fall elk rut is a point of focus on this property, and some rudimentary data was collected in 2003. A 6-year study was proposed to investigate the elk presence and activity in the fall in relation to visitation. The POS staff is going through a public process to make recommendations to the BOCC regarding a possible fall closure for elk. Moose have been detected on the property and their use will be closely monitored in 2004.

Rabbit Mountain – The Rabbit Mountain complex has become an area of concern relative to Chronic Wasting Disease in mule deer. Elk use of the property is part of this concern and has been documented with sightings and radiotracking in 2001, 2002, and 2003. Due to high local prevalence rates DOW has requested deer removals as part of an experimental hypothesis for disease control. Thirty-one mule deer were killed in 2002, 20 in 2003. Nine of those 51 deer

tested positive (18%) and a removal request has been received for 20 deer in 2004. Wildlife staff supports continuing this study.

Elk radiolocations prompted some field visits to Rabbit Mountain to investigate some of the inventory items (general vegetation, special habitat features, agricultural practices). A controlled burn plan (for 2004) for weed control and forage improvement was submitted in December after these visits.

The Focus properties for 2004 will include Walker Ranch, Hall Ranch, Rabbit Mountain, and Caribou Ranch.

The Habitat objective will be further refined to include important properties that may not be 500 acres or larger: 1 – Establish baseline wildlife and habitat inventories and/or assessments, as appropriate, on all fee-simple owned properties greater than 500 acres and those properties with special character (riparian, wetland, species) that may be smaller. This will be done by conducting mammalian and avian surveys on a minimum of 3 properties per year until all such properties have such a survey done to compare subsequent surveys and inventories to.

2) Agency Communication – Coordination and communication with DOW was excellent in 2003. Contacts with DOW wildlife managers were improved after 2 staff-to-staff meetings (February) and a contact training with the Resource Protection Staff (April). Many contacts, phone calls, meetings, presentations, and field days occurred throughout the year. Many of these revolved around deer trapping and tracking on POS, and Chronic Wasting Disease management. Presentations were made to POSAC, BOCC, and a special BOCC meeting considering the CWD Joint Protocol and removal requests. POSAC received an update of the DOW deer radiotracking in November.

The annual POS fisheries coordination meeting was in February (see Fisheries discussion).

Coordination with COSMP on wildlife issues was difficult in 2003 following the resignation of their ecologist and the position being left unfilled. Important contacts went through the ranger staff. This relationship was enhanced by joint attendance at the Mountain Lion conference in May.

USFS coordination on large mammal and fisheries issues was minimal in 2003. The POS staff did comment on the Brainard Lake recreation proposal, which will continue in 2004. This relationship improved as a result of joint attendance and coordination at the Colorado Chapter of the Wildlife Society Meeting in January 2004. Elk data and resource concerns around Duck Lake will be thoroughly discussed.

Contact with USFWS in 2003 was confined to Prebles Mouse coordination on the Marlatt Fishing-is-Fun grant (with a clearance).

The annual exchange of wildlife sightings with the James Creek Watershed occurred in January.

Appendix 1 – 2003 Chronic Wasting Disease Mule Deer Removal Summary

	Date	Total	Positive
Rabbit Mountain	March 7	19	5
Indian Mountain	March 25	10	3
HVR Complex	April 22	9	0
HVR Complex	April 30	10	0
		48	8

Summary points
17% overall prevalence
28% prevalence north of Highway 66
No positive deer south of Highway 66

Appendix 2 – Summary of 2003 Elk Radiotracking Locations

Animal Number	Total Locations	Summer[1] Habitat	Total[2] POS	Total[3] HVR	Collar Status 2004
931	35	Brainard	16	9	Functioning
951	34	Beaver	16	10	Functioning
962	32	Rabbit	28	6	Harvested
979	35	Brainard	16	9	Functioning
990	33	Beaver	20	12	Functioning
Summary	169		96	46	4 Function

Summary points 57% of all locations are POS
94% of all non-summer locations are POS
27% of all locations are HVR

Footnotes – 1 – Summer Habitat describes preferred area (28 May-8 October). Brainard = Brainard Lake (USFS). Beaver = Beaver Reservoir (Private + USFS). Rabbit = Rabbit Mountain POS.

2 – Total POS includes all locations within 1/4mi of POS interests (including Conservation Easements).

3 – HVR includes Heil Valley Ranch, Pierce, Hansen (west), Trevarton (fee), Trevarton (CE), CEMEX, Etter, Ochs (CE), Waterstone Outlots E + F, Lake of the Pines NUPUD, and Koenig NUPUD.