Boulder County Parks and Open Space
Wildlife Program Annual Report 2010

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Goals and Accomplishments for 2010

1. Define goals and objectives for the wildlife program. Incorporate into an annual program of work with individual responsibilities clearly defined. Determine additional personnel needs for the long-term success of the wildlife program.

   As a first step towards the completion of this goal, staff created individual annual time outlines. This assisted in understanding annual time commitments and determining duties and responsibilities. Secondly, an annual program of work was developed to assist in setting goals and objectives for 2010. Additionally, goals were specifically outlined for each member of staff during performance evaluations. This again assisted in clarifying roles and setting accomplishment goals.

   Our workload is increasing due to the forward movement of management plan development and review, the acquisition of additional properties, and increased management activities needing our input and survey efforts. We will continue to define responsibilities and attempt to meet the expectations we set for ourselves in relation to thorough and effective interaction with other departments and the public.

2. Maintain a strong Long-Term Monitoring program by continuing the burrowing owl, bluebird, waterfowl, raptor, Abert's squirrel monitoring and shrub transect projects. Additionally, continue working with the Youth Corps program and further our involvement in the Partnership Initiative. Maintain our involvement in single-day volunteer events.

   We increased involvement in our Long-Term Monitoring programs in 2010. We maintained all of our existing programs, including the burrowing owl, bluebird, waterfowl, raptor, Abert's squirrel and shrub transect projects. In total, in 2010, we utilized **60** volunteers, who contributed **2,335** hours to our program.

   In 2010, we increased our one-day volunteer effort by **266** hours and **29** volunteers, as from 2009. Wildlife sponsored 17 one-day projects engaging **171** volunteers totaling **887** volunteer hours. Partner groups included Level 3, Amgen, Best Buy and two University Sororities. Property Stewards included Boy Scout Troop 377 and New Vista High School.

   Volunteers removed approximately 5,300 feet of fence, caged 80 trees and installed 2,000 feet of prairie dog barrier.

3. Strive to capture all data (historic and future) into appropriate database formats. Ensure that our efforts in data collection are usable into the future for the guidance of management decisions.

   As we have determined that much of our historic data from survey efforts is not captured in electronic formats, we made great strides towards this goal in 2010. With the assistance of our GIS staff, we have developed several databases and have completed much of our back data entry. The completed databases include:

   - **Remote Camera Surveys and Results**- All historic spatial information on camera placement and detection information is captured, including a filing system for hardcopy film and CDs.
   - **Fencing**- Information on installation, improvements and removals is captured. This includes information on prairie dog barrier fencing, and condition.
   - **Scent Stations**- Spatial information on location, and all results.
   - **Raptor Nests and Survey Efforts**- All information on past success and location of raptor nests has been captured, as well as survey efforts.
   - **Heronries**-Current and historic locations. In addition, a form (for data entry) has been developed for interface with this database.
   - **Waterfowl**- This database was developed for the direct on-line entering of data by volunteers. All back data will be entered, and all future data will be entered directly.
   - **Springs**- This database allows for recording spatial information, information on size, condition and any improvements.
   - **Fishing Amenities**- Information on fishing-related amenities is captured and includes shade trees, bellyboat access, docks, picnic tables, restrooms and in-water habitat structures.

   Several other databases are near completion including:
   - **Breeding Bird Survey Data**- The historic spreadsheets dating back to 2000 have been reformatted for inclusion into the comprehensive database. Spatial location of survey stations is current.
   - **Fish Stocking**- This database will contain all historic stocking information for our fisheries, and is nearly complete.

   Additionally, with assistance from GIS staff, we have begun transferring data from old formats (floppies) and are in the process of deciphering these data and filing appropriately.

4. Complete habitat modeling via GIS technology for Abert's squirrel. As this process is undertaken and ground-truthed, continue with other species we deem as indicators.

   In 2010, GIS, forestry and wildlife staff met with GIS specialists at OSMP to review habitat modeling techniques created for the West TSA process. Data available for a BCPOS model for Abert's squirrel was reviewed, and found to be lacking in information on canopy cover for our stands at Heil. However, data may be extrapolated from

vegetation measurements taken for various projects at Heil. GIS staff is currently looking at the feasibility of this.

5. Continue prairie dog management in an efficient, consistent manner. We strive to strike a balance between protecting effective habitat for this species, and the concerns of the public, agricultural tenants and private landowners.

   In 2010, we added 185 acres of Habitat Conservation Area for prairie dogs, as part of the Two-Creeks Management Plan Amendment. We built more than two miles of barrier fencing for prairie dogs, including installing a completely new fence at the Carolyn Holmberg Preserve Rock Creek Farm on the 40-Acre Habitat Conservation Area. Other areas that were fenced included Leonard, Keyes N, Monarch and Peck.

   We restructured the seasonal prairie dog crew to include a crew leader position, which proved to be efficient and effective. We maintained our 2009 level of trapping success with one fewer person on the crew (trapping occurred on 11 properties). We were also able to increase the trapping season by sharing personnel with other departments. We worked closely with our Agriculture staff to ensure continuing communication.

6. Conduct breeding bird surveys on Reynolds Ranch, Meyer's Gulch, and Benjamin.

   Survey points were established and surveyed on Reynolds Ranch for its initial baseline, which will span 3 years total. Meyer's Gulch was surveyed using volunteers, so now has a continuous dataset spanning 8 years. The 2010 surveys Benjamin completed the third and final year of the baseline assessment (2008-2010).

   In addition, properties were surveyed in advance of management action, such as Hall Ranch prior to a planned prescribed burn. Also, post-treatment surveys were conducted at Heil Valley Ranch in the units treated by mastication in 2009. The Cemex property was surveyed to determine bird use after the March, 2010 prescribed burn. Surveys were conducted by wildlife staff (permanent and seasonal), and resource protection staff.

7. Finalize our Indicator Species List. Obtain expert opinion from outside contacts on our selections. Utilize information already compiled by other land management agencies in our selection process. Ensure that the relationship between the Indicator Species List and the more comprehensive Species of Concern List is well-defined.

   Several species have been selected as Indicator Species including American marten, northern leopard frog, Abert's squirrel and Preble's meadow jumping mouse. Conservation assessments and management recommendations have been created for each of these species. Staff considered other species, but upon research review determined them to be unsuitable due to limited populations or unpredictable presence in suitable habitat (smooth green snake, boreal toad). Other species to be included as indicators include northern goshawk, grasshopper sparrow and dusky grouse. Species being considered include bobolink, olive-sided flycatcher, gray catbird and 13-lined ground squirrel.

8. Continue to maintain and improve fisheries and fishing opportunities on Parks and Open Space properties. Work towards obtaining funding from grant sources for improvements. Maintain annual public events. Continue coordination with CDOW on stocking and sampling efforts. Develop a database to capture information on past and current stocking efforts. Share this database with Resource Protection staff to assist in their interactions with the public at Parks and Open Space fisheries.

    - Fishing opportunities were improved with the replacement of the vandalized fishing dock at Lagermen Reservoir. Additionally, staff improved access to Fairgrounds Lake with the addition of a graveled trail and stone bench. Further, ten shade trees were planted at Stearn's Lake and Braly.
    - An annual coordination meeting with the Colorado Division Of Wildlife resulted in plans for future amenity development (via Fishing-is-Fun Grant Program) at Walden Ponds and at Pella Crossing.
    - The Senior Fish-off was held on May 1, 2010 at Walden Ponds. Three "Catfish Nights" were held at the Fairgrounds Lake (June 8, July 13, and August 10, 2010).
    - Stocking occurred at Braly and Wally Toevs. Sampling occurred at two Braly ponds.
    - A fish stocking database is nearing completion, as outlined in Goal 3, and has been developed with the goal of providing easy access to stocking information. Resource protection staff was notified of all public events, as well as all trout stocking efforts.

9. Work in collaboration with other Parks and Open Space programs. Respond to requests for input in a consistent, timely and thorough manner. Continue development of over-arching BMPs for wildlife issues as related to specific management actions (i.e.: Forestry, Plant Ecology and Agriculture). Conduct wildlife surveys and assessments in response to other program's planned management actions.

    Coordination with other staff and departments occurred frequently in 2010 and are bulleted below:

    - Worked with Agricultural staff to coordinate prairie dog management activities. Also, in conjunction with Ag staff, built or planned fencing projects at the Carolyn Holmberg Preserve/Rock Creek Farm, Leonard, Keyes North, Peck and Sadar. In addition, worked jointly on proposed protection of bobolinks and northern leopard frogs on active agricultural properties.
    - Worked closely with Forestry Staff on the treatment units proposed and implemented at Heil Valley Ranch. Conducted stand assessments for wildlife resources. Started the process of regular meetings with forestry staff to ensure continuous communication.
    - Coordinated All-Staff Work Day at Walden Ponds in May.
    - Coordinated the replacement of 2 osprey platforms; one at Lagerman Reservoir and one on the Eagle Crest Farm Conservation Easement.
    - Provided written comments on several proposed property transactions, including Hall Ranch, Loukonen Dairy Farm and Kekionga, Windsor, Von Mende and Vicklund.
    - Initiated the development of BMPs related to forestry and agricultural activities.

- Worked with Education and Outreach staff to schedule and conduct numerous volunteer work projects.

10. Contribute to the development and completion of comprehensive management plans and policy documents as requested by Resource Planning. Conduct wildlife surveys in advance of management plan processes as possible.

    Wildlife staff provided input in 2010 for the following management planning. This work required extensive field work, site visits, meetings, document creation and review:

    - Walden Ponds Wildlife Habitat Management Plan
    - Rock Creek Grasslands Management Plan
    - Lagerman-Imel planning process,
    - Lower Boulder Creek Riparian Restoration Project
    - Reynolds Ranch planning process,
    - Walker Ranch planning process,
    - Mountain View Egg Farm/Two Creeks Trail Amendment planning
    - Lower Boulder Trail
    - Staff also provided substantive comments on the Moffat Expansion (Gross Reservoir) Draft EIS.

    Wildlife staff conducted surveys in response to management planning and actions. These included:

    - Remote cameras, breeding bird point counts and goshawk surveys conducted at Reynolds Ranch in anticipation of the management plan process.
    - Breeding bird point counts conducted post-treatment in the mastication units at Heil Valley Ranch.
    - Breeding bird point counts conducted pre-treatment for the pending Hall Ranch Prescribed burn.
    - Breeding bird point counts conducted post-treatment at the implemented prescribed burn at Cemex.
    - Several site visits conducted for in advance of management action, including BLM South parcel (Walker), Reynolds Ranch, Caribou Ranch, Mayhoffer/Singletree and Two-Creeks.

11. Continue collaborations and partnerships with outside agencies including CDOW, USFS, and OSMP. Share data and methodologies with adjacent land managers in an effort towards wildlife resource management on a landscape scale.

    USFS:
    Wildlife staff coordinated closely with USFS in completing the deliverables for the National Elk Foundation grant for Gordon Gulch, which included the erection of elk exclosures and the creation of interpretive signage.

A trail reclamation/habitat protection project was initiated at Spring Gulch on the Gail Reynolds property. The erosion resulting from social trail establishment will be addressed in 2011. Barrier fencing on BCPOS was erected in 2010.

Data sharing with USFS wildlife biologists continued in 2010. In addition, coordination occurred during the Fourmile Fire and the ensuing Fourmile Emergency Stabilization Team (FEST) reporting.

Joint monitoring of the Minnick bluebird box trail continued in 2010.

CDOW:
Wildlife staff coordinated with CDOW for numerous projects and issues, including raptor surveys, bighorn sheep surveys, aerial survey dates, fish sampling and stocking, property management planning, the Front Range Cougar and Bobcat studies, and wildlife sightings/issues.

OSMP:
Staff coordinated with OSMP on finalizing the brown-cowbird manuscript for submission to the journal, Restoration Ecology. Data on prairie dog colony extent was shared, as well as burrowing owl nest locations. A joint field visit with OSMP, POS and USFS was conducted to discuss prairie dog barrier fencing. OSMP, POS and USFS are coordinating a field trip related to Flammulated owls. Planning occurred for a trip to the Pawnee National Grasslands to view mountain plovers, burrowing owls and prairie dog colonies in a more unaltered state.

Joint monitoring of the Shanahan Ridge and Eldorado bluebird box trails continued in 2010.

USFWS:
Wildlife staff arranged for a tour of the Black-footed Ferret facility and coordinated a presentation by USFWS personnel to occur in 2011.
GIS analysis of affected habitat for Preble's Meadow Jumping Mouse was conducted by wildlife staff and submitted for inclusion into the Biological Evaluation for USFWS reporting requirements/consultation.

Goals 2011

1. Finalize our Indicator Species List. Utilize information already compiled by other land management agencies in our selection process. Ensure that the relationship between the Indicator Species List and the more comprehensive Species of Concern List is well-defined.

2. Continue efforts to capture all data (historic and future) into appropriate database formats. Ensure that our efforts in data collection are usable into the future for the

guidance of management decisions. In 2011, our goal is to complete the Breeding Bird, Preble's Meadow Jumping Mouse, and Abert's Squirrel databases.

3. Work in collaboration with other Parks and Open Space programs. Specifically, in 2011, work with Forestry. Prioritize collaboration on treatment units scheduled for 2011.Assess all proposed treatment stands for wildlife resources. Review and respond to Internal Review Documents as requested by Forestry.

4. Continue annual surveys to provide data to be utilized for input towards management decisions. Specifically, conduct breeding bird surveys at Betasso Preserve, Caribou Ranch, Heil Valley Ranch (Overland Burn) and Rock Creek Farm. Conduct northern goshawk surveys in areas of historical occupancy, as well as areas of suitable habitat, as possible. Utilize remote cameras to conduct inventories in habitat proposed for management action, such as Reynolds Ranch and the Hall II properties.

5. Continue collaborations and partnerships with outside agencies including CDOW, USFS, and OSMP. Share data and methodologies with adjacent land managers in an effort towards wildlife resource management on a landscape scale. In 2011, prioritize the Spring Gulch project in collaboration with the USFS. Additionally, prioritize developing shared waterfowl and raptor databases with OSMP. Develop a plan to ensure annual information on heronries is relayed to the CDOW.

Avian Program 2010

Raptors

Existing raptor nests were again monitored in 2010 for productivity. CDOW volunteers and POS staff monitored bald eagle nests. Volunteers and POS staff monitored golden eagle, osprey, and prairie falcon nests. Volunteers (**6**) contributed **456** hours to this effort in 2010.

Bald Eagle Nest Monitoring
We continued to coordinate the monitoring of the three bald eagles nests on POS property with the CDOW. A new pair is attempting to nest at the Western Mobile property. We will continue to monitor this pair.

2010 Results

Nest Location-Bald Eagles	**Number of Fledglings**
Braly	Failed
Wambsganss	2
Keyes North	2
Western Mobile	New pair observed

Golden Eagle Nest Monitoring
Staff and volunteers monitored the five known golden eagle nest sites on POS properties in 2010.

2010 Results

Nest Location-Golden Eagles	**Number of Fledglings**
Heil Valley Ranch	1
Heil Valley Ranch	2
Wyn/Forsberg	1
Meadow Park	1
Rabbit Mountain	1

Burrowing Owl Nest Monitoring

In 2010, burrowing owls nested on three Boulder County properties, and one jointly owned property with OSMP (Telleen).

2010 Results

Nest Locations-Burrowing Owls	**Number of Fledglings**
Rock Creek Farm	6
Rock Creek Grasslands	5
Two Creeks	Failed
Telleen	1

Osprey Nest Monitoring

Osprey nests at the Fairgrounds and Lagerman Reservoir were monitored in 2010 by POS staff and volunteers.

In late 2010, wildlife staff coordinated the replacement of two nest platforms. One was replaced, as well as moved, at Lagerman Reservoir. Additionally, one was replaced at a conservation easement property on St. Vrain Road.

2010 Results

Nest Location-Osprey	**Number of Fledglings**
Lagerman Reservoir	Failed
Fairgrounds	2
Conservation Easement	3
Conservation Easement	1

Prairie Falcon Nest Monitoring

Staff determined activity and observed prairie falcon nests in 2010. All nesting information was sent to the University of Colorado for inclusion into the annual cliff-nesting raptor report for the Front Range (golden eagles, prairie falcons and peregrine falcons.)

2010 Results

Nest Location-Prairie Falcon	**Number of Fledglings**
Walker Ranch-Castle Rock	Inactive
Hall Ranch	3-4
Plumely Canyon	Inactive
Geer Canyon	Inactive

Steamboat Mountain	Inactive

Northern Goshawk Monitoring

In 2010, surveys for northern goshawks were conducted at Caribou Ranch and Reynolds Ranch. Additionally, the Peck Gulch and Heil Valley Ranch nesting territories were visited to determine status. Surveys were completed by wildlife staff.

2010 Results

Heil Valley Ranch- The nest location from 2007 was visited to ascertain activity for 2010. This nest structure is almost fully dilapidated and inactive.

Caribou Ranch- Broadcast surveys were conducted at Caribou Ranch. Dawn acoustical surveys were scheduled, but cancelled due to weather. The failed nest from 2008 was revisited and found to be inactive. The historic nesting area north of Caribou, on USFS was visited and found to be inactive.

Peck Gulch-The Peck Gulch nest was active in 2010, with three nestlings. However, the nest failed for unknown reasons. We continue to have close coordination with the private landowner adjacent to this nest, and they alerted us to dead nestlings under the nest. Two nestlings were collected and taken to the University of Colorado. The goal is to have the skulls cleaned; one will remain with the CU collection, and one will be returned to Boulder County for educational purposes.

Reynolds Ranch- The nesting territory discovered in 2009 was active again in 2010. This was determined by dawn acoustical surveys, and confirmed by a stand visit. However, the fate of this nest is unknown, as the young were not found upon the fledgling survey visit. Subsequent stand searches lead to no fledglings being detected, so it is unlikely that this nest succeeded.

Wildlife staff conducted all surveys with assistance from forestry, resource protection, and USFS personnel. Additionally, we continue to work closely with acquisitions staff in providing information on properties for sale near active nest stands. In 2010, the Norwegian mining claim was purchased, and contains the majority of the Peck Gulch nesting stand.

2010 Breeding Bird Surveys

In 2010, breeding bird surveys were conducted on eight properties. All point count stations were surveyed three times during the timeframe of June 1 through July 15. The Rocky Mountain Bird Observatory Point Transect Protocol was followed. Selection of properties to be surveyed was based on the need for initial baseline information, continuation of baseline/trend monitoring via long-term survey schedule or in response to future management activities.

Survey points were established and surveyed on Reynolds Ranch for its initial baseline, which will span 3 years total. Meyer's Gulch was surveyed using volunteers, so now has a continuous dataset spanning 8 years. The Benjamin property surveys were completed, and 2010 concluded its initial baseline effort (2008-2010).

In addition, properties were surveyed in advance of management action, such as Hall Ranch prior to a planned prescribed burn. Also, post-treatment surveys were conducted at Heil Valley Ranch

in the units treated by mastication in 2009. The Cemex property was surveyed to determine bird use after the March, 2010 prescribed burn. Surveys were conducted by wildlife staff (permanent and seasonal), and resource protection staff.

Results
Results from these surveys, including species detected and relative abundance indices are on file and can be accessed via communication with wildlife staff at Parks and Open Space.

Bluebird Nest Box Project

In 2010, volunteers from both the BCNA and BCAS monitored 111 bluebird nest boxes. The box routes are located at Heil Valley Ranch, Betasso Preserve, Walker Ranch and Bald Mountain, as well as Shanahan Ridge and Eldorado on OSMP property. Additionally, USFS personnel again assisted with monitoring boxes on the Minnick property. As in previous years, all data are being shared with the Cornell Lab of Ornithology-The Birdhouse Network, which monitors nest box data nationwide.

Volunteers worked in pairs and visited their assigned trails approximately once per week. In total, **17** volunteers contributed **953** hours to this project between late April and early August.

Bluebird Nest Box Results for 2007-2010

Year (#Nest Boxes) **Species**	**2007 (56)** Fledged	**2008 (89)** Fledged	**2009 (113)** Fledged	**2010 (111)** Fledged
Western Bluebird	89	238	262	85
Mountain Bluebird	98	95	67	59
Tree Swallow	6	20	7	12
Violet-green Swallow	28	20	27	9
Mountain Chickadee	5	7	8	10
White-breasted Nuthatch	5	12	0	5
House Wren	25	23	4	4
Pygmy Nuthatch	5	0	10	11
Total	**261**	**415**	**385**	**195**

The decrease in nesting success in 2010 was due to increased predation on the boxes. The cause of the increase in predation is unknown, but we are developing predator guards to prevent this in the future. Our goal is to dissuade predation, while causing no harm to predators.

Waterfowl Monitoring Project

The aquatic bird volunteers covered three major plains aquatic habitat areas; Braly/Western Mobile complex, Pella Ponds, and Walden Ponds. In addition, two monitors were recruited to survey Kenosha Ponds. Two volunteers were teamed up on each property to allow them to

schedule their own monitoring days as necessary. All aquatic species seen during these visits, including wading birds and shorebirds, were also recorded. In total, **5** volunteers contributed **434** hours to this program in 2010.

Annual CDOW Waterfowl Monitoring
Wildlife staff assisted CDOW in 2010 with their winter waterfowl surveys. Winter surveys were conducted on Fairgrounds Lake/Cattail Pond, Lagerman Reservoir, Walden Ponds, Pella Ponds, Prince Lake 2 and Stearns Lake.

Mammals 2010

Prairie Dog Management
In 2010, we added 185 acres of Habitat Conservation Area for prairie dogs, as part of the Two-Creeks Management Plan Amendment. This accomplished the protection of prairie dogs as well as the secondary users of their burrows (i.e.; burrowing owls). We built more than two miles of barrier fencing for prairie dogs, including installing a completely new fence at Rock Creek Farm on the 40-Acre Habitat Conservation Area. The fencing work at this area was undertaken in an effort to decrease conflict between prairie dogs and the adjacent croplands. Other areas that received fencing included Leonard, Keyes N, Monarch and Peck. These other projects were completed with the goal of maintaining populations adjacent to No Prairie Dog (NPD) areas.

Removal of prairie dogs occurred on 11 properties, all of which are designated as No Prairie Dog (NPD) or Multiple Objective Areas (MOA). The majority of the trapped prairie dogs were delivered to the US Fish and Wildlife Service Black-footed Ferret Recovery Facility in Carr, CO. The rest were donated to the Birds of Prey Foundation on the Carolyn Holmberg Preserve at Rock Creek Farm.

We completed comprehensive mapping of colony extent. Acreage within each management category is listed in Table 1.

Table 1-Percent Occupancy of Designated Property Management Categories

	Property	2010	% Occupancy
	Total Acreage	Colonized Acres	
Classification	Acres	Acres	
HCA	5389.44	348.41	6.46%
MOA	4808.34	685.61	14.26%
NPD	16602.9	344.57	2.01%
NSH	18426.4	33.20	0.18%

We have experienced significant prairie dog population declines on Habitat Conservation Areas in recent years, as shown in Table 2. We will continue to monitor these areas for recovery, and give consideration to relocation if deemed appropriate.

Table 2- 2008-2010 Black-tailed Prairie Dog Colony Acres and Growth Rate

	2008	2009	2010	2009-2010	2009-2010
				Acreage Change	% Change
Classification	Acres	Acres	Acres	Acres	% Change
HCA	749.82	371.47	348.41	-23.06	-6.21%
MOA	729.65	784.07	685.62	-98.45	-12.56%
NPD	379.80	489.53	344.57	-144.96	-29.61%
NSH	87.33	45.00	33.20	-11.80	-26.22%
Total	1,946.60	1,690.07	1,411.80	-278.27	-16.45%

HCA = Habitat Conservation Area
MOA = Multiple Objective Area
NPD = No Prairie Dogs
NSH=Non-Suitable Habitat

Abert's Squirrel Monitoring

Abert's squirrels are on the Boulder County Species of Concern list. They are also a USFS Management Indicator Species (MIS). One of our program's main objectives is gaining an understanding Abert's squirrel utilization of our properties located in the lower montane lifezone. To this end, wildlife staff initiated a new volunteer monitoring project for Abert's squirrel in 2010.

Staff recruited volunteers and trained them on how to recognize Abert's squirrel feeding and nesting sign. These volunteers then surveyed 32 transects located in areas of past forestry activity, areas to receive treatments, and control sites.

In total, **5** volunteers contributed **180** hours to this project. The information they provided our program is useful towards our management recommendations pertaining to forestry prescriptions.

We are also using Abert's squirrel as our test species for modeling habitat using GIS. Our GIS staff is building the model based on habitat characteristics that have been either measured on the ground, or gained via remote sensing, such as canopy cover and tree species. Our goal is to use this technology to determine levels of habitat suitability. If this process is successful, we will model for other species as well, such as northern goshawk.

Front Range Cougar Study
Boulder County Parks and Open Space continued to assist the DOW with its Front Range Cougar Study. The third trapping year began in winter 2009/2010. In total there were nine captures/recaptures. Information on cougar territories was improved with important captures at Walker Ranch and near the Blue Jay Mine.
Project coordination and success was enhanced with the addition of the Walker Ranch caretaker in 2010.

Technological improvements for this year included switching to two-year battery collars to reduce the number of times cats are tranquilized. Additional information on causes of mortality included one cat being killed in a vehicle collision along US36. Visual observations of collared cats occurred in Lefthand Canyon, and were reported by POS staff. No reported sightings by the public occurred.

Front Range Bobcat Study
A doctoral research candidate began a study of bobcats along the Front Range in 2010, after receiving POSAC and BOCC approval. The study area overlaps with the Front Range Cougar study area. POS coordinated access for properties such as Heil Valley Ranch, Hall Ranch, Betasso Preserve, and Walker Ranch. Currently, this study has 16 bobcats radiocollared, including at least six that utilize Hall Ranch and Heil Valley Ranch.

Forest Carnivores
An American marten was detected on Heil Valley Ranch by remote camera associated with the Cougar Study. This was the first known marten observed at Heil Valley Ranch.

Remote Camera Surveys
Camera monitoring was focused on collecting information at the Reynolds Ranch complex for the upcoming management planning process. The stations ran from mid-March to mid-April and November to early December. The cameras detected deer, elk, and tree-squirrel species.

Additional camera monitoring was established along Coal Creek at the Mountain View Egg Farm. This camera was installed in an attempt to document animal movement along Coal Creek beneath State Highway 7. Two month-long sets (August & October) garnered no detections, although there were numerous (old) raccoon and coyote prints evident in the stream corridor.

A paired camera set along the Carter Lake Canal on our Dowe Flats property detected bobcats and coyotes utilizing the few bridges over the canal. Large numbers of elk were shown crossing in each direction.

North Boulder Elk Herd
In 2010, an additional 600 acres within the North Boulder elk herd's range was purchased by BCPOS. An additional 200 acres was gained in conservation easements. In total, 800 acres will be maintained in their current state, to the benefit of this herd. This habitat is located east of Hwy 36 and is important winter range for elk. Additionally, the area contains two small riparian areas, irrigated fields and pastures, and the wide open space that elk prefer. This land is contiguous

with 480 acres of BCPOS fee lands and 210 acres of OSMP fee lands, also east of the highway. The new purchase completes this large, undeveloped block.

Of further importance to this herd is the passage of House Bill 1238, which allows for the designation of wildlife crossing zones on Colorado highways. The primary elk crossing points within winter range habitats were designated in December 2010. These designations will allow for a reduced speed limit, more law enforcement, better signage, and perhaps enhanced crossing strategies/infrastructure coupled with future highway maintenance, improvements, or refinishing.

Caribou Ranch Elk Herd

Improvements to this herd's range were achieved with USFS/BCPOS collaboration efforts in the headwaters of Gordon Gulch. Social trail closures, coupled with aspen regeneration exclosures were completed during the summer months. Trail rehabilitation responded well in 2010, with the consistently wet growing season. No major breaches or reestablishment of the closed trail occurred in 2010.

The paired aspen regeneration exclosures were finished in August after several days of work with contributions from many individuals from agencies including the USFS, POS and Youth Corps.

Moose

Moose sightings by staff and the public continue to provide proof that moose are established east of the Continental Divide. There were again several moose sightings in and around BCPOS lands, including calving. Moose sign was detected at Reynolds Ranch, which is a new location, and indicates further expansion.

Bighorn Sheep

POS staff again assisted CDOW with their winter bighorn sheep count of the St. Vrain sheep herd in January 2010.

Staff continues to provide input on issues such as proposed sheep grazing within bighorn sheep territory. Due to disease transmission issues, staff opposes any sheep grazing west of Highway 36, or near Rabbit Mountain.

Fencing

Fence removal projects occurred at Hall Ranch, Heil Valley Ranch, Betasso Preserve, Forsberg, Rabbit Mountain, Caribou Ranch, and Pella Crossing. Prairie dog barrier fencing projects occurred at Monarch, Leonard, Peck and Keyes North.

Habitat protection barriers/fence went up at Caribou Ranch, Fairgrounds Lake, Twin Lakes, and Pella Crossing. Projects were performed by a combination of staff, Youth Corps, Inmate Work Crew, one-day volunteers, site stewards, and corporate partners.

Shrub Monitoring

Wildlife staff established 2 new shrub transects to be read by volunteers. Volunteers completed 4 of 9 transects and also collected similar information for 3 small shrub lopping treatments. Staff established and read one shrub transect in a controlled burn unit at Hall Ranch.

Shrub monitors (**4**) contributed **50** hours to this project.

Fish Program 2010

Events
The spring and fall fishing seasons at Wally Toevs pond were supported by 10 stocking efforts. The aeration system was sent back to the manufacturer and repaired. The process for re-installing them was initiated with the Land Use Department.

The Senior Fish-off was held on May 1after a weather delay on April 24. Large catfish were unavailable for stocking at Fairgrounds Lake for the 3 Catfish Nights at the Fairgrounds. The programs had a lower turnout in 2010 (112), perhaps due to decreased success and size in catfish caught. All programs were coordinated with CDOW and co-staffed with POS Education-Outreach and Resource Protection.

Amenities
The Operations staff replaced the vandalized fishing dock at Lagerman Reservoir. The Grounds Staff did not have the time/weather window to complete the bellyboat work at Pella Crossing. It was decided to also fold in a boat ramp (for sampling, restoration work, and public access) with this work, now scheduled for spring of 2011. Grounds staff was able to improve a popular fishing spot at Fairgrounds Lake by adding a graveled access trail and an impressive stone bench, while closing off side trails through sensitive habitat. Ten new shade and ornamental trees were planted at Stearns Lake (Carolyn Holmberg Preserve) and at the Braly Property. Staff will apply for a Fishing-is-Fun grant to help offset costs for planned amenity upgrades at Walden Ponds that were approved in the management plan. Depending upon the grant, some portion of these upgrades may be constructed in 2012. Staff and volunteers participated in four work projects that managed shade/habitat trees at Walden Ponds, ensuring protection from beavers.

Stocking and Sampling
A new wiper class was stocked in May at Braly (West Lake). CDOW added some crappie to support the wiper and the previous (larger) class. Two volunteer projects added caging to trees to protect them from beavers. The small Braly pond was sampled by staff and CDOW for transplanted (state endangered) Northern redbelly dace in July. None were found to have survived the transplant, and the trial may be repeated in 2011. Staff also assisted sampling ponds west of the Braly property for their future prospects as POS fisheries. An annual coordination meeting and periodic check-in's with CDOW resulted in plans for future amenity development (via Fishing-is-Fun Grant Program) at Walden Ponds Wildlife Habitat and at Pella Crossing.

Lower Boulder Creek Restoration
Staff was part of the team that worked with the US Army Corps of Engineers and contractors completing the Feasibility Study for the Lower Boulder Creek restoration project. Staff and the Corps have agreed to sign the partnership agreement to proceed with the restoration work. Staff participated in many meetings and field trips, including depth mapping of the two ponds in the project area. Staff worked with the Corps to develop the metrics for measuring success of the project.

Amphibians 2010

Northern Leopard Frog
Northern Leopard Frogs (NLF) are currently under status review by the US Fish and Wildlife Service to be considered under the Endangered Species Act and are considered a sensitive species by USFS and BLM and CDOW. This species used to be quite common in Boulder County, but its decline has coincided with habitat loss and alteration, invasion by American bullfrogs and infectious diseases, such as that caused by chytrid fungus which is easily transferred between water bodies.

In 2010, our program located three NLF sites; one is on Rock Creek Farm and the other two are in the SE Grasslands (west of McCaslin and east of Hwy 93). Along with six known sites on City of Boulder OSMP, there were a total of nine known sites in Boulder County in 2010. There are no active sites on Forest Service within Boulder County.

These nine locations occur generally in the least-disturbed, isolated, and largest acreages of grassland habitat. While these frogs require water bodies to breed, they forage and disperse terrestrially. Our large blocks of intact grasslands are providing a refuge for this species.

Management considerations for this species involve limiting impact to breeding sites. As such, we coordinated communication with Boulder County Transportation regarding the construction of the Mayhoffer/Singletree trail. The original location of this trail was determined to be very close one of the discovered sites in 2010. We worked with Operations staff and Transportation to adjust the trail corridor to better accommodate protection of this site.

As a program we are looking at providing protections for these frogs into the future, such as habitat restoration. Also, we'll be working with our Agricultural specialists to continually provide water sources for cattle, but also provide habitat for frogs.

Volunteer Contributions 2010

The Wildlife program generated increased hours within our volunteer program in 2010. We increased involvement in one-day projects as well as in long-term monitoring hours.

<u>Long Term Monitoring</u>

The wildlife department has initiated several long-term volunteer monitoring projects, including Bluebird Box monitoring, Barn Owl monitoring, Breeding Bird surveys, Burrowing Owl monitoring, and Raptor and Waterfowl monitoring. In 2010, we initiated Abert's Squirrel monitoring and Shrub Transect surveys.

Figure 1 summarizes the past four years and shows the increase in volunteer involvement in the long-term monitoring programs. Table 3 shows specific contributions per individual and project.

Figure 1- Long-Term Wildlife Projects- Volunteer Hours

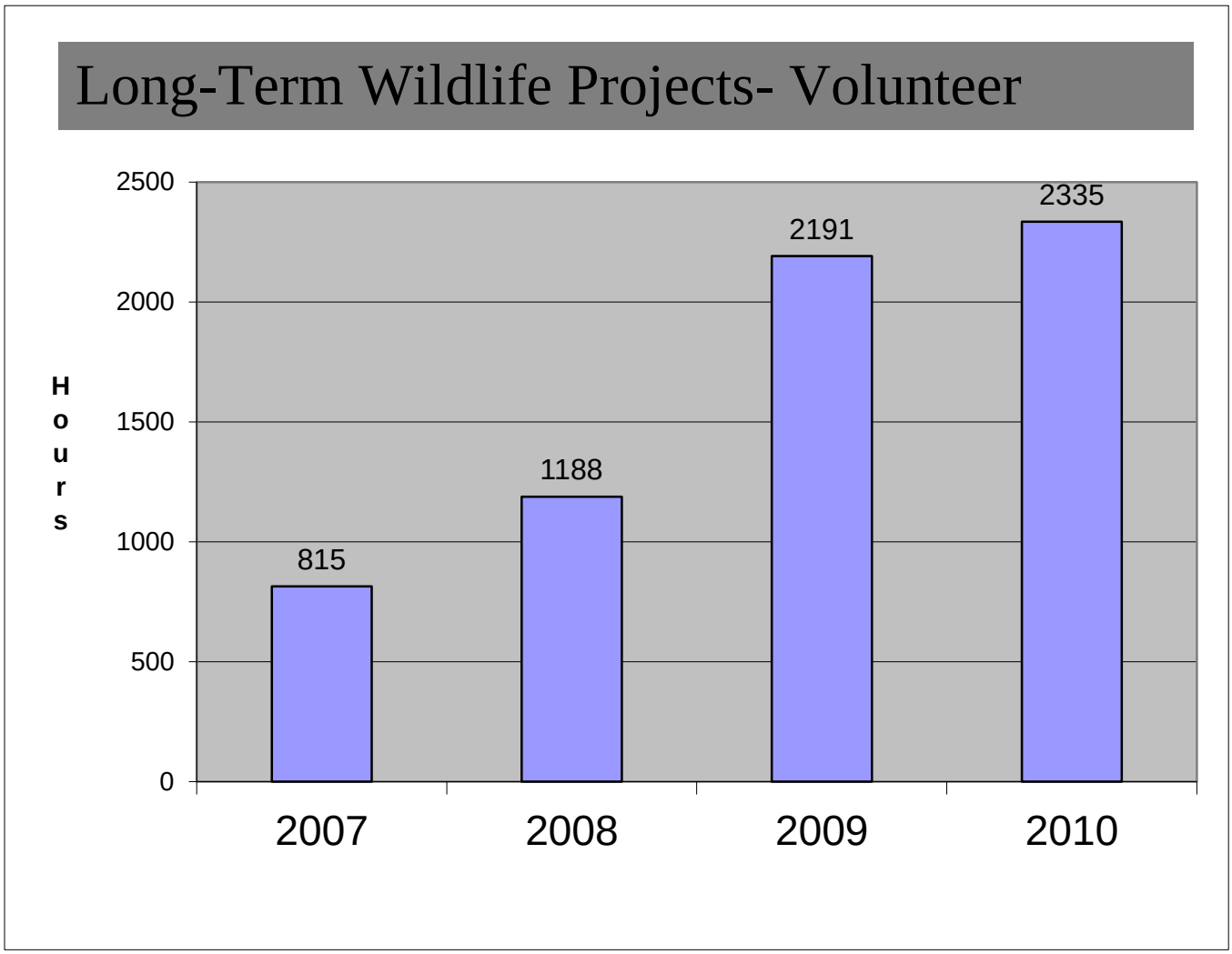

Table 3- Volunteer Contributions Per Program- 2010

PROJECT	Volunteers	Hours Contributed
Bluebird Nest Box Monitoring	17	953
Breeding Bird Surveys	3	30
Raptor Monitoring	6	456
Burrowing Owl Monitoring	18	183
Waterfowl Monitoring	5	434
Shrub Surveys	4	50
Abert's Squirrel Monitoring	5	180
Barn Owl Monitoring	2	40
Totals	60	2335

One

One Day Projects
The wildlife program incorporated an increased number of one-day volunteer events into its program of work. A summary is provided in Table 4.

Table 4-One-Day Volunteer Events Wildlife-related 2010

Month	Property	Project	Volunteers	Volunteer Hours
March	Rabbit Mt.	Shrub lopping	7	32
April	Rabbit Mt.	Shrub lopping	7	24
April	Monarch	Pdog barrier	9	40
April	Pella Crossing	Fence removal	3	13
April	Betasso Preserve	Fence removal	10	50
April	Heil Valley Ranch	Fence removal	15	75
May	Heil Valley Ranch	Fence removal	14	84
May	Pella Crossing	Fence construction	11	50
May	Hall Ranch	Fence removal	12	54
May	Walden Ponds	Tree caging	17	68
July	Reynolds Ranch	Fence construction	10	50
August	Caribou Ranch	Fence removal	10	50
September	Caribou Ranch	Fence removal	15	105
October	Forsberg	Fence removal	6	24
October	Heil Valley Ranch	Fence removal	12	132
October	Braly	Tree caging	8	16
October	Marlatt	Fence removal	5	20
			171	**887**

Wildlife sponsored 17 projects engaging **171** volunteers totaling **887** volunteer hours. Volunteers removed approximately 5,300 feet of fence, caged 80 trees and installed 2,000 feet of prairie dog barrier.

In 2010, we increased our one-day volunteer effort by **266** hours and **29** volunteers, over 2009.

Small Grants and Non-funded Research 2010

Small Grants
In 2010, two wildlife-related proposals for small grant funding were approved. Below are the final report abstracts and general results. The complete final reports are available at: **http://www.bouldercounty.org/live/environment/land/pages/posresearch.aspx**

Dr. Rick Adams

QUANTIFYING BAT SPECIES USAGE, ABUNDANCE, DIVERSITY AND FORAGING PATTERNS IN RELATION TO THINNED FOREST MOSAICS AT HEIL VALLEY RANCH

Abstract: The goals for summer 2010 were to quantify the effects of a new forest thinning treatment at Heil Valley Ranch (HVR) that incorporated a mosaic design of opened and unthinned habitat patches within a treatment area. We used sonar-call collection and mist netting along transects established through opened and unthinned patches and compare bat activity patterns in terms of overall call abundance and species richness. We also conducted radio-telemetry of a lactating female fringed myotis (*Myotis thysanodes*) to locate this species roost site and assess usage of the habitat mosaic. In addition to bat sampling, we also sampled for insects along transects to assess biomass loading per habitat type. Analysis of bat activity and pattern of habitat usage during different moon-phases was also conducted. We also continued to monitor bat populations throughout HVR with limited mist netting at Ingersol Quarry and Geer Canyon as well as any ephemeral water sources that occurred. We also continued to monitor PIT-tagged bats in Geer Canyon by using our submersible reader in the artificial water source.

Results summary points:

- 122 bats were captured and released across eight netting sites at Heil Valley Ranch
- Of all captures 33.6% were little brown bats, *Myotis lucifugus*
- Forested plots adjacent to openings are of high importance in maintaining bat species diversity in the PA2 Mastication site
- Sonar analysis of PA2 indicated overall activity highest in opened areas, but species diversity was highly similar across plots and all species used forest stands depending upon nightly environmental conditions
- Insect biomass was highest in forested areas of PA2 Mastication site
- Individuals of all bat species moved into forested areas under high moonlight illumination
- We located the Geer Canyon fringed myotis, *M. thysanodes*, maternity colony using a radio-tagged female
- We also, found a maternity roost for small-footed myotis, *M. ciliolabrum*, and a roost for big brown bats, *Eptesicus fuscus*
- Importance of untreated forested areas in regards to insect reproduction, habitat use of clutter specialist bats, and use by all species under high-moonlight condition, apparently to avoid predation, is high.
- **It is our opinion that further reductions in stand density in the PA2 Mastication area would negatively affect bat species diversity and possibly the reproductive efforts of the fringed myotis colony, one of only a few known in Boulder County.**

Mysti Martin

Changes in avian species composition in a riparian habitat: analysis of 50-years of bird banding data from the Allegra Collister Nature Preserve, Boulder County, Colorado

Abstract: The degradation, alteration and depletion of riparian habitats from human development and cattle grazing are among leading concerns for land managers and conservation biologists since they support some of the highest levels of avian diversity and density. When cattle are excluded from riparian habitats, the associated changes in habitat structure can also change the composition of the local avian communities. The Allegra Collister Nature Preserve, Boulder County, Colorado, is an example of a riparian habitat that has experienced such a change. In addition, the Allegra Collister Nature Preserve is associated with a 50-year bird banding record that provides information on species richness, relative abundance and sex as well as physical characteristics (e.g. body fat, weight and age) that can be used to infer migration behaviors. This study utilizes the long-term bird banding data to study how the avian community composition has changed since the establishment

of the cattle exclosure. These data indicated that the majority of the species observed at this site had no significant difference in abundance pre- or post- cattle exclosure. Those species that appeared to benefit from the cattle exclosure include urbanized communities as well as those species of concern such as the Brewer's sparrow. Pine siskins and vesper sparrows were the only species that appeared to have a negative response to the cattle exclosure. Further investigations in life history traits may further provide insight as to the patterns observed at ACNP.

Non-funded Research

Several wildlife-focused research projects were conducted on Boulder County Parks and Open Space properties in 2010. Projects included entomological inventories for species such as dragonflies, damselflies, bumblebees, grasshoppers and butterflies. Additionally, research on black-tailed prairie dogs and other small mammals, including bats, occurred. Further, studies on larger mammals such as bobcats and mountain lions occurred in 2010.
All reports are available at:
http://www.bouldercounty.org/live/environment/land/pages/posresearch.aspx