



# On The Wing

Volume 37, Number 5

Boulder County Audubon Society Newsletter

Nov-Dec 2007

## State of the Birds: Rare and Declining Species in Boulder County

Each year the Boulder County Nature Association compiles breeding season sightings of species listed as Rare and Declining on the county's Avian Species of Special Concern list. To qualify for this category, birds must nest annually in three or fewer known locations and have previously been documented as more common than they are now.

These rare and declining species are the ones closest to extinction in Boulder County, so monitoring their nesting success and protecting known nesting habitats is critical. We are grateful for all the reports we received this year from many volunteers. A short summary of the status of each of the eleven species is on page 4.

A quick look at the list reveals that all the species listed breed predominantly on the plains or in the lower foothills. Fragmentation and destruction of native ecosystems on the plains certainly poses the greatest threat to Boulder County's nesting bird populations.

One thing that we've learned during the past two decades is that simply protecting nesting sites for declining species is not sufficient to ward off local extinctions. For example, most of the known northern harrier nest sites and burrowing owl nest sites in the county lie in protected areas (predominantly Boulder Open Space and Boulder County Open Space). Despite this protection, these species have virtually disappeared. We now understand that protecting large areas of native habitat and buffering them from development is necessary to retain our native habitat specialists. (*species list on page 4*)

- Steve Jones

## More Holiday Items Offered at November Monthly Meeting

After our rousingly successful October holiday sale, which brought in more than \$800 to support Boulder Audubon education and conservation programs, we still have some great items left. Audubon calendars, Egyptian handblown glass ornaments, bird song CDs, Perry Conway prints, and a few books, prints and notecards from Audubon authors and artists will be available at the November meeting. Thanks to everyone who brought items to sell or purchased items at our October sale. It was a lot of fun and a great way to celebrate the creativity and camaraderie within our chapter.

## BCAS 4th Tuesday Program Series

Presented with support from SCFD



**Tuesday, November 27**

### *The Science of Climate Change*

Daniel Murphy, Atmospheric Physicist

Global climate change is a critical topic for our future. In this non-technical talk Dan Murphy will explain some of the concepts concerning global warming. He will document the human activities that lead to climate change and examine the evidence for recent warming. Global climate models are complicated, but there are some clear and simple results, such as predicting that land areas will warm faster than the oceans. He will also show the magnitude of the changes in fossil fuel use that would have to be made to stabilize carbon dioxide concentrations.

Daniel Murphy is a scientist at the National Oceanic and Atmospheric Administration. He was one of many authors of the third IPCC report and a reviewer for the recent fourth report. He has degrees in physics and mechanical engineering from Oberlin College, Stanford University, and the University of Minnesota. Daniel Murphy is one of 3000 atmospheric scientists recently awarded a share of the 2007 Nobel Peace Prize.



*Threatened by climate change.*

*Spitzbergen polar bear*

*@Green Mountain Photography*

*Rich Blanchette*

## Refreshments and Socializing at 7 PM

### Program at 7:30

Meetings are held at the Unitarian Universalist Church of Boulder, 5001 Pennsylvania Ave. (west off 55th St. between Arapahoe and Baseline)

## November-December Field Trips

**Saturday November 3rd 9:00 a.m. - 1:00 p.m.** A combined trip with Boulder Bird Club. Circle of Lakes: A driving tour to Macintosh, Pella Crossing, Lagerman, and other lakes looking for wintering waterfowl and raptors. Bring water and snacks. Meet at Walden Ponds parking lot. Leader: Dick Pratt 303-651-6860.

**Saturday December 8th 9:00 a.m. - mid afternoon.** Winter Raptors—a driving tour of Boulder County. A combined trip with Boulder Bird Club. This trip will look for all the favorites: Bald and Golden Eagles, Rough-legged Hawks, Red-tailed Hawks, Ferruginous Hawks, & Prairie Falcons. Meet at Niwot Park N Ride (Hwy 119 & Niwot Rd) Leader: Jim Eide 303-443-6236

**Saturday December 22nd 7:00-10:00 a.m.** Annual Winter Solstice Sunrise Hike. Come walk the White Rocks Trail with us. Bring a poem, a thought, or a song to share at a short sunrise ceremony at the Boulder Creek bridge. Breakfast afterward at the Garden Gate Cafe in Niwot. Leader: Steve Jones 303-494-2468 Call to secure a place at the breakfast table or for more information.

### Sunday, December 16. Christmas Bird Count

Come out and enjoy the annual Christmas Bird Count this year. Call leader Bill Schmoker, 303-702-9589 (bill@schmoker.org) to volunteer for this all-day event.

Boulder has long had strong participation in the CBC. Participation in Boulder has often been among the top 50 in the country. In the 2006 count, there were 98 participants. We logged 107 species, a record for the Boulder count circle. It would be terrific if the number of participants in 2007 could equal or surpass the number of species reported.

More than 50,000 observers participate each year in this all-day census of early-winter bird populations. The results of their efforts are compiled into the longest running database in ornithology, representing over a century of unbroken data on trends of early-winter bird populations across the Americas. Simply put, the Christmas Bird Count, or "CBC", is citizen science in action.

Viewed in comparison with other long-term, continent-wide, monitoring programs, CBC data give us an understanding of the dynamics of bird populations across North America during the early winter. We are also gaining an understanding of the status of bird populations in Latin America, the Caribbean, and US Minor Outlying Islands.

Results from all 107 years of CBC records are available from <http://www.audubon.org/bird/cbc/hr/index.html>.

**Wild Bird Center**

*"Your backyard birding specialists"*



[www.wildbird.com/boulder](http://www.wildbird.com/boulder)  
 On 28th Street south of Canyon  
 Boulder, CO 80301  
**303-442-1322**  
 M-F 10-6, Sat 9-5, Sun 11-4

S. Frye

### Boulder County Audubon Society

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### On the Wing © 2007

#### Boulder County Audubon Society

*On the Wing* — five issues annually:

Jan, March, May, Sept, and Nov.

#### Next issue:

Deadline for materials for the Jan 2008 issue is Tues., Dec 11. To contact the editor, use the link in <http://www.boulderaudubon.org/newsletter.htm>

## Even Oil Optimists Expect Energy Demand to Outstrip Supply

The title of this article is also the title of an article in *Science* (27 July 2007). This situation garners much less attention in the press than global warming, yet it is likely to have a major impact in the U.S. long before our coastal cities are threatened with flooding.

The supply/demand relationship has already driven the price of oil above \$80/bbl. Not only is demand increasing rapidly, but it's widely expected that we are not far from the time of "peak oil," when producers not only can no longer match demand but production begins to decline. The graph of the growing gap between discovery of new oil fields and production from existing fields illustrates one view of the situation.

The increasing cost of everything made from oil is likely to force conservation measures upon us. (How will we deal with \$10/gal gasoline? Or \$20?)

Reducing consumption of oil through conservation will also help to mitigate global warming. The mandate for 35-mpg corporate average fuel economy (CAFÉ) that has passed the Senate (but not the House) is a start. Appropriate for 2050 would be 50-60 mpg<sup>1</sup> or a substantial reduction in driving. Such changes may prove economically necessary as well.

Our transportation system runs on liquid fuel. This has led to a focus on biofuels, particularly ethanol, to reduce our dependence on oil. A comparison by NRDC<sup>2</sup> of various published studies concludes that the energy available from corn-based ethanol exceeds modestly the fossil-fuel energy required to produce it. They don't discuss whether there is also a modest reduction of the global warming effect in producing and burning ethanol. Cellulosic ethanol and other biofuels promise further improvements, but much development is still needed.

Production of biofuels on a large scale will result in diversion of much agricultural land away from food production. That diversion has already begun to raise global food prices. Further, our industrial agriculture currently runs on oil for farm machinery and transportation and on natural gas for fertilizer production.

Natural gas is itself an issue. As shown in the accompanying graph, natural gas production in the U.S. peaked in the early '70s. Production and consumption fell after that, partly because fertilizer producers moved offshore to obtain cheaper supplies. However, demand has continued to rise, largely due to the need to heat buildings. We have made up the difference by importing natural gas. Some of that is piped in from Canada or Mexico. Increasingly, the imports are liquefied natural gas (LNG) transported on ships. The anticipated value of the LNG industry is illustrated by the Norwegian energy company StatoilHydro tapping the Arctic sea bed and building a

terminal to ship LNG to the U.S. east coast<sup>3</sup>.

Other proposals for replacing some of our dependence on oil include the "hydrogen economy" and coal liquefaction. The hydrogen economy appears improbable, because of the need for a new infrastructure and substantial safety risks.

At the urging of the Peabody Coal Company, Congressmen from several coal-rich states have pushed for subsidies to manufacture fuel oil from coal<sup>4</sup>. However, that is a terrible proposition from the standpoint of global warming, as it approximately doubles the CO<sub>2</sub> produced by each barrel of oil used. In addition, coal mining is increasingly moving to practices that are environmentally destructive, such as mountaintop removal.

South Africa is currently producing some oil from coal. China's first coal liquefaction project, which will go into operation in 2008, will be able to produce more than one million tons of oil a year<sup>5</sup>. Unfortunately, China shows little desire to slow its coal consumption, which has made it the world's leading CO<sub>2</sub> emitter.

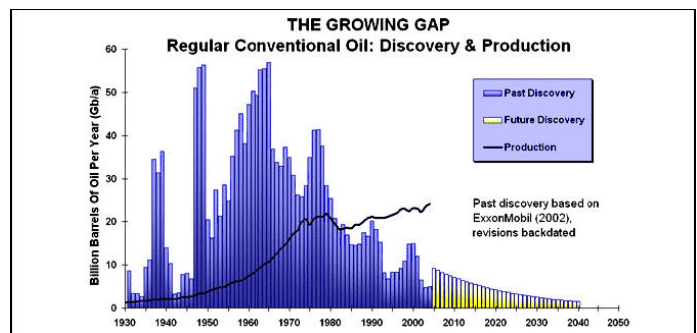
<sup>1</sup> S. Pacala & R. Socolow, "Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies" *Science*, 13 August 2004, 968-972

<sup>2</sup> <http://www.nrdc.org/air/transportation/ethanol/ethanol.pdf>

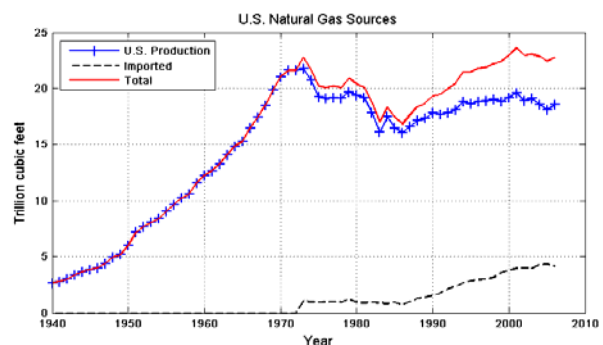
<sup>3</sup> New York Times, Oct 9, 2007

<sup>4</sup> New York Times, May 29, 2007

<sup>5</sup> [www.chinadaily.com.cn/china/2007-03/30/content\\_840641.htm](http://www.chinadaily.com.cn/china/2007-03/30/content_840641.htm)



[www.philhart.com/peak\\_oil/introduction](http://www.philhart.com/peak_oil/introduction)



Made using data tables from [www.eia.doe.gov](http://www.eia.doe.gov)

**State of the birds** *list from article on page 1*

**Northern Bobwhite:** One adult was seen at Teller Farms open space in early June. We've received no nesting reports for this species for 15 years. We aren't sure if northern bobwhites are native to Boulder County, since many were introduced by hunting clubs over the years.

**American Bittern:** A total of seven active territories were documented during 2007: three at Boulder Reservoir, one at Coot Lake, one at South Boulder Creek Trail, and two at Walden/Sawhill. Breeding populations appear to be increasing and this species is a candidate for down-listing during the 2009 update of the list.

**Northern Harrier:** A single nest west of Boulder Reservoir failed. This is the sixth consecutive nest failure at Boulder Reservoir. The last reported successful nesting in Boulder County occurred during 2004, when nests at Boulder Reservoir and Coot Lake each fledged four young. Because they are ground nesters, we suspect that predation by carnivores is contributing to these nest failures. Nest sites in Boulder County likely are so limited that predators learn to find and recognize them

**Burrowing Owl:** We received no reports of successful burrowing owl nests this year. The last successful nests reported were at Rock Creek Farm in 2005 (2 young fledged) and Boulder Reservoir in 2004 (3 young fledged). Habitually low fledging rates of Boulder County nests suggest that burrowing owls suffer from high levels of nest predation, possibly stemming from unfavorable location of a limited number of nesting sites.

**Long-eared Owl:** A nest in a shelter belt between Lafayette and Erie fledged a single young this year. This nest has fledged young for four consecutive years. We received no reports of nesting at Heil Ranch, where long-eared owls fledged young in 2004 and 2006.

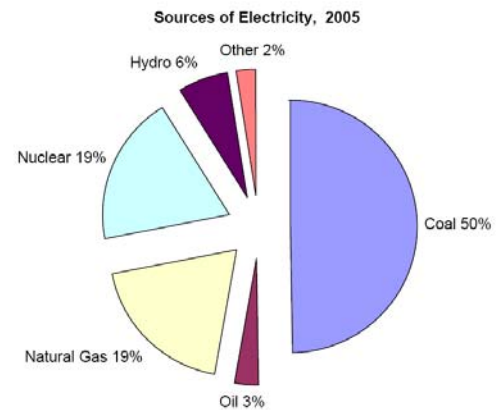
**Red-headed Woodpecker:** The last successful nesting known to Boulder County was during the early 1990s.

**Lewis's Woodpecker:** One adult was seen in Crescent Meadows on 13 July. The last reported successful nestings were at Middle St. Vrain Creek and Steamboat Mountain in Lyons in 2002.

**Loggerhead Shrike:** One was seen on the South Boulder Creek Trail in South Boulder on 13 May. We've received no recent nesting reports for this species.

**Brown Thrasher:** No breeding season reports. We've received no documentation of successful nesting in Boulder County since the list was initiated in 1983.

**Lark Bunting:** Several were observed during the breeding season on Marshall Mesa and in Meyers Gulch at Walker Ranch. We suspect this species still nests in scattered areas of Boulder County, but we haven't received confirmation of nesting during this decade.



## Future Electricity Supply

One of the challenges in mitigating global warming is to provide the U.S. with electricity while reducing the CO<sub>2</sub> emitted into the atmosphere. As shown in the figure, half or our electricity today comes from coal.

Coal is abundant. From the standpoint of global warming, however, it is the worst of fuels. All of the energy obtained from coal is obtained by burning carbon to create CO<sub>2</sub>. Oil and natural gas both contain significant hydrogen, so some of the energy results from producing water from those hydrogen atoms. Yet oil and natural gas will increasingly be in short supply and expensive. How will we provide the needed electricity without vastly increasing the CO<sub>2</sub> emitted in producing it?

The quickest and cheapest benefit is from conservation—more efficient lighting and appliances and better home insulation, for example. Carbon sequestration is a proposed solution of unknown potential that, at a minimum, would require relocating much of our current generating capacity. Solar is currently expensive. If it were used on a large scale, it would require a additional investment in systems of short-term energy storage and associated generation, perhaps using hydrogen.

*No power after four?*

*You'll have to store.*

What about nuclear? As an extreme hypothetical example, suppose that we undertook to replace all of our current fossil-fuel electric generation with nuclear by 2050, and that any increase over current demand would be met by other means. That would require building over 400 one-gigawatt nuclear plants, or about 10 per year.

As these examples illustrate, solution to the problem requires multiple approaches. Cap and trade legislation and/or a carbon tax can provide financial incentives for seeking solutions. Technological innovation, creativity, and substantial investment also will be required. Ideally, conservation might make possible a reduction of total demand from today's levels. Have you changed those light bulbs yet? Do you have Energy Star appliances?



## Bluebird Nest Box Monitoring

BCAS volunteers have collaborated with Boulder County Parks and Open Space over the past three years monitoring nest boxes at Walker Ranch. The activity was expanded this year to include boxes at the Betasso Preserve and a few boxes on Shanahan Ridge, on Boulder city open space.

Western Bluebirds (WEBL) were regarded as rare in Boulder County in the '80s. The dramatic increase in WEBL nestbox use at Walker Ranch suggests that their former scarcity may have been related to a lack of nest sites. At Betasso, Western Bluebirds are the dominant nestbox users. The table below shows the number of chicks fledged at Walker Ranch over the three years for bluebirds and other species that also use the boxes.

### Chicks Fledged at Walker Ranch, 2005-2007

Species	2007	2006	2005
Mountain Bluebird	79	80	100
Western Bluebird	69	43	28
Tree Swallow	3	5	9
Violet-green Swallow	4	3	0
Mountain Chickadee	5	7	5
White-breasted Nuthatch	5	7	0
House Wren	33	21	38
Total of all species	198	166	180

### Betasso Fledging Tally, 2007

Mountain Bluebird	10	Tree Swallow	3	Pygmy Nuthatch
Western Bluebird	20	Violet-green Swallow	19	5

There are tentative plans to expand the very successful program further in 2008, but the plans are still indefinite. We may need more volunteers to monitor all these boxes. If you might be interested, please consult the description on [www.boulderaudubon.org](http://www.boulderaudubon.org) for contact information and a description of the duties involved. (A nestbox "trail" is not a public trail, but rather a route that connects a number of boxes.)

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*Color pictures in the Web version of*  
*On the Wing:*  
[www.boulderaudubon.org](http://www.boulderaudubon.org)  
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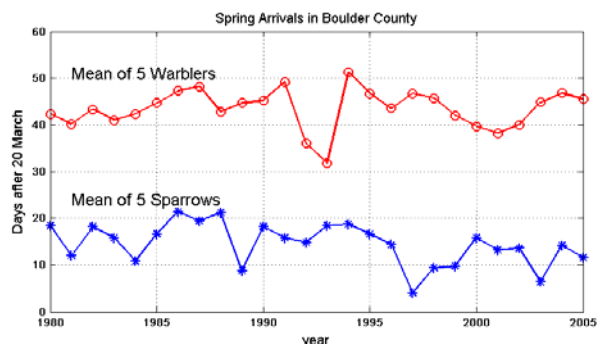
## Walden Warming

*"On almost every spring morning between 1851 and 1858, long after his private tenure at Walden Pond, Thoreau explored the ponds and shady woods around Concord, observing nature. For day after day, year after year, he searched for the first blooms of more than 300 plant species and watched for the first arrivals of migrating birds."* Thoreau's original observations, recorded in tables on large sheets of surveyor's paper, have recently been rediscovered. Massachusetts researchers, led by Boston University biology professor Richard Primack, have compiled these and observations by other amateurs to obtain a comprehensive picture of the changes of seasonal timing in New England over the past 150 years. Some plants are now blooming as much as two weeks to a month earlier than they did when Thoreau observed them.

The Boulder County inventories that are summarized in each issue of OTW have been compiled since 1980. A project to digitize those records has yielded some information about local spring arrivals. Warblers that migrate from the tropics have not changed their average arrival, presumably because they time their migration by the length of the tropical day. Sparrows with shorter migrations show a detectable trend toward earlier arrivals. The graph below shows the mean arrivals for 5 warblers and 5 sparrows that nest in Boulder County. There is more on this topic in the BCNA newsletter for fall 2007. (<http://www.bcna.org/library/nwsfall07.pdf>)

The utility of such observations has spawned the initiation of a national phenological network of amateur observers to provide similar observations on a nationwide basis. The desire is for thousands of observation points, on a par with the density of meteorological observations. To find out how to participate in this network, go to [www.usanpn.org](http://www.usanpn.org). See also our local ecosystem stewardship initiative, <http://www.bcna.org/ecosteward.html>.

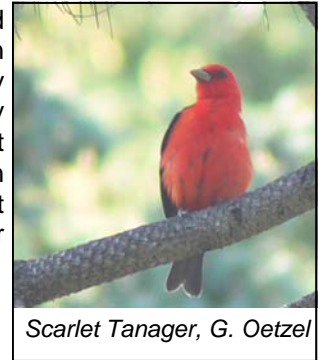
Reference and initial quote: National Wildlife Magazine, Oct-Nov 2007, available online at [www.nwf.org/nationalwildlife/](http://www.nwf.org/nationalwildlife/).



## BOULDER COUNTY WILDLIFE INVENTORY, JUNE - JULY 2007

Gillian and Alex Brown, 4560 Darley Avenue, Boulder, CO 80305.

June and July 2007 were unusually hot and dry, although the rain from the spring caused everything to stay green. Birders were much more active in the foothills and mountains than in the plains causing some birds to not be reported. The highlight of both June and July must surely be the adult male **Scarlet Tanager** that delighted so many birders in Gregory Canyon. Its striking plumage and distinctive song made it easy to locate. An article about the bird titled "Scarlet Tanager causing Red Alert" appeared in the Boulder Daily Camera on Friday July 13\*. This species was last reported in the county in 2004. However, this was not the rarest bird to be seen. That honor goes to a **Sedge Wren** found on a private pond near Lagerman Reservoir. This was a first report of **Sedge Wren** for the wildlife inventory.



Scarlet Tanager, G. Oetzel

Other unusual sightings were a **Red-headed Woodpecker** (last seen in 2002), a **Magnolia Warbler** found up in the tundra, an American Redstart and at least two **Baltimore Orioles**. The last three species were all seen in 2005 but not in 2006. **Red-headed Woodpeckers** used to breed regularly in the county but no longer do so, and are now a species of concern. Other birds that were new for the year were **Northern Bobwhite**, **Sora**, **Black Swift**, **Calliope Hummingbird**, **Eastern Wood-Pewee**, **Willow Flycatcher**, **Sage Thrasher**, **Brewer's Sparrow** and **Lark Bunting**. Many of these first sightings are birds that are habitually reported late in the summer. This is the third year in a row that **Eastern Wood-Pewee** has been reported. **Calliope Hummingbirds** appear to be continuing to expand their range with birds seen throughout the county including up in the tundra. **Rufous** and **Broad-tailed Hummingbirds** were seen on the plains as well as in the mountains, and **Black Chinned Hummingbird** was reported both months.

July saw shorebird migration under way, as well as gulls reappearing. It was suggested that many small birds such as sparrows may start migrating much earlier than previously supposed. Many of these small migrants move at night and it is only by identifying their flight calls that their presence can be recognized. There has been quite a lot of discussion about whether **Common Nighthawks** are a declining species in Boulder County. A flock containing 75 birds flying over the south eastern part of the county was the largest to be recorded in the wildlife inventory, and no firm evidence can be given of a decline.

Altogether 164 bird species were seen in June and 153 species in July. The numbers in June were helped by the Indian Peaks Breeding Bird Count (IP). The number of species seen was very typical for the time of year.

For a complete listing of sighted species please go to [www.boulderaudubon.org/inventory.htm](http://www.boulderaudubon.org/inventory.htm)

### CONTRIBUTORS TO THE JUNE & JULY INVENTORIES

Linda Andes-Georges, Jason Beason, Alan Bell, J.D. Birchmeier, Alex & Gillian Brown, Sarah Burbank, Lauren Burke, Cathy Comstock, Joan Dawson, Todd Deininger, Kathy Mim Dunning, Gene and Margaret Ellis, Norma Erickson, Ted Floyd, Peter Gent, Nancy Gobris, Paula Hansley, Jack Harlan, Ann Hicks, Robert Hill, Steve Jones, Mary Kippes, Ellen Klaver, Chishun Kwong, Tom McConnell, Gene & Lynn Monroe, Monte Montgomery, Christian Nunes, George and Marti Oetzel, Sue A Olmsted, Laura Osborn, Beth Partin, Nathan Pieplow, Peter Plage, Suzi and Myron Plooster, Scott Rashid, Ira Sanders, Bill Schmoker, Randy Siebert, Walt Szeliga, John Vanderpoel, David J. Waltman, Wild Bird Center, Eric Zorawowicz.

\* See the article at <http://www.dailycamera.com/news/2007/jul/13/scarlet-tanager-creating-red-alert/>



Photo of three Sandhill Cranes over Boulder, Oct 7, 2007, by Don Glen. Over the next several days, hundreds of cranes on their southward migration were seen by numerous observers in the Boulder area.

### Local Chapter Membership

#### Please renew or join

If you are a National Audubon member, you receive each issue of *On the Wing* in the mail, and you are encouraged to participate in all chapter activities. However, we receive very little of your national dues to support chapter activities. The national organization does send the chapter a modest amount from each member's dues each year, but we are then asked to donate over 80% of that to Audubon Colorado. The Board believes that's a worthy donation, but it leaves about \$500, or a bit less than 50¢ per member contribution to our chapter expenses.

Apart from the National Audubon pass-through, our annual budget is about \$12,000. Major sources of income include grants, sales of food coupons, other sales, memberships, and member donations. Major expenses are the newsletter, monthly programs, and insurance.

Local memberships are linked to the calendar year, with the term interpreted liberally for first-time members. There's a convenient membership form on page 8 of this newsletter. You can also join online at <http://www.boulderaudubon.org/about.htm>.



### Roll & Stroll Field Trip

Mary Balzer and Topher Downham organized our first ever field trip specially designed for people with mobility challenges. As you can see in the picture, we had a fine day October 7 for a roll and stroll to Teller Lake.

One of the wheelchair participants was a trail designer who was interested in a better appreciation of the "accessible" birding experience. There were a couple of others in wheelchairs for the experience as well.

For starters, everyone got a good look through scopes at a Great-horned Owl perched in a tree near the parking lot. There were Gadwalls, Mallards, and Coots in the pond near the trail head, but none on Teller Lake. However, the group was treated to some notable flyovers thanks sharp spotting by Scott Severs: flocks of Mountain Bluebirds, plus a Red-tailed Hawk, Merlin, Kestrel, and a Sandhill Crane. We expect to schedule a similar trip in April or May to catch spring migrants and/or nesters.

### GROCERY COUPONS SUPPORT BCAS

Every time you buy food (or wine or beer), you could be supporting this chapter and its goals of backyard habitat creation, school-room programs for kids, and protection of important bird areas in our own county.

Cards and certificates are used exactly like cash. You are whisked through the check-out line as though you were handing over greenbacks. Every \$100 you spend puts \$5 or \$10 into the BCAS piggybank for our local chapter needs at no cost to you.

Our friendly coupon sales contacts :  
Maureen Lawry, tel. 303 499 3833, Bev Sears, tel. 303 499 4751, or Linda Andes-Georges, tel. 303 772 3239

Coupons are always available at chapter meetings, the fourth Tues. of each month. Bring your checkbook!

If you would like to receive your coupons or cards through the mail, we will double-enclose them and post them after receiving your check. A number of people are now doing this regularly. Use the order form below.

### GROCERY OR LIQUOR COUPON ORDER FORM

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
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Telephone: \_\_\_\_\_

King Sooper: # at \$25 \_\_\_\_\_ ;# at \$100 \_\_\_\_\_

Wild Oats: # at \$100 \_\_\_\_\_

Liquormart: # at \$25 \_\_\_\_\_

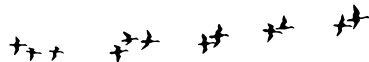
Make checks payable to Boulder County Audubon Society and mail to BCAS, POBox 2081, Boulder, CO 80306



Rolling & strolling—Linda Andes Georges

Boulder County Audubon Society

*On The Wing*



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**Boulder County Audubon Society Membership**

Use this form to join, renew, or change address with Boulder County Audubon and/or the National Audubon Society (NAS). With membership in the NAS you receive *Audubon* magazine and become a member of BCAS as well. However, BCAS receives only a small amount of your dues from NAS to support local activities. We encourage you to join our local BCAS chapter to help support local activities. (NAS membership is not required.)

Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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**To join or renew both BCAS and NAS, please duplicate the form and send separately.**

\$20 Annual Boulder County Audubon membership  
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