The State of the Birds: 2010 Report on Climate Change

“For well over a century, migratory birds have faced stresses such as commercial hunting, loss of forests, the use of DDT and other pesticides, a loss of wetlands and other key habitat, the introduction of invasive species, and other impacts of human development,” Secretary of Interior Ken Salazar said. “Now they are facing a new threat—climate change—that could dramatically alter their habitat and food supply and push many species towards extinction.”

The report, a collaboration of the U.S. Fish and Wildlife Service and experts from the nation’s leading conservation organizations, shows that climate changes will have an increasingly disruptive effect on bird species in all habitats, with oceanic and Hawaiian birds in greatest peril.

Birds in every terrestrial and aquatic habitat will be affected by climate change, although individual species in each habitat are likely to respond differently. The study assessed the relative vulnerability of each United States bird species, based on five biological aspects of sensitivity to climate change, as well as the exposure of each species’ habitat to climate change in the near future. Using those aspects, each species was then categorized as having high, medium or low vulnerability. The percentage of species in various habitats assigned to each category is indicated by the different colors in the graph.

The report also indicates that the way lands are managed can mitigate climate change and help birds adapt to changing conditions. For example, conserving carbon-rich forests and wetlands and creating incentives to avoid deforestation can reduce emissions and provide invaluable wildlife habitat. (For full report, see http://www.stateofthebirds.org/.)
West Trail Study Area (WTSA) Update

The Community Collaborative Group (CCG) has been meeting since September 2009. The main task of the group in 2009 was to understand the Boulder Mountain Parks by reviewing resource inventories, understanding rules and policies already in place that govern this area, and creating broad goals (desired future conditions) for each caucus. You can view these desired future conditions by visiting the West Trail Study Area page within the Open Space and Mountains Parks section of the Boulder City Government web page.*

The CCG is now working on specific plans for implementing the goals of each caucus.

The **conservation caucus** goals are:

- No new trails in the Habitat Conservation Area (the WTSA west of the ridge line approximately).
- Restore (close) undesignated trails to reduce habitat fragmentation.
- Increase the number of no-dog trails to allow networks of trails in each habitat type with no dogs.
- Preserve riparian corridors.
- Maintain the habitat for rare and sensitive plants.
- Maintain seasonal migratory routes.

Some of the goals of the **recreation caucus** are:

- At least 20% of the trails in the WTSA will be open to mountain bikes.
- Provide access to the WTSA at least every 1.5 miles at the east edge.
- Provide access to all 144 destinations that have been defined as key destinations. (Download [Key destinations table](#) file.) All historic climbing routes will be accessible by a trail.

The **neighborhood caucus** general goals are

- Welcome bikes as a way of addressing parking issues.
- Maintain the quality of experience for residents.
- Neighbors can continue to access WTSA easily.
- Address animal safety concerns, congestion, parking and trash concerns.

The CCG meets 2 times per month at the Cherryvale Open Space and Mountain Parks Offices from 6 to 9 p.m. Everyone is welcome at the meetings and may speak for 3 minutes at the beginning of each meeting. The next meetings are Monday May 3, Monday May 17, Wednesday June 2 and Thursday June 17.

Contact Petrea Mah at petreamah@comcast.net for more information or feedback. See [West TSA on OSMP Web site](#)

Click on the library tab for all documents. The specific ideas for each group are under “work products.”

**Note:** Both West TSA Web reference and the key destinations table are live links that you can click to visit the sites.
Adopt a Species:
Enjoy a Gourmet Interlude with Nature

We had a great time wining and dining and searching for threatened species last year during our first Species of Concern-a-thon, so please consider joining us for a trip this year. Pledges support Boulder County Audubon efforts to preserve habitat for birds of special concern. Board members provide gourmet food and refreshments for each trip. Participants receive updates on nesting status of these locally threatened species. Thanks for your support!

Bald Eagle (isolated and restricted) with Steve Jones. Sunday, May 30, 8 a.m. to 1 p.m. We’ll get clear views of nesting Bald Eagles in Weld County, then continue to Barr Lake for a sumptuous brunch and a walk along the marsh boardwalk. We will also review the history and status of Bald Eagles in Boulder County and eastern Colorado. 303-494-2468; curlewjs@comcast.net. Suggested pledge: $50. Limited to 8 participants.

Burrowing Owl (isolated and restricted) with Chris and Deb Abrahamson. Saturday, June 26, 4-8 p.m. On an early summer evening, we’ll explore three or four Burrowing Owl colonies in Weld and Adams counties. Last year we saw more than 40 Burrowing Owls on this trip. This year’s juvenile owls should be visible as they begin their fledging antics. We’ll enjoy a picnic dinner at nearby Barr Lake State Park followed by a boardwalk ramble to view songbirds, waterfowl, and raptors. 303-565-9742; cabrahamson@hotmail.com. Suggested pledge: $45. Limited to 10 participants.

American Bittern (isolated and restricted) and Green Heron with Petrea Mah. Sunday, May 23, 6-10 a.m. Relax in the early morning quiet and listen for the intriguing call of the American Bittern as we stroll among Walden and Sawhill ponds. Observe the silent work of Great Blue Herons on nests with their young while keeping an eye out for rare Green Herons. Waterbirds abound here, and their cries and songs will provide perfect mood music for a brunch created by a professional chef. 303-494-4121; petreamah@comcast.net. Suggested pledge: $40. Limited to 10 participants.

Flammulated Owl (isolated and restricted) search with Steve Jones. Sunday, June 20, 6-10:30 p.m. After a gourmet picnic at dusk, we’ll stroll down a remote foothills canyon to listen for poorwills, nighthawks, and elusive Flammulated Owls. Expect vibrant wildflower displays as we explore the streamside plant communities where these little owls thrive. Note: we hear these owls during about two-thirds of these surveys, usually catching only fleeting glimpses of them as they fly over. 303-494-2468; curlewjs@comcast.net. Suggested pledge: $40. Limited to 12 participants.

Bobolinks (isolated and restricted) and other rare finds, with Linda Andes-Georges, May 29, 6-11 a.m. One of the best singers of the “blackbird” family, and one of the spiffiest with its backwards tuxedo and creamy beret, the Bobolink’s range generally goes no farther west than Boulder County. Enjoy a catered (nibbles and sparkly refreshments) trip to search for this species of concern in Boulder’s sweet grassy meadows, amid the song of meadowlarks and migrating sparrows. andes-georges@comcast.net. Suggested pledge: $40. Limited to 12 participants.

Red in Beak and Claw with Linda Andes-Georges, June 19. This night-and-day raptor hunt is a family-friendly field trip (if the kids can be very quiet and sneaky and stay up until 9 p.m.), beginning with a catered dessert at 6 p.m., and a short discussion of the target birds; and ending with a search for the Ghost Owl (or Silver Owl: in our County, usually called the Barn Owl). We will try to find a nest of Swainson's hawks, and also Great-horned Owlets (big fluffy chicks). We will keep our eyes open for other interesting twilight species, such as nighthawks and even bats. This time we’ll be the hunters, not the prey! Registration limited to 8, in order to preserve our ability to sneak around quietly. A waiting list will be kept in case of cancellations. Trip leader: Linda Andes-Georges. Suggested pledge: $40.

Thanks, online Supporting Members!
See page 8 for article not in paper edition.
“Clickable” Web references, pages 2, 5, and 8
Field Trips—May-July

Saturday, May 8, Various Times. International Migratory Bird Day at Walden Ponds. See next page

Friday, May 14 - Sunday, May 16. Birds and Wildlife of Pawnee National Grasslands. Leader: John T. Camping, birding and wildlife viewing in the grasslands northeast of Boulder. We will camp at Crow Valley on Friday and Saturday nights, and explore, hike, bird, and study the grassland ecosystem. Leave from Boulder mid-day Friday, return afternoon Sunday. Call or email John T. for details and reservations: j.eclectus@att.net 303-926-8779

Sunday, May 16, 8 a.m. - 1 p.m. Nesting Raptors in Boulder County. Leader: Mark Ponsor. We'll look for nests and young of Bald Eagles, Great-horned Owls, Red-tailed Hawks, Swainson's Hawks, Osprey, Northern Harriers, and Prairie Falcons. Email or call for meeting place: m.ponsor@comcast.net or 303-818-0805

Saturday, June 12, 8:30 a.m. - Noon. Roll and Stroll at Boulder Valley Ranch. Leader: Mary Balzer. Join The Boulder County Audubon Society and OSMP on a bird-watching field trip at Boulder Valley Ranch open space. Knowledgeable Audubon birders team up with Topher Downham, an OSMP specialist, to provide this fun bird-watching experience in a variety of habitats, for people who use walkers, wheelchairs, canes, or just regular legs. Bring hats, sunscreen, water, assistance if necessary, and binoculars if you have them, though some will be available to share. Extra wheelchairs are available for assistance or just to experience. Meet at Boulder Valley Ranch Trailhead (Longhorn Road) parking lot at 8:30 a.m. Contact Mary Balzer for more info: marybalzer@qwest.net

Saturday, June 12. Brainard Lake / Niwot Ridge Birding. Leader: John T. Hike and bird around Brainard Lake, Long Lake and up on Niwot Ridge. A large number of high altitude species will be the target including Fox Sparrows, Lincoln's Sparrows, Wilson's Warblers, Hammond's Flycatchers, American Three-toed Woodpeckers, White-crowned Sparrows, American Pipits, White-tailed Ptarmigan, and others. Expect strenuous hiking with 2,000 foot elevation gain. Call or email John T. for meeting time and place: j.eclectus@att.net 303-926-8779

Saturday, June 19, 8 a.m. - afternoon. Rocky Mountain National Park. Leaders: Dianna and Wayne Johnston (303-682-5662). We will start with a trip to Medicine Bow Curve to look for White-tailed Ptarmigan. Then we take an easy walk on Upper Beaver Meadows trail looking for primary and secondary cavity nesting birds. A 3/4 day trip depending on activity. Bring lunch and appropriate clothing. Meet at 8:00 a.m. at Beaver Meadows Visitor Center. Park pass needed.

Friday, July 2. 7:45 a.m. - 3 p.m. Cal-Wood Butterfly Count. Leader: Jan Chu. 27th year of this annual daylight count. Meet at 7:45 a.m. at Safeway Grocery's northern parking lot adjoining and south of Iris Ave, west of 28th St, Boulder for car pooling. The Count lasts until 3:00 p.m. or may end earlier if the clouds roll in. Cal-Wood is known for its Parnassians, Swallowtails, Queen Alexandra’s Sulphurs, Ringlets, Persius Dusky-wings and 60 other colorful butterflies. Children are welcome when accompanied by adults. Leaders enjoy teaching about the butterflies we observe. Reported to North American Butterfly Association (NABA) $3.00 per person. Information: Jan Chu 303-494-1108 or chuhouse@hotmail.com.

Sunday, July 11, 7:30 a.m. - 11:30 a.m. Walker Ranch Nesting Birds. Leaders: George & Marti Oetzel (303-543-3712, robin@birdhike.com) Meet at the Meyers Gulch parking lot at 7:30 a.m. to look for bluebirds, swallows, and possibly other nesting birds in the area. The Oetzels have established a very successful bluebird box program within County Open Space. Come prepared to hike a couple of miles, some of it off trail through tall grass. Limited to ten participants. Please contact the Oetzels for reservations.

Saturday, July 17, 8 a.m.–3 p.m. A Walk into the Alpine Tundra: A Family Field Trip. Join naturalists Joyce Gellhorn, Jan Chu, and Larry Crowley on a hike up to Niwot Ridge to observe and record activities of plants, butterflies, birds, and mammals that live in the upper subalpine and alpine ecosystems. We will take time to observe plants and identify butterflies; observe pikas and marmots as they go about their business, and learn about the interactions of various components of these high altitude ecosystems. Open to families with children 7 to 15 years old (children must be accompanied by an adult). Limited to 12 participants. Meet at Long Lake Trailhead Parking Area in the Indian Peaks Wilderness Area at 8 am. Be sure to wear proper field clothes, hat and boots, and bring water, lunch, sunscreen, binoculars, field guides, and cameras. We will be hiking a total of 4 to 5 miles round trip. Please contact Joyce Gellhorn at 303-442-8123 or jgellhorn@mac.com to sign up for the field trip or to ask any questions you might have.
International Migratory Bird Day at Walden Ponds

Saturday, May 8, Various Times. The Wild Bird Center, Boulder Bird Club, and Boulder County Audubon will be hosting International Migratory Bird Day at Walden Ponds. This year's theme is "Power of Partnerships." There will be information on the conservation of wild birds as well as a Dawn Chorus Walk, A Big Sit, and other walks. The dawn chorus will begin at 5:30AM and the general events are scheduled from 7:30AM until 11:00AM. More details on this event will be posted as they come available at http://wildbird.com/stores/bld/birdwalks Or people may call (303) 442-1322 for details. Note: Please carpool to Walden Ponds as there is limited parking. Illegally parked cars may be ticketed.

Conservation Briefs

Boulder County Audubon is working on the following local conservation initiatives in addition to the West TSA process (page 3). If you can help out, either by providing information, submitting written comments, or attending an upcoming meeting, please get in touch with the contact person listed.

Boulder Reservoir Master Plan. This 20-year update will address recreational use and preservation of natural resources at the reservoir. The wetlands complex on the west side of the reservoir supports a number of nesting birds of local and regional concern, including northern harrier, American bittern, burrowing owl, and osprey. The BCAS board has placed a high priority on protection of these wetlands and the wetlands to the west of Coot Lake. Cathy Comstock (cathy.comstock@colorado.edu) has been representing us and attending public meetings throughout this process. At this time, it would be extremely helpful if folks who care about protecting these wetlands submitted comments to the city:

Click to visit master plan Web site.

Ducks in Sewage Treatment Tanks. You may remember that a few winters ago, a hundred or more ducks were found dead in and near a sewage treatment facility in Commerce City. BCAS member Scott Brown observed many ducks flying into the Boulder sewage treatment facility this winter, and expressed concern about their well-being. In February we initiated a cooperative process with the City of Boulder to investigate mortality of ducks at the facility (it turns out that several ducks are found dead in the tanks each winter) and seek ways to protect ducks from potential hazards (which may include chlorine—though this has not yet been documented) at the site. We will initiate a thorough study of duck use of the facility this fall while investigating options for discouraging ducks from using the tanks. We will need volunteers to help with waterfowl counts, literature searches, and networking with other cities as we seek solutions. Steve Jones (curlewsi@comcast.net).

Union Reservoir. Several Longmont citizens contacted us in February expressing concern over a planned Christian rock-fest just south of Union Reservoir this coming July. The two-day event may attract 30,000 to 50,000 attendees, who will park their cars on city and private land south of the reservoir and have access to the regional park along the south shore. We wrote a letter to the city listing birds of special concern that frequent Union Reservoir and expressing our concerns about potential impacts of the gathering on wildlife habitat. Although the city responded positively to many of our concerns, we still feel that a massive gathering of this kind adjacent to an area so rich in wildlife habitat is a questionable idea. We will be providing further information about birds of concern at Union Reservoir to Longmont residents and city officials during the coming months.

The Biofuel Conundrum

It seems very easy to make the case for biofuels. By converting crops into ethanol or biodiesel, farmers can help reduce demand for imported oil and lower our dependence on authoritarian governments in the Middle East (if oil use in biofuel production is limited). Environmental benefits are much less clear, however.

A series of recent studies, reported in Science Magazine,* underscores the risk that a widespread shift toward biofuels could pinch water supplies and worsen water pollution. In short, an increased reliance on biofuel trades an oil problem for a water problem.

The Energy Independence and Security Act (2007) mandates a nearly fivefold increase in U.S. ethanol production by 2022. Of this, nearly half is slated to come from corn ethanol by 2015. Meeting the 2015 mandate would require 44% of the corn produced in the United States in 2007. That's in addition to existing food and feed corn needs, assuming (unrealistically) no change in demand or prices.

The impact from the increase in biofuels is likely to fall almost entirely on the Corn Belt states ranging from the Dakotas, Nebraska, and Kansas eastward to Ohio. “It really means a greater potential for agricultural pollution of the waterways, eutrophication of the Gulf Coast, and a significant increase in water use, which may produce localized shortages,” says Pedro Alvarez, an environmental engineer at Rice University in Houston, Texas. The potential for shortages is greatest in the western plains states, where average rainfall isn’t sufficient to grow corn and biofuel production is increasing.

* Science, 23 Oct 2009, pp. 516-517
BOULDER COUNTY WILDLIFE INVENTORY, SEPTEMBER - OCTOBER 2009

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

September typically sees the peak of the fall migration. Shorebird migration was strong with new sightings for the year including Sanderling and Pectoral Sandpiper in September, and Short-billed Dowitcher (last seen in 2007) in October. Other less usual shorebirds included Black-bellied Plover, Stilt Sandpiper and Red-necked Phalarope. By October the number of winter diving ducks and grebes had increased significantly; Red-necked Grebe and Surf Scoter were both added to the year’s list. Several observers commented on the large number of Western and Clark’s Grebes on various reservoirs; however, as no numbers were given, this was impossible to quantify. September and October always seem to be good months to go looking for gulls and terns. The first Common Tern and Least Tern of the year were seen in September and the first Sabine’s Gull in October. In the last few years these have become fairly regular fall sightings. Many birders went looking for loons in October; possible Arctic, Pacific and/or Yellow-billed Loons were reported at Union Reservoir but, unfortunately, no consensus could be reached as to the exact species. Common Loons had certainly returned by then, and there was a definite report of a Red-throated Loon (another species last seen in 2007). Sandhill Cranes were reported in large numbers with many birders counting the number of birds seen in flight. Although most sightings were of flocks seen and heard overhead, there were also reports of small numbers of birds on the ground.

The most unusual species, and one reported in both September and October, was McCown’s Longspur. These grassland birds were seen both near the Coalton Trail in the south of the county and near Lagerman Reservoir. We have had only one previous report of this species in Boulder County since the wildlife inventory began in 1979. A Lapland Longspur was found near Union Reservoir in October and was also a new species for the year. Swamp Sparrow, White-throated Sparrow and Harris’ Sparrow were all seen for the first time this year in October. The last Broad-tailed Hummingbird of the year was reported on 16 October, after the first significant snowstorm. A Black-chinned Hummingbird was still hanging around our south Boulder yard in the first few days of October. A Violet-green swallow reported on 10 October also seems to be a late sighting. Barn Swallows were reported in huge numbers in September with a few lingering into October. Barn Swallow seems to habitually be our last swallow species to head south.

A Golden-winged Warbler seen on the Indian Peaks Fall Bird Count (IP) is one of our rarer warblers, and particularly unusual at such a high elevation. This bird was last reported in the county in 2005, and has only previously been reported during spring migration. An American Redstart and a Hooded Warbler were two of the less usual warbler species reported in September. By October Yellow-rumped Warblers seemed to be the only warbler species remaining apart from a single Orange-crowned Warbler reported in the first few days of the month. Small numbers of Evening Grosbeaks were reported both months; this species has been difficult to find over the last few years.

Altogether 164 bird species were reported in September and 129 in October. These are very average totals for these months. For a full listing of the wildlife inventory please visit the Audubon website at www.boulderaudubon.org/inventory.htm

Contributors to the September and October Inventories

Sandy Amesen, Linda Andes-Georges, Alan Bell, Mike and Mary Blatchley, Julia Bond, Maggie Boswell, Alex & Gillian Brown, John Cobb, Carol Cushman, Todd Deininger, Ted Floyd, Peter Gent, Paula Hansley, Thomas Heinrich, Jim Holitz, Steve Jones, Bill Kaempfer, Steve Larson, Mark Miller, Gene & Lynn Monroe, Carol Newman-Holitz, Christian Nunes, Jessie Oberbeck, Laura Osborn, Beth Partin, Nathan Pieplow, Suzi Plooster, Bill Schmoker, Gene and Margo Shimel, Susan Short, Tim Smart, Deborahann Smith, Debra Sparr, Walter Szeliga, Joyce Takamine, David J. Waltman, Wild Bird Center, Bob Zilly.

Wild Bird Center 303-442-1322

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M-F 10-6, Sat 9-6, Sun 11-5
On The Wing  Boulder County Audubon Society Newsletter  May-Aug 2010

Louise Hering - In Memorium
Louise Hering, the last active charter member of the Boulder Bird Club passed away February 20, 2010 at the age of 87. She was well known by Boulder birders and those interested in nature. Most of us remember seeing her on mornings at Cottonwood Marsh where she was a regular, her head covered in her trademark favorite blue “babushka” scarf. It was her morning ritual to go out birdwatching until she was confined to the Boulder Manor Nursing Home in Boulder seven years ago.

Louise received her undergraduate degree Magna Cum Laude in General Science from the University of Oregon in 1943 and was a Phi Beta Kappa scholar. She later went on to receive her Master’s Degree in Bird Ecology from the University of Colorado at Boulder. As a graduate student at C.U., she enjoyed her job in the Biology Dissecting Laboratory, instructing pre-med students.

A nature lover and an avid bird watcher, Louise was a charter member of the Boulder Bird Club, which was founded in 1947 by townspeople and graduate students from C.U. For 42 years she collected data from a bird plot on Boulder’s Enchanted Mesa, creating the longest-running breeding bird study in Colorado. She was present in 1997 when the Boulder Bird Club dedicated a park bench in her honor at Walden Wildlife Habitat on 75th Street.

Louise’s ashes will be scattered at a memorial service at her bird plot on Enchanted Mesa sometime in the spring. (Check www.boulderbirdclub.org/calendar.html) Memorial gifts may be sent to the Boulder Bird Club in Louise’s memory or to any Boulder nature-oriented group.

Grocery Certificates
We are no longer able to mail grocery certificates. Certificates will still be available at the monthly meetings. BCAS receives a 5% donation from the sale of King Soopers certificates and 10% from sale of Liquormart certificates. Bring your checkbook to the meeting. Denominations:

King Soopers, $100; Liquormart, $25

Annual BCAS Board Election
Board for FY 2010-11, beginning July 1, 2010.

- Accept all 12 candidates

President
- Petrea Mah (303)494-4121

Vice President
- Steve Jones (303)494-2468

Secretary
- Joan Dawson (303)494-8252

Treasurer
- Chris Abrahamson (303)565-9742

At-large Board members
- Linda Andes-Georges
- Mary Balzer
- J.D. Birchmeier
- Ray Bridge
- Sharon Daugherty
- Maddy Goldhawk
- Nancy Neupert
- George Oetzel

Person ____________________________

Position __________________________

Clip the ballot and mail to Boulder County Audubon Society, P.O. Box 2081, Boulder, CO 80306, or vote at the May 25 meeting.

BCNA Summer-Fall classes
See http://www.bcnanet.org/education.html for full class descriptions, tuition cost, and registration information.

Colorado Lady’s Slippers and Orchids
Joyce Gellhorn and Janice Forbis
June 9, 12, and 26.

Walking Through the Seasons in the Ponderosa Pine Forest, Part II, Summer and Fall

Exploring Colorado Hummingbirds
Steve and Debbie Bouricius—July 25, 7:30 a.m. to 2 p.m.

Boulder Bugs: An Introduction to the World Under Our Feet!
Scott Severs—Aug. 4 and 9

Continued next column

More BCNA Classes

Mushrooms of the Front Range

Geology of Boulder and the Denver Area
Raymond Bridge—Sept 9, 11, 16 and 19.

Autumn Colors in Aspens in Western Colorado
Joyce Gellhorn and Carol Schott
Camping or B&B, Wednesday, Sept 22–Sunday, Sept 25
Climate change 'makes birds shrink' in North America

A study of almost half a million U.S. birds, belonging to over 100 species, shows that many are gradually becoming lighter and growing shorter wings. Climate change is suspected as the cause. This shrinkage has occurred within just half a century, with the birds thought to be evolving into a smaller size in response to warmer temperatures. However, there is little evidence that the change is harmful to the birds.

There is a general trend among animals that live over a range of latitudes or altitudes that individuals living farther north or at higher altitude are larger than those in the lower, warmer climates. This is known as Bergman's Rule. This study suggests that it may also apply over time as a result of climate change.

Researchers* examined the records of 486,000 individual birds, of 102 species, that were banded at the Carnegie Museum’s Powdermill Station in Pennsylvania from 1961 to 2007.

Of 83 species caught during spring migration, 60 have become smaller over the 46 year study period, weighing 1.3% less on average and having shorter wings. Of the 75 species migrating in autumn, 66 have become smaller. In summer, 51 of 65 breeding species have similarly reduced in size, as have 20 out of 26 wintering species.

A few species have experienced larger changes. For example, the Rose-breasted Grosbeak has declined in mass by about 4%, and the Scarlet Tanager by 2.3%.

Although the body sizes of many North American species seem to be gradually getting smaller, their populations are not generally dwindling. While this change seems rapid from an evolutionary standpoint, it has taken place over at least 20 generations. "There are plenty examples of rapid contemporary evolution over much shorter time periods," says Dr Josh Van Buskirk, one of the researchers. It is unclear whether the trend will continue over a longer period.

The jury is still out as to why any species responds to warmer temperatures by becoming smaller. Originally, biologists proposed that having a larger body surface to volume might help in warmer climates. But more recent ideas suggest that animals might actually be responding instead to something else that correlates with temperature, such as the availability of food, or metabolic rate.

"It looks like it might take a while before we know," says Dr Buskirk.

See the original BBC Earth News article by Matt Walker.

* Researchers: Dr Josh Van Buskirk of the University of Zurich, Switzerland and colleagues Mr Robert Mulvihill and Mr Robert Leberman of the Carnegie Museum of Natural History in Rector, Pennsylvania.

Details of their work are published in the ecology journal Oikos.