



On The Wing

Volume 42, Number 5 Boulder County Audubon Society Newsletter

Nov-Dec 2012

Grand Holiday Sale and Cookie Treats Evening

Tuesday, November 27

Sale—6:00, program—7:15

Along with our 6th Annual Holiday Sale we will have John Vanderpoel's presentation:

"Full Chase Mode: My 2011 Big Year"

Enjoy live raptors presented by The Birds of Prey Foundation, renowned for their successful rehabilitation of injured and sick eagles, owls, hawks, falcons and accipiters.

Complete all of your holiday shopping early while benefiting wildlife and wild places.

The sales tables will open at 6:00 p.m. at the Unitarian Church at 5001 Pennsylvania Avenue in Boulder. The emphasis will be on the handmade, including art by Anne Gifford (well known for her Boulder Boulder posters); art by Harriet Peck Taylor (an accomplished wildlife artist and children's book author); handmade greeting cards; jewelry and Egyptian hand-blown glass ornaments; environmental T-shirts by Jim Morris; as well as Audubon calendars; shade grown bird friendly coffee; bird seed; new and used nature books (including a complete set of Arthur Cleveland Bent's, "North American Birds"); and framed vintage John James Audubon bird art. There will also be an authors' table featuring books by local authors.

Guests will have the opportunity to sign up for unique field trips with the area's top birders and naturalists. Donations for these will run from \$25.00-\$40.00, with the higher priced outings including gourmet meals.

Refreshments will be served. Cash and checks (no credit) accepted for purchases. You will also have the opportunity to purchase King Soopers gift cards and Liquor Mart coupons. The holiday sale funds will be used for teen scholarships to Audubon's Hog Island Environmental Education Camp, as well as for the Dodd Reservoir Prairie Restoration Fund, and the Prairie Ecosystem Puppet Show for elementary schools.

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

We are soliciting the donation of new or used nature and/or bird related items to recycle for our profit. Please consider donating bird guides, ornithological books, clean bird feeders, bird song c.d.'s, or equipment. Don't forget your outgrown children's nature books or that bird bath heater you never got hooked up!

Please call Pam at 435 210 8019 to arrange for drop-off or pick-up.



John is the creator and producer of the critically acclaimed identification videos, the *Advanced Birding Video Series with Jon Dunn*. He also produced the BCAS-sponsored documentary *Coal Creek Renaissance*. John lives on a very hummer-friendly lot in Niwot with his wife, Linda.

In September of 1966, when a teenager in the Chicago area, John became fascinated with birds after a cold front grounded dozens of warblers on the family property. He has been birding ever since, traveling extensively and filming throughout the Northern Hemisphere.

In 2011 John set off a North American Big Year. His whirlwind adventure took him to all corners of North America, and brought him into contact with fascinating characters. He wasn't searching for the meaning of life – he was busy living it, for 365 incredible days.

His presentation will include different stories from his Big Year, some humorous and some informative.

President's Message: Cranes and Other Precious Gifts

Many of you reported seeing large flocks of Sandhill Cranes flying over Boulder on the afternoon of Friday, October 5. One flock contained at least 500 individuals. Some of us only heard the cranes, as they were obscured by the low overcast, winging their way confidently toward the San Luis Valley, Bosque del Apache Wildlife Area, and other wintering areas in New Mexico and West Texas.

These are greater Sandhill Cranes, which now number at least 120,000 in North America. They nest from Colorado northward through the Rockies into Canada and Alaska. The lesser Sandhills, which congregate along Nebraska's Platte River during early spring, now number at least 600,000. Populations continue to increase as nesting and wintering habitat is protected and enhanced.

If you'd like to join in the celebration of this remarkable success story, we've initiated a new "tradition," an informal potluck dinner on the south abutment of the Old Lewellen Bridge along the North Platte River the last Friday in March. Last year about 30 people met for this quiet event, which culminates with several thousand greater Sandhill Cranes circling down to their island roosts at dusk. Lodging is available nearby at the Gander Inn in Lewellen or the Shady Rest Motel in Oshkosh. Public camping is available at the west end of Lake McConaughy. Otherwise, you're on your own. Just bring your warm weather clothes and contemplative state of mind, and we'll see you at the bridge. To get there, find Lewellen and drive south from town to the river. Contact me in late winter if you'd like to explore carpooling possibilities.

We also hope you'll be able to join us for this fall's holiday sale extravaganza, immediately preceding John Vanderprovel's much-anticipated "Big Year" presentation on Tuesday, November 27 (see page 1). It's a great way to get all your holiday shopping done in one evening while benefiting three unique Boulder County Audubon efforts: our teen naturalist program, which sends at least one Middle or High School student a year to the Audubon Hog Island summer birding camp in Maine; our fabulous prairie dog puppet program; and our ongoing effort to restore 5 acres of smooth brome-dominated grassland to native prairie at Dodd Reservoir.

This year's sale looks particularly promising, with lots of great artists and authors represented (including Joyce Gellhorn's just-released memoir, *Aspen Dreams*), along with an Egyptian bazaar, live raptors from the Birds of Prey Rehabilitation Foundation, and special, catered trips with local naturalists. Give a friend a morning observing rare breeding birds near Lyons with Raymond Davis and the Such brothers; a burrowing owl and barn owl quest with Petrea Mah and me; or a sumptuous brunch in a special, hidden glen in the Boulder Mountain Park. We appreciate your generosity; the sale, along with grant money received from the Science and Cultural Facilities District, provide nearly half of our annual operating funds.

And speaking of that grant, this may have been the first year when we were awarded 100% of the money we asked for: \$3000. Thanks to Petrea for writing the grant, for our field trip leaders and board members for contributing to our impressive list of activities and public programs, and to the Scientific and Cultural Facilities District for their generous support.

And heartfelt thanks to each of our 1400 members for everything you do to cherish and conserve wildlife and wildlife habitat in Boulder County and beyond.

Steve Jones

Boulder County Audubon Society

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Web Site

Amy Schlotthauer (303-402-0905)

Audubon of Colorado Liaison

Bob Turner (303-499-2669)

Christmas Bird Count Coordinator

Bill Schmoker (303-702-9589)

Wildlife Inventory

Alex and Gillian Brown (303-494-3042)

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County Audubon Society

Next issue deadline:

(Jan 2013 issue) Oct 15.

Contact editor via link at:

www.boulderaudubon.org/newsletter.htm

Field Trips

113th National Christmas Bird Count

71st Boulder count to be held on Dec. 16

To participate in the local count, which is held the third Sunday of December regardless of weather, a very high standard is required of Boulder participants: one must be able to spy birds (flying, floating, foraging or just fooling around) and indicate where they are to others in the group. Identification of the birds is a group effort.

National Audubon has decided to make the program fee-free in 2012 (but donation remains an option).

Beginning birders are always most welcome. The more eyes we have, the better we do. Beginners are always paired with experienced birders, so it's a great chance to improve your birding skills. (Some of our alleged experts have become so jaded that they forget to look up at the sky, missing great blue herons, albatrosses, and bald eagles that might be flying over.)

Too cold? Linda Andes-Georges suggests a solution: two pairs of long underwear! Plus, of course, four or so layers on top, mittens, and a wool hat. Last year, when the high temperature was 12°, she was too warm for most of the day. But let's face it, this is Boulder, and it's just as likely to be 60°, sunny, and breezy.

So please consider getting in touch with count organizer Bill Schmoker (bill.schmoker@gmail.com) and volunteering to join a group, adopt a vacant area, or sit home drinking Chardonnay while you watch birds come and go at your feeder.

Friday, December 21, 7 to 11 am, **Winter Solstice Sunrise Hike on East Boulder-White Rocks Trail**, with Steve Jones. Each Winter Solstice morning for over 25 years, BCNA members and fellow travelers have gathered on the banks of Boulder Creek to welcome the first sunrise of the winter. Many participants read poems or quotes to commemorate the occasion. Geese, ducks, and circling hawks provide accompaniment. Breakfast follows at the Golden Gate Café in Niwot. Dress warmly for this one-mile stroll down to the creek. It's the cold, mist, and hoar frost that attracted us to this venue in the first place! No RSVP is necessary, but for more information, contact Steve Jones: curlwsj@comcast.net; 303-494-2468.



Dodd Reservoir Update

By the time you read this, our property at Dodd Reservoir will be asleep for the winter. The land will rest over the winter with less thistle, teasel and Russian Knapweed. The experimental plot by the parking area will have been planted to native grasses and forbs ready to sprout and compete with the brome in the spring when we will start larger scale restoration.

This work has been done by hardy core of horticulturalists with a common goal of enjoying nature while working on this project with over 200 hours having been volunteered.

Plan on joining us in the spring for a renewing experience on the land. Look for notifications of weeding and shrub planting with the first thaw!

Grocery Certificates

We know you're tired of NPR fundraisers, political ads (both anonymous and acknowledged), and TV ad interruptions. In sympathy, we'll make this one short and fragrant. If you buy King Soopers "gift" cards from us (\$100), we'll get \$5.00 out of each one. If, in addition to groceries, you use the cards for gas, our benefit adds up quickly (unless you have a Prius). One KS cooperating gas station, where rates are usually already lower than in most locations around Boulder, is on the NE corner of Arapahoe and 30th Streets (next to... yes! King Soopers). With 3 pennies off per gallon, you'll get cheap gasoline and we'll get an automatic donation. You can get an even better discount if you're a KS member and regularly get groceries there. Note that there is also a station on Hover in Longmont.

Liquormart is a great deal for us too: for every \$10 bottle of wine you buy, we get a dollar. Or, if you buy a case on Senior Days (Mon. and Tues.) we may get anywhere from \$15 to \$20—or more if you're an oenophile. Beer also works for us. Look for Marti, the Coupons Seller, at our chapter programs, or call her at 303-543-3712.



RMBO Speaker Series Explores the Evolution of Birds

Founded in 1988, Rocky Mountain Bird Observatory is a Colorado-based nonprofit that works to conserve birds and their habitats from Montana to Mexico through science, education and stewardship. RMBO and Denver Museum of Nature & Science have partnered to deliver a unique four-part speaker series titled "Living Dinosaurs: The Evolution of Birds."

Four avian experts from across the U.S. are coming to DMNS to take people on an evolutionary walk in time through the eyes of birds. Dates, topics and speakers include:

- **October 24:** "Early Origins" by Julia Clarke, associate professor and John A. Wilson Fellow in vertebrate paleontology, Jackson School of Geosciences, University of Texas at Austin
- **October 30:** "The Diversification of Modern Birds" by Shannon J. Hackett, associate curator and head, Division of Birds, Zoology Department, Field Museum of Natural History
- **November 13:** "Speciation and Hybridization" by Robb T. Brumfield, associate curator of genetic resources and associate professor of biology, Museum of Natural Science and Department of Biological Sciences, Louisiana State University
- **November 28:** "Modern Extinction and Conservation" by John Fitzpatrick, director, Laboratory of Ornithology, Cornell University

Lectures begin at 7 p.m. in the Ricketson Auditorium at DMNS, located at 2001 Colorado Blvd. in Denver. Cost is \$8 for RMBO and DMNS members and students, or \$10 for non-members. For information or to register, visit <http://www.dmns.org/learn/adults/after-hours/>.

Contact: Teddy Parker-Renga,
teddy.parker-renga@rmbo.org; 970-482-1707 ext. 30

SCFD Grants awarded BCAS to receive \$3000

Our grant-writing committee (mostly Petrea Mah and Maureen Lawry) announces with pleasure that our BCAS chapter has received an SCFD (Scientific and Cultural Facilities District) award, the full amount for which we applied: \$3000. These funds underwrite our major programs and projects every year.

According to Petrea, the reviewing panel particularly liked the diversity of our projects, and were especially impressed with our youth naturalists, east county outreach programs, Dodd restoration and of course, Petey and his pals in the prairie ecosystem puppet show.



Prairie Dog Coalition (PdC)

BCAS reminds our membership that the PdC was an ally in our recent effort to encourage the County in their update of the Grasslands and Shrubs Management Plan, to give room to this keystone species.

The Prairie Dog Coalition of the Humane Society of the United States invites you to our annual gala, *Living on Burrowed Time*. Enjoy fine dining, libations, music, dancing, and friends, and bid on prizes in the live and silent auctions. Proceeds will support the Coalition's work to save prairie dogs, associated species, and their ecosystem. Honored guest and Prairie Dog Protector of the Year will go to Terry Tempest Williams who will also be the Keynote Speaker. To purchase your tickets online, please go to www.humanesociety.org/pdCGala. Event is November 17th. General Admission 5:30 p.m. (5 p.m. VIP) Location: St. Julien, 900 Walnut Street, Boulder.

Juvenile Bird Names

Joe Roller, Denver [July 2012] (with permission)

Baby Wood Ducks are "chips."
 Baby Shovelers are "scoops."
 A baby Ruddy Duck is a "blush duckie."
 Baby Bobwhites are "bobbies."
 Baby Dusky Grouse are "off-white."
 Baby Sooty Grouse are "duskies."
 Baby Prairie-Chickens are delicious.
 Baby Loons are "loonies" or "can't yodelers"
 Baby Frigatebirds are "dinghy birds."
 Baby Night-Herons are "twilighters."
 Baby Merlins are "murrelets."
 Baby Rails are "sticks."
 Baby Coots are, of course, "cooties."
 Baby Killdeer are "maimdeer."
 Baby Snipe are "snippets."
 Baby Roadrunners are "alleywalkers."



Baby bluebirds—"bloopers"?

BOULDER COUNTY WILDLIFE INVENTORY, MARCH AND APRIL 2012

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

Duck migration was strong in March with hundreds of diving ducks reported on many lakes. **Greater Scaup** is now considered a fairly normal sighting at this time, although they still can be problematic to distinguish from our more common **Lesser Scaup**. We have to go back to 1996 to find a year in which **Greater Scaup** were not reported. A **Long-tailed Duck** seen on Boulder Reservoir in April was unusual, particularly as diving ducks are declining in numbers by this time of year, although surface feeding ducks continued to be seen in good numbers. Grebes were well reported in March with a **Red-necked Grebe** seen by several observers on Union Reservoir.

The first returning shorebirds were reported at the end of March with **American Avocet**, **Greater Yellowlegs** and many **Killdeer**. The end of April usually sees the peak of spring shorebird migration, and this year was no exception. The most unusual species was **Upland Sandpiper**. Two birds were seen in the southern grasslands of the Teller Farms region. Flight calls of **Upland Sandpiper** have been heard during fall migration, but the last time this bird was seen on the ground in the county was in 1997. Other good shorebird sightings include **Black-necked Stilt** and **Long-billed Curlew**. There was however a lack of "peeps", with Baird's Sandpiper being the only small sandpiper observed. **White-faced Ibis** were widespread for the second half of April with one **Glossy Ibis** reported at Walden Ponds.

Gulls continued to be reported in large numbers in March with occasional rarities showing up among the huge flocks. **Iceland Gull** and **Glaucous-winged Gull** are both among the less usual gull species seen. In addition, the first migrating **Franklin's Gulls** and **Bonaparte's Gulls** were seen at the end of March. Gull numbers had dropped considerably by April with **Franklin's Gulls** outnumbering other gull species.

Two **Ring-necked Pheasant** were reported in March in the east of the county. This is a bird that has become increasingly hard to find, partly due to loss of suitable habitat. **Say's Phoebe** is always the first flycatcher to return and several were seen towards the end of March. **Bushtits** continued to be present in fair numbers; this is possibly another bird that is on the increase. **Sage Sparrow** is definitely one of our less usual sparrow sightings, and was seen both months. The **Golden-crowned Sparrow** continued at the Teller Lakes cattle feed lot. Other good March sighting included **Virginia Rail**, **Barn Owl**, **American Three-toed Woodpecker**, **Marsh Wren** and **Harris's Sparrow**.

Nine **Peregrine Falcons** were reported in the county in April, hopefully indicative of the increasing local breeding population. Two **Bewick's Wrens** were observed- one in the plains and the other in the foothills. An **Eastern Phoebe** seen at Twin Lakes in Gunbarrel was an unusual sighting. **White-winged Doves** returned to the Gunbarrel region; they appear to have been nesting here since about 2006. Warbler migration was dominated by large numbers of **Yellow-rumped Warblers** with a few other warbler species in their midst. The most notable warbler species in April were a **Northern Parula** and a **Black-and-White Warbler**. By April **Great-horned Owls** had nested, and **Burrowing Owls** had returned to their traditional breeding grounds.

Common Nighthawk (seen on the 5th April) and **Common Poorwill** (on the 29th) were unexpectedly early sightings for these two species. **Common Nighthawks** are habitually not reported until the end of May, and the first **Common Poorwill** are commonly heard in late May or June. Altogether 110 bird species were seen in March and 153 bird species were seen in April.

CONTRIBUTORS TO THE MARCH AND APRIL 2012 INVENTORIES

Mary Balzer, Alan Bell, J.D. Birchmeier, Skyler Bol, Kat Bradley-Bennett, Kitty Brigham, Alex & Gillian Brown, Bob Bucknam, Carol Cushman, Joan Dawson, Todd Deininger, Ted Floyd, Steve Frye, Barry Gingrich, Paula Hansley, Jack Harlan, Peter Hartlove, Rick Hatfield, Chuck Hundertmark, Adam Jack, Steve Jones, Bill Kaempfer, Lark Latch, Petrea Mah, Steve Miodinow, Gene and Lynn Monroe, Donna Nespole, Sharon Norfleet, Christian Nunes, Laura Osborn, Nathan Pieplow, Pam Piombino, Peter Plage, Bill Schmoker, Scott Severs, Bob Spencer, Cara Stiles, John Tumasonis, Walter Szeliga, David J Waltman, Wild Bird Center, Bob Zilly, Dan Zmolek.

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Thanks to Linda Andes-Georges for contributions and other assistance with this issue.

Fairview High's Net Zero Club

– Jamie Zhu

Fairview High School's Net Zero Club is an environmental club composed of 44 passionate high school students who are concerned about maintaining the earth's ecosystem. We believe that change must start in our own community and so, our mission is to make Fairview a green school and make Boulder a greener community. It is also our goal to learn how to effect change so that when we graduate, we can continue making a difference in our communities.

The club was started 5 years ago by a group of six students. With each successful initiative it has grown. We have completed numerous environmental projects which include raising money for and planting 59 trees around our high school to offset carbon, reducing the junk mail to our school by 50%, and revamping the recycling and waste system. Last year, we audited the school's energy use and won \$3800 in cash and prizes. We have also lobbied Ecocycle to make us the first high school with composting and to give us the Green Star designation. When composting is introduced, we will have diverted approximately 50% of Fairview's waste from the landfill every day of the year. One of our most recent projects is building a beehive and becoming beekeepers, which we received a grant for. One third of the food in our diet comes from plants that bees pollinate. By increasing the bee population, we are helping our ecosystem become more stable and sustainable.

Despite previous achievements, we are most known for lobbying Boulder City Council to ban plastic bags and put a fee on paper bags. We have been relentless! On October 16th, the council will have the final vote on imposing a 20-cent fee on paper and plastic bags. Because we live in a disposable society, few people think about their environmental impacts. Single-use bags are an example of this. Plastic is immensely detrimental to our environment because it never goes away. Plastic that makes it to the ocean breaks down into tiny pieces, which are often mistaken by sea life for kelp. The plastic then moves up the food chain and affects animals including us. Our ultimate goal is to completely eliminate plastic bags from our communities and the ocean.



Limits to Growth — A Measurable Planetary Boundary

Forty years ago, Meadows et al. published a landmark first analysis of global limits to human activity (1). Based on a primitive computer model of the Earth system, they concluded that by the early decades of the 21st century, tangible limits to key global resources would begin to emerge. A reanalysis of the original results in 2008 found that the original global resource depletion projections were remarkably accurate (2). However, a blog comment referring to limits to growth is likely to produce vehement denials in response (personal experience, G.O.).

In a recent article in *Science* (3) R. W. Running proposes that terrestrial net primary (plant) production (NPP) is conceptually compelling as a planetary boundary for growth and is supported by an existing global data set for defining boundaries.

Estimates of global NPP are now derived from satellite measures of vegetated cover and density, combined with daily weather observations to analyze light, temperature, and water constraints to plant growth.

Looking at the data set from 1982 to 2010, the most striking observation is that for more than 30 years, global NPP has apparently exhibited only about 2% of interannual variability.

If global NPP is fixed by planetary constraints, then no substantial increase in plant growth may be possible. Hence, the obvious policy question must be whether the biosphere can support the 40% increase in global population projected for 2050 and beyond.

Agriculture now consumes about 38% of the global land surface. Many analyses now conclude that freshwater use for irrigation has already reached a planetary boundary. As some rivers are completely drained for agriculture and groundwater withdrawal limits are reached in some regions, irrigated crop area could decrease in coming decades.

“Any analysis of global biospheric limits includes many assumptions and considerable uncertainties. Yet, global monitoring will document every parcel of land that is converted from a natural ecosystem to cities, agriculture, or bioenergy. Every such conversion increases the fraction of NPP consumed by humanity. The question is thus not whether humans will reach the global NPP boundary but when we will do so.... As suggested 40 years ago (1), the limits to growth as measured by human consumption of NPP may well be reached in the next few decades.”

1. D. H. Meadows et al. *The Limits to Growth* (Potomac Associates, Universe Books, New York, 1972).

2. G. M. Turner, *Glob. Environ. Change* **18**, 397 (2008).

3. Steven W. Running, *Science* **337**, 1458 (2012)

Reasons to Buy Organic

Condensed from a Sept 12 blog by Margaret Mellon, senior scientist with Union of Concerned Scientists – <http://tinyurl.com/cof3shz>

So what do I make of a recent, widely reported story on National Public Radio saying that a new study by Stanford University scientists means that there is “hardly any evidence at all that organic food is healthier” and implies that I might have been duped? As a scientist, I am pleased to see a major meta-analysis (a study of studies) on the nutritional and safety aspects of organic food, but I found the interpretation by the authors of the study and news media disconcerting—and surprising.

The Stanford analysis confirmed that in comparison with conventional food, organic food has significantly lower pesticide levels, lower multidrug-resistant bacteria levels, and higher beneficial fat levels. In my book, that’s a pretty good case that organic food is healthier.

The study failed to find higher levels of vitamins and other nutrients in organic food, however, and somehow in the minds of reporters and opinion columnists the evidence on vitamins trumped the evidence on antibiotics and pesticides. From a scientific standpoint, that doesn’t make sense. Nutrition isn’t the only health benefit that matters. I also found the media coverage misleading in that it seemed to treat this study as a final answer to the questions about organic agriculture rather than what it is: a first approach to those answers.

What should consumers think?

Should Americans who eat organic food feel duped based on this study? Absolutely not. The simple fact that organic food is produced without antibiotics and pesticides is enough to justify their buying it.

The study confirmed that organic foods have low levels of pesticides but disparaged the finding because the pesticide levels in conventional food meet federal Environmental Protection Agency (EPA) standards. The suggestion that EPA standards represent acceptable levels of pesticides in food is troublesome. EPA standards are at best moving targets that tend to lag behind the advancing edge of new science (for example, the ramifications of pesticides as endocrine disruptors.) Some recent science discussed by Dr. Charles Benbrook and not cited by the Stanford study presents strong evidence that pesticides at dietary levels can adversely affect children. We need much more information to fully understand the role of pesticides in our food and environment. In the meantime, minimizing pesticides in food is the cautious and responsible course to take.

The Stanford study also confirmed that organic products have lower levels of multidrug-resistant bacteria than conventional ones. That supports the conclusion that, in addition to reducing one’s personal risk of acquiring drug

-resistant infections, organic production helps address the public health threat posed by the erosion of our medical arsenal as a result of antibiotic resistance.

Regardless, the Stanford study dismissed the public health contribution of organic by minimizing the contribution of animal use of antibiotics to the resistance crisis. Contrary to the paper—which relied on an out-of-date 2001 report from the U.S. Department of Agriculture—the existing science on this issue is conclusive: Massive use of antibiotics in animal agriculture is a significant contributor to the loss of efficacy of human use drugs. Food animal production that completely avoids antibiotic use is a major boon to public health.

Stories on the Stanford study tended to skip over benefits not covered in the paper, although those benefits account for much of the enthusiasm for organic food. Organic practices provide habitat for such beneficial organisms as pollinators and provide food animals substantially better lives. Organic producers have no need for antibiotics because animals fed the right food (grass in the case of cows), and provided low-stress living conditions, rarely get sick. Organic systems can also reduce emissions of active nitrogen and reduce coastal ecosystem degradation. Because they rely on a diversity of crops, organic farms are resilient to environmental stress. The high levels of soil organic matter encouraged by organic practices enables soil to hold water and resist drought.

Crop Rotation Generates Profits without Pollution

Over a period of nine years (2003-2011) on the Marsden Farm at Iowa State, the researchers replicated the conventional Midwestern farming system—a highly simplified rotation of corn and soybeans on the same fields on a two-year cycle, with copious additions of chemical fertilizers and herbicides. Alongside it, they grew two multi-crop alternatives: a 3-year rotation incorporating another grain (triticale or oats) plus a red clover cover crop, and a 4-year rotation that added alfalfa (a key livestock feed) into the mix.

The more complex systems enhanced yields and profits. Over the course of the experiment, average corn yields were 4 percent higher, and average soybean yields 9 percent higher, in the longer rotations compared to the conventional system. Furthermore, the researchers found that the longer rotations were just as profitable as corn-soy alone.

Fertilizer use was higher in the 2-year rotation than in the more complex systems. And this difference increased over the course of the experiment, with the 3- and 4-year rotations requiring even *less* of these inputs in the later years, probably due to cumulative improvements in soil quality over time.

U. of Conc. Scientists blog (<http://tinyurl.com/9ssr83e>)

Ice-Free Arctic Sea May Be Years, Not Decades, Away

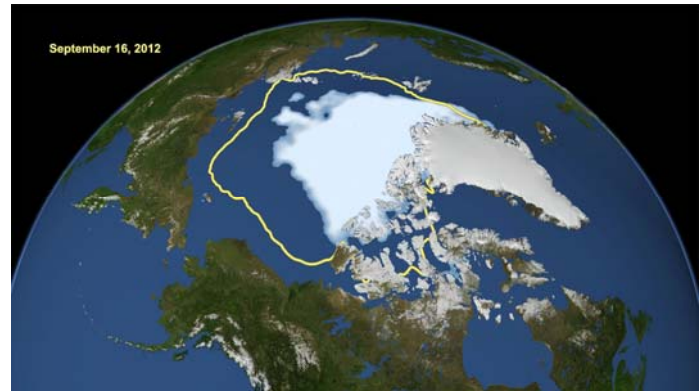
The record-shattering shrinkage of summertime sea ice in mid September was yet another reminder that scientists do not understand how global warming is driving the Arctic toward inevitable ice-free summers. Even the latest climate models still call for the Arctic Ocean to retain substantial summer ice toward the end of the century. No one believes that anymore. The clearly-accelerating decline of summer ice (e.g., in 2007 and 2012) has persuaded everyone that summer Arctic sea ice will be a goner far sooner than the end of the century. So the full effects of an ice-free Arctic Ocean—from the loss of polar bear habitat to possible increases of weather extremes at mid-latitudes—could be here in many people's lifetimes.

Both the area and the volume of sea ice have been waning in recent decades. In area, this summer's low of 3.41 million square kilometers is 18% below the previous record of 2007—a loss the size of Texas—and 49% below the summer low of 1979, when the satellite record begins.

Ice-volume trends are even more alarming. The record of ice thickness is shorter and far spottier than that for ice area, so a group including sea ice specialist Michael Steele of the University of Washington's Applied Physics Laboratory (APL) in Seattle runs a model that calculates the volume of Arctic sea ice. Inputs include measurements of ice area and thickness and observations of atmospheric and oceanic properties such as temperature, cloud cover, and circulation. According to this model, ice volume in August 2012 was 4400 cubic kilometers, 76% lower than in 1979.

According to NSIDC Director Mark Serreze, "The previous record, set in 2007, occurred because of near perfect summer weather for melting ice. Apart from one big storm in early August, weather patterns this year were unremarkable. The ice is so thin and weak now, it doesn't matter how the winds blow."

The climate models don't handle changing rules very well, but Serreze takes a shot at a date for an ice-free Arctic Ocean by adjusting the models' projections downward by folding in current trends in ice area and volume. "I'm on record [as of 2007] saying 2030 is a reasonable



date for ice-free conditions, he says. "Ice-free" is generally considered to be less than 1 million square kilometers of ice cover, most of it blown against Canada and Greenland." In that state the Arctic from space is a blue ocean.

Others are looking for a blue Arctic Ocean even sooner. Wieslaw Maslowski and colleagues at the Naval Postgraduate School run a model simulating Arctic sea ice in more detail than the global climate models do. In a paper in the May 2012 issue of *Annual Review of Earth and Planetary Sciences*, Maslowski and colleagues go further and extrapolate recent trends to near-zero volume. Using "only ice extent is not sufficient if you believe volume can change much faster," Maslowski says. Large uncertainties remain, he notes, but their extrapolation gives a date of 2016 for a nearly ice-free Arctic Ocean, with the end likely to come by the end of the decade.

Serreze and others think Maslowski's volume extrapolation exaggerates the problem. "It could happen [by 2016]," Serreze says. "I just don't think so. I think he's being too aggressive." There is, however, a hint that enhanced pessimism may be appropriate. Julianne Stroeve (of NSIDC) is just back from a cruise to 83°N, beyond northern Greenland. She saw only 30% to 40% ice cover there. "We never expected that," she says, because satellite data had not suggested it.

http://nsidc.org/news/press/20120827_2012extentbreaks2007record.html

<http://www.nasa.gov/topics/earth/features/arctic-seaice-2012.html>

Science 337, p. 1591, 28 Sept 2012

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Paper copies of the Nov-Dec, Jan-Feb, and Mar-Apr issues of *On the Wing* are mailed only to BCAS Supporting Members who request them. The electronic edition, available online, has color pictures and usually includes extra articles.

New Study Says Lead Ammunition Thwarting Condor Recovery Efforts

Excerpted from [American Bird Conservancy](#)

(July 10, 2012) A new study led by environmental toxicologists at the University of California, Santa Cruz, shows that California Condors are continually exposed to harmful levels of lead, that the principal source of the lead is spent ammunition, and that it is preventing the full recovery of the condor population.

The scientists reported their findings in a paper published this week in the [Proceedings of the National Academy of Sciences](#) (PNAS). First author Myra Finkelstein, a research toxicologist at UC Santa Cruz (UCSC), said the study shows that without a solution to the problem of lead poisoning, the condor population can only be sustained through intensive and costly ongoing management efforts.

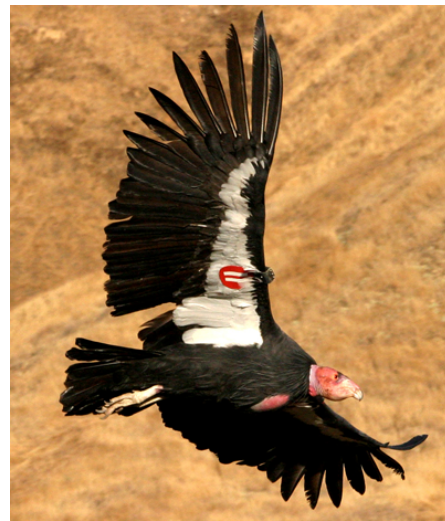
"We will never have a self-sustaining wild condor population if we don't solve this problem," she said. "Currently, California Condors are tagged and monitored, trapped twice a year for blood tests, and when necessary treated for lead poisoning in veterinary hospitals, and they still die from lead poisoning on a regular basis."

With a total population of just 22 birds in 1982, the California Condor once teetered on the brink of extinction. A successful captive breeding program enabled the reintroduction of condors into the wild (at sites in California, Arizona, and Baja California, Mexico), and the total population grew to nearly 400 birds (captive and free-flying) by the end of 2010. But the new study, which focuses on condors in California, describes a population still on the verge of collapse, sustained only by ongoing human intervention.

Since 1997, about half of all free-flying condors in California have required treatment for lead poisoning, and each year, about one in five birds needs treatment. This usually involves capturing the birds and transporting them to a zoo where they can receive special "chelation" therapy to remove lead from their blood, followed by supportive care until they are healthy enough to return to the wild.

Condors are opportunistic scavengers, feeding primarily on the carcasses and gut-piles of deer and elk. They often ingest lead bullet fragments from traditional ammunition when feeding on the remains of animals shot by hunters. Lead poisoning was probably one of several factors that led to the near extinction of the species. A previous study had already identified ammunition as the principal source of lead poisoning in condors. The new study confirms and extends the earlier findings that lead poisoning is a limiting factor to full recovery of the species.

"This research constitutes another very credible scientific study on how lead ammunition is poisoning wildlife. Hunters have a proud conservationist tradition, and through the purchase of permits, stamps, and excise taxes, have helped pay for a wide range of habitat protection and professional wildlife management efforts. It's now time for hunters and their friends live up to that history by converting to non-lead ammunition and once again be a positive force in our precious natural resource heritage," said John Schulz, non-lead campaign manager for American Bird Conservancy, a leading bird conservation group who supports the use of non-lead ammunition.



Condor in flight USFWS via www.abcbirds.org

Condor Quest

Edited from Sandra Laursen email to Linda Andes-Georges, Oct 4, 2012

I went to two of the e-bird hot spots a bit south from Big Sur, looking for condors. Stepped out of the car and there they were, circling up and up together until they disappeared into the fog... is there such a thing as a kettle of condors? Fantastic. The fog was slowly burning off and the birds descended to circle just about over where I was standing—three initially, then joined by three more. They rarely flap a wing when they fly — incredibly smooth. I got good enough looks to read wing tag numbers on some of them (#4, 60, 74, and 70 - it was fun to look them up later on condorspotter.com) and one did not seem to have a tag. Its coloring was a bit different too—I think a juvenile (and must be wild-born, or it would be tagged already). But they are easy to spot in general, with their white armpits, and the very straight wing line is distinctive. No wonder they were depicted so squared-off in petroglyphs. Plus they are darrrrrn big. You think a turkey vulture is a big bird until you see these dudes.