

## HAPPY VALENTINE'S DAY!

### IN THIS ISSUE:

1. Schools of Distinction Awards
2. Red, White & Green Climate Change Grant
3. Legacy Grants
4. Nominate a Young Eco-Hero
5. Star-Hunting Party
6. Environmental Education Week
7. Climate Change E-Conferences
8. National Global Youth Service Day
9. Pilot Test On-Line Agricultural Education Lessons
10. Greenbacks for Green Schools
11. National Wildlife Federation E-Newsletter
12. "Sea Stories On-Line Journal"
13. The Graduation Pledge
14. "The Great Warming" DVD
15. EJ Magazine
16. Global Warming 101 Expedition
17. On-Line School for Weather
18. Ozone Hole
19. U.S. Army Junior Rifle Championships
20. College Scholarship for JROTC Rifle Shooters
21. Jr. Rifle Camp
22. Shooting Sports Daisy Summer Internship
23. NADA Level I & II Instructor Certification Classes
24. The Big Sleep
25. Why Do Animals Age?
26. Live Fast, Die Young?

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### 1. SCHOOLS OF DISTINCTION AWARDS

Deadline: February 28, 2007

The 2007 Intel Schools of Distinction Program awards schools that exemplify the best of the best and serve as role models to other schools across the nation. In 2007, the program will identify schools with learning environments that promote 21st century learning skills, such as digital literacy, problem solving, critical thinking, and collaboration as a benchmark for academic excellence in mathematic and scientific achievement. Six winners will be selected -- one from each grade range, K-5, 6-8, and 9-12, in each of the two categories of math and science. Each winning school will receive a \$10,000 cash grant from the Intel Foundation, as well as \$150,000 in products and services from the program awards sponsors. One of the final six winners will be identified as the Star Innovator for 2007 and will receive an additional \$15,000 cash grant from the

Intel Foundation, as well as supplemental services and products from the award sponsors. <http://www.schoolsofdistinction.com/>

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## 2. RED, WHITE, & GREEN CLIMATE CHANGE GRANT

Deadline: March 9, 2007

Youth Service America and the Civil Society Institute opportunity offers \$500 to young people in the U.S. between the ages of 15-25 and to organizations that engage youth ages 15-25. Applicants are expected to develop and implement a service-learning project about climate change that engages their community, policy-makers, and candidates running for election in 2007 and 2008. Projects must take place between May 1 and October 31, 2007.

Application Materials: <http://www.ysa.org/awards/> (scroll down)

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## 3. LEGACY GRANTS

Alabama Legacy has announced the opening of its 2008 Grant and Mini-grant programs. The Grant program will fund projects for up to \$10,000; the mini-grants are capped at \$2,500. Applications are due on or before April 27, 2007.

If you are interested in applying for one of these grants, go to [http://www.legacyenvd.org/fund/fund\\_competitive.htm](http://www.legacyenvd.org/fund/fund_competitive.htm) for the competitive program and [http://www.legacyenvd.org/fund/fund\\_mini.htm](http://www.legacyenvd.org/fund/fund_mini.htm) for the mini-grants.

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## 4. NOMINATE A YOUNG ECO-HERO

Deadline: April 30, 2007

The Gloria Barron Prize for Young Heroes seeks nominations for its 2007 awards. The Barron Prize honors young people ages 8 to 18 who have shown leadership and courage in public service to people and our planet. Each year, 10 national winners each receive \$2,000 to support their service work or higher education. Half of each year's winners are chosen for their work to protect the environment.

<http://www.barronprize.org/>

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## 5. STAR-HUNTING PARTY-- GLOBE AT NIGHT!

Mark your calendars! It is time for the Second Annual Star-Hunting Party . GLOBE at Night! Join thousands of other students, families and citizen-scientists around the globe hunting for stars during 8 . 21 March 2007. Take part in this international event to observe the nighttime sky and learn more about light pollution around the world. Participation is open to anyone who lives or works in one of the 109 GLOBE countries and can get outside and look skyward during March 8 & 21 2007! Participation does not require any special training or instruction. The

GLOBE at Night Web site ([www.globe.gov/globeatnight](http://www.globe.gov/globeatnight)) provides all the

information needed to participate, including instruction guides for teachers, students, and parents. There is no cost to participate in GLOBE at Night.

The quality of the night sky for stellar observations is impacted by several factors including human activities. By locating a specific constellation in the sky, students from around the world will learn how the lights in their community contribute to light pollution. Students will explore the different light sources in their community learning the relationship between science, technology and society, and they will report their observations online through a central database allowing for authentic worldwide research and analysis. This year, we have included the reporting of cloudy skies as well as the limiting magnitudes of visible stars to enable all eager sky watchers the opportunity to report what they see. The observations made during GLOBE at Night will help students and scientists together assess how the quality of the night sky varies around the world.

Color postcards and one-page flyers are available on the Web site ([www.globe.gov/globeatnight](http://www.globe.gov/globeatnight)) for you to distribute.

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#### 6. EE WEEK 2007 ~ SIGN UP!

Now in its third year, EE Week seeks to enhance the educational impact of Earth Day and create a full week of environmental education preparation, learning, and activities. Host a hike. Launch or expand a recycling program. Plant native trees. Coordinate a litter pickup. Get involved! <http://www.eeweek.org/>

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#### 7. NEW CLIMATE CHANGE E-CONFERENCE SERIES--April 2007

The EcoRes Forum is a new series of free, online e-conferences focusing on the ethical, political, and sociocultural aspects of climate change. The first e-conference, "From Anthropocentrism to Ecocentrism: Making the Shift" two-week dialogue will evaluate the current status - what is working (and what isn't) around the globe. Armed with this knowledge, participants will shift focus to the future, considering multi-prong approaches for moving forward on this issue.

<http://www.eco-res.org/>

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#### 8. NATIONAL GLOBAL YOUTH SERVICE DAY

Research confirms that young people engaged in service-learning are more likely to achieve academic success, providing them with the skills they need to excel in and out of the classroom. On April 20-22, 2007, millions of young people across the United States and around the world will celebrate the 19th Annual National & Global Youth Service Day, the largest service event in the world. Children and youth in more than 115 countries will address unmet needs in their communities

by leading projects in areas ranging from literacy and disaster relief, to healthcare, nutrition, and help for the elderly. <http://www.ysa.org/nysd/>

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#### 9. SEEKING TEACHERS TO PILOT ONLINE AGRICULTURAL EDUCATION LESSON

Greenfield Community College is the recipient of a USDA Agricultural Education Challenge grant and is seeking secondary school teachers to pilot an online lesson on ground-level ozone. There is a small stipend for participating schools. The lesson is adaptable and can be used as an out-of-class independent assignment or as in-class lesson on the environment and/or agriculture. The purpose is to provide a platform for discussion about the interrelationship between agriculture and the environment. Contact the Project Leader, Martha Field, Dean of Institutional Support & Advancement, (413) 775-1421 or email [field@gcc.mass.edu](mailto:field@gcc.mass.edu) .

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#### 10. GREENBACKS FOR GREEN SCHOOLS

This compilation by the Green Schools Initiative catalogues funding sources for eliminating toxins, using resources sustainably, creating green, healthy spaces, and teaching stewardship. <http://www.greenschools.net/news/index.html>

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#### 11. NATIONAL WILDLIFE FEDERATION EDUCATOR E-NEWSLETTER

This monthly e-newsletter is designed to provide educators with hands-on activities, new ideas, resources, and strategies for getting kids outside to learn about the wonders of the natural world. Each newsletter also includes a link to download the latest Ranger Rick® Educator Guide.

<http://www.nwf.org/kidzone/>

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#### 12. "SEA STORIES" ONLINE JOURNAL

Sea Stories is an international online journal of marine writing and art. In the winter issue, join children exploring the beach, gaze in the eye of a wild dolphin, listen in on the daily lives of birds, and even meet a mermaid or three! Educators are encouraged to use Sea Stories in the classroom or submit their own or students' work. <http://www.seastories.org/>

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#### 13. THE GRADUATION PLEDGE

The Graduation Pledge of Social and Environmental Responsibility states, "I pledge to explore and take into account the social and environmental consequences of any job I consider and will try to improve these aspects of any organizations for which I work." Students at over a hundred colleges and universities internationally have used the pledge in varying ways (Harvard, Carleton, Chinese Culture University, etc.). Start a campaign at your school.

Contact: [NJWollman@Manchester.edu](mailto:NJWollman@Manchester.edu)

<http://www.graduationpledge.org/>

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#### 14. THE GREAT WARMING

This new climate change film on DVD is a visually-stunning look at the science and impacts of climate change. The Great Warming also examines solutions adopted by communities, individuals, and schools. Suitable for ages 11 up. The film's Web site offers free copies (in class quantities) of Our Changing Climate, an illustrated 24-page booklet about climate change developed by NOAA, with chapters about Earth's dynamic climate system, how and why climate changes, the greenhouse effect, how climate models work, and what the future holds. <http://www.thegreatwarming.com/>

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#### 15. EJ MAGAZINE

Published by the Knight Center for Environmental Journalism at Michigan State University, EJ Magazine is a student-produced magazine about environmental issues in the U.S. EJ Magazine recently received the first-place 2006 Mark of Excellence Award from the Society of Professional Journalists for Best Student Magazine. <http://www.ejmagazine.com/>

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#### 16. GLOBAL WARMING 101 BEGINS NEXT EXPEDITION

This February, Will Steger and his expedition team of Inuit hunters, explorers, and educators, will embark on a four-month expedition to get a first-hand look at how global warming is impacting the Arctic landscape, wildlife, and human communities. The Global Warming 101 expedition will publicize this change using photo, audio, and text updates they collect and post to the Web site. Students and teachers around the country can follow along with the Expedition using the freely available educational curricula.

<http://www.globalwarming101.com/content/view/32/88888907/>

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#### 17. JETSTREAT - AN ONLINE SCHOOL FOR WEATHER

National Oceanic and Atmospheric Administration (NOAA) Web site provides educators, emergency managers, or anyone interested in learning about weather with comprehensive, well-organized, colorfully illustrated curricula designed to help teach about the Earth's atmosphere. The self-contained modules include complete lesson plans and review questions.

<http://www.srh.noaa.gov/jetstream/matrix.htm>

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#### 18. THE OZONE HOLE

The Ozone Hole, Inc. is a nonprofit dedicated to preventing the destruction of the ozone layer and preservation of the Earth's environment, while educating the public in these issues. Ask the Scientist program allows students and the public to submit questions by mail or email. Winner of EPA 2006 Stratospheric Ozone Protection Award. <http://www.theozonhole.com/>

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#### 19. 2007 U. S. ARMY JUNIOR AIR RIFLE CHAMPIONSHIP

All teams representing junior clubs, schools, JROTC units or other

organizations are encouraged to participate in the new 2007 U. S. Army Junior Air Rifle Championship. This championship offers team and individual postal competition for all juniors that comply with the rules for school-age teams or individuals (See Rules 3.1.1 or 3.2.1 in the National Standard Three-Position Air Rifle Rules <<http://www.odcmp.com/3P/Rules.pdf>> ). In the state championship postal matches, sporter class teams fire a 3x10 course and precision class teams fire a 40-shot standing event. The postal will be followed by a national shoulder-to-shoulder championship for qualifying teams. Individual junior shooters who are not a member of a team, but who comply with Rule 3.1.1 are eligible to compete in the State Championship postal competition. Individual shooters' results will be ranked in the State Championship individual rankings, but only teams will be invited to the National Championship. All entries must be sent to CMP and postmarked not later than 23 February 2007. Postal targets for all participating teams and individuals must be fired and forwarded to the CMP, postmarked not later than 16 March 2007. Complete program and entry information are posted on the CMP web site at [http://www.odcmp.com/3P/Army\\_Jr\\_Championship.htm](http://www.odcmp.com/3P/Army_Jr_Championship.htm).

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20. CMP COLLEGE SCHOLARSHIPS FOR JROTC AND ROTC RIFLE SHOOTERS  
Regulations and Applications for the 2007-2008 CMP College Scholarships for JROTC and ROTC Rifle Shooters are posted on the CMP website. Each year up to one-hundred \$1000 scholarships are awarded to high school seniors and college underclassmen who excel in rifle marksmanship and who are enrolled in Army, Navy, or Marine Corps JROTC or ROTC programs. For more information go to <http://www.odcmp.com/Programs/Scholarship.htm>.

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#### 21. 2007 CMP JUNIOR RIFLE CAMP

The 2007 CMP Junior Rifle Camp schedule and application forms are now posted on the web! The dates for the highly popular summer camps were posted in early January, and applications are already coming in from across the country. One camp is already full with a waiting list and others are filling fast; if you intend to attend a CMP camp this summer, it is important to select a camp and submit your applications as soon as possible. Visit our website at <http://www.odcmp.com/Programs/camp.htm> to view the 2007 schedule and application forms. Please note the Standing Position Camp dates have changed by one day due to the Junior Olympic schedule and will now take place on 13-15 July.

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#### 22. NATIONAL 4-H SHOOTING SPORTS DAISY SUMMER INTERNSHIP APPLICATION

Requirements:

To be eligible for the National 4-H Shooting Sports Internship the applicant must have been involved in the 4-H Shooting Sports program in their home county for a minimum of three (3) years.

- Applicants must be working on a degree at a four college or university.
- The applicant must possess a minimum Grade Point Average (GPA) of 2.75 or higher.
- Attach an official transcript of all hours attempted in college to this date.
- Applicant must have completed their sophomore year in college by the time the internship is to take place.
- The applicant must be taking a major field of study that will take them into a Shooting Sports field for a career.
- Write a 750 word essay on why they are interested in a career related to the Shooting Sports.
- Must be mobile enough to move to the area of the home office of the company that is offering the internship for a three-month period.
- Obtain letters of recommendation from your 4-H Leader, County Extension Educator, and academic advisor.
- Applicants must demonstrate ability as a leader among his/her peers.
- Applicants must demonstrate community involvement.

Stipend - The person(s) selected for the Internship will receive a minimum of \$1,500.00 per month for the three month period.

The host company will help the Intern to locate housing near the work place.

Due Date April 1

Send to: Joe Murfin, Vice President Marketing, Daisy Outdoor Products, 400 Stribling, Rogers, Arkansas 72756

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Application Form:

**National 4-H Shooting Sports/ Industry Internship Application**

Name \_\_\_\_\_

Home Address \_\_\_\_\_

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

Year in College So. \_\_\_\_ Jr. \_\_\_\_ Sr. \_\_\_\_

Major \_\_\_\_\_ Minor \_\_\_\_\_

College /University \_\_\_\_\_

GPA \_\_\_\_\_

List 4-H Shooting Sports areas of participation and the depth of your involvement:

List community involvement over the past six years.

List leadership experience you have had.

Attach a 750 word essay on "Why you are interested in a career in the Shooting Sports field."

Signature of County Extension Agent or Coordinator

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Signature of Applicant

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### **23. NADA's USA Level 1 & Level 2 Archery Instructor Certification**

National Alliance for the Development of Archery (NADA) is the official publisher of USA Archery Level 1 Basic and Level 2 Intermediate training materials for the National Archery Association and the National Field Archery Association.

**Where:** Camp Concharty, Shiloh, GA

**When:** Level 1 - April 19 (8 hr)  
Level 2 - April 20-22 (30 hour)

**What:**

The USA Level 1 Archery Instructor Course is designed to teach participants how to set up and operate a safe short-term archery program, how to teach new archers, how to maintain the equipment, and how to create fun games for new archers. This course certifies participants to provide basic archery programs. Minimum age 15.

The USA Level 2 Archery Instructor Course is designed to train and certify instructors to teach group archery classes, JOAD (Junior Olympic Archery Development) programs, college programs and Level 1 Basic Instructor courses. Participants will learn how to teach the NAA Level 1 course, maintain equipment, coach beginner archers, and create fun archery games to keep Level 1 courses lively and exciting. Participants must be 18\* years of age or older and must be NAA Level 1 certified archery instructors. *\*Course may be taken in the calendar year of the participant's 18th birthday.*

**Cost:** Level 1 - \$60 (includes training material & certification fee)  
Level 2 - \$225 (includes Friday lunch and supper, Saturday breakfast, lunch and supper, Sunday breakfast, Friday and Saturday night sleeping accommodations, training material and certification fee).  
*Arrangements for additional meal and lodging needs can be made.*

**Registration & questions:** Contact Sheri Matis, Adult Development Manager, by e-mail at [adultdev@girlscoutsconcharty.org](mailto:adultdev@girlscoutsconcharty.org) or by phone at (706) 327-2646 ext. 23 by **April 5<sup>th</sup>**.

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**24. THE BIG SLEEP**

The morning air is crisp with the approach of winter. You lie in bed, warm beneath thick blankets, and reach for the alarm clock. Wouldn't it be nice to drift back into a deep sleep until . . . the first warm days of spring?

Alas, that's not an option; we humans must face the challenges of winter. But there are some creatures that cope with the cold temperatures and the food shortages by taking very long naps. Whether or not we can call their behavior hibernation, though, depends on a number of factors.

When most people think of hibernation they picture bears. Yet bears aren't true hibernators; their long nap is more properly called winter lethargy. A true hibernator, like a chipmunk, can reduce its body

temperature to nearly freezing during hibernation and change its heart rate from 350 beats per minute to as low as 4 beats per minute within hours of retiring to its den.

The heart rate of a bear also drops, though not as rapidly. During the early part of its winter dormancy, a bear's heart rate averages 50 beats per minute. After several months of uninterrupted sleep, the rate may drop to as low as 8 beats per minute. But a bear's body temperature remains nearly normal during this period. That's the reason a bear can wake relatively quickly -- a fact that's resulted in more than one hasty exit by from a bear den researchers. Pregnant females wake in mid-winter to give birth, then go back to sleep while their newborn cubs nurse. Still, most bears sleep all through the winter if left undisturbed.

Rodents that exercise true hibernation, by contrast, wake every few weeks to eat small amounts of stored food and pass wastes. These brief periods of activity are extremely costly: up to 90 percent of the stored energy reserves (mostly fats) allotted for the entire winter are consumed during these bouts of arousal. Thus the animals that truly hibernate don't actually sleep all winter, while "winter lethargic" species often do.

The difference between these two strategies -- true hibernation and winter lethargy -- is related to the animal's size. Bears are too large to dissipate the heat necessary to enter hibernation, whereas smaller mammals, with their high surface-to-volume ratio, can achieve this temperature drop quickly and evenly.

Possibly the largest rodent that truly hibernates is the Woodchuck (also known as the Groundhog), and it's a champion napper. In the Northeast, it has been known to enter its burrow while the weather is still warm in September and not emerge until late March. In other words, a Woodchuck can spend more than half of its life sleeping.

Sound like a good plan? Would you like to doze off after the end of the World Series and wake up just in time for opening day? The concept isn't too far fetched; researchers are experimenting with the compounds responsible for inducing hibernation, and they're finding that even species that don't hibernate will respond to treatment with these hormones.

Source: National Wildlife Federation

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## 25. WHY DO ANIMALS AGE?

*By Barry Yeoman, National Wildlife Federation*

Scientists studying wild creatures, from turtles and terns to bats and parakeets, are coming up with answers that may help humans stave off some of aging's most devastating effects

FOR THE REPTILES living in the University of Michigan's E.S. George Reserve, Justin Congdon is something of a troll under the bridge. A 66-year-old population biologist whose long face and scraggly beard have won him the nickname Fidel, Congdon demands that any Blanding's, common snapping or midland painted turtle that wants to dig a nest first donate a few moments to science. Riding inside a camo-colored bag, the animal travels to a rustic shed, where Congdon measures, catalogs and x-rays it to determine how many eggs the reptile is getting ready to lay.

Congdon has inventoried the turtle population of this reserve—a swooping oak-hickory forest near Ann Arbor, dotted by wetlands and surrounded by a chain-link fence—for 32 years. All told, scientists have compiled a reptilian census here for more than half a century. The results of this research may shock anyone who has experienced diminished racquetball skills (not to mention meno-pause) after a certain age. Unlike humans, these turtles do not become sick, creaky and infertile as a result of growing older. In scientific parlance, they show no signs of senescence. In fact, says Congdon, “the old ladies survive better,” dying at a lower rate than their daughters and producing more eggs per clutch. When a turtle does die—sometimes at age 60 or more—the cause is most often a predator, an accident or a non-age-related infectious disease. This, of course, contradicts how we normally view aging. “Senescence theory says old ladies are going to do everything worse than young ladies,” Congdon says. “Eventually their systems will fail, and physical vigor will fail, and they'll get arthritis, and they won't be able to eat as well, and they won't be able to regenerate.” But Congdon and other scientists have begun toppling some of our most basic assumptions about the aging process—and have done so by studying animals in the wild.

Traditionally, much of what we've learned about aging has come from small laboratory animals that reproduce quickly, including mice, roundworms and fruit flies. Such creatures are easily housed and fed, and they offer up copious data in just a few years' time. And while humans might not look very much like fruit flies, we still have rich genetic similarities: About 70 percent of the cancer-causing genes in our bodies, for example, have counterparts in the common fruit fly genome, which has been completely sequenced.

But these animals are not exactly role models for long, healthy retirements; the fruit fly's life span is measured in weeks. “The real test of fire is to see if the theories apply to long-lived organisms,” says Anja Rossinni, a comparative

physiologist at California's Santa Clara University. That's why some scientists have turned to turtles, bats, zebrafish, parrots and seabirds in the hopes that these animals, which live longer than their size and metabolism might suggest, will offer up their secrets to those of us who crave a bit less mortality. This is particularly true of animals that, like Congdon's turtles, have slow or negligible senescence.

"It could be that there are some common anti-aging adaptations on the molecular level that these animals have in common," says Donna Holmes, an evolutionary biologist at Washington State University. If that's true, the findings could potentially lead to new medical treatments for a whole range of human age-related ailments, from eyesight loss to Alzheimer's disease.

Some of this research, like Congdon's, is purely demographic. Other scientists dig deep into the cells. In Spain, for example, Gustavo Barja of Complutense University has been studying the role of "reactive oxygen species" (ROS), unstable molecules formed during the normal course of energy production by cells. ROS degrade some of the large molecules in our bodies, including our DNA, through the process of oxidation—in effect, rusting away our cells. Comparing long-lived parakeets called budgerigars to mice, Barja's research team has discovered that the birds' mitochondria—their cellular power plants—produce ROS at a much lower rate than those of rodents. Working in Minnesota, Anja Rossini has obtained similar results for little brown bats, which live up to 34 years.

Barja and his colleagues are now looking for dietary changes that curb ROS production in mitochondria—and are zeroing in on a single protein component, methionine, commonly found in meat, eggs and dairy products. Scientists have long known that restricting calories lengthens lives, yet it is hard to convince humans to eat less. Reinald Pamplona Gras, a Barja colleague at the University of Lleida, says the new research could offer people a way to live longer without cutting their overall food intake. "With a decrease in one amino acid," he says, "the results are spectacular."

Meanwhile, on a remote Canadian island, a young ecologist is trying to coax some tube-nosed birds to explain how they defy the Grim Reaper. Kent Island is a cool and foggy outpost that lies on the southernmost end of an archipelago in New Brunswick's Bay of Fundy. Accessible only by lobster boat, it is unpopulated except for a handful of scientists whose labs and living quarters constitute the island's "downtown." They have been coming to Kent Island for the greater part of a century, drawn by the 55 bird species that nest there without the threat of predation.

Among the most unusual of these nesters are Leach's storm petrels, underground burrowers that emerge en masse at night, when they feed on plankton, fish and crustaceans and fill the sky with their trumpetlike calls. The petrels' most outstanding trait, though, is not their nocturnal lifestyle, but their longevity: The oldest recorded individuals have clocked in at 37 years old, which is extraordinary for an animal the size of a robin. "It's amazing to hold a bird in your hand that has been alive longer than you have," says Mark Haussmann, a physiological ecologist at Ohio's Kenyon College who works on Kent Island.

At 31, boyish-looking and curly-haired, Haussmann is indeed younger than the oldest Leach's storm petrels. But he has already conducted some of the most revealing research into why some bird species outlive our expectations. On Kent Island, Haussmann and his student assistants briefly pull petrels from their burrows and prick a prominent vein with a thin needle to get a few drops of blood. He extracts DNA and eventually isolates telomeres, protective sheaths at the ends of chromosomes that protect genetic information from damage. (Haussmann compares them to the plastic end-caps that keep our shoelaces from unraveling.) Like many of his colleagues, Haussmann believes telomeres hold some of the keys to aging—not just in birds, but also in humans. As long as telomeres stay intact, our cells can happily go about their everyday business of growth, maintenance and repair. Every time a healthy cell divides, though, the telomeres shrink a little. When they get too short, they shut off the cells' ability to divide any further. This has a lifesaving purpose: By restricting the number of times cells can split, telomeres protect those cells from the willy-nilly growth that leads to cancer. But there's a trade-off: Once a cell can no longer divide, it loses the ability to repair itself. This leads to cell damage and eventually death.

Traveling throughout North America, Haussmann has examined telomeres in five bird species with different life spans. By sampling animals of different ages, he has been able to track the speed with which telomeres shorten. Zebra finches and tree swallows, whose decade or shorter life spans match their small body masses, lose their telomeres with rodentlike rapidity. Common terns, which can live into their twenties, experience much slower deterioration, while Adélie penguins, which live 15 to 20 years, fall predictably in the middle. The big surprise, though, are the Leach's storm petrels, whose telomeres actually grow longer as they age—the only animals where this has ever been observed. Haussmann now plans to take his project worldwide, studying a total of 17 bird species on 4 continents.

In another study, Haussmann has discovered that adult terns and petrels have a particularly high expression of telomerase, a protein that elongates telomeres. In humans, telomerase is a double-edged sword: It staves off the aging process, but it also allows tumor cells to divide forever.

Some scientists have speculated that if we develop a telomerase therapy, we could lengthen the human life span for decades or even longer. Hausmann is more modest in his predictions. "I don't think we'll be able to take a telomerase pill to extend our lives," he says. "But by understanding how these mechanisms work, it could lead to therapies that inhibit tumor-cell growth." If we do end up with an effective new cancer treatment, we can give thanks to a little gray bird living in a burrow off the rocky New Brunswick coast.

*Barry Yeoman senesces in Durham, North Carolina, where he writes for Discover, Mother Jones and O: The Oprah Magazine.*

### Details

#### Maximum Recorded Life Spans

Mayfly: 3 hours  
Pygmy goby: 8 weeks  
Housefly: 6 months  
House mouse: 5 years  
Domestic dog: 29 years  
Domestic cat: 34 years  
Orangutan: 59 years  
African elephant: 80 years  
Human: 122 years  
Galápagos tortoise: 188 years  
Quahog clam: 220 years

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### 23. LIVE FAST, DIE YOUNG?

Among researchers who study aging, one long-accepted maxim is that, at least for mammals, the bigger you are the longer you live. The explanation has been that smaller mammals have higher metabolic rates, resulting in the release of more cell-damaging free radicals—oxygen atoms produced during metabolism—than mammals that burn energy at a lower rate.

In recent years, however, scientists have uncovered an increasing number of exceptions to this "live fast, die young" rule. It turns out that several groups of animals, including birds, porcupines and bats, live longer than similar-sized creatures with similar metabolic rates—and longer than would be expected based on their sizes.

Meanwhile, evidence against the role of free radicals in the aging process was presented at a recent American Physiological Society meeting. Rochelle Buffenstein of The City College of New York and her colleagues reported their discovery that the naked mole rat, with a lifespan of 28 years, suffers more damage from these oxygen atoms than the mouse, which is about the same size and has a lifespan of just 3 years. The mole rat "seems like the perfect model to provide answers about how we age and how to retard the aging process," says Buffenstein. "This animal may one day provide the clues to how we can significantly extend life."

Source: Laura Tangle, National Wildlife Federation