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1. NRA WILDLIFE ART CONTEST

Deadline: October 16, 2006.

The NRA is now accepting entries for its 2006 Youth Wildlife Art Contest. The contest, the 19th in the annual series, is open to Students in grades 1 through 12 (including home-schooled children). NRA membership is not required. The Winners in each grade category will receive \$500. Second-place finishers will receive \$250, and the third-place award will be \$100.

For more information, go to <http://www.nrahq.org/youth/wildlife.asp> .

2. "TAKE AIM AT SHOOTING SAFETY" YOUTH ESSAY CONTEST

Deadline: January 1, 2007

Prove you're an "A" student of gun safety, and you could win a free trip to Elk Camp and get your essay published in the Bugle. Your assignment - write an essay explaining how the cornerstones of safe shooting are essential to hunting. The Grand Prize grade will win you and a parent or guardian a free trip to the Rocky Mountain Elk Foundation's Elk Camp in Reno, NV. Plus, your essay will be published in RMEF's Bugle magazine.

Essay: Write a 250- to 750-word essay that answers the following question: "How do the important principles of safe shooting - discipline, self control, patience and responsibility - extend into other aspects of hunting?" For example: hunter ethics, respect for the animal and ensuring the future of hunting.

Eligibility: Youth (ages 8-15)

How to Enter: Send your essay to:

"Take Aim at Safety" Essay Contest, Bugle Hunting Editor, 5705 Grant Creek, Missoula, MT 59808. Include name, address and phone number. Winners' names will be posted at

<http://www.rmef.org/pages/takeaim2006.html> on January 15, 2007.

3. DAISY 4-H SHOOTING SPORTS SCHOLARSHIP

Daisy will soon announce a competition for the second \$500 college scholarship to be awarded to a senior 4-Her who has participated in Shooting Sports for at least three years.

We'll announce the due date and the address to send scholarship applications to as soon as we receive the information. In the mean time, please give the scholarship qualifications to potential scholarship applicants. The qualifications for scholarship consideration include:

1. Minimum of a 3.0 GPA from your high school
2. Three years participation in 4-H shooting sports
3. Recommendation of HS counselor or principal
4. Recommendation of 4-H coach or equivalent who is not a relative
5. Scholarship will be payable to any two-year or four-year accredited Jr. College, College or University
6. Application will require a 250 - 500 word essay about "How participation in the 4-H Shooting Sports better prepared them for college and for life."
7. Certified copy of high school transcript.
8. Scholarship money will be available in the second semester of the freshman year and can be used for books, housing, and or college fees.
9. The scholarship of \$500.00 will be announced and awarded at the National 4-H Shooting Sports Invitational each year.

4. BEST ENVIRONMENTAL EDUCATION PROGRAM AWARDS (BEEP)

Deadline: November 30

This Alabama awards program recognizes outstanding efforts and projects conducted by schools, individuals, 4-H clubs & community groups which enhance environmental quality and citizen awareness of the environment. Past 4-H recipients are the 4-H Center's Environmental education program and North Alabama's Zebra Mussel awareness program. Contact Lynda Montgomery (334-844-2232 or montgly@auburn.edu) for application materials.

5. INTERNATIONAL CHILDREN'S PAINTING COMPETITION

Deadline: December 31, 2006

This United Nations Environment Programme (UNEP) painting competition is held every year for children between the ages of 6 and 15 worldwide. This year's theme is climate change. Each regional first prize winner will receive a cash prize and a trip with an accompanying adult to the 2007 official World Environment Day celebrations in Tromso, Norway. <http://www.unep.org/tunza/paintcomp/>

6. YOUNG ECO HEROES

Action For Nature is proud to announce its 2006 International Young Eco Hero Awards.

Fourteen winners, aged 10 to 16, were selected by a Judges Panel for their outstanding environmental achievements. Read about these inspiring young people. The next application deadline is February 28, 2007. <http://www.actionfornature.org/>

7. LIGHTEN UP

As daylight hours shorten, we'll be using indoor lights more and more. While heating and cooling account for more energy use than other household activities, lights and small appliances can also add up to big energy use at home. Taking small, inexpensive steps to save energy can help to lower the load on our energy-producing systems, prevent air pollution, and put a few dollars back in your pocket.

Viewer Tip: Consider replacing your most-used incandescent light bulbs (traditional light bulbs) with fluorescents, which are more efficient and last longer - you'll save more than 100 dollars over three years on your energy bill. If every household in the US replaced four bulbs, we could save the same amount of energy as 30 power plants produce each year!

(Sources: The Alliance to Save Energy(<http://www.ase.org/>) and the US Department of Energy (<http://www.doe.gov/>).

8. WOW! WETLANDS EDUCATION IN SPANISH

Welcome WOW! Las Maravillas de Humedales - Environmental Concern's first Spanish extension to WOW! The Wonders of Wetlands curriculum guide.

The 355+ pg book includes extensive wetland ecology information complemented with over 50 hands-on, inquiry-based, cross-curricular activities, presented in lesson-plan format, and correlated to National Science Standards. The new module is a compilation of choice activities translated into Spanish and available through WOW! Workshops. For more information visit www.wetland.org.

9. POLLINATORS OF THE SONORAN DESERT/POLINIZADORES DEL DESIERTO SONORENSE

The International Sonoran Desert Alliance in partnership with the Arizona-Sonora Desert Museum and the Bee Works has recently published Pollinators of the Sonoran Desert/Polinizadores del Desierto Sonorense, a field guide that takes a comprehensive look at Sonoran desert pollinators: hummingbirds, bats, butterflies, moths, bees, wasps, flies and beetles and their host plants and includes a plant and habitat guide. The book is fully bi-lingual (English and Spanish). It includes beautiful photos, life-cycle descriptions, ranges, conservation status, and basic anatomy of the various pollinators along with a complete glossary of terms and a bibliography of additional resources. For more information on how to buy copies of this publication, contact Tom Vineski at solarnomads@aol.com.

10. UNDERGROUND FACTS FOR KIDS

If you counted each of the 100 billion bacteria in a handful of soil at one per second, without stopping, it would take you 320 years to finish. (One billion equals 1,000 million, or 1,000,000,000.)

Every atom in your body has passed through an earthworm's stomach before it became

part of you. (That's because your body is made up of atoms that come from the food you eat. And almost everything you eat comes from plants. And almost all plants grow in soil that earthworms have eaten over and over again.)

Tardigrades are also called "water bears" because they live in water and wet soil and have a bear-like shape. When it becomes too hot, too cold, or too dry for them, they shrivel up and become almost lifeless. Some tardigrades can survive this way for more than 120 years and then come back to life.

The rich smell of freshly dug soil comes from the billions of actinomycetes (ack-TIN-o-my-SEE-tees) that live there. (Actinomycetes are tiny living things that are a lot like both fungi and bacteria.) Source: National Wildlife Federation

11. GREENSCAPING: THE EASY WAY TO A GREENER, HEALTHIER YARD

Our yards are our outdoor homes: fun, beautiful, great spaces for relaxing. By taking care of our lawns and gardens properly, we can save money, time, and help the environment. GreenScaping encompasses a set of landscaping practices that can improve the health and appearance of your lawn and garden while protecting and preserving natural resources.

By simply changing your landscape to a GreenScape, over time you can save time and money and protect the environment. To see the complete article, go to <http://www.epa.gov/greenschapes/>.

Source: US Environmental Protection Agency

12. THE VALUE OF AUTUMN

By Richard Busch, former editor of National Geographic Traveler.

Getting out for the annual extravaganza is a joyful experience for millions--especially for those of us who live and work in heavily populated places where the colors are mostly those of concrete, steel and glass. I know something about that, having lived for one period of my life in Manhattan. Every October, religiously, I'd head north with my wife to Vermont to spend a weekend in the embrace of autumn.

During those outings, the sun seemed particularly brilliant, the skies intensely blue--a perfect backdrop for the hues that adorned the maples, birches and other plants of the region. For us, the trips north were both a pilgrimage and a desperately needed escape.

Therapists explain that the positive feelings people experience in autumn are hardly exclusive to those who wander in the woods. Studies show that fall colors have a mood-elevating effect on just about anyone, anywhere. "Put people in a room decorated with certain shades of red and they immediately feel less aggression and a sense of tranquillity," says Bernard Vittone, director of the National Center for Treatment of Phobias, Anxiety and Depression in Washington, D.C.

Like many other psychiatrists, Vittone believes a walk in the woods during autumn can be therapeutic. "We encourage our patients to take advantage of fall color," he notes. "A

drive in the country makes people feel better, takes their mind off their troubles."

Autumn can also stimulate scientific musings: What causes leaves to change color in the first place? Where does the color come from? Does the change have a practical purpose in nature's scheme of things? And why are the colors spectacular one year, but in another year just so-so?

Essentially, leaf colors begin to change because chlorophyll--a substance that makes them green--begins to diminish as a result of shorter days and cooler weather. As daylight shortens, the growth system in many trees begins to shut down. Tiny cells at the base of each leaf, known as the abscission layer, begin to dry out, chlorophyll dissipates and the photosynthesis process comes to a halt.

The colors that now begin to emerge are actually present in the leaves all year long; they are pigments masked by the chlorophyll during the warmer months. The yellows of such species as birch, aspen and hickory are caused by carotene, the same pigment that gives color to corn, carrots and egg yolks. The autumn reds and maroons in sugar maples, sumac and other species derive from the pigment anthocyanin, formed from sugar compounds stored in the leaves. This chemical's effect on color depends on the acidity or alkalinity of the tree. Red maples, which are more acidic, turn red; ash trees, being alkaline, become purplish.

While scientists understand what causes the leaves to change color, they know virtually nothing about why they change. What role does this phenomenon play in nature's broad scheme of things? The answer may be none at all. In his book *Leaves: Their Amazing Lives and Strange Behavior*, researcher James Poling writes: "This is both surprising and puzzling, since nature seldom wastes energy to no purpose. Yet as far as botanists can determine, the chemical energy that goes into the painting of a leaf is of no benefit at all to the plant. The colors seem merely to herald the end of a leaf's life cycle."

While the phenomenon of autumn foliage may not have a purpose in nature's grand scheme, falling leaves (regardless of color) do perform an important role in forest ecology. As leaves decompose, they release carbon, nitrogen and other chemicals, providing nourishment to the soil that tree roots can assimilate the following season. Falling leaves also play an important role in forest stream ecology: As the wet leaves decompose, they are fed on by a group of aquatic insects and crustaceans called shredders--creatures including stone fly nymphs, isopods and crane fly larvae. Shredders, in turn, are an important food source for fish. Without them, fish would have a tough time of it.

Some years, leaf watchers have a tough time of it, too. That's because fall colors can sometimes be downright dull. The reason has to do with weather. Excellent color requires excellent conditions--a stretch of mostly sunny days and cool, but not freezing, nights. Excessive rain, a prolonged period of drought or an early freeze can each diminish autumn leaf color.

Meteorological vagaries, however, are not the only threats to widespread autumn color. Since the early 1980s, scientists have noted that in some areas of the country, sugar maples and some other species of trees have been declining. The result is wide swaths of dead and dying sugar maples, marring otherwise healthy forests. According to Susan Stout, a U.S. Forest Service researcher in Pennsylvania, 400,000 acres across the state's northern tier have been affected in recent years by such a blight, including about 90,000 acres of the Allegheny National Forest.

Scientists at the Environmental Resources Research Institute (ERRI) at Pennsylvania State University have found several possible causes for the sugar maple decline, including repeated attacks by pests, competition from invasive plants and low nutrient availability. The latter may be due in part to acid rain. "Acidification of the soil removes nutrients that are important to a tree's health," says ERRI researcher Patrick Drohan. "And to compound the situation, acid rain allows other harmful elements, such as aluminum, to increase in the soil solution, which can then become toxic to the tree's roots."

Because the problem is so complex, with so many possible causes, finding definitive answers can be tricky. "Acid rain, for instance, is a provable phenomenon," notes Drohan, "but the magnitude of its impact is hard to determine. We just don't know what role it plays in the big picture."

There is even uncertainty about the extent of the decline of sugar maples. Some woodlands that appeared to be hard hit a few years ago are now looking much better, leading some observers to suspect that much of the damage may be only a short-term problem rather than a sign of a long-range trend. One recent joint study between the United States and Canada--the North American Maple Project--concluded that in the last few years the annual mortality rate for sugar maples was "normal." Which, if so, is great news for photographers like Whit Bronaugh and leaf peepers like myself.

For those of us who eagerly await the annual autumn spectacle, there is little need for scientific explanations about what purpose changing leaf colors play in the environment. That it happens is perhaps reason enough to marvel at the power and unpredictability of nature.

Source: National Wildlife Federation

13. THE ENVIRONMENTAL LOAD OF 300 MILLION: HOW HEAVY?

By Brad Knickerbocker, The Christian Science Monitor

As the US population rises, environmental problems that were once pushed aside may get worse, experts say. In many ways, Americans have mitigated the impact of their increasing presence on the land. Since reaching the 200 million mark back in 1967, they have cut emissions of major air pollutants, banned certain harmful pesticides, and overseen the rebound of several endangered species. Despite using more resources and creating more waste, they've become more energy efficient.

The danger, experts say, is that the US may simply have postponed the day of reckoning.

Major environmental problems remain, and some are getting worse - all of them in one way or another connected to US population growth, which is expected to hit 400 million around mid-century. Some experts put the average American's "ecological footprint" - the amount of land and water needed to support an individual and absorb his or her waste - at 24 acres. By that calculation, the long-term "carrying capacity" of the US would sustain less than half of the nation's current population.

"The US is the only industrialized nation in the world experiencing significant population growth," says Vicky Markham, of the Center for Environment and Population, a nonprofit research and advocacy organization in New Canaan, Conn. "That, combined with America's high rates of resource consumption, results in the largest ... environmental impact [of any nation] in the world."

The Boomer Challenge

The changing nature of the population also has environmental consequences.

"Today's baby boomers - 26 percent of the population - are the largest, wealthiest, highest resource-consuming of that age group ever in the nation's history, and they have unprecedented environmental impact," says Ms. Markham.

The generation's preference for bigger houses and bigger cars - and the proliferation of them - are gobbling up more resources and creating more pollution, according to a recent study by the Center for Environment and Population. For example:

- * Land is being converted for development at about twice the rate of population growth. When housing, shopping, schools, roads, and other uses are added up, each American effectively occupies 20 percent more developed land than he or she did 20 years ago.

- * Nearly 3,000 acres of farmland are converted to nonagricultural uses daily..

- * Each American produces about five pounds of trash daily, up from less than three pounds in 1960.

- * While the US is noted for its wide open spaces, more than half of all Americans live within 50 miles of the coasts where population density and its environmental impact are increasing.

That concentration poses special challenges for areas near the coast, like Portland, where land is rapidly being gobbled up. The city's population, which is now a bit over half a million, is fairly stable. But surrounding population pressures are great. The metropolitan area grew about 30 percent during the 1980s to just over 2 million. It's projected to grow to 2.6 million by 2010 and to 3.1 million by 2025. Some groups worry that Portland's growth will undermine its environmental sustainability.

"Population pressures are overwhelming the Portland region's ability to absorb the influx of new people, fueling congestion and rises in land and housing prices," the ecological research group Environmental Tipping Points concluded in an analysis. "Portland's growth rate is twice the national average. With these challenges ahead, it remains to be

seen whether this growth will threaten the very assets that Portland's progressive land-use planning policies have managed to protect so far."

But recent US history suggests there are reasons for hope.

It's no coincidence, for example, that the modern environmental movement began about the same time that US population ticked past the 200 million mark 39 years ago.

Stanford University professor Paul Ehrlich's controversial book "The Population Bomb" had predicted that humanity's numbers around the globe would overwhelm natural resources, especially food production, in a Malthusian catastrophe.

Things haven't turned out that badly, given the dire signs of distress in that era. It was a time when "our nation awoke to the health and environmental impacts of rampant and highly visible pollution - rivers so contaminated that they caught on fire, entire towns built upon sites so toxic that the only recourse was to abandon them," recalled Environmental Protection Agency Administrator Steve Johnson in a May speech.

He was commemorating the 35th anniversary of the EPA by pointing to the Cuyahoga River in Ohio and Love Canal near Buffalo, N.Y. He might have mentioned that the bald eagle - the nation's symbol - was headed toward extinction as well.

"But looking back, we see much to celebrate," Mr. Johnson added. "Our air is cleaner, our water is purer, and our land is better protected."

Oomph Behind Environmental Laws

Generally speaking, that's true thanks largely to such groundbreaking federal laws as the Clean Water Act, the Clean Air Act, the Endangered Species Act, the Safe Drinking Water Act, and the Toxic Substances Control Act. Bipartisan coalitions on Capitol Hill and presidents of both parties enacted those statutes. Making them work, to the extent that they have, has involved full-time activists, grass-roots efforts at the community level, and courts of law.

Increasingly, business is also getting involved. In the current issue of Atlantic Monthly magazine, for example, Weyerhaeuser Co. - whose history has included bitter fights with environmentalists over clear-cut logging - is pledging to reduce its greenhouse-gas emissions to 40 percent less than what they were in 2000 by 2020.

"We will do this by harnessing the benefits of a renewable, natural resource - biomass - as fuel in the boilers that generate steam and electrical energy in our mills," says Ernesta Ballard, senior vice president for corporate affairs.

Weyerhaeuser, based in Federal Way, Wash., is one of 41 corporate members of the Business Environmental Leadership Council, most of them Fortune 500 companies, including such familiar names as Boeing, DuPont, Hewlett-Packard, Intel, and Lockheed Martin. The group focuses on practical steps to reduce global warming.

In New Haven, Conn., last week, a program to educate corporate board members on the

potential liabilities and opportunities tied to climate change was launched by Yale University, Marsh (a leading risk and insurance services firm), and the Ceres network of investment funds, and environmental and other public interest groups. The first training session will involve some 200 board members of Fortune 1000 companies.

Faith groups, including typically conservative evangelicals, have also taken up "creation care" through such efforts as the National Religious Partnership for the Environment. The coalition includes the US Conference of Catholic Bishops, the National Council of Churches USA, the Coalition on the Environment and Jewish Life, and the Evangelical Environmental Network.

Among other things, they're providing literature on the environment to parishioners, providing sermons to pastors, organizing "Earth Day" and other events, and going "green" in their own facilities.

Meanwhile, state and local governments in many ways have pushed well ahead of Uncle Sam in working to protect an environment from a population that is growing in both numbers and affluence. For example, 10 states have adopted the "Clean Cars Program," to reduce global warming emissions by 64 million tons by 2020.

At last count, 295 mayors (representing some 49 million people) have accepted Seattle Mayor Greg Nickels's "Kyoto challenge," modeled after the Kyoto treaty that the US didn't sign. The goal is to cut carbon-dioxide emissions in their cities to 7 percent below 1990 levels by 2012.

"All over the country in one way or another, communities are coming up against the issue of sustain ability with their populations and their consumption styles," says Martha Farnsworth Riche, former director of the US Census Bureau.

Of all parts of the country, Portland and the Northwest generally come closest to addressing the issue. Oregon launched formal recycling with its bottle bill in 1971, the nation's first container-deposit law. It was one of the first states (along with Vermont) to enact statewide land-use planning in the early 1970s. Early on, it protected beaches from commercial development. For years, Portland has had model public transit, including a light-rail system that recently celebrated its 20th anniversary.

"At its root is a strong appreciation of the place we are among those who've lived here and those who come here," says Portland City Commissioner Dan Saltzman. "Those values get carried forward in public policies with great support of our citizenry and our business community.

"There's just a tremendous desire to try to avoid many of the pitfalls that we've seen other cities find themselves in, and on a more global perspective how to live more lightly on the land," says Commissioner Saltzman, who holds environmental engineering degrees from two universities.

As US laws and American attitudes toward energy and the environment have advanced, some experts argue, efficiency gains have outstripped population growth and consumption.

"The average new house today is about a third larger than the average house in 1970, however the energy consumption is about the same as the smaller house in 1970," says Steven Hayward, author of the 2006 Index of Leading Environmental Indicators, released this summer by the Pacific Research Institute in San Francisco and the American Enterprise Institute in Washington. "That's from insulation, new appliance standards, and so forth."

New houses may be more efficient, but their environmental impact grows in other ways. "They use more resources to build and use," says Markham of the Center for Environment and Population. "Also, the average amount of land around houses is growing."

Lots of Land to Handle Growth, Some Say

Some observers aren't that worried. "We're a very big country in terms of our land and our expansiveness," says demographer William Frey of the University of Michigan and the Brookings Institution in Washington. "The people who argue that we're going to run out of energy, that we're going to run out of water, that we're going to run out of other natural resources, overlook the fact that time and again technology has been able to overcome those limitations."

Even so, the US may face a stiff challenge in dealing with the environmental impact of its growing population.

Earlier this year, researchers at Yale and Columbia universities constructed an "environmental performance index" comparing 133 countries on the basis of environmental health, air quality, water resources, biodiversity and habitat, productive natural resources, and sustainable energy. The US ranked 28th. (New Zealand, Sweden, Finland, the Czech Republic, and Britain were the top five.) Among 29 Organization for Economic Cooperation and Development nations, the US ranked 23rd.

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