



Driving Change in the Home Building Industry

BY KRAIG MARQUIS

Two new residential communities—Pelican Preserve in Ft. Myers and Evergrene in Palm Beach Gardens, Florida—are the first to be certified by Audubon International as *Gold Signature Sustainable Developments*. This means that these two communities are built to insure that residents and nature co-exist in harmony.

A 38-acre Cypress wetland preserve with a boardwalk, over two miles of nature trails, Florida's highest rated energy efficient homes, a village center designed to bring residents together, built-in watershed protection measures, landscaping and natural areas that showcase Florida's native plants and habitats... these are just a few of the features that make Pelican Preserve and Evergrene unique.

Evergrene and Pelican Preserve are the result of Audubon International's partnership with WCI Communities,



The time is right to advance green building in Florida given the state's phenomenal population growth. Audubon International and WCI hope that Evergrene's Geni-G will spur homebuyers to choose conservation features and spark other developers to build greener homes, too.

Inc. (WCI), a leading builder of residential communities. Working hand-in-hand since May 2001, WCI and Audubon International are driving change in the homebuilding industry, encouraging the adoption of green building principles and the importance of building sustainable developments. Given Florida's phenomenal population growth, the push for greener development couldn't be timelier. From 1990 to 2000 Florida's population grew by 23.5%, with an increase of three million people. Florida leads the nation in housing starts, attracting more than 900 new residents every day.

"WCI's commitment to building sustainable communities is unmatched in the industry. The company's dedication to constantly push the envelope, explore leading-edge green building opportunities, and embrace educating customers and key stakeholders is what ultimately led to this well-deserved certification," said

Audubon International President and CEO Ronald G. Dodson. "They are a company that backs up their commitments with resources that lead to results."

"WCI is honored to receive this outstanding recognition from Audubon International. At WCI, we believe we have an inherent responsibility to protect our environment for future generations. Our legacy will ultimately be marked by our ability to mainstream green building and sustainability into the home building industry," said Al Hoffman, WCI's Chief Executive Officer.

From initial concept to build-out, Evergrene and Pelican Preserve embrace Audubon International's Principles of Sustainability, which include:

- Incorporating the unique natural attributes of each piece of land into an appropriate development design,
- Protecting local wildlife,



A tunnel under a road at Pelican Preserve provides safe passage for wildlife.

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Dear Members and Supporters,

Spring is just around the corner and that means life is about to get busy. In our neck of the woods, we look forward to the Hudson River giving up its ice and a few good spring floods to wash away all traces of winter. Soon, the annual migration of birds, salamanders, and frogs will be in full swing, and the emergence of woodland wildflowers and the magnificent blossoming of leaves will set our world straight for another season.

We know you are about to get busy, too. Hence, a flurry of certification requests always arrives at our office in late-February and early March, before the weather warms and members turn their attention back outside. Our spring is full of finding out about the many environmental plans and accomplishments that members have been hard at work to achieve.

We wish you all the best as you pursue environmental stewardship initiatives where you live and work during the months ahead. Take time now to review your goals and project plans and don't hesitate to contact our staff if you need additional educational information or guidance to set your plans in motion.

Enjoy the change of season as it unfolds.



Jean Mackay
Director of Educational Services

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OLD MARSH GOLF CLUB, FL



Spring brings the wonder of long distance bird migration and plenty of opportunities to get involved in bird-related projects.

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Audubon International Partners with Green Leaf™ for Greener Hotels

Audubon International is partnering with TerraChoice Environmental Services, Inc., of Canada, to present the Audubon Green Leaf™ Eco-Rating Program for Hotels. The cooperative program will help to expand environmental and eco-efficiency initiatives within the hospitality industry and will be available throughout North America.

“Hotels participating in the Audubon Green Leaf™ Program will be provided the opportunity to reduce costs and improve performance, as well as achieve a Green Leaf rating that enables them to make gains in market share,” says Kevin Gallagher, Vice President of TerraChoice Environmental Services Inc. “From the initial level to the more advanced, hotels can work with the program to their advantage.”

The two-tiered program combines environmental awareness and education with best management practices tailored to the hotel and resort industries. During the initial stage, a member receives educational materials and begins making improvements in its environmental performance. In stage two, the hotel completes an environmental checklist which reviews all functioning areas of operation. It then receives a verification audit, followed by a rating—from one to five Green Leafs—for its level of achievement, together with a report that details ways to improve and achieve an even higher rating in the future.

The partnership between TerraChoice and Audubon International combines the strengths of both organizations. TerraChoice has vast experience and investment in the hospitality sector, as it developed and then successfully managed the Green Leaf™ Eco-Rating Program in Canada, in cooperation with the Hotel Association of Canada, since

1997. Audubon International brings its success in helping people from all walks of life to improve and sustain the land, water, wildlife, and natural resources around them through its Audubon Cooperative Sanctuary, Audubon Signature, and Sustainable Communities Programs.

For more information regarding the Audubon Green Leaf™ Eco-Rating Program and a complete listing of hotels in the program please visit www.terrachoice.com. ●



The Audubon Green Leaf™ Program will help to expand environmental initiatives within the hospitality industry. (Sheraton Rittenhouse, PA)

On the Road with the Sustainable Communities Program

Audubon International is taking its Sustainable Communities Program on the road in 2004 with a series of presentations and meetings aimed at increasing awareness and participation in the program. In Henrietta, NY, we recently met with a cross-section of community leaders that included members of the town’s Board of Commissioners, Board of Education, Rotary Club, the superintendent of schools, and several local businessmen and developers. Certified Audubon Cooperative Sanctuary Program (ACSP) member Laurie Broccolo of Broccolo Tree and Lawn Care, Inc. spearheaded the meeting, which culminated in the Town of Henrietta’s registration in the Sustainable Communities Program, making Henrietta the third community in the country to do so.

On January 29, Sustainable Communities Interim Coordinator Peter Bronski delivered a two-hour presentation at Fox Hills Golf and Conference Center, a Certified Audubon Cooperative Sanctuary in Salem, MI. The event was co-sponsored by four local townships, the county parks and recreation department, and two county commissions. Besides introducing local communities to the Sustainable Communities Program, the presentation also rallied support

for increasing golf course participation in the ACSP towards meeting the objectives of the *Fifty in Five* Initiative.

Finally, we journeyed forty-five minutes north of our headquarters in Selkirk, NY, to speak at the 14th North American Interdisciplinary Conference on Environment and Community, held in Saratoga Springs at Empire State College. The presentation, “Stepping Towards Sustainability,” shared our sustainable communities approach with scientists, government agencies, and other non-profit environmental organizations. ●



Dr. Tom Ward, head of the sustainable community steering committee for the Town of Williamston, NC, recently invited residents to take an active role in the town’s sustainable community efforts. Audubon International’s Peter Bronski traveled to Williamston in January to help the town map a course of action for participating in the Sustainable Communities Program.

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- Conserving and maximizing native and naturalized plants,
- Commitment to water quality and conservation,
- Commitment to green building,
- Dedication to education and outreach on nurturing sustainable communities.

“We believe these two sustainable communities are just the beginning,” said Dodson. “WCI is clearly leading the way for individuals and builders to drive change and help protect our natural resources. *One person...one home...one community...one industry at a time.*” ●



Florida's native habitats are featured in the designs of both Evergrene and Pelican Preserve.

Evergrene

- 364-acre development in Palm Beach Gardens on the East Coast of Florida
- Features *Geni-G**- the green demonstration home is Florida highest rated by the Florida Green Building Coalition
- Over two miles of nature trails
- Designed for families with a community center for picnics, evening programs, and environmental education classes
- Features a freshwater lake for fishing, canoeing, and other recreational activities
- Audubon International involvement assisted WCI in saving wetland and upland habitats
- Interconnected habitats and wildlife crossings enable wildlife to move throughout the property and reduce potential for road kill

* See *Stewardship News November-December 2003* for details on *Geni-G* or visit <http://www.green-generation.org>.

Pelican Preserve

- A 1,017-acre, active adult community in Fort Myers, on Florida's West Coast
- Features a 38-acre cypress wetland preserve with boardwalk and walking trail
- Homes are built to incorporate *green building* principles
- Master irrigation system ensures efficient watering for both the homes and golf courses
- Community center and wetland boardwalk complex combine to offer outstanding environmental education and recreation opportunities for residents
- Design features and Integrated Pest Management practices, as well as the offsite created mitigation wetlands, protect downstream waters, including Six Mile Cypress Slough and Estero Bay

Good News for the Bottom Line and Sustainable Development

BY NANCY RICHARDSON

Is there an economic advantage to environmentally-sensitive development? If the answer is *No*, the added costs of building in an environmentally-sustainable way will be a burden that many in the building industry will not choose to pay. If the answer is *Yes*, there is a much greater likelihood that environmentally-sustainable development will continue to gain support.

Over the past year, members of the Audubon Signature Program (for properties in the design and development stages) have been reviewing their economic bottom lines and reporting their findings as part of an Audubon International survey to gauge the business value of environmental stewardship. Members considered operational costs, up front investments, and the importance of the program in marketing and promotion. The results bode well for the future of sustainable development.

- 96% viewed their participation in the Signature Program as “a good business decision,” with the

remaining 4% indicating that they “Don’t Know” at this time.

- 90% of respondents reported that they believed annual operation and maintenance costs for their facility were either “lower than” or the “same as” the costs of an equivalent, non-Signature member golf course. 43% of respondents attributed lower operation and maintenance costs to their participation in the Signature Program.
- 63% of respondents stated that participation in the Signature Program, including upfront monetary and staff investment in the program, has saved or will save money, as compared to a course designed, constructed, and managed without Audubon International assistance. Another 20% of the remaining respondents stated that they just “Don’t Know” yet.
- 90% stated that they believed the *Certified Audubon Signature Sanctuary* status earned through following the program guidelines has or will have value in marketing

and promotional efforts, with the remaining 10% indicating only that they “Don’t Know”.

“In Austin, or anywhere in the country for that matter, environmental stewardship is a great business decision,” says Anne Hickman-Hudgins, Environmental Landscape Coordinator for Barton Creek Resort and Spa in Texas. “Community outreach and education is a benefit to establishing our club as a role model for other properties.”

“Combining wildlife preservation and development is not only the right thing to do, but it makes good business sense,” agrees Jim L. Awtrey, CEO of PGA of America (PGA Golf Club in St. Lucie, FL, is a Certified Signature Sanctuary). “Long-term operating costs can be significantly reduced while providing valuable environmental benefits to the community. It is a business-environmental partnership that serves everyone.”

“The concepts incorporated in the Signature Program will absolutely pay for the cost of what we’re doing over five to ten years...We’ll have better managed water and irrigation systems and use less chemicals,” reports Bill Fiveash of East West Partners, developers of Old Greenwood Golf Course in California.

Just as wildlife inventories and water quality data help to determine environmental outcomes, data about operational costs and return-on-investment are critical in evaluating the financial value of environmentally-sensitive development and management. Taken together, these benchmarks are beginning to demonstrate clearly that embracing sustainable development benefits the quality of life and the environment and the bottom line.

We thank all of those members that responded to the survey and who continue to set high standards for the sustainable management of Audubon Signature projects. ●



Natural areas, like this one at Tierra Verde Golf Club in Texas, are an integral part of the design of Audubon Signature courses. Environmentally-sound design and management enable Tierra Verde to be maintained by 30% fewer employees than most courses of the same caliber in the Dallas-Fort Worth area during peak season (April through September). In a recent survey of Audubon Signature members, many reported lower overall operating costs compared with non-Signature facilities.

The Strait Talk on Bird Migration

BY PETER BRONSKI



The Strait of Gibraltar channels migratory birds from as far north as the Scandinavian Peninsula and Europe into narrow flight patterns on their journey to and from Trans-Saharan Africa.

For ornithologists and amateur bird-watching enthusiasts alike, semi-annual north-south bird migrations are a highlight of each year when the great flyways of the world come alive. And perhaps nowhere is the spectacle more dazzling and awe-inspiring than at the Strait of Gibraltar, between southern Europe's Iberian Peninsula and northern Africa. Here the strait, a great geographic funnel where the European and African continents come within eight miles of one another, channels migratory birds from western Europe and from as far north as the Scandinavian Peninsula into a narrow flight pattern on their journey to and from Trans-Saharan Africa. The resulting dramatic concentrations and almost incomprehensible numbers of birds spawned a rich ornithological tradition for the region dating back to the 1860s.

That tradition has focused around the Spanish side of the strait, where three sub-regions—the coast, countryside, and mountains—are home to a great diversity of habitat types and climates, and consequently, a great diversity of bird species as well. From cork oak, gall oak, and other oak forests, to olive groves, citrus tree plantations, pine forests, and scrublands, to meadows, beaches, marshes, cliffs, and riparian zones, the Strait of Gibraltar is a patchwork of varied habitat. But if one were to reduce the strait to its most defining and influential elements, they are just three—ocean, wind, and mountains.

The Atlantic Ocean and Mediterranean Sea impart a maritime climate to the region, characterized by mild temperatures and wet and dry seasons that are tempered somewhat by moisture from the sea. North-south mountains bisect southern Spain and capture this moisture, carried on winds that not only breathe life into the land, but also define the migration patterns of birds. The predominant Levante, a wind which blows from the East, and the Poniente, which blows

from the West, prompt birds to migrate on either the Atlantic or Mediterranean coastline, respectively—the leeward side of the mountains—where more favorable conditions speed them northward or southward.

Birds depend on rising air currents called thermals to help hold them aloft and take some of the burden of long-distance flight off of their wings and muscles. Since thermals form mainly over land, migrating birds keep to the Iberian Peninsula for as long as possible before flying over open water. This inevitably leads them to the Strait of Gibraltar, where the short distance to Africa offers the easiest passage.

They come in all shapes and sizes, both soaring and non-soaring birds alike—swallows, larks, finches, storks, kites, vultures, eagles, hawks, falcons, gulls, and countless other species. Some will spend the winter in the south of Spain around Gibraltar, where abundant insects, fruiting trees and shrubs, and the inviting maritime climate will sustain them until spring-



Bird studies at Valderrama Golf Club in Spain enable course managers to understand the role the course plays as a migratory stopover. Golf courses in urbanized landscapes can provide a stopping place for birds to rest during migrations and help maintain continuity in the landscape for the distribution of particular species.



Educational signage informs golfers about Valderrama's wildlife residents and the importance of habitat preserves on the property.

time. But most will make the longer journey across the strait to the places where they winter in north and sub-Saharan Africa before returning to Europe the following spring.

The best locations for viewing this migratory phenomenon are La Atunara and Algarrobo in the East, and Los Lances (Tarifa) and Cavalla in the West. The effect for observers is dramatic—in a single migratory season more than 600,000 birds representing more than 80 species will pass within viewing distance of any given observation point. Non-soaring birds are best viewed at dawn and in early morning when they are most active, while soaring birds are best viewed midday when the sun and heat have had the opportunity to form the strongest thermal currents.

Birds and Birdies Coexist

Audubon Cooperative Sanctuary Program members throughout Spain are doing their part to be good environmental stewards and provide habitat that supports resident and migrating bird populations. The results of their efforts are impressive—Golf Serres de Pals, in the Costa Brava region, recently documented nearly 130 different species on the golf course.

Valderrama Golf Club, a Certified Audubon Cooperative Sanctuary since 1997, is another success story that rests virtually in the shadow of Gibraltar's iconic rock. The golf course property, like the region itself, is home to many habitat types, including dense

woodland sanctuaries, protected cork oak forests, long-abandoned olive groves, and several small meadows. From the twelfth green there is an uninterrupted view of the Rock of Gibraltar and the strait beyond. It would not be hard to imagine standing there, at the height of migration, watching thousands of birds pass overhead and out of sight somewhere over the African continent.

David Barros and David Rios, environmental consultants and ornithologists for OrniTour, oversee Valderrama's environmental program and have been studying the bird populations there for several years. Mist nets set throughout the property harmlessly catch birds that are then scientifically banded, with information about individual birds and whole populations recorded over time. Barros and Rios "catch" approximately 7,000 birds at Valderrama per year, or about 600 per month. They find that Valderrama is frequented by more than 90 bird species—27 year-round residents, 13 that reproduce during spring, 15 winter residents, and more than 35 migratory species.

Barros cites two species in particular that are especially noteworthy—the Wryneck (*Jynx torquilla*), which only reproduces in the region immediately surrounding the strait, and the Hawfinch (*Coccothraustes coccothraustes*), which is a good bioindicator for high environmental quality. For Valderrama, they are a sign that good environmental stewardship is working, and

that golf courses throughout Spain have a role to play for migratory birds.

"Golf courses are important for birds for several reasons," explains Barros. "In urbanized landscapes they represent large areas with good environmental conditions, so that they are important as a refuge. They act as a stopping place to rest during migrations. And they help maintain continuity in the landscape for the distribution of particular species."

Spain, as anywhere, is not without its environmental problems. "The primary problems for birds in Spain are loss of habitat, hunting, and changing land uses and practices," says Barros. "But I view the future with hope." An ever increasing social and environmental awareness among Spain's people, and a shift in government commitment towards supporting and enacting programs aimed at helping bird populations, are behind Barros' optimism.

Audubon International has an important role to play here, too. With the ACSP's growing Spanish membership, more people are being educated as good environmental stewards, and more land is being managed for environmental quality; two results that can only mean good things for the migratory birds of the Strait of Gibraltar.

Want to learn more? OrniTour's Barros and Rios have published two bird field guides to the region, including the Field Guide to the Birds of the Strait of Gibraltar. ●

Provide a Safe Haven for Birds

BY JEAN MACKAY

Putting up bird feeders and nest boxes and enhancing wildlife habitat are great ways to encourage birds to use your property. But to ensure that the birds you attract thrive, it's essential to create a safe haven for them by eliminating common bird hazards that may be lurking on your property.

All birds face natural risks that you can't control. Predation, bad weather, and disease are three common threats that are part of the natural cycle of life and death for all wildlife. But hazards caused by people can be reduced or prevented. Take a birds-eye view of your property and see if you can eliminate any of these potential problems.

■ Habitat Removal

As land is developed, wetlands, woods, and other types of open space are often lost or fragmented. In our own backyards, small habitats are lost when we "clean up" woods, drain small wetlands, remove hedgerows, or clear shoreline vegetation near ponds and lakes. Strive to conserve, connect, and enhance existing habitats as you landscape your property. Choose native trees and shrubs to provide food and shelter for wildlife. If you own many acres, consider placing a conservation easement on all or part of your property to permanently protect significant habitats.

■ Outdoor Cats

Scientific studies show that America's 30 million outdoor cats kill *hundreds of millions* of migratory songbirds each year. Feline hunters pose a serious threat, especially to young birds and nestlings. Research shows that declawing cats and bell collars do not prevent cats from preying on birds. If you insist on letting your cat roam freely, consider restricting time outside each day or limiting outdoor access to fall and winter months only. Better yet, keep cats indoors.

■ Disruption of Breeding Sites

Many people unknowingly disrupt or remove nesting sites when they clear vegetation, such as trees, shrubs, hedge rows, or fields during the spring and summer when birds are nesting. Avoid disturbing natural areas, especially if you see nesting activity (e.g., male birds singing repeatedly from the same perch, birds carrying nesting material, constructed nests, squawking nestlings). If you must clear woodland understory or cut back hedge rows, do so in the fall. Also, leave fields unmowed until after July 31, when most ground-nesting birds have finished nesting.

■ Pesticide Use

Some pesticides can cause acute or chronic toxicity to wildlife. Eliminating exposure is difficult since wildlife movement cannot be controlled. Adopt an integrated pest management (IPM) program to reduce or eliminate the need for chemical solutions to pest problems. If you hire a lawn care company, inquire about their IPM practices and seek out professionals who do not rely on a regular calendar spray program for all customers. If you do use chemicals, read the label carefully and always follow instructions.

■ Window Collisions

When birds collide with glass windows on office towers and other buildings, it often results in fatal injury or immediate death. If birds are hitting your windows, break up the reflection on the outside of the glass with a non-reflective window coating, window screens, flash tape, or bird netting. Mount bird silhouettes in combination with other measures. Their usefulness is limited.

■ Overcrowded Ponds or Feeders

Diseases are spread easily at overcrowded feeders and ponds. If feeder birds have to jostle each other to reach the food at your feeders, add another feeder and provide ample space between feeders. Clean up wastes and wash your feeders on a regular basis. Store food securely to avoid contamination by rodents and discard food that gets wet or moldy.

Contact your state wildlife agency if you think that ponds are overcrowded with waterfowl, if you notice diseased or dead waterfowl, or if you suspect that water quality is degraded from overcrowded conditions. Wildlife managers can help you assess the problem and work with you to find a solution. ●



A. KENT, SC

Nestlings are easy prey for roaming cats, which kill hundreds of millions of songbirds each year. Take precautions to ensure that your property is a safe refuge for the birds you attract.

Members Help Thousands of Songbirds Take Flight

In 2002, 66 members of the Audubon Cooperative Sanctuary and Audubon Signature Programs participated in Audubon International's yearly Nest Box Survey, reporting a total of **3,434 new birds fledged** from 1,259 nest boxes. Surveys are still being compiled for 2003, but thus far we have received 67 surveys with a total of 2,797 birds fledged.

Now in its twelfth year, the Nest Box Survey gathers information on the characteristics of successful boxes and tracks the contribution of our members to songbird populations. We know that mounting nest boxes is a popular project and we'd love to see the number of survey respondents double or triple. If you have not yet sent in your 2003 data sheets, there is still time. The 2004 Nest Box Survey

was sent to all program members in late February. If you need additional copies, please contact us at Audubon@audubonintl.org or call (518) 767-9051, ext. 12. We appreciate your participation in this important project! ●



WOODWAY COUNTRY CLUB, CT

DETWILER PARK GOLF COURSE, OH



To participate in the Nest Box Survey, monitor your nest boxes and record your results. Identify the species of bird that uses each box, count the number of eggs laid, and record how many young are born. Use the Nest Box Survey form to send your results to Audubon International.

Syngenta and Bayer Act in Support of Audubon International's *Fifty in Five* Initiative

In support of Audubon International's *Fifty in Five* Initiative, reward points accumulated in both the Syngenta GreenPartners™ program and the Bayer Environmental Science Accolades® rewards program can now be redeemed for a one-year membership or renewal in the Audubon Cooperative Sanctuary Program (ACSP) for Golf Courses. Points in both of these programs can now also be donated directly to Audubon International in support of *Fifty in Five*—having 50% of all golf courses in the United States enrolled and active in one of Audubon International's environmental education and certification programs by 2007.

Both the Syngenta GreenPartners™ program and the Bayer Environmental Science Accolades® program allow customers to accrue points by purchasing various products used in grounds maintenance and landscaping. These points can, in turn, be redeemed by the customer, for products or

services listed in their respective product catalogues.

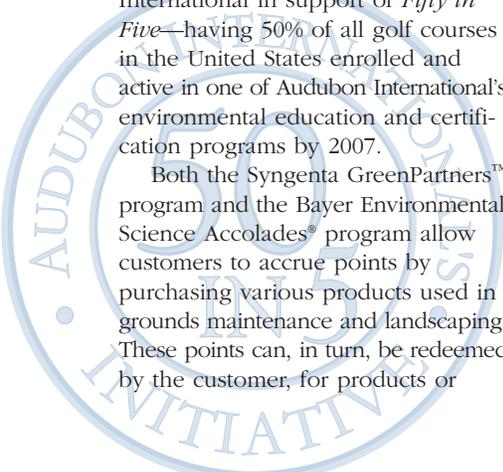
"Making membership in our program an option will go a long way to support our efforts to promote environmental stewards throughout the entire golf industry," states Kevin Fletcher, Director of Programs and Administration for Audubon International. "It's this type of industry-wide support and leadership from both Syngenta and Bayer that we need, and will continue to ask for, to help make good environmental performance the norm throughout the golf industry."

For more information about these respective programs or to apply your reward points towards Audubon International program membership or donation, please visit the Syngenta GreenPartner™ website at www.greenpartnersonline.com, or the Bayer Environmental Science Accolades® website at www.accoladesrewards.com. ●

Get Ready for the 2004 North American Bird Watching Open, May 8, 2004!

Equip yourself with binoculars, field guides, and a hot cup of coffee and head out for an early start for the seventh annual North American Birdwatching Open on International Migratory Bird Day, Saturday, May 8, 2004. Over the course of 24-hours, participants identify as many different birds as they can on properties registered in the Audubon Cooperative Sanctuary and Audubon Signature Programs. Certificates are awarded to members in each region who record the most species. Members are encouraged to invite someone experienced in bird identification to help, if needed, to contribute to a more accurate count.

To participate, register online at <http://www.audubonintl.org/projects/birdwatchopen/>. You can download registration forms, rules, a bird checklist, and tips for success. If you would like to participate, but do not have internet access, please call Jennifer Batza at (518) 767-9051, ext. 12. ●



Exploring Diversity

BY JOELLEN ZEH

At many schools, learning about biological diversity involves lessons on the Earth's Polar Regions, the rainforests of South America, and the plains of Africa. The charismatic animals and plants found in these vastly divergent areas provide for dramatic study of exotic creatures—polar bears and penguins, sloths, parrots, and poison frogs, cobras, zebras, and wildebeests.

Overlooked in such studies of far-off places are opportunities to take a closer look at the diversity of life right outside the children's own windows—and to explore and appreciate the amazing variety of animals, plants, and natural communities that are central to their lives.

The following activity can be used with young people of all ages to introduce the concept of diversity. It can be used just as easily in the schoolyard as in the backyard or a neighboring park.

Materials

- Small flags or flagging tape, bandanas, or rope to designate the boundaries of the collection sites
- Sweep nets
- Wide-mouth jars
- Bug boxes
- Field guides for plants and insects (valuable for older students)
- Blank paper for making notes and observations
- Clip boards
- Cellophane (Scotch) Tape

Time: 1 hour

Preparation

Choose two sites close to each other; one should be a managed area, such as a mowed lawn, and the other a natural area, such as a grassy field, woods, or stream corridor. Mark off a collecting site in each area. The size can vary depending on the age and size of your group. Try a 5 x 5-foot site for small groups and up to 15 x 15-foot for larger classes. Both collecting sites should be of equal size.

What to do

Step 1: Explore and Collect

Instruct students to sweep both sites with a sweep net. Put collected animals (insects, ants, arthropods, caterpillars, etc.) in the jars. After about 20 minutes of collecting, gather the students together to examine what they found. Determine how many different types of animals have been collected. *Identification is not that important.* What *is* important is counting how many different types of animals are collected and how many of each one is collected. If you don't know what type it is, have students describe it. For example, in one sample: *3 black beetles with red spots, 1 black beetle with yellow stripes, 3 green beetles, 1 black and red caterpillar, 4 brown grasshoppers.*

Your next step is to determine how many different types of plants are in the collection site. To save time, large groups can be divided into smaller groups—one to collect insects, the other to sample plants on each site, and these activities can be conducted at the same time. Again, plant identification is not that important. Students can simply record how many different types of plants they find. For example: *5 plants with small yellow flowers.* You may want to collect one sample of each and tape them to the paper—or, as an extension, press them for botanical study.

Step 2: Compare and Contrast

Which area had the greater diversity of animals? Have students guess *Why*. Younger students can create a Venn diagram comparing and contrasting the animals in each area. Follow up with questions and discussion:

- What are the advantages for an animal to live in an area with a wide diversity of plants?
- How do people affect diversity?
- In this study, we have looked mainly at insects. How do you think the different diversities of the two sites would affect other types of animals? ●



Exploring schoolyard habitats helps students learn that the biological diversity of the place they live is valuable. (Glenmont Elementary School, NY)

AUDUBON COOPERATIVE SANCTUARY PROGRAM

NEW MEMBERS

Golf Program

International

Golf Platja de Pals, Spain

California

Coto de Caza Golf & Racquet Club (South), Coto de Caza
La Quinta Citrus Course, La Quinta
Lakes Country Club, Palm Desert
Sierra Star Golf Club, Mammoth Lakes
Winchester Country Club, Meadow Vista

Colorado

Fossil Trace Golf Club, Golden

Florida

Banyan Golf Club, West Palm Beach
Boca Pointe Country Club, Boca Raton
Card Sound Golf Club, Key Largo
Gleneagles Country Club, Delray Beach
Links at Sandestin, Sandestin
Palm Beach Gardens Golf Course, Palm Beach Gardens
Ritz Carlton Golf Club & Spa—Jupiter, Jupiter
WCI-Renaissance Golf Course, Sun City

Idaho

Spurwing Country Club, Meridian

Illinois

Piper Glen Golf Club, Springfield
Western Acres Golf Course, Lombard

North Carolina

Raintree Country Club, Charlotte

New York

St. Andrews Golf Club,
Hasting-On-Hudson

Oregon

Gresham Golf Course, Gresham

Pennsylvania

Lehigh Country Club, Allentown
Radnor Valley Country Club, Villanova
Stonewall Links, L.P., Elverson

Texas

Brookhaven Country Club, Dallas
River Crest Country Club, Fort Worth
Twin Creeks Country Club, Cedar Park
Wilderness Golf Course, Lake Jackson

Business Program

Colorado

City of Aurora Open Space and Natural Resources Division, Aurora

Cemetery Program

Colorado

Mountain View Cemetery of Pueblo,
Pueblo

School Program

Florida

Seaside Neighborhood School, Seaside

RECENTLY CERTIFIED AUDUBON COOPERATIVE SANCTUARIES

Broccolo Tree & Lawn Care, Inc., Rochester, NY
Cheraw State Park Golf Course, Cheraw, SC
Club at Carlton Woods, The Woodlands, TX
Santa Elena Golf Club, Makiti, Philippines
Short Hills Country Club, East Moline, IL
Sydney R. Marovitz Golf Course, Northbrook, IL
Tega Cay Golf Club, Tega Cay, SC

RECERTIFIED AUDUBON COOPERATIVE SANCTUARIES

Colonial Acres Golf Course, Glenmont, NY, *certified since 1998*

AUDUBON SIGNATURE PROGRAM

NEW SIGNATURE MEMBERS

Black Forest, Charlotte, NC
CampoReal, Turcifal, Portugal
The Sanctuary, Charlotte, NC
WCI—One Watermark, West Palm Beach, FL

RE-CERTIFIED SIGNATURE SANCTUARIES

The Bridges Golf Club at Casino Magic, Bay St. Louis, MS, *certified since 2002*
Lost Key Golf Club, Perdido Key, FL, *certified since 1998*
Oitavos Golfe Clube, Cascais, Portugal, *certified since 2001*
Shark's Tooth Golf Club, Panama City Beach, FL, *certified since 2002*



High school student Luke Latham recently installed an osprey platform in a large grand fir at Little River Inn Golf and Tennis Resort, an ACSP member in Little River, CA. The project helped Luke earn his Eagle Scout rank and enabled Little River Inn to achieve certification in Outreach and Education. But the primary beneficiary of the project will be the ospreys that nest on site, within view of the Pacific Ocean, for years to come.

More to Explore

Winged Migration

This 1 hr. 27 min. documentary film provides an amazing look at bird migration, following a variety of birds through 40 countries and each of the seven continents. The film covers landscapes from Eastern Europe to the American Southwest to the remote reaches of the Arctic and Antarctic. Ingeniously designed cameras enable viewers to virtually travel alongside, above, below, and in front of birds. A visually stunning and incredible look at the life of birds throughout the year. Available on video and in selected theaters. Rated G.

Tips for Birdwatching Open Participants

Join fellow Audubon Cooperative Sanctuary and Signature participants for this year's North American Birdwatching Open on May 8th. Registration forms and tips for improving your results can be found at <http://www.audubonintl.org/projects/birdwatchopen/>

Journey North

This international, Internet-based learning adventure takes place from spring through fall as migratory birds, butterflies, and other creatures are on the move. Students take part in a global study of wildlife migration and seasonal change as they log their own field sightings and find out where various species are in their global journeys. Curriculum connections, lesson ideas and information, and complementary books to read are provided as well. An excellent resource for schools studying bird, butterfly, and amphibian migrations! <http://www.learner.org/jnorth/index.html/>

Green Building

The U.S. Green Building Coalition website offers links to hundreds of green building related sites at <http://www.usgbc.org/Resources/links.asp>

Stewardship News

Audubon International publishes *Stewardship News* six times a year. Inquiries, contributions, or letters to the editor should be addressed to:

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Audubon International is a non-profit environmental organization dedicated to fostering more sustainable human and natural communities through research, education, and conservation assistance. Programs seek to educate, assist, and inspire millions of people from all walks of life to protect and sustain the land, water, wildlife, and natural resources around them. Funding is provided by memberships, donations, and program sponsorship. The ACSS Golf Program is sponsored by The United States Golf Association.

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Help us to keep up to date!
If you have a change of address or contact person, please let us know. Call (518) 767-9051, ext. 12 or E-mail jbatza@audubonintl.org

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