

Left: A newly built home at Bundoran Farm surrounded by open space and working farmlands.

## Preservation Farm Development: A New Approach For The Future

NANCY RICHARDSON

Typical Signature Program members are projects developed on land historically used for farming and other rural purposes. But when Qroe Farm Preservation Development™ (QFPD) showed interest in the Signature Program for their Bundoran Farm project, we found ourselves talking about a concept unique to all other Gold Signature projects that we have been involved with around the globe. Qroe sought to include working agriculture as an integral part of their development project.

Qroe was created thirty years ago by the late Robert Baldwin as a concept where eighty percent or more of a farm, forest, or other environmentally important land is preserved alongside residential space. The result is a guaranteed balance where substantial amounts of preserved farmlands and green space is permanently protected while enhancing value to

both the homeowner and the surrounding municipality. The concept is a new kind of development for Albemarle County with an innovative plan that includes a set of controls and legal relationships that forever bind farmer, homeowner, and community.

Bundoran Farm lies in southern Albemarle County, Virginia, about 20 minutes southeast of Charlottesville, along the upper branches of the Hardware River and is one of the largest and most beautiful privately-held farms in the county. Of the 2,300 acres that comprise this working farm, about 1,100 acres are rolling pastures, 1,000 acres are covered with mature Piedmont forest, and 200 acres are orchards yielding Romes, Granny Smith, and both Red and Golden Delicious apples. The farm is home to well-bred livestock including cattle and Belgian draft horses as well as a wide variety of

native wildlife plus miles of equine trails and carriage roads.

The linchpin of Bundoran Farm's approach to land development and preservation is the innovative easement system which preserves approximately ninety percent of the farm's acreage. The property contains three distinct, yet interrelated, zones:

- **Farmbelt Zone**—includes much of the pasture and open fields. Maintaining these large contiguous areas of farmland preserves the visual character of the Albemarle County countryside. Activity here is restricted to growing crops, planting orchards, and grazing horses and livestock (excluding swine). Events celebrating agriculture, such as the county fair are also permitted in these areas.
- **Greenbelt Zone**—represents about half of the property's total acreage. It includes ponds, streams, and forest of native Virginia hardwoods. These are managed to maintain their natural beauty, protect habitat for wildlife, and to promote recreational pursuits such as hiking, hunting, and horseback riding.
- **Homesites**—Bundoran Farm's more than 100 individual homesites, nestled in the seams between farm and forest, make up the third zone. Each homesite offers expansive views of forest, streams, and rolling, open fields. The working farm is not in any way compromised by the residential areas but rather is enhanced so that this land, under cultivation for centuries, can remain productive in perpetuity. The master plan identified carefully selected homesites that share both protected

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## Dear Members and Supporters,

Every year around this time I have to remind myself of one thing. I find that amidst the hustle and bustle of summer it is important to take a moment to step back and renew my appreciation for the environment. Yes, I know this can be tough with work schedules and family commitments but if you are able to do this, not only will you be more appreciative of the fragile nature of the world around you, you will also be more productive in your stewardship efforts. Then when you are recharged, read this issue full of examples of what you can do where you live, work, and play.

Best,



**Joshua Conway**  
Education and Communications Manager

## In this issue...



Be sure to monitor your nest boxes and remove House Sparrow and European Starling nests. These invasive bird species compete with our native cavity nesting birds. Pat Blum at Colonial Acres Golf Course in Glenmont, New York is removing a House Sparrow nest for the second time in one week.

2009 is the Year of Wildlife for Audubon International. If you have photos of great wildlife encounters, we would love to see them. Email: [jconway@audubon-international.org](mailto:jconway@audubon-international.org)

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## Recognized Properties All Mapped Out

**W**e are proud to announce a new addition to our website. On the “Where We Work” tab of the homepage, you can now find an interactive map of all Audubon International recognized properties. There are some bugs in the system, so if the balloon for your property is in the wrong location, please contact Joellen Lampman at [jlampman@auduboninternational.org](mailto:jlampman@auduboninternational.org) or (518) 767-9051 ext. 114.

## Dodson Receives Award from ASGCA

**R**on Dodson, President of the Board of Directors for Audubon International, has been awarded the Donald Ross Award by the American Society of Golf Course Architects (ASGCA). “With the continued and increasing emphasis on environmental stewardship that surrounds golf development, it was time for ASGCA to again choose a long-time leader in the movement for our highest honor,” notes Bruce Charlton, ASGCA President.

The Donald Ross Award was established by the ASGCA Board of Governors in 1976 and is given annually to an individual who has made a positive impact on golf and golf course architecture. Its first recipient was one of ASGCA’s Founding Fathers, Robert Trent Jones. ASGCA’s Donald Ross Award Committee is led by Past President Rees Jones, ASGCA.



2009 North American Bird Watching Open results are in. Visit: <http://auduboninternational.org/nabwo.html>

## New Outreach and Education Tool

**T**he Northeast IPM Community Working Group has created two sets of posters: one on turf management and one on common landscape bloomers. These laminated posters are available to borrow as part of an education day or temporary display for the cost of shipping. Call Jennifer Batza at (518) 767-9051 ext. 110 if you are interested.

## First Certified Classic Sanctuary

**P**earl Beach International Country Club located in Tianjin, China, has been designated as the first Certified Classic Sanctuary in the world. Evergro Properties Ltd. is the holding company of Tianjin Pearl Beach International Country Club Co., Ltd., and Tianjin Fushi Properties Development Co., Ltd.

## Spain’s First Certified Signature Sanctuary is Gold

**P**ort Aventura Golf Course located in Barcelona, Spain, has been designated as the first Certified Signature Sanctuary in Spain. Port Aventura Golf Course has been awarded Gold level status which is the highest level Signature Program for the U.S. and international projects.

## Tennessee Golf Course Recognized for Environmental Stewardship

**B**ear Trace at Harrison Bay Golf Course in Harrison, Tennessee, received the Governor’s Environmental Stewardship Award: Parks and Recreation Category. The program recognizes exemplary voluntary actions that improve or protect our environment and natural resources with projects or initiatives that are not required by law or regulations. “Because our environment impacts everything we do from recreational activities to the health of our communities, it is important to recognize those who work so hard to protect it,” said Environment and Conservation Commissioner Jim Fyke. “We are pleased to honor these fine Tennesseans who have gone the extra mile to not only preserve and protect, but to teach others how to enhance the condition of our shared environment.” Congratulations to Paul Carter and the rest of the crew at Bear Trace at Harrison Bay Golf Course.

The Bear Trace Golf Course at Harrison Bay State Park has made many improvements in water conservation, water quality management, wildlife and habitat management, chemical use reduction and safety, and outreach and education. The state park course has installed 45 nesting houses, created a large plant bed comprised of 218 plants native to Tennessee, and renovated the golf course’s chemical storage facility. In addition, 40 acres of the course have been naturalized to minimize maintenance and the turf grass has been changed from “bent grass” to Champion Ultradwarf Bermuda grass—reducing the course’s chemical use and budget from \$39,000 to \$8,000 annually. With all of these improvements in practice, Bear Trace at Harrison Bay is one of 765 golf courses certified by Audubon International and one of only ten in the state of Tennessee.



## Initiative Sponsorship is Growing

**M**essina Wildlife Management has recently stepped up as a sponsor for Audubon International's Golf & Environment Initiative. Messina Wildlife Management is dedicated to changing the way we deal with nuisance wildlife in our gardens, lawns, and grounds. A privately-owned corporation that manufactures a full line of organic animal management tools, Messina Wildlife Management products promise to provide natural pest solutions to help property owners get the most out of their yard without a chemical liquid, fence, or trap.

Their goal is to provide homeowners, hunters, gardeners, farmers, golf course managers and wildlife management experts with innovative, highly effective, well-researched, safe and convenient organic animal management tools. Whether its moose or armadillos—dogs, cats or gophers—snakes or mosquitoes—chances are Messina Wildlife Management makes an organic repellent to deal with it, including a system to protect property perimeters.

The owners of this family-run business believe that home owners and property managers are increasingly looking for ways to handle nuisance wildlife that doesn't involve harmful, harsh smelling chemicals and they believe the products they offer will play a role in this emerging green market. In order to increase awareness and promote the use of their products and other safe gardening/lawn care methods, their website includes the Messina Wildlife blog, where the public can post questions to be answered by property management experts.

Audubon International is pleased to have Messina Wildlife Management join our growing group of Initiative Sponsors—businesses and organizations that are providing environmentally-friendly ways of interacting with the natural world around us. For more information about Messina Wildlife Management, visit: [www.messina-wildlife.com](http://www.messina-wildlife.com). For a list of Audubon International Initiative Sponsors, or to get involved, visit: [www.auduboninternational.org/initiativesponsorship](http://www.auduboninternational.org/initiativesponsorship).

## Celebrating Wildlife

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green belts and active farm lands with the goal of connecting residents to nature, to the farm, and to each other—all accessed by common lanes and private drives. Views, orientation, topography, access, privacy, and vegetation are all elements that influence the siting and design of individual buildings.

This system offers an innovative development scheme that allows homeowners to buy their dream house while preserving the working farmlands and open space that brought them there in the first place. Farmlands and ecologically important landscapes are preserved by those who are living in the midst of them and benefiting daily from them.

### Selling Points of the Preservation Farm Approach

1. The marketplace has proven that the QFPD concept has value. Rarely can an individual buy land on the periphery of a development and know that the view will be preserved, that the passing stream will remain pristine, or that the neighboring farmlands will remain as such.
2. QFPD properties have proven that people are willing to spend relatively more on initial land costs in order to acquire, and, thereby preserve, community-held farmlands and open space.
3. This investment into the property has been shown to pay for itself many times over. The positioning of residential units within green-belts and farms leverages the significant added value attainable from that open space.
4. Easements are a crucial element in creating and protecting the value of Qroe Farm properties. The properties integrate mixed human land uses into the natural environment in such a way that each user feels fully immersed in the natural environment that surrounds them and in the community it creates.
5. Qroe Farm makes use of private easements to accomplish land protection as an integral element of the living community. These easements—generated with the agreement of all members of the community, in addition to an outside regulatory body—preserve agricultures, including forestry, and environmentally-sensitive lands in perpetuity.

### Best Management Practices Employed

The Bundoran Farm team took a number of important steps to reduce environmental impact as it installed the development's infrastructure. Many of the new roads follow existing farm roads and paths where possible, minimizing both grading and clearing of forest. New roads were kept to the edge of the large pasture and forest areas to avoid fragmenting these resources. The fully engineered roads meet the county's specifications but with their texture and relaxed, stabilized shoulders, will look more like the scenic country roads that typify southern Albemarle County. Instead of blasting through hills, the roads dip and curve with the land. The crossing of major streams and water courses are achieved with bridges or open-bottom structures rather than culverts. This approach preserves the important riparian wildlife corridors.

Cattle degrading stream quality was of utmost concern. So Bundoran submitted and received a grant in partnership with Virginia Tech and the Virginia Environmental Endowment (VEE) to conduct research on alternative cattle management strategies for water quality. The title of the study is "Reducing the Water Quality Impacts of Livestock Grazing." The study basically uses three similar



The stream exclusion area setup at Bundoran Farm created in partnership with Virginia Tech and Virginia Environmental Endowment was implemented as part of their cattle management program to improve water quality.



As a result of the on-site review of Bundoran Farm on April 29, 2009, it became the first Certified Gold Signature Sanctuary in the State of Virginia and the first working farm to be so designated.

(and adjacent) watersheds within the lower Bundoran tract to research the benefits of both total stream exclusion and alternative methodologies. One stream is being used as a control, and will be fully accessible to cattle; one will receive total exclusion; and the third will have an alternative strategy. Best management practices that were implemented for their cattle management program include hardened access crossings, stream exclusion (for the cattle) and management of buffer zones, alternative water sources, and culvert replacements, as well as repair of eroded areas. The goal is to ultimately improve water quality and provide wildlife corridors.

Within Bundoran Farm property, there are three large patches of kudzu. Kudzu is one of the most common and troublesome weeds of rights-of-way, power lines, roadsides, and forests, and now invades an estimated 7,000,000 acres in the southeastern United States. Growing as much as one foot a day, it is common for this weed to completely overgrow all trees and other vegetation once it is established in an area. One of the patches on the Hightop Tract of Bundoran covers an estimated 20 acres. In an attempt to control this patch, staff installed approximately

1 mile of electric fence through the forest around the area then turned 47 cattle loose on the Kudzu. In four days, the cattle had eaten ninety-five percent of the Kudzu within their reach. Staff plans to continue seasonal short term grazing of the kudzu over the next several years in an attempt to eradicate this invasive plant. While it will certainly take a few years to eradicate in this manner, as long as they are persistent in knocking down the new growth, the vines will eventually die off.

#### Management Regimes for Wildlife

Bundoran staff began installing several miles of fencing in 2008 to separate the residential activities from the farming operations and to protect vital water resources from the ill effects of the cattle. They are also taking the opportunity to use this to improve wildlife habitat and open new wildlife corridors. In many areas, they are creating edge habitat between the forest and fields by pulling the fence away from this zone. Since the zone will provide both food and shelter, they expect to see more quail, rabbits, and songbirds. Where appropriate, these areas will be put on a two-to-three year mowing cycle, perpetuating the edge habitat.

Another form of management was implemented to enhance a portion of a large wetland area on a farm area of Bundoran called the Carpenter Farm. Bundoran staff excluded cattle from the open field area and planted shrubs and trees in order to revert it to a forested wetland. Additionally, several stream tributaries have been fenced in order to establish a forested buffer along these streams. The goal here is to benefit and increase the connectivity across areas that now have no true wildlife corridors. As part of this restoration project, the emergent wetland was planted with a variety of native trees and shrubs.

What was especially rewarding for this farm girl from Kentucky in reviewing the property was to see the meshing of the new concepts with the tried-and-true, to view the preservation of a rural setting, and to see the opportunity for all involved to benefit from this innovative type of development. Bundoran Farm's development process will go on for many years to come but the result already is a remarkable demonstration that when a project is sensitively and thoughtfully designed, wildlife and people, farming and forestry, natural and built environments can all live together harmoniously. ●

# A Win-Win-Win Situation, Take Two

JOELLEN LAMPMAN

In the Spring 2009 issue of Stewardship News, the article “A Win-Win-Win Situation” highlighted Edgewood Country Club’s successful naturalization program that led to a savings of \$40,000 per year (\$46,500 savings minus \$6,500 costs). A couple of weeks after the newsletter was sent out, I received the following email: ▼



At [Anywhere Municipal] Golf Course, we have grown in more natural areas and you are right—it saves money on the maintenance end. However, for every dollar you save on the maintenance end, I will lose 2 to 3 times that much money on the revenue end, not to mention upset golfers. Losing that much in revenues isn’t exactly what you want in down economic times. I can see where this may work on a private club, but not at a municipal golf course with Senior Men, Ladies, high handicaps, etc. I bet the course plays 3-5 shots more difficult. My high handicappers and the folks that have to pay \$40 and wait for 6 hours think it’s ridiculous, to put it mildly.

Immediately, I noticed a dramatic increase in our pace of play. In all, it added approximately 15 minutes to 30 minutes to our pace, my golfers are livid about the slow play, and my marshals busy all day long trying to help golfers find their golf balls. If upset golfers, slow rounds, and less revenue is what you are after, then continue to promote an aggressive native program. After a really bad week of slow play, I conferred with my superintendent, common sense prevailed, and we were able to compromise on the amount of native areas needed on the course. Immediately I noticed a more normative pace of play.

Second, new native areas will increase the difficulty of a course. If a player hits his shot in the native grass he is penalized more than had he hit it in a water hazard. Lost balls result in stroke plus distance, where balls hit into a hazard only cost a player a stroke. This program is making what used to be an enjoyable game to one that, as one of my golfers put it, brutal! What we need is more ways to speed up play not less.

Having good greens to putt on, fairways and rough nicely mowed, and even a golf course where you can find your ball and play at a decent pace is what golfers expect. If you can’t provide them with that basic service and product, they will simply find other places to play. Revenues will suffer, rounds will decrease, and your budgets will be cut even more next year. Is this what you are really after?

Signed,  
PGA Professional

“We have a total of 40 acres on the golf course which are minimally maintained and allowed to grow naturally providing the needed food, shelter, and movement corridors for the animals found at Harrison Bay” notes Paul Carter, C.G.C.S.

I want to thank this individual for contacting me and providing the opportunity to address some very important issues regarding naturalization.

First, when planning natural areas it is a good idea to involve a number of individuals in the process and set up a communication system. For the most part, people do not like change, but involving interested people in the decision-making process and letting golfers, management, and neighbors (if applicable) know what you are doing and why is key to ultimate success and acceptance of such projects. This is one of the main purposes of the Resource Advisory Group. Each member should be prepared to respond to questions about project costs, benefits, and effects on the game of golf. Change can be difficult, so start slow and communicate, communicate, communicate.

Involving others has another benefit. It can slow down the





On average, golf courses in the Audubon Cooperative Sanctuary Program will convert 22-acres of turfgrass into natural areas. "At Smock Golf Course in Indianapolis, we choose to naturalize many areas on our course; The key part of that decision was base largely on enhancing the player's experience and ongoing monitoring of the same experience, visually, pace of play, etc. An unexpended side benefit was our improved image/ identity from our customers, and community's perspective" states Jan Tellstrom, Former PGA Professional.

process. One mistake that members can make is to naturalize too much too quickly. Including the superintendent, PGA professional, manager, Green committee, other staff, and regular golfers will reduce the likelihood that an inappropriate area will be naturalized. Plus there is safety in numbers. A decision made with a lot of input has the weight of the group behind it.

When choosing where to naturalize, it is all about location. Not every golf course has room for naturalization, but most courses find that they do have some space that can be improved to provide better habitat. Investigate between golf holes, along the edges of rough, near woodland edges, on steep slopes, under clumps of trees, and behind tees.

I took the liberty of sending the letter to a number of our members and experts to get their perspective. We all agreed that if play was really being affected to the extent of a half hour of playing time and three to five shots, then the location of the natural areas were not appropriate for the course and its golfers.

Bill Iwinski, Golf Course Manager and PGA Professional for the municipal Ironwood Golf Course in

Gainesville, FL, admits to making the mistake of overnaturalizing. It wasn't until he had the opportunity for an Audubon International staff member to visit the course and was told that he did not have to have one hundred percent of his shoreline naturalized. "I guess I just didn't read the materials closely enough." Now he has vegetative filters along shorelines that are in-play. However, he is not convinced that the speed of play improved. "The natural areas often stopped the ball so the golfers could find it more easily. Now, when a ball lands in the water, golfers can retrieve their ball, plus twenty others from the pond. I think that the ball hackers are slowing down play more than the tall grass areas did."

Robin Boyer, PGA Head Golf Professional at The Bear Trace at Harrison Bay in Harrison, TN, a Certified Audubon Cooperative Sanctuary, suggested that "native areas should not be placed in areas directly in front of the tee boxes or near landing areas, especially to the right, since most high handicap golfers fade the golf ball."

From Jim Skorulski, USGA Green Section Senior Agronomist for the Northeast Region, "It is true you are

#### What we are after:

- natural wildlife habitat maintained in at least 50% of all minimally used portions of the property.
- at least 50% of our out-of-play shorelines naturalized with emergent-aquatic and shoreline plants. Special attention is given to shallow water areas (<2-feet deep) since wildlife is most abundant when shallow water includes emergent aquatic vegetation.
- where shorelines are in play, mowing height raised along the water's edge to slow and filter runoff. (Research has shown that, on a slight slope, a 25-foot of buffer of 3-inches of turf provides filtering benefits.)

— *Audubon Cooperative Sanctuary Program for Golf Courses Certification Handbook, 2004.*

less likely to see the same extent of naturalized roughs at a public course than some private facilities because of heavy traffic and poorer golfers. But it doesn't mean they do not exist. There is always some give and take after they are in place, with areas that are truly problematic seeing the mower. Key on naturalizing unirrigated areas, hard to cut or dangerous to maintain areas, environmentally-sensitive areas, and areas far from play." He also recommended an intermediate naturalized rough with the area being cut 2 or 3 times annually as opposed to weekly.

Here is a tip for deciding where to naturalize. Patrick Blum, Superintendent at Colonial Acres Golf Course, a 33-acre public nine-hole course, identified potential areas for naturalization and flagged them. He then set a threshold and monitored those areas for footprints. If the number of footprints in the area fell below the threshold, he stopped mowing those areas. He then monitored comments. If the number of complaints rose above his threshold, he started mowing those areas again. In this way, he found the balance between the game of golf and naturalization for his course. Which is, in the end, what we are really after. ●



## Are You Getting Paid to Recycle?

JENNIFER BATZA

Who thought that day would come when we can get paid to recycle our ink, toner, and cell phones? Well, the time is here and now. It may not always be a ton of money but in this economy every penny counts.

I recycle my ink and toner at Staples through the Staples Rewards Program. I get \$3.00 for every cartridge returned and I get ten percent back on all ink, toner, paper, and Copy and Print Center purchases. All you have to do is make sure you sign up for Staples Rewards Program on [www.staplesrewardscenter.com](http://www.staplesrewardscenter.com) pack up your old cartridges and take them to your local Staples store to get your reward, which can be used to purchase more ink, toner, or supplies. Free money just to recycle I'm in. I also love the fact that they carry so many recycled products, such as one hundred percent recycled paper, recycled pens with soy ink, and recycled scissors.

If you are not worried about getting paid for recycling, there are many other recycling programs such as [www.thinkrecycle.com](http://www.thinkrecycle.com) and [www.Empties4Cash.com](http://www.Empties4Cash.com) and others that can be found by searching for recycling in your area on the Web

I hope the resources I have provided help you around the office. I know that sending off my cartridges to help save homeless pets or being able to get some money back in my pocket is a great feeling. Knowledge is power, and sometimes cash. ●

## Profiles of Green

Audubon International strives to show people how easy it is to be green. Meet one of Audubon International's greenest as she explores new ways to do her part to save the Environment.

..... Suzi Zakowski .....

Sustainable Communities Program Manager

Working in the environmental non-profit world makes it essential that I walk the walk. I like to believe I am a little greener than most, but I am sure there is a lot more I could do. It was out of frugality, though, that opened my eyes to being sensitive to environmental issues, and thus made me interested in working in the environmental sector.

Childhood observations instilled in me a multitude of ways to save money. From my dad always having his reusable coffee mug to my parents keeping the thermostat low to keep heat costs down, I learned how to save money. Only later, in college, did I learn how integral some of these cost saving techniques were to my carbon footprint. Like many college kids, I struggled to make ends meet. I walked everywhere, bought reusable coffee, food, and water containers, and used very little electricity at my apartment.

Subsequent to taking several environmental science courses, I started to learn that there are more complex issues that I am contributing to indirectly. The cost of buying cheap food that is manufactured in an unsustainable way far from where I lived, for instance. Although I always shopped at thrift stores, learning about the environmental cost of buying clothes from certain outlets resonated as well.

After college, I taught school in Salinas, California, where I learned first hand about the relationship between food production and its impact on the water systems and the



"I try to grow a lot of my own vegetables in the summer—tomatoes, cucumbers, beans, radish and peppers," states Suzi Zakowski.

health of workers. After that, I moved to Appalachia where the toll of energy consumption and lumbering is visible on the land. Learning about the environmental impacts of our everyday lives is what led me down the path to an environmental career. It became clear that it was important to help people become more aware of how they can do their part.

Over the years, I have come to understand the impacts that every part of our lives can have on the environment. Generating zero waste is not possible, but every little effort helps. I bring my own bags to the grocery store, buy mostly locally grown food, consolidate my errands, walk whenever I can, recycle, shy away from paper products like paper towels, read labels for product information on consumer goods, frequent thrift stores, turn off lights and electronics not in use, keep the thermostat low, and carry my food and drinks in reusable containers.

While being green is not that much effort for me anymore, and it saves me money, I know there are ways I could make more of an effort. Reducing my commute to the office or using only non-toxic cleaning materials are ways I could further reduce my carbon footprint. I'm sure there are ways to be greener that I haven't even learned about yet. But being eco-friendly includes learning about and exploring new ways to do your part to help save the environment, and adjusting your lifestyle accordingly. Saving money in new ways doesn't hurt, either. ●





## The Corridor Connection

Many human activities convert wildlife habitat to other uses, like farming, housing, or recreation. In the process, habitat gets broken up into small patches in which wildlife can have a hard time surviving. When patches become too small, existing wildlife populations burn through resources and struggle to survive.

This issue often is faced during new golf course development, but its ramifications last long after the course is open for play. Isolated “islands” of habitat that remain post-development often contain wildlife populations made up solely or predominantly of aged individuals with no or few young to keep the population going. These “living dead” populations give the impression that the species has survived post development, when, in fact, they have not sustained the capacity to reproduce in viable numbers. Wildlife corridors have been proposed as a means to moderate some of the adverse ecological effects of habitat fragmentation by allowing wildlife to access a wider range of resources.

The obvious solution to this pressing problem is to preserve large areas of habitat. Yet, when small patches of habitat are all that exist, connecting them together with corridors of similar habitat is one way to help wildlife populations survive, despite growth and development.

### A safer way to go

Scientific research shows that animals, even birds, prefer to travel along habitat corridors rather than cross clearings or obstacles. In one study, songbirds chose wooded routes to travel between forested patches, even when they were three times as long as cutting across a clearing.

Not only forest animals, but even species that live in open habitats use habitat corridors for travel. Butterflies, for example, use grassy corridors to move between open clearings surrounded by dense woodland and their numbers are higher in patches connected by corridors than in isolated patches.

For that reason, in Audubon International’s collaboration with WCI Communities, Inc.’s Tuscany project in south Florida, we recommended that golf course roughs and community gardens be planted with butterfly food plants and all be connected to a local power line easement to link together habitat patches. Power companies are often willing to work with local communities

Wildlife corridors at Bear Trace at Harrison Bay, Tennessee.

to provide butterfly plantings along their transmission line right-of-ways.

Sometimes habitat corridors can be combined with other conservation projects. Many of our members maintain vegetated buffer zones to protect the edges of streams, rivers, or other water bodies from run-off. These buffers often can be connected to nearby patches of habitat to serve as corridors. At The Old Collier Club in Naples, Florida, a Gold Audubon Signature Sanctuary, naturalized buffer zones along stream drainages connect habitat patches on the golf course to hundreds of acres of protected mangrove swamp.

### How wide should the corridor be?

There are no simple rules about how wide or tall a naturalized area must be in order to serve as a corridor. One study found that only corridors over 33-feet wide were used by the birds on that site, while another found that a vole used corridors only 1.5-feet wide. Each species of animal has its own requirements. We recom-



Glen Annie Golf Course, California. For more information on wildlife corridor design please visit the Center for Biological Diversity at <http://www.biologicaldiversity.org/> and use the keyword: corridor.

ment that corridors be made as wide and tall as possible. Forested corridors must also include understory and ground cover vegetation.

Among the most common obstacles to good corridors are roads and cart paths. Not only do they cause gaps in the corridor, but cars cause a great deal of direct mortality to animals trying to cross roads. The best solution is not to have roads in wildlife habitat.

The designers of WCI's Evergrene community in Florida moved two roads in response to these concerns. Placing a roadway on a bridge over the corridor can help, if the roadway cannot be moved. Coyote Moon Golf Course in California has an attractive steel bridge that carries the cart path high above the wildlife corridor, and Raptor Bay in south Florida has a cart path on a boardwalk that crosses an entire slough.

Most properties offer opportunities to provide corridors to connect patches of wildlife habitat. Every place serves as home to some sort of wildlife, if only insects or other very small animals. The goal is to connect the vegetated and naturalized areas of each property with corridors that are as wide, as much like the habitat being connected, and as continuous as possible. And keep in mind that prime habitat to connect with them might lie on neighboring property.

## Check Your Results

Corridor evaluation is an easy way to see if your efforts to connect patches of wildlife habitat have been successful. Follow these simple steps to get started.

**Step 1: Pick a Species**—Make sure you pick an animal that you can easily spot or identify through indirect observation (e.g. grazing marks, tracks, or scat) that lives in only one of the patches.

**Step 2: Corridor Consideration**—Think about these questions:

**1. How likely is the animal to encounter the entrance to the corridor?**

If the patch is extremely wide and the corridor is very narrow, the chances the animal will find the entrance are lower than if the entrance were wider.

**2. Does the corridor offer enough cover, food, and water for the species to reach the end?**

Remember these requirements vary depending on the species.

**3. Are there any impediments to movement within the corridor?**

Make sure to consider topography, roads, fences, outdoor lighting, domestic pets, and noise from traffic or nearby buildings.

**Step 3: Map the Corridor**—Put the corridor on a map and mark where you observe species.

**Step 4: Get Support**—You can use the corridor map to inform the public and to solicit buy-in and help for future monitoring or improvements.

# Breaking Barriers: A Process for Creating More Sustainable Communities

KEVIN FLETCHER, PH.D., AND SUZI ZAKOWSKI

“I want to protect our community’s natural environment. I think most of our Town Board and a significant number of government staff think it’s important...but taking that interest beyond mere words continues to be a challenge.” Clearly frustrated, this local planner echoes what sustainability champions in communities across the country are expressing—a “sustainability speak” fatigue. The passion for sustainably-focused governance was clear, without a means to make it happen.

Recent surveys have shown that even the economic crisis across the United States has not yet dented the intentions and interests of a newly-awakened “green citizenry.” Yet, for all the press and lip-service, the amount of real, on-the-ground action towards these ideals is still limited. At the community level, sustainability efforts are hampered by common barriers for change with any large group or organization. For more than twenty years, Audubon International has worked with communities to identify a set of lessons identified to help your community move from words to action (adapted from John Kotter, *Leading Change*, Harvard Business School Press, 1996).

## Failing to Create a Sense of Urgency

Incorporating the principles of sustainability into local government has to be viewed as a critical part of your community’s long-term success, and a critical part of each person’s job. If employees see upper management or elected leaders treating sustainability as a side issue, then they will too.

## Not Creating a Guiding Coalition (Team)

Build a “sustainability team,” selecting people from all levels and departments—and include the right community members. Be aware of who, throughout your local government, has an ability to help motivate staff and coordinate government operations. Who in your community has knowledge and technical skills to help solve environmental problems? Who has the authority and respect to help you mobilize your entire community?

## Underestimating the Power of a Vision

People want to feel as if they are a part of something bigger than themselves. Create a bigger vision for your community—starting with your government operations as the model. Make a connection between the financial health of your community and the money wasted on eco-inefficiency (i.e., lights left on, leaking water pipes, waste that could have been recycled).

## Under-Communicating the Vision

Once you’ve developed a “vision message,” make sure that vision is communicated to staff, and to town and city residents. You may think that people have heard or read what you’re saying, but most environmental messages are under-communicated.

## Not Addressing Obstacles

Most environmental efforts fail in organization because they are viewed as side issues. Remove obstacles along the way. Success on a community-wide scale requires both a



The Sustainable Communities Summit Team steered the 4th Annual Sustainable Communities Summit to success on June 3, 2009.

top-down (traditional community leaders and municipal government officials) and a bottom-up (grassroots, power to the people) approach.

## Failing to Create Short-Term Wins

Although community-wide environmental stewardship is the ultimate goal, seldom is it practical or even feasible to approach that goal from the outset. Start simply, with small initial steps that breed both short term successes and a feel-good vibe in the community that motivates action towards larger and more complex initiatives. Establishing milestones within the community-wide environmental stewardship effort creates objectives to reach for, and positively recognizing when those milestones are achieved serves as a strong incentive.

## Declaring Victory Too Soon

At the same time, don’t settle on limited results. Remember that the longer term goal is to create a sustainability culture throughout your community, starting with the local government itself. Culture change takes years to accomplish.

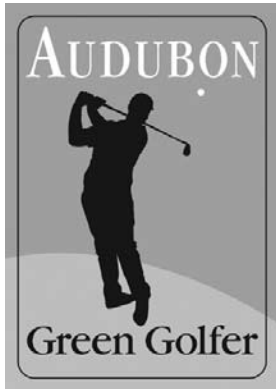
## Not Anchoring Changes in the Culture

Use projects and performance goals to change behavior, but use management systems, rewards programs, and training programs to reinforce and embed that behavior in staff.

For more on this topic visit: [www.sustainablecommunityinitiative.com](http://www.sustainablecommunityinitiative.com) ●



## Green Golfer Challenge News



At the end of June, 64 golf courses from the U.S., Canada, and internationally signed up for the Green Golfer Challenge. Most of the courses are members of the Audubon Cooperative Sanctuary Program for Golf Courses and most are public courses, including military, municipal, residential community, and resort courses. We'd love to have a better representation of private courses, so if you work at a private course, this is a great opportunity for you to highlight your environmental efforts and get your golfers involved in pledging to become Audubon Green Golfers. If you want to sign up for Session II—July 1 through September 30, 2009—you can register now, and we'll

send out your Starter Kit, including 100 pledge cards to get you started. Pledge cards and other resources are also available online at [www.audubongreengolfer.com](http://www.audubongreengolfer.com) for courses that registered to participate in this year's Green Golfer Challenge.

## Stewardship News

Audubon International publishes *Stewardship News* four times a year. Inquiries, contributions, or letters to the editor should be addressed to: Joshua Conway, Editor  
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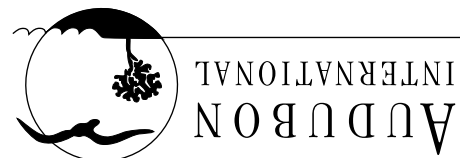
Audubon International is a non-profit environmental organization dedicated to fostering more sustainable human and natural communities through research, education, and conservation assistance. Programs seek to educate, assist, and inspire millions of people from all walks of life to protect and sustain the land, water, wildlife, and natural resources around them. Funding is provided by memberships, donations, and program sponsorship. The ACSP Golf Program is sponsored by The United States Golf Association.

*The newsletter is printed on recycled paper.*

*Look inside for a tear-out fact sheet!*

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