



## A Win-Win-Win Situation

JOELLEN LAMPMAN

Some stories are so compelling that we use them over and over again to illustrate an important point. One point we have been trying to get across is that environmental stewardship is good fiscal stewardship. It is intuitive that converting turfgrass to natural areas will help reduce fuel, water, pesticides, and fertilizer consumption as well as labor. Good before and after pictures, combined with clearly spelled out economics, helps to turn the intuitive statement into a compelling case study.

Such was the case study submitted to us by Paul Dotti, Superintendent at Edgewood Country Club in River Vale, New Jersey. Edgewood was designated as a Certified Audubon Cooperative Sanctuary in 2000 and provided us with a case study that has

made it into almost every presentation given by Audubon International since then. The 'before' pictures showed turfgrass struggling to survive while the 'after' pictures showed the same area covered in yellow and purple wildflowers—clearly a visual improvement. The quick summary of the project was: "For an investment of \$4,500 for seed, mulch, and labor, Edgewood Country Club in NJ anticipated savings on fuel, labor, pesticides, water, and equipment wear and tear comes to \$10,000 annually."

It was a very good day when Paul informed me he wanted to update his case study. He told me, "Our biggest accomplishment with this program was the establishment of over 20 acres of native areas throughout the course. During the certification process, I stated that these areas saved the club around \$10,000 per year by not having to maintain them like normal turf areas. Fast forward to 2009, and everything has skyrocketed—fuel, employee benefits, fertilizer, water, pesticides, irrigation materials, equipment costs,

etc. In almost ten years, those savings are approximately \$40,000."

Paul explained that the golf business is being hit especially hard because golf is entertainment and entertainment is one of the first things people cut out when times are tough. Golf is also exposed to rising fuel costs which also affect the price of fertilizers, irrigation supplies, and trucking for materials. These costs have all been absorbed into maintenance budgets. However maintenance budgets cannot compensate for the loss of members or the drop in rounds and revenue. "We all go through our budgets with a fine tooth comb and look at where we can save every penny without sacrificing the conditions of our courses and sometimes we have to make difficult choices."

So, where do the savings come from? Looking at how much turfgrass

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## Dear Members and Supporters,

Audubon International has long touted our belief that today is the foundation for tomorrow. Our commitments to the environment, and the economic well-being of the world are interconnected. Simply put, the decisions and actions we take today will be our legacy tomorrow. We believe that economic growth and stability, a healthy environment, and the social conditions of humans are inextricably linked. Likewise, research, education, conservation assistance and planning, and policy reform are essential elements for sustainability.

We also believe that we can no more wish ourselves to a sustainable future, than we can pay for it. We must work for it—one person at a time, one project at a time, and one changed behavior at a time. Through Stewardship News we bring you real examples of stewardship in action. Read the stories and accomplishments found in this issue and then replicate them where you live, work, and play.

Best,

**Joshua Conway**  
*Education and Communications Manager*

## In this issue...



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@auduboninternational.org](mailto:jconway@auduboninternational.org)

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## Individuals Can Take Action

Chances are, the place where you live, work or play has benefited from one of our programs. Now, Audubon International has a new way for individuals to take action. You can make a difference! By becoming a member of Audubon International's Stewardship Circle, you will join a growing number of people across the country who are taking environmental stewardship seriously and providing critical financial support for our efforts. To find out more, or to join the Stewardship Circle, please visit: <http://www.AudubonStewardCircle.org>.

## Mapping a Partnership with CourseVision

Audubon International is proud to announce a formal partnership with CourseVision, specifically tied to growing membership in the Audubon Cooperative Sanctuary Programs for Golf Courses (ACSP-Golf). Under the partnership, CourseVision has agreed to pay the annual membership fee for any golf course that uses their services.

CourseVision provides a mapping and database tool to assist property owners in assembling a wide range of information about their property, including environmental information, and communicating that information via maps, links, and other means. "The CourseVision" tool can be a nice compliment to the outreach goals of our education program and we're happy CourseVision is committed to supporting the growth of our program," states Joellen Lampman, Manager of the Audubon Cooperative Sanctuary Program.



CourseVision™

## Fletcher Joins Sustainable Green Printing Board

Audubon International's Executive Director, Kevin A. Fletcher, Ph.D., will be serving a two-year term on the Board of Directors for the Sustainable Green Printing Alliance. Fletcher assisted in the creation of this effort, which is aimed at making the print and graphic communications industry more sustainable. "A central element to our *Environmental Stewardship and Management Initiative* is that we, as an organization, can help improve environmental practices for businesses and whole industry sectors through our own programs, as well as through development of other tools and direct strategic advice," stated Fletcher. "This is just another way we are working to help make sustainability happen across a wide variety of business sectors."



Edgewood Country Club in River Vale, New Jersey

## Audubon International Members Celebrate in New Orleans

On February 5th, 2009, over one hundred members and sponsors attended a reception to celebrate the efforts of the certified members of the Audubon Cooperative Sanctuary Golf Program, the Audubon Signature Program, and sponsors of the *Golf and Environment Initiative*. The celebration that took place at the Audubon Nature Institute Aquarium of the Americas in New Orleans, LA, was held in conjunction with the 2009 Golf Industry Show. "We wanted to say 'thank you' to the dedicated golf course superintendents, owners, and managers who have been working with Audubon International over the years to improve golf's impact on the environment," stated Jessica DesLauriers, Development Manager. "It was also an opportunity to recognize the businesses and organizations that have supported our efforts and the *Golf and Environment Initiative*."

A number of new partners, and several past donors, supported the celebration through Golf and Environment Initiative Sponsorship. For a complete listing of initiative sponsors and ways to provide your support, please visit: <http://www.golfenvironment.org>.



### Initiative Sponsorship

Are you interested in becoming one of Audubon International's growing group of Initiative Sponsors? As a not-for-profit organization, we rely on our sponsors to provide essential funding for our programs and initiatives—supporting our staff's abilities to go beyond regular member services and provide the outreach, education, and expertise necessary to make a difference. Areas for Initiative sponsorship include:

- Community Engagement, Planning & Action
- Eco-Design & Development
- Environmental Stewardship & Management
- Golf & the Environment

By supporting our efforts by becoming a sponsor of one of the Initiatives listed above, you are enhancing your role as an active voice in the movement toward a more sustainable future. Sponsorship benefits vary by contribution level. Please contact our development office for details. We look forward to working with you!

*Jessica DesLauriers*  
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## Bonterra Partnership Renewed

**B**onterra Vineyards is the Official Wine of The PGA of America and produces one of the world's best selling wines made with organic grapes. Because Bonterra knows what it takes to find a balance between preserving nature and creating an award-winning product, they have become committed to helping golf courses find their balance between the environment and the game of golf.

In 2008, Bonterra partnered with Audubon International to add new golf courses to the Audubon Cooperative Sanctuary Program by covering the \$200 first year membership fee for the first 100 courses to sign up through the special promotion. This year, Bonterra is partnering with Audubon International once again in an effort to get 10,000 people to take the Audubon Green Golfer Pledge online.

From May 15 to June 30, Bonterra Vineyards will run an Audubon Green Golfer Pledge Drive online at their website: <http://www.bonterra.com/greens>. The first 10,000 golfers to take the pledge through Bonterra's website will be entered into a sweepstakes for a chance to win a trip for four to the 2009 PGA Championship August 13-16, 2009. Second and third place winners will receive a brand new set of golf clubs.

This is a great opportunity for golfers across the country to learn about the simple steps they can take to improve the game, their golf course, and the environment. Beginning May 15, simply take the Audubon Green Golfer pledge online at: <http://www.bonterra.com/greens> and you will be entered for a chance to win!



## Audubon Green Leaf™ Hotels to Grow in New York State

**A**udubon International is proud to be a part of the New York State Governor's Initiative: Green Hospitality Partnership. As a part of the partnership, Audubon International is working with members of the New York State Hospitality and Tourism Association, the New York State Green Restaurant Association, and others to identify ways to increase third-party eco-certification and education through the Audubon Green Leaf™ Eco-Rating for

Hotels. "Although this partnership is fairly new," states Fred Realbuto, Director of Audubon International's New York Operations, "we're excited by the prospect of helping lodging facilities and restaurants across New York State improve the environmental performance of their operations, while also saving money by doing so." To learn more about Audubon Green Leaf™ Eco-Rating for Hotels, please visit: <http://greenleaf.auduboninternational.org>.



An area that has been top dressed with wildflower seed increases the visual appeal of the course while lowering upkeep costs.

## A Win-Win-Win Situation *Continued from page 1*

is maintained is an easy place to start looking for areas to cut back. “Back in 1997, we had two rough mowers mowing the course throughout the week. Now, we have one rough mower who can do the whole property almost twice in one week. Right there we saved probably \$20,000 on a laborer, \$40,000 on a rough machine and \$3,500 in diesel fuel. Also, add in repair parts for a second rough mower and annual maintenance (blades, oil, filters, etc.) and that equals approximately \$2,000. Immediately, there is \$27,500 out of my operating budget. Let’s add in no irrigation in these areas which would probably be \$30,000 for materials and another \$15,000 for installation plus \$1,000 a year for electricity and \$12,000 for water. By not fertilizing these areas, we are saving an additional \$3,000 based on a 20-0-20 and putting down 11lb of Nitrogen.”

It is important to keep in mind, however, that naturalized areas are not maintenance free. At Edgewood, about 100 man hours per year are spent manually weeding these areas at a cost of approximately \$1,000. Herbicide treatments cost around \$3,000 (typically one crabgrass application is applied along with spot-spraying for broadleaf weeds). Annually about \$500 is spent on

wildflower seed, \$800 on topsoil, and \$400 in labor preparing the wildflower areas. The areas are mowed down one time in the fall (\$200 in fuel, \$400 labor, \$200 miscellaneous expenses for repairs, etc.) Paul estimates the expenses to maintain the native/wildflower areas per year is \$6,500. With \$40,000 in savings, that is still \$33,500 that can be reinvested in more important play areas on the course. “These are significant savings at Edgewood and it has allowed us to focus our labor on the in-play areas.”

There was certainly a learning curve, and wildflower meadows can be tricky. Paul experienced the typical progression, with the areas looking quite striking the first year. “It is not difficult to get wildflowers established but it is very difficult to have them looking nice year after year. The first year they are beautiful when using an annual and perennial mix; the second year they are not as nice because the annuals are gone and the perennials may be few and far between. This is also when the first sign of weeds begins. The third year, if you have done nothing, could be problematic as some perennials may have died off, more weeds are taking hold in the voids, and the flowers become very spotty.” Today, most of the wildflower areas have been converted over to mixes of fine fescues and bluestem. But the trials continue, and they have taken three remaining areas and tried

At Edgewood Country Club, the native areas have several benefits, including:

- to break up the flat terrain offering visual appeal between holes
- to bring strategy into some golf holes
- to offer nice contrasts and vistas
- to provide nesting sites and corridors for wildlife
- to create buffers near water bodies and wetlands

Did you know e-Source has fact sheets to help your environmental efforts on your course? Check out [AudubonInternational.org/esource](http://AudubonInternational.org/esource), click on the Golf tab.

to seed wildflowers in without disturbing the soil. “We had some very promising results and have continued to do the same thing in these three or four areas. We may not have the striking flowers throughout our course like we did the first year we began this program, but the wildflower areas we do have still compliment each other and look acceptable.”

In these difficult economic times, everyone is feeling the pinch in all walks of life, and nobody is immune. Now is an excellent time to look at reducing turfgrass, because people are more open to changes that will result in savings. Still, change can be difficult and even with Edgewood’s dramatic results, it was not an easy transformation. “We basically took a wall-to-wall maintained course and gave it a different look. The first year or two, members were not happy with the “sloppy” look, or even the occasional lost ball. Once the areas matured and we kept educating the members, the complaints subsided. To this day, I still hear complaints and I am flexible to altering, removing, or relocating certain areas. At the end of the day, it is the members’ course and, as the superintendent, I have to try to meet their expectations. But we also must occasionally stand our ground if we believe what we are doing is for the benefit of the membership as a whole.” ●





## Low-Impact Development Comes to Puerto Rico

NANCY RICHARDSON

The vision was to create an upscale and exotic resort focusing on natural elements as the main attraction. That vision comes alive as vegetation seems to enfold guests as they enter the lushly framed entryway to Bahia Beach Resort. The 470-acre property, located in Río Grande, Puerto Rico, was originally a Spanish coconut palm plantation. Rows of tall, over one-hundred year-old palms are still found on the property.

From a coconut plantation to a resort community, changes include a totally renovated 18-hole course re-designed by Robert Trent Jones II, estate single-family homes, golf villas, town homes, and a five-star St. Regis hotel-spa and small commercial center. The property was previously permitted as a planned development but only the golf course was constructed. Because the master plan for the community was conceived and designed around the natural set-

ting, 65% of the property' green areas has been conserved.

Not only was Audubon International impressed by the beauty of the property, but we were also concerned with the project's possible impact on regionally significant acreage. Bahia Beach Resort is situated adjacent northwest of the mouth of the Espiritu Santo (Holy Ghost) River and its associated wetlands. This is the only navigable river in Puerto Rico and it forms the southern boundary with the Atlantic Ocean to the northeast and east. Just as significant is that the Espiritu Santo River originates in the El Yunque rainforest. The El Yunque mountains are clearly seen from the property and are part of the 28,000-acre El Yunque National Forest. This forest is one of the most biologically diverse forests managed by the USDA Forest Service and the only tropical rain forest in the United States National Forest System.

### Wildlife Abounds with the Leatherback Turtle

In addition to rainforest and river, there are two miles of Atlantic Ocean beach along the northern border of Bahia Beach Resort. This beach supports sea turtle nests, including those of the leatherback turtle (*Dermochelys coriacea*), the largest living sea turtle in the world. The head of construction for Bahia Beach is a trained leatherback volunteer who monitors the



Leatherbacks typically nest in March along the beaches of Bahia Beach Resort. These hatchlings are from an adjacent beach to the resort.

Revered as a holy place for over a thousand years by the prehistoric Taino inhabitants, the El Yunque National Forest has been a continually managed reserve for well over 100 years.

beach for nests on the mornings of nesting season. During this past year's season, fourteen nests were located on the public beach neighboring the project. When a nest was found, the Department of Natural Resources (DNR) was immediately notified. The DNR personnel marked the area for protection and educational purposes. Hatching started in June with eleven nests successfully hatched. An average of 550 turtles hatched from this two mile stretch of beach. The most vulnerable stages in a leatherback's life are their early life stages when they are most vulnerable to predation of all kinds. We applaud Bahia Beach's effort to help save a species from extinction.

## Unofficial National Symbol



I suppose for most people on the island, the Coqui (Common Coqui, *Eleutherodactylus coqui*) becomes an irritation after a short while. But to the Signature Program Director (and musician), it was a well orchestrated chorus each night. The species is named for its loud sound (phonetically, the sound is Co-Key) which the males make at night and which sometimes reaches as high as 100 dB at a distance of 0.5 mile. This sound serves the purpose to repel males and establish territory and also to attract females. The frog is a native to Puerto Rico, and, unlike many frogs that lay their eggs in water, coquis lay their eggs on palm tree leaves or other terrestrial plants. Because of its abundance, the Common Coquí has become an unofficial national symbol of Puerto Rico.



## Using Non-natives to Deal With Invasives



May 2008, invasive submersed plant in the ponds on site was identified as *Najas marina*, spiny naiad, which is a native annual plant that is very invasive under certain conditions. It enjoys the higher salinity and increase in sunlight on the pond bottom. Both hand removal and biological controls are the main treatments to pursue integrated management for the thirty-plus acres of lakes and ponds. Bahia Beach decided to introduce grass carp to the lakes to eat the spiny naiad.

For the importation of grass carp, a Natural Resources Department permit was needed. In January, the grass carp arrived and were held in tanks until they acclimated to the water salinity. A cage was built on the lake to make transition easier and quicker. The success of this project will be followed by the University of Puerto Rico. An graduate intern is working with the carp as her research project in coordination with the DNR. The control was approved as a research project because not enough information about weed control and grass carp is available for Puerto Rico.



Lexis Molinaris points out field characteristics of grassquit to Marcela Canon (left) and Nancy Richardson (middle).

## Birds of Bahia

The highlight of the trip as far as wildlife was concerned was the bird walk. Perhaps like many guests at Bahia, I came with a list of birds that I hoped to see during my visit. An early morning walk yielded the black-faced grassquit (*Tiaris bicolor*) but I was unable to spot the Puerto Rican woodpecker (*Melanerpes portoricensis*). Our guide was Alexis Molinaris, native wildlife and plant specialist. Joining us was Marcela Canon, Natural Resource Manager for Bahia, and Wilo Benet, internationally famous chef and wildlife photographer (my kind of guy). We birded by boat to visit and navigate the waterways, lakes, and around the island, and were rewarded with brown pelican, tri-colored heron, snowy egret, green heron, black-crowned night heron, belted kingfisher, osprey, semi-palmated plover, spotted sandpiper and my view of the Caribbean coot (*Fulica caribaea*). By land we were serenaded by the grey kingbird, a loud greater Antillean grackle, and a feisty American kestrel. The current inventory of birds for Bahia Beach Resort numbers forty-four. This is the base line number, and we look forward to the additions to that inventory in years to come.

The goal of Audubon International's visit was to review the resort to determine if it had been developed sustainably and with low-impact to the environment. Bahia Beach Resort did indeed meet that mandate and was certified as the first Gold Signature Sanctuary in Puerto Rico. In coming articles, we will look at other aspects of development including, outreach and education, and the preservation and creation of wildlife habitat. ●



# 2008 Sustainable Communities Summit—NYS Capital Region

## *Opportunities and Challenges Facing New York State Communities*

Audubon International hosted its third Sustainable Communities Summit, Wednesday, June 11, 2008 at The Crossings in Colonie, New York. In an effort to examine the opportunities and challenges of growth facing New York State communities, this one-day leadership summit provided a forum for dialog about working toward communities that are economically viable, socially vibrant and environmentally sustainable.

Nearly one-hundred community leaders from around the Capital Region attended the event, which examined some of the challenges, barriers, opportunities, and models for making community sustainability the norm. Panels of experts from

various fields were on hand to address what were identified to be critical topics to achieving sustainability in communities in this region of the New York—including housing, transportation, green building, balanced and ecologically-sensitive planning, and community engagement. The event was sponsored by Selkirk Cogen Partners, Lafarge Industries, and Horizon Wind Energy.

To read the full 2008 Sustainable Communities Summit report visit: <http://auduboninternational.org/PDFs/2008summitreport.pdf>



### 2003

Full day sustainable community and sustainable land development workshop hosted in partnerships with North Carolina State University.

### 2004

Audubon International hosted cooperative extension leaders and staff from the southeastern United States outlining best management practices in planning and land development at Audubon International program member sites.

### 2005

Sustainable Communities Leadership Summit held in partnership with University of Florida's Program for Resource Efficient Communities and Walt Disney World Resorts.

### 2008

University at Albany, the Capital Region Planning Commission and others partnered with Audubon International to provide a one-day leadership workshop for sustainability efforts in New York's Capital Region.

### 2009

Rochester Institute of Technology and the Pollution Prevention Institute hosted the second New York State Sustainable Communities Summit with Audubon International.

## Audubon International's History as a Sustainability Summit Facilitator

A central component to Audubon International's *Community Engagement, Planning, and Action Initiative* is the facilitation of sustainability meetings and summits with community leaders and local governments. The goal of these leadership summits is to provide lessons and meaning regarding the goal of sustainability in local communities. Working with local university, business, and municipal partners, Audubon International has worked to provide an open forum for community leaders to meet, talk, learn, and share.

If you, or the leaders in your community, are interested in working with Audubon International to facilitate a community leadership forum, please contact Suzi Zakowski at [szakowski@auduboninternational.org](mailto:szakowski@auduboninternational.org) or 518.767.9051 ext.124. ●





## Bat Conservation



### Bat Natural History

Bats are furred, winged mammals with body lengths of three to six inches and wingspans varying from eight to sixteen inches. There are forty species of bats in North America. Most bats hunt flying insects and navigate by emitting pulses of sound through the mouth. Their sensitive ears hear the echoes reflected from even the tiniest of insects. This allows them to steer towards prey and avoid obstacles. They will often fly within inches of people catching the mosquitoes that humans attract. Bats also have keen eyesight on which they rely for long-distance orientation.

### Diet

Bats in North America eat primarily insects. A single bat can consume between 500 to 1,000 mosquitoes and insects in an hour, depending on the species and the size of the bat.

### Roosting

The natural roosting areas for bats are hollow trees, caves, and rock crevices. Bats have also adapted well to human structures, such as old barns, attics, basements, bridges, bat boxes, and other structures.

### Rabies

If a random sample were taken of all bats in a given area, less than one-half of one percent would be found to be infected with the rabies virus. However, when bats are brought in to health departments for sampling for rabies, approximately 4% are found

Spring is in the air! Soon the heralds of the season will be welcoming in the warmer temperatures, softer rains, and bursts of colorful foliage. In tow will come the armies of bumbling bugs, buzzing bees, tiny ants, and teeny gnats. Each will swarm in numbers far too large to comprehend, making for rather unbearable rounds of golf, frustrating strolls in the park, and unpleasant picnic-table meetings. But hope is not lost—bats can be a welcome addition to your property by helping to control mosquitoes and other flying insects. In fact, according to Bat Conservation International, a single little brown bat can consume 600 or more mosquitoes an hour.

to carry the rabies virus. This finding is due to the number of sick bats that are easily caught and sampled.

### The Need For Conservation

Many factors have led to the decline of bat populations. The myths about bats do not endear them to the general population. For years, bats have been poisoned and whole colonies wantonly killed because of needless fears people have about them. Today, nearly 40 percent of America's bats are threatened or endangered. Bats do not deserve their negative reputation for getting themselves tangled in people's hair, drinking blood, or always carrying rabies.

The popularity of spelunking or "caving" often puts people in bat caves just as young bats are maturing. If adult bats are disturbed, they may abandon their young. Since bats usually raise only one pup each year, bat populations do not increase quickly. If bats are disturbed while hibernating, their energy reserves diminish, and they can starve. Lastly, when old buildings and barns are demolished, valuable bat roosting habitats are destroyed.

### Attracting Bats

Bats are an important part of many ecosystems. Bats pollinate flowers, help to keep insect populations at manageable levels, and provide excellent opportunities for public education. Putting up a bat box offers bats a place to roost or rear their young. However, it is difficult to attract bats to an area if they are not already present in nearby woodlands, caves, or man-made structures. Bats normally return to the roost where they were born. However construction and loss of habitat may cause local bats to seek new homes. When you are outside at dusk, observe the sky for "birds" that flap their wings quickly, fly slowly and



Putting up a bat house creates needed bat roosting sites for these beneficial insect-eaters and does not have to be an eyesore.

erratically, often swooping over water. They may also be found flying around near a building or parking lot lights looking for an evening meal.

### Tips for Constructing and Placing Bat Houses

Bat houses are currently a part of habitat enhancement programs on state parks throughout the country, as well as on some golf courses and in backyards. Follow these guidelines for the greatest success in placing bat boxes on your property:

- Do not use chemically treated wood and don't paint the bat box. Rough, natural lumber is best. Use the roughest sides of the wood on the inner areas of the house.
- Caulk all outside seams to limit air flow. This helps trap the bat's body heat inside the box. In cold climates, place tar paper or dark shingles on the top and 4 to 6 inches down the sides to increase inside temperatures. Nursery

roosts often require temperatures of 90 degrees F. In the South, paint bat boxes white to avoid overheating.

- Hang houses on the side of a building or on a tree, 10 to 15 feet above the ground. East and southeast exposures provide maximum solar gain.
- Try a larger box design. Research suggests that larger bat boxes tend to be more successful than small boxes in attracting bats.
- Place bat houses within a quarter mile of water.
- Locate bat houses away from areas of high pesticide applications.
- Install the house before April to improve the chance of occupancy. If the box is not used within a year or two, try a different location.

For more information and plans to build your own bat box, please visit our home page and click on e-Source.

# Life on an Island in a Sea of Questions

KEVIN FLETCHER

Standing atop a 10,000 foot dormant volcano and seeing an entire island—from beach to balmy rainforest—is one way to remind you of the fragility and finiteness of our planet. I found myself on Maui recently, one of a set of speakers invited by The Dowling Company to give lectures to the public on the state and status of our environment. While joining the likes of Hunter Lovins and Jeff Corwin on this short list of “environmental experts” to speak as a part of a month-long seminar series was humbling enough, but it was the sheer smallness of standing atop this island, at the peak of Haleakala volcanic crater, that brought me to my intellectual and spiritual knees.

Maui is a county of Hawaii, with 139,000 permanent residents living on 727 square miles. It is a beautiful and ecologically diverse place, boasting a wide variety of ecological zones—some of the most on the Earth. It is also a place that provided me with a mirror reflecting our Western lifestyle. Let’s skip the energy it takes, fuel consumed, and resources used just to have an estimated 2.5 million people visit the island each year. Instead, we can just look at a couple of basics.

First, it is estimated that if shipments to the island stopped, Maui currently has about four days of food on the island. That is why groups like the newly-formed South Maui Sustainability are looking to promote community and residential gardens on the island. They are partnering with community groups and school children to mix education about the environment with a basic need—locally grown food supplies. Surely, it will take some time, but the good news is that the availability of food, if you’re a Maui resident, is not yet a

problem. So there is time for residents and leaders to ask some basic questions: Where does our food come from? What are the environmental impacts and costs associated with such a heavy reliance on shipped food? How can we feed 130,000 people plus, all those vacationers and visitors, each year?

What about water? Maui is unique in that on such a small piece of land, the island has a clear dry side (in the south and east) and wet side (in the north and west). Much of the new development has, and is occurring, in the dry zone—bringing to question the availability of water for these new projects. Like many parts of the world, water use on the island has a unique and fascinating history. Since the early 1900s, billions of gallons of East Maui stream waters, originating on publicly owned watershed lands, have been diverted into a series of ditches and tunnels, controlled by Alexander and Baldwin (A&B), Inc., carrying water to the cane and pineapple fields of Upcountry & Central Maui. Most East Maui residents and farmers depend directly upon stream waters for household, traditional gathering, and agricultural needs. The ongoing concern is that much of the water will be drained away to new developments in Central and South Maui. Recent droughts have only served to amplify these concerns.

All of these areas have many large-scale developments proposed, but according to some, the Iao Aquifer system may simply be unable to realistically meet the total planned water needs. Numerous policy decisions by Maui County and water agency over the past decade has left this issue of “water versus development” on the island a lingering source of division among the population. Ironically, the most vocal opponents of development plans on the island are the newer Maui residents—people who have lived on the island for two, five, or ten years.

Again, some basic questions must be raised on Maui: Where does our water come from? Are using it as efficiently as we can? What do we want our island community to look like ten or twenty years from now—and is that vision sustainable?

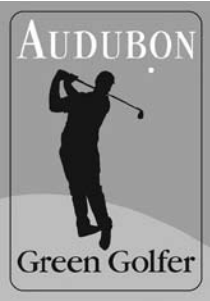
So where does that leave us now? With questions, I suppose. Self-examination and self-discover is a critical first step to an environmental or sustainability effort. Audubon International has this “Self-Audit” component in every program for businesses, golf courses, schools, hotels, new developments, or communities that we provide to people. A really good question is sometimes the best and only way to remember that you’re living on an island—full of challenges and limits, but also vast beauty and possibility. ●





# It's Back!

The Green Golfer Challenge began the Challenge in 2007 as an experiment. Since then the challenge itself has undergone many changes to improve golfer education and environmental stewardship on golf courses. This year, we've made a few changes that we think will make the Green Golfer Challenge even better. We've launched a new website to provide you with easy access to all the information you need and have even given more outreach opportunities than ever. Visit **AudubonGreenGolfer.com** today to learn more about the challenge and to sign up so you can get started right away. Once you are signed up, you will be given access to Challenge Participant materials and fact sheets. Don't Wait! Visit us today!



## Stewardship News

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

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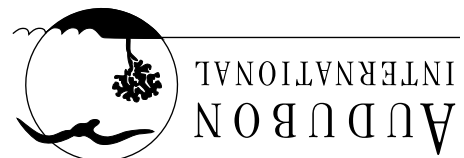
Audubon International is a non-profit environmental organization dedicated to fostering more sustainable human and natural communities through research, education, and conservation assistance. Programs seek to educate, assist, and inspire millions of people from all walks of life to protect and sustain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