

## Conserving the Spectacular Variety of Life

We hear a lot about *biodiversity* these days. Broadly defined, biodiversity refers to the spectacular variety of life forms on our planet. It includes the range of ecosystems, from deserts to tropical rainforests; the different species of organisms in those ecosystems; and even the different combinations of genes found in the same species from location to location. But the simplest way to think about biodiversity is just to consider how many different kinds of plants and animals are in our environment. And, unfortunately, there are a lot fewer now than there were a hundred years ago.

The number of species on Earth is constantly changing. Over millions of years, natural forces cause some species to die out and new ones to be formed. Every now and then, the planet suffers a major catastrophe that wipes out a large number

of species. That happened most recently about 65 million years ago when a large comet or small asteroid hit the Earth and the resulting climatic change wiped out the dinosaurs.

### Accelerating Extinction

Today, scientists estimate that species are dying off even faster than they did after that asteroid plunged our planet into darkness. The difference is that this time, there is no natural disaster to blame. Indeed, the cause of the current wave of extinctions appears to be the rapid increase in the human population.

Just 100 years ago, between one and two billion people populated the planet. Today, that number has grown to more than 6 billion. This exponential increase has had a major impact on the surface and functioning of this planet.

The primary impact has been the conversion of natural habitats to human uses. We've not only reduced the amount of natural area for plants and animals, we've also changed large open spaces into smaller isolated fragments. Just sit by the window on your next plane trip to see what this looks like!

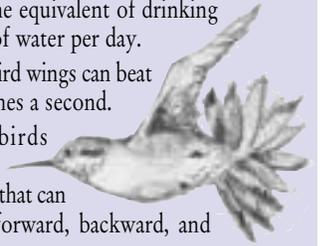
### Taking a landscape approach to conservation

Audubon International works side by side with property owners who want to manage their properties to benefit the natural world. One of our primary goals is to protect biological diversity so that people, wildlife, and the natural ecosystems on which we all depend are healthy and thriving long into the future.

### SPECTACULAR VARIETY OF LIFE

#### Ruby-throated Hummingbird

- Hummingbirds consume 75–85% of their body weight in nectar a day. In human terms that would be the equivalent of drinking 20 gallons of water per day.
- Hummingbird wings can beat up to 80 times a second.
- Hummingbirds are the only bird species that can hover, fly forward, backward, and upside-down.



#### What You Can Do

- Hang a hummingbird feeder. Mix 1 part white refined sugar with 4 parts water to make a nectar solution. Feeders can be bought at almost any home and garden store.
- Plant a hummingbird garden. Choose tubular flowers with periods of overlapping blooms, such as coral bells, bleeding heart, bee balm, fuchsia, and scarlet sage.
- Add a water source—hummingbirds seem especially attracted to water from spray misters that can be added to bird baths or small ponds with re-circulating water.

One way to approach biodiversity conservation is to pay attention to the *landscape*. This means not only looking at individual properties, but also taking a big picture perspective to see how various landscapes fit together.

Because more than 70% of the United States is privately owned—we all need to be involved for conservation efforts to be truly successful. We encourage all property owners to maximize the amount of natural area left on their property. By setting aside portions of natural habitat, and landscaping with native plant species, we will help conserve the unique biodiversity of our local ecosystem. Likewise, it is important to retain habitat corridors between properties in order to combine smaller habitat fragments on individual properties into larger, regional green spaces.

Audubon International believes that people can make a difference. Through the small actions of the many of us who appreciate the spectacular variety of life on earth, the result can be the sustainable preservation of our rich natural heritage.

### SPECTACULAR VARIETY OF LIFE

#### Spring Peeper

- Male peepers are just  $\frac{3}{4}$  of an inch long; females are  $1\frac{1}{2}$  inches from head to tail. They have a dark cross on their back, usually in the shape of an X.
- These nocturnal tree frogs demonstrate 2 distinct calls: an advertisement call for females and an aggression call for males that are getting too close.
- They prefer the shallow margins of the pond where they are protected by grass and leaves.
- Frogs evolved during the age of dinosaurs and have slowly branched out into at least 3,500 species worldwide. There are 9 families of frogs in North America.



#### What you can do

- Construct a small pond or shallow pool with gently sloping sides or designate an existing pond for frog and amphibian habitat conservation.
- Increase the number of natural shelters, such as old logs, rocks, bark slabs, and small brush piles, to provide habitat for many adult amphibians.
- Maintain undergrowth in woodland areas and shrubby hedgerows for spring peepers and other tree frogs.

# Audubon International Vision

## Building A Solid Foundation

It is fairly reasonable to most people that a house is only as good as its foundation. Most people understand the value of making sure the foundation of their home is sturdy and structurally sound before they put a lot of hard-earned money into remodeling their living room. It just wouldn't make sense to believe that a fresh coat of paint and some new furniture inside the house would keep it from tumbling down if the foundation were weak.

It is equally true that our "environmental house" must also be built on a solid foundation. While we may have individually earned enough cash to invest in some pretty nice "things," like a new car, or a big house, from an ecological point of view, these items could very well be the equivalent of the new living room over a shaky foundation. The environmental house that I refer to is, of course, the earth and all of the ecological components necessary to sustain life.

Biological diversity is our most visible evidence of the soundness of our ecological foundation. By most scientific measures, this foundation has gotten pretty shaky.

Some organizations champion the cause of saving individual species from extinction—from snail darters to spotted owls—in order to preserve biological diversity. Others believe that we should focus our efforts on species at the top of the food chain: the "charismatic megafauna." Hence the popularity of campaigns to *Save the Whales*, *Save the Bald Eagle*, *Save the Timber Wolf*. Still others argue that we should focus on the bottom of the food chain—after all, the little creatures at the bottom support the top.

The fact of the matter is that we need to focus on all of the parts at once. We're not really smart enough to even fully understand how most ecosystems work, let alone what value should be placed on various parts of the system or whether we can afford to toss some species out. We must focus on conserving all species, while actively working to restore whole landscapes and the healthy functioning of the ecosystems that support us.

Through a combination of research, education, and sustainable resource management, we are working to help people help the environment. Together, we must build a solid foundation based on the marriage of economic development and ecological integrity. Each of us must take personal actions in our own lives concerning the types of products we purchase and use, and how we manage our own homes and land. Now more than ever, we must act as if our very lives depend upon it, because they do.

Ronald G. Dodson, President

## Contributing to Biodiversity Conservation One Property at a Time

Though what we do on our own properties sometimes seems small compared with the tremendous threats to biodiversity, each individual action counts. Not only do our stewardship efforts have positive ripple effects within our own local communities, they make a substantial difference when combined with the actions of others. Here are a few shining examples of ordinary people who share a commitment to the places in which they live and a desire to do their part to help them thrive.



Larry and Jan Schlippert  
Fairview Village, PA

To counter the negative impact of suburban sprawl on wildlife species in their neighborhood, **Larry and Jan Schlippert** added bird feeders and baths, a butterfly garden, numerous trees, a rock pile for amphibians and reptiles, and a 20 x 25-foot pond with trickling water. Larry and Jan's work exemplifies both small and large measures that can be taken on individual properties to contribute to biodiversity conservation.



Oliver Middle School  
Broken Arrow, OK

Integrated into the curriculum of 6th, 7th, and 8th graders at **Oliver Middle School** are two major habitat enhancement projects that will teach students the value and practical application of conservation. The projects entail turning an old pastureland into a native prairie and enhancing a pond to attract different species of wildlife.

A number of exciting activities are underway to involve students in all phases of the project:

- 6th graders conduct surveys of plants and animals and measure and map the property. They learn about Oklahoma native species and

soil types, and plant wildflowers and grasses.

- 7th graders oversee maintenance in the early years of the restoration projects. In addition, they study water quality, water flow, and pond succession.

- 8th graders are involved in teaching new classes using the knowledge and experience gained from landscaping. They chemically analyze pond water and soil quality, and "aquascape" the pond through the use of rocks and plants. The habitat areas will not only serve the needs of wildlife and protect local biodiversity, they will be used as an outdoor laboratory and natural area for students and the neighborhood community.

## SPECTACULAR VARIETY OF LIFE



Spotted Salamander

- Spotted salamanders have rows of bright yellow or orange spots from head to tail down their black-colored bodies.
- During the first warm spring rains, spotted salamanders migrate *en masse* from hardwood forests to ponds and temporary pools to mate and lay eggs.
- Spotted salamanders hunt at night for earthworms, ants, crickets, beetles, cutworms, and many other insects.
- Acid rains have so impacted some Northeastern ponds that salamander eggs cannot develop and entire local populations have died out.

## What You Can Do

- Attract salamanders to your property by providing shallow water sources in close proximity to woods.
- Leave downed logs, limbs, and leaves on the woodland floor to provide moist hiding places. Or build a rock pile to provide cool shelter for salamanders and frogs.
- Maintain good water quality in ponds and wetlands.
- Support legislation to curb acid rain.

“Nobody made a greater mistake than he who did nothing because he could only do a little.”  
—Edmund Burke, 18th Century



## Dixileta Garden Nursery

Cave Creek, AZ

ACSP for Businesses member **Dixileta Garden Nursery** is located on a 3-acre tract of land in the Sonoran Desert of southern Arizona. The nursery showcases a range of natural habitats and sells native plants so that Dixileta and its customers can exist in harmony with their unique local desert setting. Wildlife takes advantage of the several washes and habitat corridors that run through the property. The natural setting of the nursery allows customers to see plants in their native environments and take home landscaping ideas and materials to recreate habitat on their own properties. This year, owners **Carolyn and Ron Moody** also plan to host seminars and workshops for local homeowners, schools, and businesses that want to participate in natural landscaping projects.

## University of North Florida

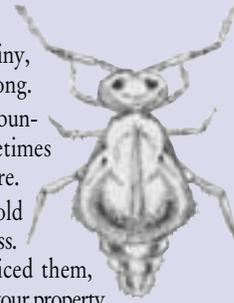
Jacksonville, FL

The **University of North Florida**, an **Audubon Signature Program** member, is pursuing plans to create an ecologically-designed Golf Management and Learning Center on a 38-acre tract of land in the Southern Coastal Plain ecoregion. To begin the project, the property’s Natural Resource Manager, **Donna**

## SPECTACULAR VARIETY OF LIFE

### Springtails

- Springtails, or *collembolans*, are tiny, wingless insects, about ¼ inch long.
- Springtails are among the most abundant creatures on earth, sometimes occurring by the *millions* per acre.
- Springtails live in leaf litter, on old logs, snow (on warm days), and grass. While you may never have noticed them, chances are good that they live on your property.
- Springtails are valuable decomposers that break down leaf litter and fungi into soil components and recycle organic waste.
- Springtails can jump up to 8 inches into the air—50 to 100 times their own body length.
- Springtails are found in an assortment of colors, including white, pink, green, red, blue, orange, indigo, and yellow.
- Most commonly known are the “snow fleas” that can cover the snow on warm winter days.



### What you can do

- Don’t subscribe to the motto: *the only good bug is a dead bug*. Reduce the use of harmful chemicals in and around your property by treating insects only when problems occur.
- Maintain healthy soils. Much of the Earth’s great diversity lies below ground. The creatures that inhabit soils provide a vital support system for life above ground.
- Add compost to gardens and landscaped areas to improve soil structure and soil health.

**Bentzien** led a team of University experts to survey the site, inventory existing species, and assess conservation needs. The team sampled plant species and flying insects, established observation points to watch birds, set up humane traps for reptiles, amphibians, and small mammals, and monitored large mammal tracks. The wealth of information they gathered will now be used as a tool to maintain maximum biodiversity of the flora and fauna as development takes place on the property.



## Enhancing Pond Shorelines With Native Aquatic Plants

Property Name:	Cordillera Mountain Course
Location:	Edwards, Colorado
Project Coordinator:	Steven Visosky, Golf Course Superintendent
Type of Property:	18-hole resort/ semi-private golf course

### Project Description:

**H**ole #16 at Cordillera Mountain Course is a beautiful par 5 with a 1.5-acre lake to the right side near the tee. When the course first opened in July 1994, bluegrass was sodded to the water's edge. There were three full-circle heads that watered this area, but unfortunately, they watered the lake as well. In 1997, we decided that a more natural look would provide an attractive landscape feature that would also promote habitat for ducks and other wildlife.

### Goals:

- Increase wetland wildlife habitat while enhancing the aesthetics of the lakefront.
- Reduce water waste by moving irrigation heads and only throwing water towards the beds and turf.

### Implementation and Maintenance:

The first step in our project was to hire a local environmental consultant, Montane Environmental Solutions, Ltd, to help with plant selection. They provided an extensive list of appropriate shrubs, wetland plants, border perennials, and wildflowers. We chose a variety of native Colorado plants that would add color and provide food and cover for wildlife.

To prepare the site, we removed a 4-foot strip of bluegrass along the lake and moved and adjusted the three problem irrigation heads so that they would no longer water the lake. Then we roto-tilled and planted more than 50 different varieties of plants to provide habitat and create a mosaic of color that lasts throughout the growing season.

Maintaining the new plantings requires hand pulling weeds from the beds, mulching when needed, and replacing plants that don't make it through the winter. Because we're especially careful about avoiding chemical applications in the buffer zone near the lake, our labor needs have increased by three or four man-hours per week in this area.

### Results:

We have been very pleased with our results and in fact, have met all of our goals. We gained a 3-to-4-foot buffer of native Colorado plants that provides wildlife habitat, improves aesthetics, protects water quality, and eliminates water waste.



Steve Visosky

For the first time, we had two pairs of ducks use the lake for nesting in 1998 and 1999. We have also seen an increase in the number of ducks just using the lake for everyday feeding and resting.

We've had a great response from golfers and members too. Our green committee has been highly complimentary and is considering aquatic landscaping for another lake on the property.

We also have reduced the amount of water used in this area by 50%. By changing just three irrigation heads, we save approximately 35,000 gallons of water during our growing season from May to September.

### Perspective and Recommendations:

In retrospect, it would have been a lot easier to do this project before they laid the sod. If you are involved in new golf course construction or even pond construction or renovation, I would definitely recommend landscaping with aquatic and shoreline plants, rather than turfgrass, from the outset.

But if like us, you only have the opportunity to retrofit, it's still worth it. If you have shoreline at your facility that is not directly in play, yet is in a visible area, native aquatic plantings can be a wonderful resource. Research is very important in determining which plants are most suitable for your area and a local consultant may prove to be helpful. Discuss with your members the benefits of enhancing wildlife habitat along with improving the aesthetics of your shoreline. The results can be rewarding for both golfers and wildlife.

### Economic Costs and Benefits:

Cost to implement:	\$10,000 including labor
Estimated savings:	50% water reduction

**For More Information Contact:**  
Steve Visosky, Superintendent  
(970) 926-8480

# Getting Real: Conserving biodiversity in a world of invasive species

Conserving biodiversity is a worthy goal, but the day-to-day work of it is often fraught with trouble. Development pressures and shrinking habitats are sure causes of declining species, but equally insidious are problems that nature herself provides—with the extraordinary help of human hands: the invasion of species where they don't belong.

The United States spends more than \$138 billion per year on major environmental damages and losses by non-indigenous species—that is, a species living outside its original ecosystem with few or no natural checks and balances to keep it from running amok. When invasive species multiply to unmanageable levels they can damage native plant and animal communities, increase soil erosion and sedimentation, and destroy the economic value of land. There are now an estimated 50,000 non-indigenous species in the U.S. While not all are considered pests, those that are invasive are causing more than their share of trouble.

## Environmental and Economic Costs of Non-Indigenous Species

- About 42% of the species on the threatened or endangered species lists are at risk primarily because of competition with and predation by non-indigenous species.
- In Florida, exotic aquatic plants, including hydrilla (*Hydrilla verticillata*), water hyacinth (*Eichhornia crassipes*), and water lettuce (*Pistia stratiotes*) are altering habitat for fish and other aquatic animal species, choking waterways, altering nutrient cycles, and reducing recreational use of rivers and lakes. Florida spends about \$14.5 million each year on hydrilla control alone.
- In the U.S., a total of \$100 million is invested annually in non-indigenous species aquatic weed control.
- The recent introduction of the Asian long-horned beetle has caused the demise of more than 4000 trees in the greater-New York City area and in the suburbs of Chicago. If the infestation is not brought under control, this tree-boring insect may threaten the economic viability of several forest product industries as well as the scenic quality and ecological character of entire landscapes across North America.
- Non-indigenous weeds are spreading and invading nearly 2-million acres of U.S. wildlife habitat per year.
- Control of invasive weed species in lawns, gardens, and on golf courses leads consumers to consume \$36 billion worth of chemicals per year.
- Approximately \$2.1 billion in U.S. forest products are lost each year to invasive plants.

## How do non-indigenous species get here?

Most plant and vertebrate animal introductions have been intentional. Exotic species have been introduced for food, fiber, ornamental purposes, landscape restoration, biological pest control, sport, and pets.

Unintentional invaders, including the majority of invertebrate and microbe introductions, are often accidental travelers in ship ballast or via plants or soils entering the U.S. Fire ants, Formosan termites, zebra mussels, and European green crabs are prime examples of this group. Though points of entry are strictly monitored and controlled by the Department of Agriculture, identifying these pests often amounts to finding a needle in a haystack—and that's all it takes to begin a new invasion.

Though we're somewhat wiser with hindsight, biotic invaders continue to spread rapidly. Global economy and travel, coupled with the alteration and simplification of many natural environments, have enormously increased the potential for species invasion.

## What can be done about invasive species?

A long-term solution to the invasive plant problem requires a coordinated, *landscape* approach that connects smaller pieces of land within a geographic region to control the spread of invaders. On a national and state level, there is much work being done.

In 1999, President Clinton signed an executive order creating an Invasive Species Council and directed federal agencies to create a framework for planning and coordination involving all stakeholders. The council is charged with a variety of tasks, including: preventing the introduction of invasive species, detecting and controlling problems, monitoring the spread of existing invasive species, conducting research, and promoting public education.

Prevention is the most cost effective and environmentally safe method to manage invasive and exotic species. Short of that, detection, control, and eradication are the chief methods of dealing with invaders.

## How you can help:

- Identify invasive species that are the chief cause of concern in your area. Many states have invasive species task forces or councils that can provide you with information. The National Association of Exotic Pest Plant Council may be able to point you to local resources: phone (202) 682-9400 x230 or e-mail EPPCFTC@aol.com.
- Remove invasive exotic plants to keep them from spreading on or off your property. Physical and mechanical methods, biological agents, and cultural practices may need to be combined with chemical treatments for effective control.
- Avoid buying and planting known invasive species. Too many invasive shrubs, trees, and vines continue to be sold for erosion control, aesthetic plantings, or even wildlife value. They include: Russian olive, bittersweet, purple loosestrife, Japanese spiraea, multiflora rose, bush honeysuckle, Japanese barberry, and many others.
- Make a conscientious effort to landscape with native plants. These will help to contribute to overall biodiversity conservation in your area.
- Participate in local eradication or prevention efforts.

# Wildlife and Habitat Management Ten Simple Ways To Make A Difference

*"If I can only*

**F**aced with so many what is the most in suggestions for ma

## ONE <sup>1</sup> Plant native plants

Make a conscientious effort to plant native plants in your landscape. Set a goal of maintaining at least 80% of the trees, shrubs, and flowers on your property with native species. Surveying your property and nearby natural areas can help you determine which species will grow best in your area.

Purchase plants from locally-grown sources when possible. These will tend to be best adapted to local growing conditions.



Bridges Montessori, FL

### The Benefits:

- Contributes to the conservation of regional biodiversity.
- Showcases the uniqueness and beauty of your area.
- Provides food and cover for native wildlife.
- Because native plants are well adapted to local climate and soil conditions, they often require less maintenance than non-native species.

## TWO <sup>2</sup> Naturalize

Consider potential locations and ways you might modify your existing landscape to include more or different plantings. By naturalizing unused or minimally-used parts of your property, you'll provide better habitat.

Incorporate naturally-landscaped areas in phases so that you can learn and experiment with what works best for your property before making a major investment of time or money.

### The Benefits:

- Provides needed food and cover for wildlife from an increased diversity of plants.
- Contributes to overall habitat in a local area, especially when naturalized areas connect between properties.
- Lowers maintenance costs and reduces the need for high-intensity maintenance.
- Supports aesthetic appreciation for natural beauty.

## THREE <sup>3</sup> Add variety

Plant various heights and types of plants, from ground cover to shrub and tree layers. In woodlands, leave understory shrubs, non-woody plants, and leaf litter. Some species prefer to live in treetops while others like shrubby undergrowth; still others spend their lives on the ground. Adding variety creates more levels of the food chain and helps a diversity of species find their preferred habitat needs.



Old Waverly Golf Course, MS

### The Benefits:

- Allows a greater variety of wildlife species to take advantage of landscaped areas and habitats on your property.
- A diversity of plants attracts a diversity of wildlife.

## FOUR <sup>4</sup> Maintain water for wildlife

Maintain at least one water source for wildlife. This could be a simple backyard birdbath with a mister or drip attachment, or a pond, stream, or wetland.

If you have a pond or stream, don't remove plants growing along the water's edge. Instead, plant a variety of aquatic plants along the shoreline.

### The Benefits:

- Offers an essential component of wildlife habitat.
- Creates a welcome refuge for many species.
- Adding aquatic plants maximizes a pond's value to wildlife.

## FIVE <sup>5</sup> Get to know your region

Take time to explore the natural areas closest to you. Make a commitment to visit at least one natural area this season. At a local nature preserve, woodland, wetland, or lake, you can begin to learn about the interconnections between plants and animals and their environment. Getting to know your region can enrich your experience of life in the world.



L. Woolbright

### The Benefits

- Increases awareness and appreciation of the beauty and diversity of your local region.
- Increases understanding of the vital contribution that each region adds to the overall biodiversity of North America.
- Creates an informed, ecologically-literate citizenry.

do one or two things, what will really make a difference?”

“eco-friendly” product claims and choices that impact wildlife and the environment, people often ask us what the most important thing they can do contribute to conservation. In response, we’ve assembled a list of our top 10 ways to maximize biodiversity on your property and getting the greatest benefit from your stewardship efforts.

## SIX 6 Take care of the most sensitive species

Enhance and protect habitat for the most sensitive species present on your land. On many properties, this will likely be amphibians, such as frogs, toads, and salamanders. These species are especially vulnerable to habitat destruction because they typically require habitat both in water and on land, e.g., a pond for their eggs and larvae and dry land for the adults. They also need a way to move back and forth between the two safely.



### The Benefits:

- By concentrating on the needs of sensitive species, you can take care of lots of others as well.
- Amphibian and reptile populations are declining rapidly all over the world. By doing simple things to help them survive on your property, you will contribute to overall conservation efforts.

## SEVEN 7 Do Not Disturb!

Be careful not to disturb high quality habitats such as mature woods, wetlands, or desert areas—especially during the breeding season from April to early August. Take care not to remove bird nests or den sites. Disturbance to adults or young during the breeding season can reduce reproductive success and survival rates for young.

Designate areas that will be minimally-maintained, or use buffers or signs to keep people out.



J. Hagood

### The Benefits:

- Protects sensitive plants and wildlife
- Increases breeding success.
- Keeps larger habitat areas intact.

## EIGHT 8 Clean Up

Restore degraded habitats such as eroded slopes, compacted soils, and polluted water sources.

Clean up trash. Litter is not only unsightly, it degrades plant and animal communities and water sources. If you have a dumpsite on your property, make a plan to break it up and properly dispose of its contents.

### The Benefits:

- Promotes good stewardship of natural areas.
- Reduces habitat damage from eroding soils and polluted waters.
- Promotes proper waste management and disposal.
- Reduces build up of “trash heaps” and eliminates hazardous waste problems.

## NINE 9 Maintain healthy soil

Much of the Earth’s great diversity lies below ground. Soil creatures, including earth worms, beetles, and ants, provide a vital support system for life above ground.

Add compost to gardens and landscaped areas to improve soil structure and soil health. Start a compost pile of your own to recycle organic waste and amend your soil.

Avoid disturbances to soils such as driving on lawns (compacts soil structure) or using chemicals that wipe out soil life. These can destroy subsurface habitats, disrupt biological and chemical cycles, and alter subsurface food webs.

Improve drainage to help water percolate through the soil layers.



J. Mackay

### The Benefits:

- Healthy soils stimulate plant growth and help plants resist disease.
- Soil creatures cycle nutrients and carbon, degrade pollutants, develop and maintain good structure for plants, and degrade organic matter.

## TEN 10 Reduce your use of hazardous chemicals

Use an informed, integrated approach to dealing with pest problems that arise. Before reaching for chemicals, carefully evaluate the root of the problem and address underlying conditions. Research alternative pest control measures—from improved care of plants and soils to horticultural soaps and oils—there are many effective alternatives to chemicals.

Should you need to choose chemicals, read the label before you purchase: choose products with labels that read “caution” instead of “danger” when possible. Follow label instructions precisely: using more than called for increases the likelihood of environmental problems.

### The Benefits:

- Reduces problems associated with chemical manufacture, storage, use, and waste disposal.
- Helps maintain a balance of beneficial insects.
- Reduces expense of chemical treatments.

## Get Out Your Camera!

With plants in full bloom and wildlife conspicuously breeding and raising young, spring and summer are the best time of year to take pictures of your stewardship projects! Good subjects include: naturalized areas, wildlife gardens, vegetative buffers around water sources, close-ups of wildlife and native plants, *before* and *after* pictures of projects, people in action, and educational signs and displays. Your photos are valuable in a number of ways! Use them to:

- Document projects for certification;
- Communicate your commitment to stewardship to people who frequent your property. Create a display or start a photo album to showcase your Cooperative Sanctuary.
- Promote your work. We are always looking for promotional-quality pictures and slides to use in presentations,



Reston National Golf Club, VA



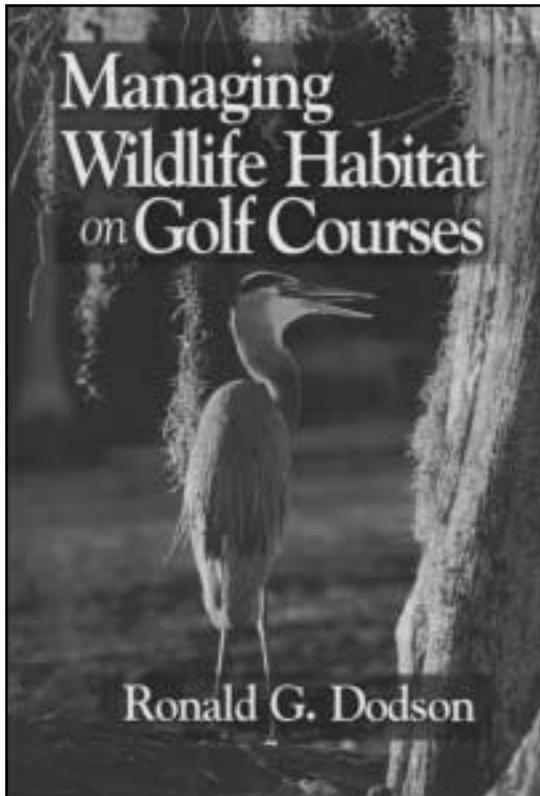
Gaillardia Golf & Country Club, OK

*We welcome your photos of new plantings, habitat projects, people-in-action, wildlife, and other stewardship activities.*

magazine articles, promotional and educational documents, Stewardship News, and our website. Pictures should be clear, in-focus, and have good contrasts. Don't write on the photo—use the back or a separate sheet of paper for comments and descriptions. Photos can be in color or black-and-white. Sorry, we cannot use Polaroid pictures, computer scanned pictures, or color copies of photos for our promotional materials.

If you would like to contribute photographs for use in Audubon International publications, please send them to us at *Audubon International/ACSS-photos*, 46 Rarick Road, Selkirk, NY 12158.

## Managing Wildlife Habitat on Golf Courses



### Available at a discount to Audubon International Members

**M***anaging Wildlife Habitat on Golf Courses*, by Ron Dodson, President of Audubon International, is written for those who care about golf and the environment. It is an excellent resource for anyone striving to maintain the traditions of the game and enhance the natural environment of their golf course. Topics include information about wildlife management projects, managing wildlife habitat, and naturalizing the managed landscape. Order the book from Audubon International and receive a 15% discount off the publisher's price. Order from the website, [www.audubon-intl.org](http://www.audubon-intl.org), or send your request with your name, address, and phone number and a check for \$43.50 (\$38.50 + \$5 shipping and handling) to Audubon International, Business Office, 46 Rarick Road, Selkirk, NY 12158.

## Survey Contributes to Loon Conservation

Each year, approximately 85 volunteers participate in a valuable citizen-science project to help the Audubon Society of New York State (ASNY) track the breeding loon population in upstate New York. Known as *Loon Rangers*, these dedicated volunteers have spent the last twelve years monitoring lakes and ponds in the Adirondack Region, counting loon adults and chicks, and keeping an eye on any activities that may threaten these beautiful black and white birds.

“Based on the results of the 1999 Loon Survey, we are cautiously optimistic about the loon population in New York State,” said Fred Realbuto, Director of ASNY, a component of Audubon International. The number of adult loons and chicks sighted—about 425—seems to be holding steady in comparison with recent years. However, the number of chicks seen at successful nest sites in 1999—an average of just 1.34—was the lowest since we began the Loon Survey in 1987. “We’ll want to keep a close eye on the number of chicks hatched to see if 1999 was an anomaly or the onset of a more serious trend,” added Realbuto.

It is this kind of question that highlights the importance of Loon Rangers as the eyes, ears and advocates for the loon population at large. “Because the NYS Department of Environmental Conservation does not have the personnel or resources to monitor loons, we are providing the only long-term data on loon populations in New York State,” said Realbuto. Survey data is shared with the NYS Department of Environmental



Conservation, and The North American Loon Fund, as well as interested citizen groups.

But the real value of the numbers comes when we need to advocate for loons. ASNY has long supported a ban on lead fishing sinkers and lures that poison and kill numerous loons annually. This year, ASNY, in concert with several other environmental organizations, will support NYS legislation to allow local towns to restrict the use of jet skis in some waters. Their noise, speed, and ability to navigate in very shallow water make jet skis uniquely dangerous to nesting loons.

To participate in the *2000 Loon Survey*, contact Fred Realbuto at Audubon International, 518-767-9051, extension 15 or via e-mail: [frealbuto@audubonintl.org](mailto:frealbuto@audubonintl.org).

*Fly an Audubon International flag at your Cooperative Sanctuary and show your support for the environment!*

Audubon International flags are now available from

### Gettysburg Flag Works

The flags are white nylon with Audubon International’s logo in blue and black.

Flags come in sizes:

**2x3, 3x5, 4x6, and 5x8**

*Also Available:*

- Tee flags
- Vinyl banners
- Nylon wall banners
- Indoor flags with pole and gold fringe

Purchasing a flag from Gettysburg helps support Audubon International programs, including:

*The Audubon Cooperative Sanctuary System, Adopt-A-School Initiative, Nestbox Network, and Managed Lands Database.*



**Call Gettysburg today and Fly your Audubon International flag with pride!**

**Gettysburg Flag Works**

**1-888-697-3524**

# membership

## NEWS

### New Golf Members

#### AUSTRALIA

Long Reef Golf Club, Sydney

#### CHINA

Shanghai Links Golf & Country Club,  
Pudong, Shanghai

#### PHILIPPINES

The Country Club, Salcedo Vill, Makati City

#### ALABAMA

The Ledges of Huntsville Mtn., Huntsville  
Hidden Meadows Golf Course, Northport

#### ARIZONA

The Country Club at DC Ranch, Scottsdale

#### CALIFORNIA

Spring Creek Golf & Country Club, Ripon  
Whittier Narrows Golf Club, Rosemead  
North Ranch Country Club, Thousand Oaks

#### COLORADO

Mira Vista Golf Course, Aurora  
Deer Creek Village Golf Club, Cedaredge  
Indian Peaks Golf Course, Lafayette  
Coal Creek Golf Course, Louisville  
Canterberry Golf Course, Parker

#### CONNECTICUT

Timerlin Golf Course, Berlin  
Oronoque Country Club, Stratford

#### DELAWARE

Dupont Country Club, Wilmington

#### FLORIDA

Waterlefe Golf & River Club, Bradenton  
Polo Park East, Davenport  
Wildcat Run Country Club, Estero  
Gulf Harbour Golf & Country Club, Fort Myers  
Kingsway Country Club, Lake Suzy  
Eglin AFB—Eagle Course, Niceville  
Eglin AFB—Falcon Course, Niceville  
Golden Bear at Hammock Creek, Palm City  
IGM—Lexington Oaks, Wesley Chapel

#### GEORGIA

Ogeechee Golf Club, Richmond Hills

#### IOWA

Centennial Oaks Golf Club, Waverly

#### ILLINOIS

Stone Harbor Golf Club, Glenview  
Glenwoodie Golf Course, Glenwood

#### KANSAS

Lakin Golf Course, Lakin

#### LOUISIANA

Southern Trace Country Club, Shreveport

#### MASSACHUSETTS

Cherry Hill, Amherst  
Olde Scotland Links, Bridgewater  
Marlborough Country Club, Marlborough

#### MARYLAND

Crofton Country Club, Crofton  
Westwinds Golf Course, New Market  
Woodmont Country Club, Rockville  
Country Club of Maryland, Towson

#### MICHIGAN

Lake Forest Golf Club, Ann Arbor  
Prestwick Village Golf Club, Highland

#### MISSOURI

The Club at Old Kinderhook, Camdenton

#### NORTH CAROLINA

Neuse Golf Club, Clayton  
Brier Creek Country Club, Morrisville  
Raleigh Golf Association, Raleigh  
Benvenue Country Club, Rocky Mount

#### NEW HAMPSHIRE

Baker Hill Golf Club, Newbury

#### NEW JERSEY

Beaver Brook Golf Course, Clinton  
Spring Brook Country Club, Morristown

#### NEW YORK

IGM—Mill Pond Golf Course, Medford  
Winding Hills Golf Course, Montgomery  
Skaneateles Country Club, Skaneateles

#### OHIO

Ottawa Park Golf Course, Toledo  
Beckett Ridge Country Club, West Chester

#### OREGON

Broken Top Club, Bend  
Elkhorn Valley Golf, Lyons  
Meadows Golf Course, Sunriver

#### PENNSYLVANIA

Aronimink Golf Club, Newtown Square  
Franklin D. Roosevelt Golf Course, Philadelphia

#### SOUTH CAROLINA

Myrtle Beach National Golf Club—  
South Creek, Myrtle Beach  
Myrtle Beach National Golf Club—  
West Course, Myrtle Beach

#### TEXAS

Oakmont Country Club, Corinth  
Mesquite Grove Golf Course, Dyess AFB

#### VIRGINIA

MGGI—The Gauntlet, Fredericksburg  
Old Course, Hot Springs  
Boonsboro Country Club, Lynchburg  
The Golf Club at Brickshire, New Kent  
Countryside Golf Club, Roanoke  
IGM—Hunting Hills, Roanoke

#### VERMONT

Okemo Valley Golf Club, Ludlow  
Vermont National Country Club,  
South Burlington  
Spruce Golf Course, Stowe  
Stowe Country Club, Stowe

#### WISCONSIN

MGGI—Mequon Country Club, Mequon

### Newly Certified Audubon Cooperative Sanctuary

#### Golf Courses

Cordillera Mountain Course  
Edwards, CO

IGM—Brooksville Golf & Country Club  
Brooksville, FL

Harbour Ridge Yacht & Country Club  
Palm City, FL

Kemper Lakes Golf Course  
Long Grove, IL

#### Re-Certified Golf Courses

Loblolly Pines  
Hobe Sound, FL

### New Business Members

FLORIDA  
River Forest Homeowner's Association,  
Bradenton

LOUISIANA  
New Town Concepts, LLC, Mandeville

NEW YORK  
Pittsford Paving, Rochester

SOUTH CAROLINA  
Modern Turf, Inc, Rembert

### New Cemetery Members

FLORIDA  
Port Mayaca Cemetery, Canal Point

PENNSYLVANIA  
Grove Cemetery, New Brighton

### New School Members

COLORADO  
Cheyenne Mountain Elementary,  
Colorado Springs

NEW YORK  
H.C. Crittenden Middle School, Armonk

WYOMING  
Community Based OCC ECSS, Cheyenne

### New Backyard Members

ALABAMA  
Mr. & Mrs. Charles F. Auman, Ozark

CALIFORNIA  
Ms. Joan Zavada, Dublin  
Ms. Marion J. Hofer, Lakewood

#### INDIANA

Ms. Deborah King, Delphi

#### KENTUCKY

Mr. & Mrs. Fred & Jean Trogdon, Lexington

#### MASSACHUSETTS

Mr. Jim MacWilliam, Newton

#### MAINE

Ms. Sandra Flewelling, Scarborough

#### MICHIGAN

Mr. & Mrs. Ron & Sara Basso, Okemos

#### MISSOURI

Mrs. & Mr. Nancy & Eric Sorth, St. Louis

#### MISSOURI

Ms. Susie Ryan, Trenton  
Ms. Elaine Everly, Winfield

#### NEW YORK

Ms. JoAnn D'Agostino, Bronxville  
The Fix Family, Buffalo  
Mr. & Mrs. Howard & Mary Jack, Elsmere  
Ms. Linda Hufland, Rochester

#### OHIO

Ms. Donna J. Hoelzer, Sandusky

#### OREGON

Mr. & Mrs. Kevin & Jennifer Shaw, Portland

#### PENNSYLVANIA

Mr. & Mrs. Larry & Jan Schlippert,  
Fairview Village  
Ms. Helga G. Cook, New Brighton  
Ms. Pamela Rollings, Pittsburgh

#### TEXAS

Ms. Linda Weiland, Houston

#### VIRGINIA

Gigi Amateau, Richmond

### Newly Certified Audubon Cooperative Sanctuary

#### Backyards

Mr. David & Susan Foss  
Le Claire, IA

Mr. & Mrs. Larry & Jan Schlippert  
Fairview Village, PA

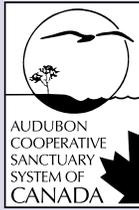
### New Signature Members

Barona Creek Golf Club  
Lakeside, CA

The River Course at Troutbeck  
Amenia, NY

Leamy Lake Golf Course  
Quebec, Canada

Montreal Golf Club  
Quebec, Canada



## We Can All Make a Difference!

**A**cross Canada, members the ACSSC have been making a huge difference in the environment around them. From reducing their use of pesticides, water and energy, to creating and managing an array of habitats for wildlife, and educating local school children, people who are participating in the ACSS are truly having a positive environmental impact.



- On his rural property near Flesherton, ON, **Matthew Gaasenbeek** has single-handedly reforested over 160 acres of marginal farmland. He has also created several habitat ponds, and installed a nest box for the rare barn owl.
- In Whistler, BC, **Dave Gottselig** of **Whistler Golf Course**, and **Bert McFadden** of **Chateau Whistler Golf Course** are both “Certified Stream Keepers”. They work with local townsfolk and government agencies to protect and restore native fish habitat in the area’s cold-water streams.
- **Dan and Annette MacDonald** of Mitchell’s Corners, ON have dedicated most of their yard to nature. Bright plants, feeders, and a pond and stream attract butterflies, hummingbirds, and other wildlife.



- At **The Learning Sanctuary**, in Millarville, Alberta, **Janice McDougall** and **Gervais Goodman** have incorporated their natural surroundings into every facet of business life. Through careful planning and development, their property has remained an important travel corridor for moose, coyote, and even cougar.



- Artists **Michaela and Peter Jessen** live and work in harmony with nature on a large, wild acreage near Bracebridge, Ontario. Peter and Michaela provide foster care to orphaned animals, such as these raccoons.

It doesn’t matter where you are situated, or what the size of your property, you too can make a difference! Remember that we are here to help you. If you have any questions on what to do or how to get started, just give us a call.

## Top 25

**T**o date, twenty-five Canadian cooperators have attained the distinction of a becoming *Certified Audubon Cooperative Sanctuaries*. Many more properties are working hard to achieve this high honor and we encourage everyone to set a goal of becoming certified.

Any property registered in the ACSSC is eligible to achieve certification—not just those that are large or include spectacular habitats. Certified properties include golf courses and businesses that range from 3 to 200 hectares, as well as individual properties as small as 500-square meters.

We greatly appreciate the efforts of all of our hard-working cooperators, and especially want to congratulate our first twenty-five *Certified Audubon Cooperative Sanctuaries*:

### ACSP for Backyards/ Individual Properties

Matthew Gaasenbeek, Toronto, ON  
Michaela and Peter Jessen, Bracebridge, ON  
The Lyn-Piluso Family, North York, ON  
Dan and Annette MacDonald, Mitchell’s Corners, ON  
Bernard and Margaret Shearman, Aurora, ON

## Membership News

### New Golf Members

#### Ontario

Forest City National Golf Club, London  
Meadowbrook Golf and Country Club, Gormley  
Oak Gables Golf Club, Ancaster  
Trillium Wood Golf Course, Corbyville

### New Backyard Members

#### Alberta

Bradley Sorochan, Edmonton

#### Ontario

Judy Gadsby and Marlene Gray, Shannonville  
Christina Sharma, Toronto  
Marcia Sone, Angus

### New School Members

#### Ontario

Byng Public School, Stayner

### ACSP for Business and Corporate Properties

Goodman, McDougall & Associates Ltd.,  
“The Learning Sanctuary”  
Millarville, AB

### ACSP for Golf Courses

Banff Springs Golf Course, Banff, AB  
Calgary Golf and Country Club, Calgary, AB  
Camelot Golf and Country Club, Cumberland, ON  
Chateau Whistler Golf Resort, Whistler, BC  
Club De Golf Lac Brome, Ville De Lac Brome, QC  
Conestoga Country Club, Conestoga, ON  
Cranberry Resort Golf Course, Collingwood, ON  
Hillsdale Golf and Country Club, Mirabel, QC  
Le Chateau Montebello Golf Course, Montebello, QC  
Nobleton Lakes Golf Course, Nobleton, ON  
Oakdale Golf And Country Club, Downsview, ON  
Peel Village Golf Club, Brampton, ON  
Point Grey Golf and Country Club, Vancouver, BC  
Priddis Greens Golf and Country Club, Priddis, AB  
Royal Montreal Golf Course, Ile Bizard, QC  
St. Thomas Golf and Country Club, St. Thomas, ON  
Summerlea Golf Club, Vaudreuil-Dorion, QC  
The Toronto Board of Trade Country Club,  
Woodbridge, ON  
Whitlock Golf and Country Club,  
Hudson Heights, QC

ACSS  
QUICK TIPS

May/June 2000

- Mount a nest box for songbirds. Be sure to monitor your boxes weekly and record what you see.
- Watch for spring migratory birds and keep an inventory of the species you see on your property. Songbird migration peaks in May.
- Sharpen your mower blades. Dull blades tear and weaken grass, making your lawn more susceptible to weeds and disease.
- Mow high and often. Setting your mower blades high and removing no more than 1/3 of the leaf blade in each mowing encourages longer, healthier roots and increases moisture reten
- Start your own compost pile to reduce the amount of garbage going to your local landfill or incinerator.
- Go organic. Learn about organic gardening techniques to reduce or eliminate pesticide use on your lawn and garden.
- Install a rain gauge and monitor the amount of rainfall. Most plants need about 1 inch per week to thrive.
- Plant native species of plants in your wildlife garden to attract native wildlife and reduce water usage.
- Look and listen for Spring Peepers and Spotted Salamanders in mating ponds and temporary pools.

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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c/o Audubon International  
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Selkirk, NY 12158

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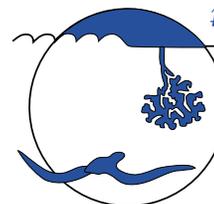


Conserving the  
Spectacular Variety of Life

Issue  
SPECIAL

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*Helping people help the environment*



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