

Envisioning Stewardship

Predictions come a dime a dozen at this time of year, and end-of-century hype has only fueled their further proliferation. Every last commentator, crusader, and organization right on down to your great aunt Kate has put forth a treatise on the dawning of the new millennium.

But predictions have an odd way of rarely coming true—by nature they tend toward sheer catastrophe or sweeping optimism. By the time they've proven themselves utterly false, even silly, we've quite forgotten them.

What we need to guide us into the new century is not cataclysmic forecasts or fool's paradise. What we need is a *vision* of what we want to achieve, where we want to go, and how we might get there. Hope and insight, combined with realism.

Envisioning the future requires both thoughtful hindsight and creative foresight. What are our greatest strengths? Our most tragic weaknesses? Where have we come from? What have we learned? Where do we need to be? How can we get there?

We've been asking these questions at Audubon International and using our answers to shape our vision of what *we—all of us, together* can accomplish in the years ahead. We believe that *stewardship, biodiversity conservation, and sustainability* are at the core of what

Sustainability
Biodiversity Conservation
Stewardship Action
Water Quality Protection

we need to achieve to fulfill our mission of improving the quality of life and the environment for all of Earth's inhabitants.

Stewardship—Good stewardship is the simple philosophy and often-arduous practice of respecting, caring for, and protecting each other and life in the world. It requires both simple daily actions and complex public policies that directly benefit people, wildlife, and the environment in which we live.

At Audubon International, we believe that stewardship must be the guiding philosophy and

practice that shapes our daily actions and decisions in the century ahead. Through good stewardship, we engage in a way of living that leads us to a greater balance between the needs of people and other creatures. It is what ultimately safeguards the natural systems and resources upon which we all depend.

Biodiversity Conservation—Biodiversity is the spectacular variety of life on earth. It includes everything from the specific genetic coding that enables species to survive, to the fantastic variety of animals and plants, to the vastly diverse ecosystems across the planet. It's what makes your corner of the world unique—and *worth preserving*.

But the current rate of extinction, as well as sheer scope of destruction of species and ecosystems around the world, increasingly alarm scientists and citizens alike. In the U.S. alone, more than 1,100 species are currently listed as endangered or threatened.

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AUDUBON
INTERNATIONAL



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Audubon International Announces Best of Environmental Golf List

What if the nation's 16,000 golf courses not only met the demands of golfers, but were also maintained to prevent pollution and provide significant nature reserves? The result would be green spaces in nearly every community that contributed to local environmental quality and added to existing wildlife habitat. Since 1991, Audubon International has been training golf courses to do just that. Now, to recognize golf courses that have made a significant commitment to environmental stewardship and inspire additional courses to do the same, Audubon International is releasing the *Best of Environmental Golf List*. The select list includes the nation's top 200 golf courses that have conserved local biodiversity, reduced water and pesticide use, and maintained water quality.

"There are all kinds of ratings for the top golf courses in the United States, but none of them pay attention to the environment as a rating criteria. The *Best of Environmental Golf List* includes golf's *cream of the crop* in terms of environmental stewardship," stated Ronald Dodson, President of Audubon International. "These are courses who have made a commitment to environmental quality from turfgrass management to wildlife habitat conservation to water quality improvements."

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Envisioning Stewardship

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Habitat destruction through careless development and pollution are most often sighted as the chief causes of the loss of global biodiversity. Though lifestyles based in constant, ever-more demanding consumption are no doubt at the root too.

What we have already lost is hard to comprehend. We cannot return to a golden past, if indeed there ever was one. We can only move forward with a sense of what we have to keep, and to gain.

By conserving biodiversity, we preserve our life support systems that contribute to clean water, air, and healthy soils. We retain the spectacular beauty and richness of forests, grasslands, wetlands, and oceans. At Audubon International, we envision a future where biological diversity is valued and conserved. We urge you to join us in making it happen.

Sustainability—Sustainability means incorporating growth and living in a way that does not deplete resources or damage ecosystems. It dares to incorporate the concept that we might even go to our graves leaving the Earth healthier than we found it.

Sustainability is achieved through the marriage of new technology, current research, and best management practices combined with a vision toward creating long-lasting, healthy environments. We believe that sustainability can be the hallmark of the coming years—if we choose to embrace it over current patterns of consumption and development.

Sustainability is complex; not only does it require knowledge of new technologies and ecosystem dynamics, it requires a spirit of cooperation and collaboration—not often considered hallmarks of American culture or business life.

Yet, Audubon International's sustainable development pilot project and our sustainable community projects have given us reason to hope that sustainability is an achievable goal for the 21st century. We have worked with people from all walks of life united by the idea that we can achieve sustainability and that what we create will be *substantially better* than what we have now.

Predicting the future is easy—there's nothing riding on it and no one is accountable. When hype of the new millennium gives way to ordinary, day-to-day life in the 21st Century, what will carry us forward will be our vision for the future and our courage and commitment to make it happen.

At Audubon International, we know not only where we don't want to end up, we know where we want to go. We hope you'll join us in getting there together.

—Jean Mackay, Editor

Audubon International Announces Best of Environmental Golf List

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The top 200 courses on the *Best of Environmental Golf List* have achieved Audubon International's stringent standards for certification through the *Audubon Cooperative Sanctuary* or *Audubon Signature* programs. Each course selected has implemented and documented their environmental efforts over a number of years and contributed to case studies, environmental education programs, and data collection on golf and the environment.

"We are proud to recognize these golf courses for their contribution to the environment. Through their positive example, we hope they inspire others to do the same," said Dodson.

Arkansas

Hindman Park Golf Course, Little Rock

Arizona

Forest Highlands Golf Club, Flagstaff
TPC at Scottsdale, Scottsdale
Troon Golf & Country Club, Scottsdale

California

Crystal Springs Golf Course, Burlingame
Cypress Ridge Golf Course, Arroyo Grande*
Del Paso Country Club, Sacramento
Granite Bay Golf Club, Granite Bay*
Links at Spanish Bay, Pebble Beach
Morro Bay Golf Course, Morro Bay
Old Brockway Golf Course, Kings Beach
Resort at Squaw Creek, Olympic Valley
Silver Creek Valley Country Club, San Jose
Stevinson Ranch Golf Club, Savannah Course*, Stevenson

Colorado

Applewood Golf Course, Golden
Aspen Golf Course, Aspen
Breckenridge Golf Club, Breckenridge
Castle Pines Golf Club, Castle Rock
Lakewood Country Club, Lakewood
Vail Golf Club, Vail

Connecticut

Aspetuck Valley Country Club, Weston
Hop Meadow Country Club, Simsbury
Simsbury Farms Golf Course, Simsbury
TPC at River Highlands, Cromwell
Woodway Country Club, Darien

Florida

Bonita Bay Club, Bonita Springs
Bay Island Course
Creekside Course
Marsh Course
Bonita Bay Club East, Naples*
Collier's Reserve, Naples*
Country Club of Florida, Village of Golf
Floridian, Stuart
FoxFire Golf and Country Club, Naples
Gainesville Country Club, Gainesville
The Habitat Golf Course, Malabar
Hole-in-the-Wall Golf Club, Naples
Indian River Country Club, Vero Beach*
Interlachen Country Club, Winter Park
Ironwood Municipal Golf Course, Gainesville
Lake Buena Vista Club, Lake Buena Vista
The Legacy Club at Alaquá Lakes, Longwood*
Lemon Bay Golf Club, Englewood
Loblolly Pines Golf Club, Hobe Sound
Lost Key Golf Club, Perdido*
Olde Florida Golf Club, Naples
Old Marsh Golf Club, Palm Beach Gardens
Panama Country Club, Lynn Haven

PGA Golf Club at the Reserve, Port St. Lucie*
PGA St. Lucie West Country Club, Port St. Lucie
River Hills Country Club, Valrico
Royal Poinciana Golf Club, Naples
Sandridge Golf Club, Vero Beach
Tampa Palms Golf & Country Club, Tampa
TPC at Eagle Trace, Coral Springs
TPC at Heron Bay, Coral Springs
TPC at Prestancia, Sarasota
TPC at Sawgrass, Ponte Verde Beach
TPC at Tampa Bay, Lutz
Wilderness Country Club, Naples
Windstar Country Club, Naples

Georgia

Cateechee Golf Club, Hartwell*
The Farm Golf Club, Rocky Face
The Landings Club, Savannah
Deer Creek Course
Oakridge Course
The Standard Club, Duluth
TPC at Sugarloaf, Duluth

Hawaii

Kapalua Land Company, Maui
Bay Course
Village Course
Plantation Course

Illinois

Aurora Country Club, Aurora
Brae Loch Golf Course, Grayslake
Cantigny Golf Club, Wheaton
Countryside Golf Course, Mundelein
The Den, Bloomington
Flossmoor Country Club, Flossmoor
Forest Hills Country Club, Rockford
The Ivanhoe Club, Ivanhoe
Naperville Country Club, Naperville
North Shore Country Club, Glenview
Olympia Fields, Olympia Fields
Pottawatomie Golf Course, St. Charles
Rock River Country Club, Rock Falls
St. Charles Country Club, St. Charles
Silver Lake Country Club, Orland Park
Village Links of Glen Ellyn, Glen Ellyn

Indiana

Sand Creek Country Club, Chesterton
Victoria National Golf Club, Newburgh

Iowa

Beaver Hills Country Club, Cedar Falls
Elmcrest Country Club, Cedar Rapids
Glynns Creek Golf Course, Long Grove

Kansas

Prairie Dunes Country Club, Hutchinson
Quivira Lake Golf & Country Club, Quivira Lake



Courses on the Best of Golf List contribute valuable data about wildlife on golf courses. Woodstorks at TPC at Prestancia, Florida, were among the more than 300 species of birds surveyed during our one-day North American Birdwatching Open held in May.

Kentucky

Highland Country Club, Fort Thomas
Summit Country Club, Owensboro

Maine

Portland Country Club, Falmouth

Maryland

Bethesda Country Club, Bethesda
Eagle's Landing Golf Course, Berlin
Timbers at Troy Golf Course, Elkridge

Massachusetts

Hyannisport Club, Hyannisport
Plymouth Country Club, Plymouth
Sterling Country Club, Sterling
Shaker Hill Golf Club, Harvard

Michigan

Bay Pointe Golf Club, West Bloomfield
Egypt Valley Country Club, Ada
Fox Hills Country Club, Plymouth
Grand Traverse Resort, Acme
Gull Lake View Golf Club, Augusta
Lakelands Golf & Country Club, Brighton
The Legend, Bellaire
TPC of Michigan, Dearborn
White Pine National Golf Club, Spruce
Wuskowhan Players Club, West Olive*

Minnesota

Baker National Golf Course, Medina
Izaty's Golf and Yacht Club, Onamia

Legacy at Cragun's—South Course, Brainerd*
The Minikahda Club, Minneapolis
Minnesota Valley Country Club, Bloomington
Somerset Country Club, Mendota Heights
Tartan Park Golf Course, Lake Elmo
Town and Country Club, Saint Paul
Woodhill Country Club, Wayzata

Missouri

Blue Hills Country Club, Kansas City
Gustin Golf Course, Columbia
Keth Memorial Golf Course, Warrensburg
Top of the Rock Golf Course, Ridgedale*

Nebraska

Beatrice Country Club, Beatrice

Nevada

TPC at Summerlin, Las Vegas
TPC at The Canyons, Las Vegas

New Hampshire

Amherst Country Club, Amherst

New Jersey

Ballyowen Golf Course, Sparta
Baltusrol Golf Club, Springfield
Brigantine Golf Links, Brigantine
Brooklake Country Club, Florham Park
Fiddler's Elbow Country Club, Far Hills
Metedeconk National Golf Club, Jackson
Newton Country Club, Newton
Pine Valley Golf Club, Pine Valley

Ridgewood Country Club, Paramus
Somerset Hills Country Club, Bernardsville
TPC at Jasna Polana, Princeton

New York

Atlantic Golf Club, Bridgehampton
Colonial Acres Golf Course, Glenmont
Eagle Vale Golf Course, Fairport
Old Westbury Golf & CC, Old Westbury
Schuyler Meadows Club, Loudonville
Westchester Country Club, Rye
Winged Foot Golf Club, Mamaroneck

North Carolina

Carmel Country Club, Charlotte
Carolina National Golf Club, Bolivia
Pinehurst #8 Centennial, Pinehurst*
TPC at Piper Glen, Charlotte
Wade Hampton Golf Club
Kinston Country Club, Kinston

North Dakota

Apple Creek Country Club, Bismark

Ohio

Detwiler Park Golf Course, Toledo
Fowler's Mill Golf Course, Chesterland
Sand Ridge Golf Club, Chardon*

Ocean Course and River Course
The Ocean Course at Sea Pines, Hilton Head
Old Tabby Links at Spring Island,
Spring Island
Palmetto Hall Plantation, Hilton Head
Whispering Pines Golf Course, Mrytle Beach

South Dakota

Minnehaha Country Club, Sioux Falls

Tennessee

The Legacy, Springfield
TPC at Southwind, Memphis

Texas

Barton Creek Resort, Austin
Fazio & Crenshaw Courses
Palmer Course
Hyatt Regency Hill Country Resort,
San Antonio
Lakeside Country Club, Houston
La Cantera Golf Club, San Antonio
Padre Isles Country Club, Corpus Christi
Riverside Golf Club, Grand Prairie

Virginia

Robert Trent Jones Golf Club, Gainesville



Protecting natural habitats by creating core reserves helps golf courses like Troon Golf & Country Club in Scottsdale, Arizona to contribute to local biodiversity conservation.

Oregon

Black Butte Ranch Golf Club,
Black Butte Ranch
Crosswater Golf Club, Sunriver
Heron Lakes Golf Course, Portland
Oregon Golf Club, West Linn
Persimmon Country Club, Gresham
Pumpkin Ridge Golf Club, Cornelius
Quail Run Golf Course, Lapine
Salishan Golf Links, Glenden Beach
Widgi Creek Golf Club, Bend

Pennsylvania

Chester Valley Golf Club, Malvern
Hickory Heights Golf Club, Bridgeville
Hill Crest Country Club, Lower Burrell
Huntsville Golf Club, Shavertown
Lords Valley Country Club, Hawley
Tam O'Shanter Pennsylvania, Hermitage

South Carolina

The Club at Seabrook Island, Seabrook Island
Kiawah Island Resort, Kiawah Island

Washington

Glendale Country Club, Bellevue
McCormick Woods Golf Course, Port Orchard
Royal Oaks Country Club, Vancouver
Semiahmoo Golf & CC, Blaine

West Virginia

Edgewood Country Club, Charleston
The Greenbrier, White Sulphur Springs

Wisconsin

Blue Mound Golf & Country Club, Wauwatosa
Country Club of Wisconsin, Grafton
Monroe Country Club, Monroe
Ozaukee Country Club, Mequon

Wyoming

Old Baldy Club, Saratoga

*Denotes Audubon International
Signature Sanctuary

This listing is also available at:
www.audubonintl.org/news

GCSAA Conference Update!

We hope to see our golf course members at the GCSAA Conference and Show in New Orleans this February. Please stop by our booth to introduce yourself, or further your environmental knowledge by attending one of the seminars taught by Audubon International staff.

Seminars:

- Monday, February 14th—Protecting Natural Resources on the Golf Course
- Wednesday, February 16th—Integrated Environmental Management
- Thursday, February 17th—Wildlife Management & Habitat Conservation

Trade Show

February 18th–20th—Meet us at our booth (#3583) in the Allied Association area.

Amphibian Update

Recent research on amphibian conservation has shed new light on how to better enhance habitat for frogs and salamanders. Here's what you can do to help:

- **Connect ponds and wetlands with woods when possible.** Frogs prefer to move through wooded corridors to and from breeding sites such as wetlands and ponds. If woods are not present, some amphibians will disperse across turfgrass, though narrower fields of turf may be preferred. Narrower turf crossing areas may simply expose frogs to predators for less time while they hop for the safe cover of woods or shrubby area (Paton, 1998).

In related research, green frogs previously thought to remain in ponds for the winter moved away from their summer breeding ponds in the fall and traveled to areas of flowing water in streams and seepages that remained unfrozen. Implications of this finding point to the importance of maintaining corridors of natural vegetation to connect ponds with running streams to allow for spring and fall migrations (Lamoureux and Madison, 1999).

- **Avoid pesticide exposure to adult frogs and tadpoles.** Tadpoles exposed to varying concentrations of pesticides caused direct mortality at high concentrations, and reduced growth and delayed metamorphosis at lower concentrations. At high concentrations, carbaryl (63,167 ppb), chlorpyrifos (1,316 ppb), and imidacloprid (468,000 ppb), three common insecticides, killed tadpoles. In addition, when chlorpyrifos was added to water, it accumulated in the sediment where many amphibian larvae feed (Howard, 1998). This work underscores the importance of maintaining no-spray buffer zones around all water features. We further recommend that water from golf course



Aurora Country Club, IL

greens and other treated areas flow through vegetated swales and/or settling tanks before being discharged into wetlands.

- **Maintain a neutral pH in ponds and wetlands.** Exposure to a pH of 5.5 (mildly acidic; neutral is pH 7) for 10 days killed 72% of a sample of adult leopard frogs. When given a choice, both leopard frogs and green frogs preferred neutral waters (pH 7) (Vatnick et al. 1999). This research highlights the dangerous impact of acid rain on amphibian populations. Conduct a simple pH test on your water sources and correct acidic conditions if needed.

Audubon International is a member of **Partners in Amphibian and Reptile Conservation (PARC)**, a national consortium of organizations and individuals working to develop a comprehensive strategy for the long-term conservation of U.S. amphibians, reptiles, and their habitats. For more information on protecting amphibians, check out the PARC website at www.parcplace.org.

Hot off the shelf:

Managing Wildlife Habitat on Golf Courses

by Ronald G. Dodson

M*anaging Wildlife Habitat on Golf Courses*, a new book written by Audubon International President, Ron Dodson is now available from Ann Arbor Press. Written in an easy-to-read format and style, the book is an essential resource for superintendents and other green industry professionals. It provides a practical framework for environmentally-sensitive land management practices and is perfect for anyone who is striving to maintain the traditions of the game, enhance the natural environment of their golf course, and gain support for their efforts. The book may be purchased by calling 1-800-487-2323. Purchase price is \$45 plus

\$5 shipping. It also will be available at the GCSAA bookstore at the 71st Golf Course Conference and Show in New Orleans.

"If you understand where the turf industry is headed, you understand the value of sound environmental stewardship. This book needs to be part of your library."

—Peter Salinetti, Club Manager,
Schuyler Meadows Club, NY

Audubon International Accepts Donation From The Toro Company

Mhe Irrigation Division of the Toro Company has launched a program that rewards Audubon International when customers choose a new water-conserving sprinkler for their irrigation needs. For every irrigation design submitted to Toro Irrigation between November 1999 and October 1, 2000 that employs the 570Z PRX Series spray sprinklers, Toro will Donate \$100 to the Audubon Cooperative Sanctuary System.

The 570Z PRX Series spray sprinklers are used in both residential and commercial settings. Therefore, all types of customers including landscape architects, contractors and homeowners are all encouraged to submit designs. Designs should be sent to: The Toro Company, Re: Toro/Audubon Partnership, 5825 Jasmine Street, Riverside, CA 92504. The \$100 donations to Audubon International will be made in the name of the individual or business that submits an eligible design.

Lending further support to Audubon International, Toro Irrigation recently donated \$640 to the Backyard Program. The money came from a Toro promotional program in which the winner, Jim Voseipka, a distributor, was ineligible to claim the cash prize because he is a Toro employee. This donation will allow 18 backyards to become complimentary members of the Audubon Cooperative Sanctuary System.

Where Does Nutrient Pollution Come From?



A recent study conducted by Penn State's Environmental Resources Research Institute shed new light on the sources of nutrient pollution into Pennsylvania's waterways. Though the study was limited to Pennsylvania, the results and their implications might surprise you:

Percentage	The Source	The Problem
48.7% nitrogen 7.1% phosphorus	Atmospheric Deposition from agriculture, industry, and urban areas	Fossil fuel combustion and agricultural fertilizers vaporize, then collect in rain, snow, and air pollution. Later, they fall back to earth and make their way into waterways. Our lifestyles, agricultural needs, and industrial practices contribute to all of these sources of pollution.
39.2% nitrogen 68.8% phosphorus	Agriculture	Synthetic fertilizers and manure are carried via day-to-day runoff and storm water events directly into waterways. Large-scale agricultural operations and animal feedlots by far contribute the greatest source of phosphorus pollution in the state (PA).
8.4% nitrogen 10.8% phosphorus	Urban Storm Water Runoff	Polluted runoff from construction, roads, parking lots, and other urban sources is washed into waterways when it rains and snows.
3.4% nitrogen 13% phosphorus	Septic Systems	Some nutrients from septic systems migrate into surface and groundwater. Properly maintaining and cleaning septic systems helps to cut down on nutrient pollution.
0.3% nitrogen 0.2% phosphorus	Lawns and Golf Courses	Though fertilizers applied to lawns and golf courses don't appear to contribute substantially on a statewide basis, in non-agricultural areas, they may account for an estimated 30% of the nutrient load.

(Source: Penn State Agriculture, Summer 1999)

Making History International Valderrama Declaration Supports Environmentally Responsible Golf Course Management

After the last putt, when Tiger Woods walked away with the glory at November's American Express World Golf Championship at Valderrama Golf Club in Spain, the most significant part of the event was just beginning. Dignitaries from prominent international organizations, including Audubon International, gathered for a summit on golf and the environment that culminated in the signing of the first international declaration supporting environmentally-responsible golf course management. The Valderrama Declaration is a statement setting out the historical relationship between golf and the environment, the initiatives of the golf authorities to address modern environmental issues, and their on-going commitment to promote sustainability and respect the heritage of golf.

Proposed by Audubon International and Europe's Committed to Green Foundation, the Valderrama Declaration was endorsed by leaders from organizations including: the European and United States Golf Associations, International Olympic Committee Sport and Environment Commission, World Wide Fund for Nature, and the United Nations Environment Program. The Valderrama Declaration provides a coherent vision linking research, education, and practical programs in a way that relates to the needs and concerns of the entire golf community and wider public. As a joint statement endorsed by the golf authorities and other major organizations from sport, environment, and public sectors, the Declaration is a valuable encouragement to all those striving to foster environmental stewardship in partnership with golf.

To read the entire Valderrama Declaration, please see our web site at www.audubonintl.org/news.

Wildlife and Habitat Management Creating A Butterfly Garden

Creating a welcome refuge for butterflies on your property is a simple and rewarding project that literally brings landscaped areas and gardens to life. Plants that attract these “flying flowers” can be added to annual beds, perennial borders, containers, hanging baskets, and general landscaping. You can also create a special garden just for butterflies by planting nectar-producing flowers for adult butterflies and host plants for caterpillars. Begin planning this winter for a dynamic garden next spring and summer.

Butterfly conservation

Butterfly gardening is a conservation project that can be successfully done on nearly any site—from an urban rooftop to a suburban schoolyard, from a landscaped island at a business, to an expansive golf course garden. Imagine if we all did it? Our landscapes would not only be more beautiful, they would provide corridors of habitat to sustain native butterfly populations across the country.

As urban populations expand and suburban sprawl increases, natural habitats are fragmented and reduced. This makes it difficult for many butterfly species to find suitable natural habitats to meet their needs. By planting a butterfly garden on your property, you increase the chances of butterfly survival. Who knows? You also may be the catalyst that encourages your friends, neighbors, and community members to join in this valuable conservation effort.

Lifecycle

All butterflies go through dramatic changes before becoming the beautiful winged creatures we recognize. Butterflies start out as eggs, most often laid on the underside of a leaf or branch. Caterpillars are born with a hearty appetite and often eat their shells as their first meal.

Up Close

There are more than 700 species of butterflies in North America. Follow these tips to get a close-up look at these beautiful insects.

- In the early morning, look for butterflies just after sunrise when they are warming their bodies on rocks or pavement. Also check near woodland edges or meadows, and along paths and unmowed roadsides. They are less likely to fly away at this time because their bodies are not yet warm enough.
- Approach from behind, in a slow, quiet and low manner so that the butterfly is less likely to be disturbed. Avoid letting your shadow cross the butterfly.
- By mid-day, butterflies are most active. Scan your garden or a sunny meadow for fluttering movement, then zero in using binoculars.
- Use a field guide to identify the species you see. Correct identification will help you become more familiar with the butterflies in your area. Butterflies are grouped into different “families,” each distinguished by their body characteristics or behavior. Names like swallowtail, brush-footed, sulphur, skipper, and hairstreak give clues to the distinction between these butterflies.



Old Oakland Golf Club, IN

Many butterflies, including this Monarch, rely on specific host plants to complete their lifecycle.

As caterpillars grow, they molt—that is, they shed their outer layer of skin, at least five times before they become suspended in a cocoon or chrysalis. They may remain within this waxy pupal case for weeks or months, until they finally emerge as adult butterflies.

The average life of a butterfly ranges from a couple of days to around six months. During this time they are looking for mates and places to lay their eggs. Some butterflies don’t eat at all as adults, but those who do are looking to dine on the sweet nectar that comes from flowers.

Butterfly Necessities

Like other insects, butterflies are cold blooded. They rely on the sun to raise their body temperature and metabolism so they can fly. Hence, butterflies can often be found in sunny meadows or basking on rocks or roads with their wings perpendicular to the sun for optimal solar absorption.

Butterflies probe flowers for nectar using a *proboscis*—a long, tongue-like projection on the top of their head. Caterpillars, on the other hand, simply chew their way through the world and often have strong food preferences. Indeed, while adult butterflies will feed on almost any nectar-producing plant, caterpillars usually feed on only one or a few specific plants. Food sources for caterpillars are called *host plants* since they welcome distinct species of butterfly caterpillars. Adult butterflies lay their eggs on the host plant preferred by their young so that a convenient meal is waiting when they hatch from the egg.

Getting Started

Step 1: Choose a sunny, sheltered location.

A butterfly garden should be located in the sun for most, if not all of the day. Adding light colored rocks to your garden will increase your chances of seeing butterflies warming themselves

Butterfly Basics

Use this checklist to ensure a successful butterfly garden.

- Sunny Location
- Shelter from wind
- Rocks or stones for basking
- Nectar plants for adults
- Host plants for caterpillars
- Plants in *stair-step* formation according to height
- Accessible shallow water source
- No pesticide use

in the early morning, before they begin feeding and possibly breeding.

Wind is another factor to take into account before creating your garden. Butterflies use most of their energy flying to and from food and breeding sights. Placing your garden in a protected location, such as the edge of a wooded area, will make it easier for butterflies to perform their daily tasks.



Colonial Golf Course

Composite flowers allow butterflies like these Black and Yellow Swallowtails to balance while feeding.

Step 2: Provide abundant nectar sources.

Provide plants that are highly visible and easily accessible. Bright colored flowers with numerous flower heads and large petals to land on are most attractive. *Composites*—flowers that have a center surrounded by a ray of petals, such as asters, purple coneflower, and black-eyed Susan are good choices. Stick with fragrant, old fashioned varieties of annuals including marigolds, zinnias, and cosmos. These tend to produce more nectar than double-flowered varieties. Butterflies also prefer flowers with small clusters of blossoms on strong stems, such as butterfly weed, lantana, and mints.

The best way to arrange plants in your garden is in *stair-step formation*: short plants in the front grading to taller plants in the back of the garden. A simple design that includes masses of a few nectar flowers is an attractive way to meet the needs of butterflies.

We've provided an extensive list of nectar-producing plants that are native to North America. As butterfly gardening gains

Bees vs. Butterflies

The nectar of flowers in your butterfly garden may also attract a variety of bees. While not all species of bees sting, people who are hypersensitive to bees should plant flowers that are slowly and continually producing small amounts of nectar. Bees tend to prefer flowers that produce large amounts of pollen and nectar in spurts. Some low nectar—producing shrubs that tend to attract mainly butterflies are lantanas (*Viburnum* spp.) and butterfly bush (*Buddleia davidii*).

in popularity, many nurseries and mail-order catalogs offer butterfly garden collections or advertise plants specifically for butterfly gardens. Use our plant list as a guide, or ask your local horticulturist for good suggestions for your area.

Step 3: Include host plants for caterpillars.

To ensure a close-up look at the butterfly life cycle, include a variety of host plants for eggs and caterpillars. You can simply select several host plants from the list provided, or identify the butterflies you see in your area and provide their preferred host plants.

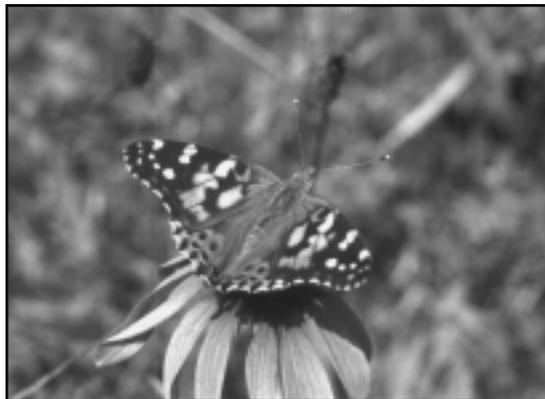
Watching and identifying butterflies will help you learn which flowers they frequent. By adding those plants to your garden you will ensure a future home for that species.

The Monarch-Milkweed Connection

Monarch caterpillars feed only on milkweed. Milkweed contains chemical compounds known as *cardiac glycosides*, which makes the caterpillar unpleasant tasting to predators, thus ensuring a higher survival rate.

Step 4: Avoid pesticide use in and around your garden.

Since butterflies are insects, they are susceptible to pesticide exposure. Use organic gardening techniques to control pest problems. An integrated pest management program (IPM) should be standard practice on larger properties to reduce the need for pesticides.



Village Links of Glen Ellyn, IL

Learn to identify local butterflies and plants; Painted Lady on purple coneflower.

Step 5: Add finishing touches.

In addition to nectar flowers and host plants, you can include a few flourishes to set a welcoming table for butterflies. A small patch of mud or wet sand will provide needed water, amino acids, and salts. Children may enjoy leaving a few pieces of rotting fruit on a tray off the ground—though if other creatures become a problem, you may opt to omit this enticement.

If you have space, leave several wild patches of taller grasses and wildflowers, as well as shrubby undergrowth in wooded areas. These will provide needed protection from predators and adverse weather.

Several mail-order companies and wildlife specialty stores even offer a *butterfly shelter*—a wooden structure about the size of a bird house with slatted openings that allow butterflies to enter. While we have seen no definitive research on the value of butterfly boxes, they may make an attractive addition to your garden.

Butterfly Garden Plant List

Nectar-Producing Plants

Annuals

Scientific Name	Species Example, Common Name	Color	Height	Bloom Time
<i>Cosmos</i> spp.	Cosmos	W, Pi	2'-4'	SU-F
<i>Calendula officinalis</i>	Calendula	Y, O	12"-18"	SU-F
<i>Impatiens</i> spp.	Impatiens	Pi, R, W	6"-12"	SP-F
<i>Antirrhinum majus</i>	Snapdragon	W, Y, Pi, R	1'-2'	SP-SU
<i>Helianthus annuus</i>	Sunflower	Y	3'-8'	SU-F
<i>Zinnia</i> spp.	Zinnia	Y, R, O, Pi	2'	SU-F

Perennials

Scientific Name	Example Species, Common Names	Color	Height	Bloom Time
<i>Allium cernuum</i>	Nodding Pink Onion	W, Pi	1'-4'	SU
<i>Anemone</i> spp.	Anemone: Canada, Virginia	W	1'-2'	SP-SU
<i>Aquilegia canadensis</i>	Columbine	R-Y	1'-3'	SP-SU
<i>Asclepias</i> spp.	Red Milkweed*, Common Milkweed*, Butterflyweed*	Pi-R, L, O	3'-5'	SU
<i>Aster</i> spp.	Aster: Health*, Smooth*, New England, Silky	W, B, Pi, Pu,	2'-6'	SU-F
<i>Baptisia</i> spp.	Wild Indigo	Pu, B	3'-6'	SP-SU
<i>Cacalia atriplicifolia</i>	Pale Indian Plantain	W	4'-8'	SU
<i>Campanula rotundifolia</i>	Harebell	B, W	1'-2'	SU-F
<i>Chelone glabra</i>	White Turtlehead	W	2'-4'	SU-F
<i>Coreopsis</i> spp.	Coreopsis: Lanceleaf, Stiff	Y	2'-4'	SP-SU
<i>Echinacea purpurea</i>	Purple Cone Flower	Pu, Pi	2'-5'	SP, SU, F
<i>Eupatorium</i> spp.	Joe Pye Weed, Boneset, Mist-flower	Pi, W	3'-6'	SU-F
<i>Gentiana andrewsii</i>	Bottle Gentian	B, W	1'-2'	SU-F
<i>Helianthus</i> spp.	Sunflowers: Sawtooth, Downey, Western, Woodland	Y	2'-12'	SU-F
<i>Heliopsis helianthoides</i>	Ox Eye Sunflower	Y	2'-5'	SP-SU
<i>Iris versicolor</i>	Blue Flag Iris	B	2'-3'	SU
<i>Liatris</i> spp.	Blazingstar: Rough, Dotted, Prairie, Dense	Pu-Pi, R	1'-6'	SP, SU, F
<i>Lilium superbum</i>	Turks Cap Lilly	O, R	3'-5'	SU
<i>Lobelia cardinalis</i>	Cardinal Flower	R	2'-4'	SU-F
<i>Lupinus</i> spp.	Lupine	B, Pu	1'-2'	SP-SU
<i>Monarda</i> spp.	Scarlet Beebalm, Bergamot, Dotted Mint	Pu, R, L	1'-4'	SU-F
<i>Penstemon</i> spp.	Penstemon: Smooth, Slender	W, L	1'-5'	SU
<i>Ratibida</i> spp.	Yellow Coneflower, Prairie Coneflower	Y	3'-6'	SU
<i>Rudbeckia</i> spp.	Black Eyed Susan*, Green Headed Coneflower	Y	1'-6'	SU-F
<i>Silene virginica</i>	Fire-Pink	R	<2'	SP-SU
<i>Silene regia</i>	Royal Catchfly	R	2'-4'	SU
<i>Silphium</i> spp.	Rosinweed, Compassplant, Prairie Dock	Y	2'-10'	SU
<i>Solidago</i> spp.	Goldenrod	Y	1'-5'	SU-F
<i>Thalictrum dasycarpum</i>	Meadow Rue	W, Y-G	3'-6'	SU
<i>Tradescantia obiensis</i>	Spiderwort	B, Pi	2'-4'	SU
<i>Veronia</i> spp.	Ironweed	Pu	4'-8'	SU-F
<i>Veronicastrum virginicum</i>	Culver's Root	W, Pi	3'-6'	SU
<i>Viola</i> spp.	Bird's-Foot Violet*, Twin-Flower Violet, Labrador Violet, Western Dog Violet	B-Pu	<1'	SP

Shrubs, Trees and Vines

Scientific Name	Common Name	Color	Height	Bloom Time
<i>Amorpha canescens</i>	Leadplant	B-Pu	<6'	SP-SU
<i>Calycanthus floridus</i>	Carolina Allspice, Sweetshrub	Brown-R	6'-12'	SP-SU
<i>Cornus florida</i>	Flowering Dogwood	W, Y	35'-50'	SP
<i>Lantana involucrate</i>	Button Sage	L, evergreen	6'-12'	W, SP, SU, F
<i>Lindera benzoin</i>	Northern Spicebush*	Y	6'-12'	SP
<i>Rhododendron</i> spp.	Flame, Clammy or Pink Azalea	O, W, P	6'-12'	SP
<i>Sassafras albidum</i>	Sassafras	Y	35'-50'	SP
<i>Spiraea alba</i>	Meadowsweet	W	<6'	SU
<i>Viburnum</i> spp.	Squashberry, Hobblebush	W	<6'-12'	SP-SU
<i>Aristolochia serpentaria</i>	Virginia Snakeroot	Pu, R	Vine	SU-F
<i>Campsis radicans</i>	Trumpet Vine	R, O, Y	Vine	SU-F

Host Plants

Larvae/Caterpillar Species They Attract

Flowers and grasses	
Beard-tongue, <i>Penstemon</i> spp.	Checkerspot
Black-eyed Susans, <i>Rudbeckia</i> spp.	Silver Crescentspot
Butterfly Weed, <i>Asclepias tuberosa</i>	Monarch, Queen
Clovers, <i>Trifolium</i> spp.	Dogface, Cloudywing, Sulphurs, Eastern Tailed Blue
Grasses, any native species	Yellow, White, and Sulphurs
Hibiscus, <i>Hibiscus</i> , spp.	Hairstreaks
Indian Plant Brush, <i>Castilleja coccinea</i>	Checkerspot
Milkweed, <i>Asclepias</i> spp.	Monarchs, Queens
Mustards, <i>Cruciferae</i> spp.	White, Sulphurs, and True Skippers
Nettles, <i>Urtica</i> spp.	Comma, Tortoiseshell, Satyr Anglewing
Thistles, <i>Cirsium</i> or <i>Carduus</i> spp.	Crescentspot, Painted Lady, Metalmark
Violets, <i>Viola</i> spp.	Brush-footed and Fritillaries
Wild Senna, <i>Cassia bebecarpa</i>	White, Yellow, Sulphurs, and Skippers

Shrubs and Trees

Cherry, <i>Prunus serotina</i>	Swallowtails, Elfins, Hairstreaks, Viceroy, Red Spotted Purples, Metalmarks
Elm, <i>Ulmus</i> spp.	Brush-footed
Yellow Poplar, <i>Liriodendron tulipifera</i>	Tiger Swallowtail
Willows, <i>Salix</i> family	Sulphurs, Whites, Yellows, Fritillaries, Anglewing, Tortoiseshell, Morning Cloak, White Admiral, Red Spotted Purple, Viceroy, Duskywing

Color Key:

W—white
L—lavender
R—red
Pi—pink
Pu—purple
Y—yellow
G—green
B—blue
O—orange

Bloom Time Key:

SP—spring
SU—summer
F—fall

*Provides nectar for butterflies and food for caterpillars

Preserving Local Biodiversity

Property Name:	Farnsworth Middle School
Location:	Guilderland, New York
Project Coordinator:	Dr. Alan Fiero, science teacher

Description:

Farnsworth Middle School lies just on the outskirts of the Albany Pine Bush, a globally-rare, inland pine barrens ecosystem. Due to increased urban development and the suppression of natural fires, this fire-adapted area is in danger of being lost. As a result, several species that rely solely on the Pine Bush are listed as *endangered* and *threatened*. Most prominent among the list is the endangered Karner blue butterfly, which requires native lupine found in the Pine Bush to survive.

What began as several classes of student volunteers assisting the local Albany Pine Bush Preserve Commission—the organization responsible for managing preserve areas—to maintain native plants in the preserve, is now a school-wide effort that has literally transformed our school. Our Pine Bush Project began in 1994 and now has more than 800 sixth and seventh grade students working through an interdisciplinary curriculum based on the Pine Bush. Not only do students learn about the Pine Bush through field trips and library research, they take part in authentic research in partnership with scientists from around the country, and directly contribute to the preservation of this ecosystem.

Goals:

The main goal of this project is to make Farnsworth Middle School a center for environmental education and ecological restoration for our entire community.



The transformed school courtyard.

Implementation and Maintenance:

The Pine Bush Project developed over five years. It began with just one teacher and 100 students. As other teachers expressed interest, they joined the fun. Student research projects were decided upon by having teachers and researchers meet and discuss which type of investigations would benefit both the scientists and the students.

We joined the ACSP in 1996 and began transforming our school site the same year. The focus of our effort is a butterfly garden and native plant garden in which to conduct our research and academic studies.

We developed a one-acre native plant garden on formerly-mowed lawn at the entrance to the school. Because the garden is visible from a major road, we posted an attractive sign to inform the public about our work. This year, we will be ready to contribute lupine plants for the Karner Blue butterfly and grow other native species for restoration efforts in the Pine Bush preserve.

Our school-yard courtyard is the site of our butterfly gardens and butterfly house. Here, a pathway winds its way through a variety of annual and perennial flowers. Before this program began, the school courtyard was just a poorly mowed grassy area. Now it has a butterfly house, a greenhouse, a beetle house, a butterfly garden and a native plant garden.

To take our project one step further, students opened our butterfly house and native plant garden to the public in the summer of 1999. More than 1000 visitors came. Our students guided each visitor on a tour of the butterfly house and native plant gardens. During the tour, the students educated the visitors about the delicate nature of the Pine Bush and the need for native plantings.

Results:

Before this program, students felt that they could not make a difference. Now, students see that by working together, they can actually change the world around them in a positive way.

The results of the student's research are used to make decisions on how best to preserve the Pine Bush. For instance, sixth grade students conduct research on the best methods to germinate lupine seeds and study which soil mediums provide the best growth for lupines. This data is put to direct use in our own native plant garden to efficiently grow lupines for transplanting back into the Pine Bush. Only a handful of local nurseries are growing native Pine Bush species and we're proud to make such a significant contribution.

Student/Faculty/Community Response:

Students and faculty alike are enthusiastic about our program. From just one teacher in 1994, twenty-six now are involved in the program. Community interest and support was evident by the great success of our summer program in 1999. Our program has been cited in two national publications, and we have received several major grants to continue our work.

Perspective and Recommendations:

Sometimes it seems that environmental initiatives must be so large to make a difference that they are too challenging to undertake. As teachers we especially should be optimistic about change. We understand the tremendous potential our students represent.

Start with just a seed of an idea. Grow it slowly, nurture it, make it successful. The most important point is to start small and be successful. Then let your program grow naturally as interest builds. Always be prepared to help other teachers become involved. Allow each teacher to participate to the level they wish in the way they wish. Invite the unique perspective and talents that each individual brings. Then watch as success breeds success and you have truly made a difference in the world around you.

Economic Costs and Benefits:

To run the entire program, including three teacher's salaries for the summer program, the cost is \$12,000. More and more of the school grounds are becoming native plant gardens thereby saving on the cost of maintaining lawn.

For More Information Contact:

Dr. Alan Fiero, Farnsworth Middle School
(518) 456-6010 • e-mail: fmsf@global2000.net

membership NEWS

NEW GOLF MEMBERS

SINGAPORE

Safara Resort & Country Club,
Republic of Singapore

CALIFORNIA

Eagle Ridge Golf Course, Gilroy
Snowcreek Golf Course, Mammoth Lakes
Napa Golf Course, Napa
Champions Golf Links, Sacramento
Rancho Del Pueblo Golf Course, San Jose
White Fox Creek, Fresno

FLORIDA

Boca Raton Resort & Club, Boca Raton
Boca Country Club, Boca Raton
Southern Woods Golf Course, Homosassa
Sugarmill Woods Country Club, Homosassa
Heritage Pines, Hudson
Bay Colony, Naples
Tiburon Golf Management, Naples
Heritage Springs Country Club,
New Port Richey
Highland Lakes, Palm Harbor

GEORGIA

The Club at Jones Creek, Evans

KENTUCKY

Eastern Kentucky University, Richmond

MAINE

Jato Highlands Golf Course, Lincoln

MONTANA

Teton Springs, Bozeman

NORTH CAROLINA

The Currutuck Club, Corolla
Nags Head Golf Links, Nags Head

NEVADA

Stone Creek Golf Course, Omaha
Southern Highlands Golf Club, Las Vegas
Montreux Golf & Country Club, Reno

NEW YORK

Bonavista State Golf Course, Ovid

PENNSYLVANIA

Scottish Heights Golf Course, Brockport

TEXAS

Country View Golf Course, Lancaster
Canyon Springs Golf Club, San Antonio

WASHINGTON

Camas Meadows Golf Course, Woodland

WISCONSIN

Ashland Elks Golf Course, Ashland

Newly Certified Audubon Cooperative Sanctuary

GOLF COURSES

Crystal Springs Golf Club
Burlingame, CA

Silver Creek Valley Country Club
San Jose, CA

Interlachen Country Club
Winter Park, FL

Landings Club—Deer Creek
Savannah, GA

Brigantine Golf Course
Brigantine, NJ

Metedeconk National Golf Club
Jackson, NJ

TPC at Jasna Polana
Princeton, NJ

Ballyowen Golf Course, c/o Go Wild!
Sparta, NJ

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**In our November issue, we incorrectly printed Coveside's phone number. Our
apologies to Coveside and to our members who tried in vain to contact them.*

Old Tabby Links at Spring Island
Spring Island, SC

Riverside Golf Club
Grand Prairie, TX

NEW BUSINESS MEMBERS

ARIZONA
Dixleta Gardens Nursery, Cave Creek

FLORIDA
Park Place MHC, Sebastian

MINNESOTA
3M, Park Rapids

NEW SCHOOL MEMBERS

ALABAMA
Greystone Elementary, Birmingham

FLORIDA
North Barrington School, Barrington
Suncoast K-8, North Fort Myers

INDIANA
Warrick County School Corp, Boonville

MICHIGAN
Brookview School, Benton Harbor

NEW YORK
St. James School, Albany
St. Annes Institute, Albany
Blessed Sacrament, Albany
St. Teresa of Avila, Albany
Altamont Elementary, Altamont
Guilderland Elementary, Guilderland
Sherman Elementary School, Henrietta
Pine Bush Elementary, Schenectady
Lynwood Elementary, Schenectady
Wildwood School, Schenectady
Westmere Elementary, Westmere

SOUTH CAROLINA
A.R. Lewis Elementary, Pickens

WASHINGTON
Gig Harbor High School, Gig Harbor
Artondale Elementary, Gig Harbor

NEW BACKYARD MEMBERS

Sherry Westernoff
Alameda, CA

Gail M. Clary
Loma Linda, CA

Carol H. Race
Englewood, CO

Andrew R. Sherriff, Jr.
Weston, CT

Bonnie Tague
Nampa, ID

Christine Donatone
Easthampton, MA

Gary & Barb Powell
Innsbrook, MO

R. Michael Bush
St. Louis, MO

Fredrik M. Realbuto
Albany, NY

Jerry & Carolyn Horton
Delanson, NY

Nancy Pierce
Eugene, OR

Rene Barfield
Hillsboro, OR

Owen Wagner
Hermitage, PA

Newly Certified Audubon Cooperative Sanctuary

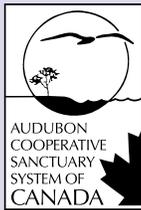
BACKYARDS

Gail M. Clary
Loma Linda, CA

Audubon International and Cornell University present Turfgrass Management to Preserve Water Quality January 24–28, 2000

Join experts from Audubon International and the Cornell Turfgrass Team for this 5-day short course. The course will focus on management of golf and lawn turf from design and management for pollution prevention, to communication and the development of a water quality protection program. In addition, there will be important information about developing water quality management programs for properties participating in the ACSP. Tuition \$750.

For more information, contact: Joann Gruttadaurio, Director of Turfgrass Education at 607-255-1792 or jg17@cornell.edu.



From the Martin House

Scott A. Martin, National Coordinator, ACSSC

I don't know about you, but it feels like 1999 just sped right past me. Which is really too bad, because, from everything I hear, it was a great year. In my neck of the woods at least, the spring was warm, the summer was hot, the fall was generally mild well into November, and the snow, when it finally came, was white. What more could I ask for? How about some time to enjoy it?! So much for technology giving us more free time!

This year, instead of spending three months trying to figure out a landscaping program on the computer, I'm just going to go outside and dig and plant. Instead of talking to other birders on the web, I'm going to actually get out and do my own birding. That is my New Year's Resolution for 2000—I am going to get outside more.

But while winter is upon us, and often keeps us indoors, take time to document all your efforts from the past year, and to plan your projects for the year ahead. The documentation for certificates of achievement in our various programs is designed to be user-friendly, and take little time to complete. Don't forget that you have to document your efforts, and submit your requests for certification in order to receive recognition for your efforts. If you have any questions

throughout the process, remember that we are only a phone call away, and we love hearing from you!

Spreading the Word

The ACSSC and our programs have continued to garner a great deal of positive publicity and exposure, in both environmental education and management circles. In November, I appeared as the guest expert on the new gardening show "Diggin' It", on ONtv. The half-hour show was devoted to the Audubon Cooperative Sanctuary Programs, and how members of the Backyard program could attract wildlife to their property through creative landscaping with native plants and a proper feeding program for birds and other wildlife. The show aired throughout Ontario, from Timmins, south, and resulted in considerable exposure. Watch for us in new episodes planned for this spring, and in re-runs.

On The Road Again

The next few months are going to be quite busy, but also fulfilling, as I get out to meet many of our current members and try to bring more on-board. I will be taking the Audubon message on the road to conferences, trade shows, and exhibitions through

much of January, February and March.

- January 5th, **Ontario Turfgrass Symposium**, Regal Constellation Hotel, Toronto, ON—*Seminar on the ACSP for Business and Corporate Properties.*
- February 7th, **Golf Forum 2000**, Brooklea Golf and Country Club, Midland, ON—*The benefits of participating in the ACSP for Golf Courses.* Of particular interest to the management personnel of golf facilities in the Georgian Bay area. For more information contact Bay Area Golfing, at (519) 599-5573.
- February 27th through March 1st, **Western Canada Turfgrass Association Conference and Trade Show**. Contact the WCTA office at (604) 467-2526 for more information.
- March 4th through 7th, **Canadian Golf Superintendents Association's (CGSA) Canadian International Turfgrass Conference and Trade Show** in Ottawa, ON. Call the CGSA at (905) 602-8873 to find out more.
- March 22nd through 26th, **Canada Blooms**, Metro Toronto Convention Centre, Toronto, ON—The ACSSC Booth will be on display at Canada's largest flower and garden show. On Saturday, March 25th, I will be presenting a seminar on the *ACSP for Backyards and landscaping for wildlife.* Call 1-800-730-1020 for more information.

Membership News

NEW GOLF MEMBERS

Ontario
Westbrook Golf Club, Westbrook

NEW SCHOOL MEMBERS

Nova Scotia
Harry R. Hamilton Elementary School, Middle Sackville—
Sponsored by Sackville Golf Course

NEW BACKYARD MEMBERS

Ontario
Patricia Ferguson, Wasaga Beach
Luanne Dorion, Wasaga Beach

Newly Certified Audubon Cooperative Sanctuaries

BACKYARD

Matthew Gaasenbeek, Toronto, ON
Dan and Annette MacDonald, Mitchell's Corners, ON
The Lyn-Piluso Family, North York, ON

GOLF

Whitlock Golf and Country Club,
Hudson Heights, QU

A Long Term Commitment

Probably not what one would expect from someone who spent his career in the international world of venture capital and corporate finance, ACSP Backyard member, Matthew Gaasenbeek has a deep passion for nature. His inspiration came when he read Louis Bromfield's *Malabar Farm*, an account of how the author had worked with nature on his newly acquired property. According to Matthew, "it became a dream of mine to have my own Malabar Farm." Eventually, he purchased an abandoned 67 hectare (168 acre) farm outside of Flesherton, ON, and over the past 35 years, he has accomplished this, and much more.

The farm's woodlot had been cleared in the 1920's; pasturing cattle ravaged the natural vegetation until the mid-1960's when the Gaasenbeek family bought the property. Restoring habitat was not going to be easy, but Matthew is not an easy man to deter. He set a goal of creating a wide range of habitats in order to restore proper ecological balance. Over the years, Matthew planted more than 65,000 trees and shrubs to restore upland and mixed forest habitats. To Matthew, "planting a tree is the ultimate act of an optimist—especially if you are 60 years old!"

Matthew set aside several large areas as open meadows and built stone piles to provide habitat for snakes and small rodents. Travel corridors connecting meadows, woods, a lake, and a provincially-significant wetland complex provide wildlife with sheltered passage throughout the property. Fallen, hollow trees are re-used by turning them into nest boxes. In addition, Matthew has erected more than 150 nest boxes on his property for everything from bluebirds, wrens and wood ducks, to kestrels, barn owls, and bats.

To further enhance the farm, Matthew constructed four large ponds and stabilized riverbanks on the property by establishing trees and shrubs. Matthew conserves precious resources by restoring furniture and appliances, using scrap wood to make birdhouses and feeders, mulching his gardens to retain moisture, and never watering his healthy, naturally-green lawn. On top of all this, he also organically grows about 70% of the vegetables for himself and the rest of his family.

Matthew Gaasenbeek provides us with a perfect example of what can be accomplished with determination, strong will, and a healthy passion for the natural world. In Matthew's own words, "you have to have empathy and sensitivity to the landscape, to go around things and work with nature rather than against it."

January/February 2000

Begin the new century with a resolution to expand your stewardship efforts by choosing new projects. Emphasize to friends and colleagues the personal satisfaction and environmental benefits of good stewardship.

- Resolve to expand your knowledge of wildlife and natural habitats. Go on a nature walk to observe wildlife in winter. Keep a journal to record your observations.
- Resolve to incorporate plants that provide food for butterflies or hummingbirds in new or existing gardens and plantings. Consult our butterfly plant list in this issue before your purchase and choose nectar-producing flowers and host plants.
- Resolve to save energy. Seal exterior cracks and holes, ensure tight-fitting windows and check your house for drafts, then caulk them to save energy and money. Install programmable thermostats and room-lighting controls to optimize heating, cooling and lighting.
- Resolve to carry out environmentally-responsible maintenance. Replace air filters for heating or cooling systems regularly and follow maintenance schedules for furnace and air conditioning equipment. Repair any automotive oil or gas leaks promptly. If you have a septic system, schedule a cleaning to reduce nutrient pollution.
- Resolve to save water. Reduce water use by air-powering your shower using a low-flow showerhead. Install a low-flow toilet and faucet aerators. Install water conservation irrigation equipment such as soaker hoses or drip irrigation, rain collection systems, or part-circle irrigation heads.

STEWARDSHIP news

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

EDITOR, *Stewardship News*
c/o Audubon International
46 Rarick Road
Selkirk, NY 12158

Or sent via e-mail to: jmackay@audubonintl.org

EDITOR: Jean Mackay, Education Director

Contributors: Ronald Dodson, Paula Donnelly, Alan Fiero,
Mary Jack, Scott Martin, Larry Woolbright,
Kate Vejvoda, Joellen Zeh

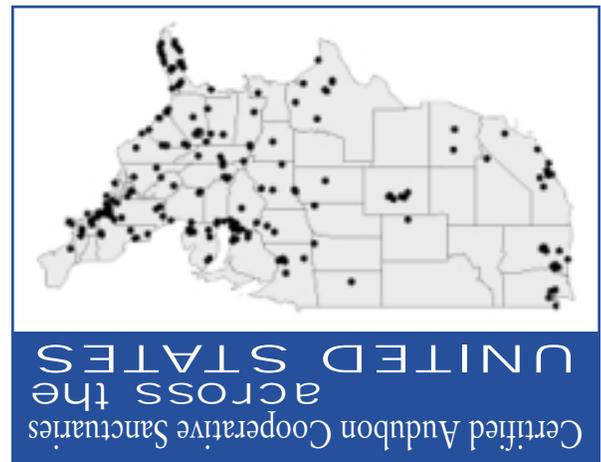
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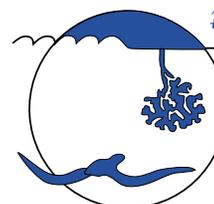
The Audubon Cooperative Sanctuary System (ACSS) and the Audubon Signature Program provide environmental education and technical assistance to facilitate voluntary environmental stewardship on private and public lands.

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