INTRODUCTION

One of the great awakenings in the 20th century is an understanding of modern society's activities on the environment. While man has always been a part of the natural world and interacts like all other species, our tremendous advancements in both numbers and actions has reached a point where entire species and ecosystem's survival rests on our decisions.

It is true that this trend has built, not over the years but centuries, and typically, the decline of a species or habitat is the result of a complex series of often subtle changes. But as we have observed these declines and losses, we have begun to alter the way we do things and have taken formal steps to reverse out impacts.

The unique beauty and natural richness of Citrus County is the foundation of why many of us live and work here. During the development and deliberation of Vision 20/20, protection and enhancement of our environment was a common thread among almost all participants and subgroups.

Therefore, it is with this spirit that we offer this booklet. There is no formal obligation on your part to act. The subjects offered are on occasion controversial and there are valid arguments to all sides. But by cataloguing key environmental issues that can directly impact Citrus County, and offering you ideas or simple actions you can take to help mitigate them, we can, together, each in our own unique way, preserve the beauty and natural wonders of our chosen home.

There is an ancient Chinese proverb that says even the longest of journey begins with a single step. Let us capture the spirit of this simple truism and begin a new proverb for our time.

The health of our environment begins with me.

CHOOSING AND DEVELOPING A HOME SITE

Often when discussion of Citrus County's environment focuses on the negative changes we have seen over the years, the blame is firmly placed on "Developers". Unfortunately it is a simplistic answer to a complex issue, for in the true sense of the word we are all developers.

Subdivisions would not be created or designed as they are if it were not for tremendous market demands for their existence. Our very presence supports the success of their creation.

Our everyday activities of home site development and maintenance, when looked at cumulatively, often equals or exceeds the impacts of development of a new road or shopping center. The creation of nutrient and water demanding lawns and gardens, operation of cars and boats or placement of sheds, fences and pools all have harmful effects on the environment.

There is a tremendous variety of neighborhoods, lots and parcels within Citrus County. Each of these influence our environment, community and economy in both positive and negative ways. By deciding what you want and how you will achieve it before you purchase one, you can increase or reduce these impacts.

For example, buying an undeveloped tract of land and replacing all the existing habitat with a large open lawn can be costly and directly influence the survival of many species around you by creating fringe affects that support competing species more acclimated to living around man.

Conversely, buying an already altered parcel and trying to restore it fully to native habitat would also be costly, have limited results and potentially could cause heath or safety problems in your neighborhood by creating conditions favorable to pests and vermin which have already replaced the native wildlife.

If you want a big house, two car garage, pool, etc., it will be difficult if not impossible to fit it on a small lot. If a small house is all you want and you wish to avoid the expense of maintaining a large homesite then a small lot may be to your liking.

As a rule waterfront property is more costly than inland sites both to purchase and develop. Waterfront properties are also subject to more regulations because of concerns of flooding and impacts to the water body. Therefore, you should carefully research whether you can build the home you want before developing your homesite.

Choosing A Homesite

- ***Learn the land use designation (zoning) and flood zone of a site before you buy. This can be done by contacting your local government and giving the full legal description of the property. (Ex: Highview Acres Blk 7 Lot 3 in Section 20 Township 19S Range 20E)***
- ***Often there are deed restrictions or regulations that limit what can be done with a piece of property. If there is something special you want to do at your new home (Ex: Operate a business, park a boat or RV, keep farm or wild animals, etc), make sure you can legally do it before you buy.***
- ***The percentage of a lot you can cover, how close you can build to a water body, property line or road are all regulated by local government. Learn the regulations that apply to the property you are interested in.***
- ***Citrus County is still a growing community. If you are considering locating in an area with a lot of vacant parcels, research what can by placed on them.***
- ***The ability to subdivide property is now carefully controlled. Don't invest in large properties you expect to subdivide unless you are sure you can (and remember that the ability to subdivide can change over time).***
- ***Visit the site before you buy. If you have questions or concerns over wetlands, protected species, soil type, water quality, etc. find out the answers before you buy even if you have to hire someone to do it.***
- ***Don't buy a property with the intention of changing you neighborhood. While development of your homesite will be covered by current rules, existing conditions were controlled by older, often less stringent rules and are usually "grandfathered".***

Developing a Homesite

- ***Just as there are a variety of homesites, there is also a diverse offering of contractors and services. Research who you contract or hire before you make a deal.***
- ***Spend time talking with your contractor before you sign anything. Having a clear understanding of the services you expect and how they will be provided, will avoid misunderstandings later.***
- ***If you want certain things left undisturbed or protected on your homesite, make it part of the contract. If you want certain trees saved, consider marking them yourself or arrange to meet with the work crew supervisor before the work begins.***
- ***Remember, post-contract changes carry a cost. If you want a change, be prepared to pay for it.***
- ***Don't ask your contractor to break or subvert the law. The good ones won't and the ones that will are likely to leave you shouldering the responsibility (or worse). Remember rules exist for reasons and enforcement will cost both you and your community.***

- ***You get what you pay for. While quality workmanship is a reasonable expectation, master craftsmanship and superior materials demand a premium price. By becoming involved in choosing your materials, you can influence the market and help the environment. Choose efficient appliances, recycled or sustained yield materials and energy conserving designs.***

Septic Tank Installation and Maintenance

The septic tank is a testament to a simple, effective solution to a large and potentially deadly problem. Improperly disposed sewage was once a major source of life threatening, communicable disease. The development of the septic system provided an energy free, uncomplicated solution that utilized anaerobic (non-oxygen using) bacteria to decompose human waste and allow the byproducts to pass into the surrounding soils safely.

The low cost and longevity of septic systems quickly became a component to the mass subdividing and settlement of Florida. Florida's readily available water and easily excavated sands allowed for the successful marketing of small, easily affordable lots. It is estimated that over 1.3 million families, greater than 25% of all Florida housing, utilize septic systems. Citrus County has over 20,000 septic systems with an additional thousand or more added each year.

It is these numbers and densities that have led to many of our surface water problems. One of the byproducts of septic system treatment are the chemical components called nitrates. Nitrates are a main ingredient to plant growth and the availability of nitrates often determines what plants grow in an area. Until recently, our coastal rivers received very little nitrate and plants such as eelgrass thrived in this environment.

Recent studies have shown nitrate levels higher than normal. Further research showed that over 90% of these nitrates came from the springs that feed these rivers. These springs derive their water from the same aquifer we draw our drinking water from, the Floridan Aquifer. The increased nitrates, while not a heath problem, have promoted ecological change by encouraging the growth of hydrilla, hyacinths, and the bluegreen algae, lyngbya.

One of the main sources of nitrates is from septic systems. A typical septic tank produces 37 pounds of nitrates a year. Our porous sands, which is why septic systems work so well, allow 60% (25 Pounds/year) to enter our groundwater. This means over 200 tons of nitrogen goes into Citrus County's groundwater each year.

There are no simple solutions to correct this problem. But you can help by practicing proper septic system maintenance and supporting programs to provide

public sewage treatment. The following guidelines are provided to help achieve this goal.

- ***Have your septic system inspected by a licensed septic system contractor every three years. Arrange to have it pumped out and cleaned as recommended.***
- ***If your septic system is in groundwater or failing, obtain a repair permit from the local Environmental Heath office and have it fixed.***
- ***Never pour chemicals, pesticides, or poisons down your sink. Septic systems don't decompose them but <u>do</u> allow them to pass into our groundwater.***
- ***Limit the disposal of fats and grease down your sink. They interfere with the septic's decomposition process and cause system failure.***
- ***Never build on the top of your septic system or plant trees or shrubs near them. This can interfere with the drainfield and cause failure.***
- ***Encourage your elected officials to expand regional sewer service.***
- ***Support regional sewer service to your neighborhood, even though it will carry a cost to you. Remember, the health of our surface waters rest with you.***

Stormwater Runoff

To better understand stormwater runoff, you should first imagine Florida before man appeared. When rain occurred, it would fall on the existing vegetation and then soak into the soils below. Grasses and leaf litter would slow or stop particularly heavy flow from causing extensive erosion. As man appeared and began to remove or alter vegetation, the rain would no longer be managed through natural means.

Initially the impacts were not noticeable, but over time erosion began to send sediments into our waterways. The building of structures and roads created a new problem. The buildings no longer allowed the rain to reach the ground below. This condition is often referred to as impervious surface runoff. In most cases the buildup of water was unwanted so drainage was changed to direct the runoff into rivers, lakes, swamps, or sinkholes. The generation of stormwater runoff and alteration of natural drainage soon resulted in recognition of the need to manage stormwater to prevent pollution of our surface and ground waters.

In the past twenty years, considerable attention has bee directed at stormwater. Besides the erosion and flooding problems already described, stormwater has been identified as a major conveyor of pollutants including litter, oils, fertilizers, pesticides and bacteria.

Current regulations require new roadways and developments to adequately hold and treat stormwater, but many existing developments and especially older subdivisions such as those on our coast, lakes, and rivers still directly discharge stormwater into our surface waters.

To help correct stormwater generation from your own home, you can divert stormwater from your roofs or gutters onto your lawns or into underground soaker pipes. To help stem the first flush of heavy rainfall, waterfront homeowners can create a simple eight inch swale (shallow ditch) and berm (mound) parallel to the water body to help stop the sheet flow and allow it to soak in.

To help reduce or eliminate stormwater runoff at your home and in your neighborhood consider these guidelines.

- ***Review your home for storm water handling. If your gutters, downspouts, driveways or decks directly discharge into a water body, retrofit it by redirecting the runoff onto grassy areas or installing berm/swale systems.***
- ***Design your landscaping to limit water use.***
- ***If you have an irrigation system, make sure it is in good working order and limit its use to actual watering needs.***
- ***Consider replacing impervious surfaces like sidewalks, decks and driveways around your home with more previous materials or methods like mulch, turf block, pervious concrete or clean stone.***

- ***Retain shrubby vegetation along waterfronts to prevent erosion and help stop heavy rain sheetflow.***
- ***Never dispose of oils, pesticides or other chemicals onto driveways, roadways or into storm drains. The next rain will either carry it into a surface water or help it soak into our drinking water.***
- ***Reduce the amount of fertilizers, pesticides and herbicides you apply on your lawn and landscaping. What the plants can't absorb quickly usually results in surface or groundwater pollution.***

Lawn-Landscaping Fertilization

As you drive through a typical Florida subdivision, one of the most prominent features is the nearly endless expanse of bright green lawns. The larger lot size of most residential lots, dependence on septic systems and ideal climate all contributor to this phenomenon. Combined with a high percentage lawn, you quickly see why lawn care companies are plentiful and busy.

But just as lawns are a contributor to loss of habitat, water consumption and solid waste problems, they are also a contributer to nitrate contamination of our ground and surface waters. The University of Florida Cooperative Extension Service recommends two applications of one pound of nitrogen per year per 1,000 square feet of turf. Unfortunately with our porous, sandy soil and high rainfall levels, some of this nitrogen, in the form of nitrates leach below the root zone and soon reach our groundwater. In Citrus County alone this has been estimated to account for over 200 tons per year. Lest we abandon our lawns and the pleasure we derive from them, there are solutions. The first is to maintain a proper watering and mowing routine. This promotes maximum root development and health. A watering and mowing schedule for your type of lawn can be recommended by the County Extension Office or your local lawn supply company.

Second, grass clippings should be allowed to remain on your lawn. This no cost mulch will help retain moisture, build up the soil's texture and the low decay of the clippings will provide a slow release of nutrients, including nitrogen, to your lawn's root system. Remember normal rainfall will also provide nutrients to your lawn.

You may find the combination of these two free sources may satisfy your lawn's appetite at no cost to you!

If you still feel the need to fertilizer, consider applying a slow release pelletized fertilizer. While slightly more costly than the standard forms, the delay in release will serve your lawn better in the long run, as well as reduce the nitrate flow into our groundwater.

The same consideration should be given to your landscape. By grouping plants by water or nutrient needs you can reduce your overall water and fertilizer consumption. The use of compost and mulch can further this goal. If you incorporate native plants into your landscape, you will find they are adapted to surviving without additional fertilization.

For additional information, contact your County Extension Office, local nursery or garden supply company. A number of excellent publications on Florida lawn and landscape care can also be obtained from the SWFWMD or local library or bookstore.

Xeriscape

There is an old adage that "What goes around, comes around" and xeriscape is a fine example. Back in the days when water was difficult to come by or had to be hauled to a garden, planting your garden in zones based on their water needs made good sense. But, as we modernized and developed expansive water delivery systems and new inexpensive irrigation methods, the need to plant in zones lost favor.

However, in recent years water conservation has assumed a prominent role in many areas including Florida. The concept of planting in zones was resurrected under the fancy term "Xeriscape" and has become both a "buzz word" and an important tool in water conservation.

Xersiscaping your yard does not mean the abandonment of flowers, attractive greenery, or diversity. Rather it means you must learn about your chosen plants needs in regards to water, energy (sunlight), nutrients, temperature, pests, and disease.

With this knowledge you can create zones within your overall yard design. Areas with water dependent needs can be irrigated or located close to water sources. Plants able to tolerate drought conditions can be developed without irrigation. Properly designed, a xeriscape can reduce your yard costs, maintenance needs, and frequency of problems.

A number of excellent publications on xeriscape principles are available from your County Extension Office and the Southwest Florida Water Management District. Local libraries and bookstores as well as your local nursery or garden store can also assist you in developing a xeriscape plan or choosing appropriate plants.

The following guidelines are also offered to help you xeriscape your homesite:

- ***Use mulch and compost around your plants to retain moisture and provide slow release nutrients.***
- ***Where water is required, consider installing micro-irrigation systems or moisture sensitive dilivery switches.***
- ***Consider using native plants in you landscape. They are adapted to survive in Florida and once established require very little care.***
- ***Retain natural areas as part of your overall landscape design. What was there to begin with is the ultimate xeriscape.***

Native Plant Landscaping

When the Spanish explorer, Ponce de Leon first gazed upon the shores of our state, he named it Florida, Land of Flowers. The diversity of Florida's native vegetation is tremendous when one considers the many habitats and zones of our peninsula state.

Yet as Florida developed, our landscaping often incorporated plants from around the world. While these plants could usually survive, they often demanded special care in the way of water, fertilization or protection from Florida's many voracious insects and other plant pests.

The increasing popularity of xeriscaping resulted in an interest in using native plants in residential and commercial landscaping. Some, such as live oaks, viburnums, yaupons and palms were already mainstays, but the list soon grew. Some nurseries began to specialize in stocking native plants and native plan enthusiasts soon formed local chapters to share their experiences and successes.

Choosing to go "native" can be as easy or as challenging as you like. Many native plants are commonly available once you know what to look for. If you like a challenge, you can start your own by collecting seeds at the appropriate time. You will find that a native plant landscape works best when designed around the original habitat that existed at your homesite. You can, however, expand your horizons by making adaptations and adjustments as you would under more traditional landscape methods.

An additional benefit to using native plants is their resistance and tolerance to Florida's many plant pests and diseases. This ability is especially useful if you are trying to develop a backyard habitat where pesticide/herbicide usage should be reduced or eliminated.

An excellent source of information on native plant landscaping can be obtained from the Florida Native Plant Society or one of the local chapters. Their addresses are provided below.

Florida Native Plant Society
P.O. Box 6116
Spring Hill, FL 344606

Florida Native Plant Society
Citrus Chapter
Meets the 2nd Monday of every month at the St. Martin's March Aquatic Preserve

Information is also available from your County Extension Office and the SWFWMD. Native plant books are also available at you local library or bookstore. Recommended publications include the following:

Xeric Landscaping with Florida Native Plants - 1991 Association of Florida Native Nurseries
Florida Plants for Wildlife - Craig Huegel - 1995 Florida Native Plant Society
The Guide to Florida Wild Flowers - Walter Kingsley Tayor 1992- Taylor Publishing Co.
Florida Wild Flowers and Roadside Plants - C. Ritchie Cell and Bryan J. Taylor - 1982 - Laurel Hill Press

Whether you choose to go totally native or just augment your existing landscape the following recommendations will prove helpful.

- ***Obtain plants from legitimate sources only. Removing plants from the wild is inappropriate unless conducted as a legitimate plant rescue on a site slated for immediate development.***
- ***Remember your original habitat and zone. Even native plants can fail if planted in the wrong location or temperature zone.***
- ***Learn to identify volunteers and work them into you landscape. Many "weeds" are native plants just waiting to be recognized and accepted.***
- ***Consider joining the Florida Native Plant Society and your local chapter. It's a great way to learn and make new friends.***

Exotic Plants

One of the greatest threats to Florida's ecosystems has been the invasion of exotic nuisance weeds. These plants permanently alter the environment by replacing native plants and eliminating food and cover for wildlife. Some like the Melaleuca tree in South Florida, Kudzu in the Coastal Plain and Hydrilla in our lakes and streams have reached international infamy. Others such as the Chinese Tallow Tree, Japanese Honeysuckle and Catclaw Mismosa are less well known but present the same intrusive threat.

Exotic weeds all share similar traits. They reproduce rapidly, have few if any natural controls and were all brought here by man. Some, such as Hydrilla and Water Hyacinth, can dominate a water body and reduce or eliminate the native vegetation plants through shading or changing of the environment.

In our coastal wetlands Brazillian Pepper are becoming an increasing problem. Once sold as an ornamental under the name of Florida Holly, this red berried bush is still sometimes found in residential landscapes. Another invader making its appearance is

the Chinese Tallow Tree. Often planted as an ornamental because of its "fall color change", this plant has become a serious pest in many areas of Florida.

Even our dry open sandhills are threatened by exotics. Two of the most prominent are the Catsclaw Mimosa and Cogan grass. The first with its feathery, showy flowers is common in residential landscapes. Cogan grass, the thick long leafed grass often seen along road right-of-ways or old fields, is gradually taking over large sections of the Withlacoochee State Forest by eliminating the native plants on which the endangered Red-cockaded Woodpecker and other species like gopher tortoises forage.

To help our public lands from these invaders, the following guidelines are offered.

- ***Review your landscape for exotic weeds. If they are present, consider replacing them with a native or non-invasive landscape plants. Pictures of the problem plants can be found at you County extension office or from public land agencies.***
- ***If you boat, always clean your boat, motor and trailer of water plants so you don't transport them to new waters.***
- ***If you enjoy gardening and the outdoors, consider volunteering for exotic weed removal programs.***
- ***Encourage your elected officials and government agencies to support exotic weed programs and research. Educate your neighbors and friends as well.***

To learn more about exotic weeds and their control, contact the Exotic Pest Plant Council or your local County Extension Office.

Gardening

Florida's abundant sunshine and rainfall makes it one of the principle sources of vegetables, fruits and landscape plants in the nation. These same factors make Florida an ideal place to plant and maintain a home garden.

A Florida garden, however, is not without challenge. The same warm climate that promotes plant growth also encourages weeds and pests. The bright sunshine can wither or scorch plants not adapted to its intensity and Florida's strong summer thunder storms can damage both plants and produce if not located or supported correctly.

Our sandy soil also presents obstacles. The porous sand does not hold water for long and fertilizers are quickly flushed beyond the root zones of most plants. The sand also harbors bacteria, nematodes and other scourges that quickly attack plants not adapted to deal with them. For these reasons a prospective Florida gardener must abandon many of the gardening principles of their former home and learn a new set of rules for the Sunshine State. There are many sources to help you in this regard. The local County Extension Office, your local nursery, hardware store, feed store or garden clubs

are good places to start. Your local library or bookstore also have many good books on gardening in Florida.

Some general hints to help you get started are listed below:

- ***Choose plants and trees adapted and developed for Florida, preferably your area of Florida. Transplants and purchases from northern sources often fail or prove substandard when planted here.***
- ***Design your garden to maximize your yield while limiting your needs for water, fertilizers and other applications.***
- ***Instead of applying chemicals to pre-treat a garden site for weeds, bacteria and nematodes, consider solar sterilization by spreading a plastic cloth over the site for a six week period.***
- ***Recognize your limitations. Some plants because of climate or needs, just don't do well in Florida. It doesn't make much sense to invest $50.00 worth of fertilizers and pesticides to produce $20.00 worth of produce.***
- ***Use natural methods such as mulching, manual removal and encouraging natural predators to reduce your dependence on herbicides and pesticides.***
- ***Use compost or time release fertilizer to reduce your fertilizer needs.***
- ***Never over-apply fertilizers or pesticides. It costs money and accomplishes nothing but polluting our ground and surface water.***
- ***Preserve what you can't eat right away. By canning your products you can enjoy your garden's results year round.***
- ***Share your garden products. You'll find friendships grow well in Florida too.***

Composting

With the birth of the suburbs and America's infatuation with the perfect lawn and yard landscape, a new component in our solid waste production began to form. Today yard waste in America totals almost 24 million tons and it is estimated that the average American family produces more than 1200 pounds of organic garbage annually.

The rising costs of landfills has resulted in yard waste being diverted out of the waste stream. Many landfills, ours included, have begun composting yard waste to turn this negative into a valuable and fertile material. You can do likewise at home by following these simple steps.

Choose a level location away from direct sunlight, if possible. Next to a garden site or a shaded edge, is a good choice. Access to a water spigot is also a plus. You can either purchase a compost bin or construct one, though a bin is not absolutely necessary if you have a large lot or acreage. Plans to build a bin can be found in most gardening books or at your local county extension office.

All organic materials can be composted, but meats, bones and other animal matter should be avoided because of public health concerns. Common and acceptable

compost materials include grass clippings, fruit and vegetable discards, leaves, twigs, branches, etc. Alternating layers of green materials with brown materials can speed up the breakdown of the original matter. Applying an organic fertilizer or soil can also advance the decay process. The material should be kept moist but not soggy.

Turning the material by pitchfork or shovel every week or so allows oxygen in to speed up the process. Over time (typically 3 to 4 months) a dark, crumbly compost "dirt" will form. This material is ideal as a potting soil or mulch. It can also be used as a soil additive to your garden or landscaping.

Remember by composting you have not only reduced your own personal waste stream through the practice of reuse, but also reduced your dependence on commercial fertilizers. The savings you realize will not only help your finances, but the environment as well.

Pesticides/Herbicides

All life forms in some way or another attempt to control or influence their environment. The human population has taken this ability to the greatest level. Through physical force, as well as mechanical and chemical means, we can drastically alter any environment.

The practice of agriculture is a prime example. Where once we used to harvest what was naturally available, today we manage land to produce desired products exclusively at high volume rates. One of the key tools to achieve this goal has been the use of pesticides and herbicides.

By eliminating weeds that compete with the desired product, and controlling the other species that look on the product as food, we can maximize our yield. These same tools are often used residentially to maintain a desired look or landscape design.

However, nature abhors a monopoly and pest and weeds quickly reinfest a site or adapt to survive the chemical attack. This results in an escalating battle as new and more potent chemicals and methods are used to accomplish the same goal.

To further complicate matters, many pesticides and herbicides, especially older varieties, have been linked to environmental and public heath problems. The damage caused by DDT is well documented and similar problems are now linked to other pesticides and herbicides.

As we develop a better understanding of the total and long term impacts of our chemical dependency on pesticides and herbicides, many farmers and homeowners have chosen a new direction. Integrated treatment programs, select applications, and alternative methods such as biocontrol are proving not only successful, but economically beneficial.

The following guidelines are offered to provide you an alternative to broad based applications of pesticides and herbicides.

- ***Diagnose the problem before you apply the solution. If only a single pest or weed occurs, a site application of target specific chemical can usually solve the problem.***
- ***Is chemical application really necessary? If you have a single pest or group of weeds, sometimes a manual control program (pulling weeds or the old pluck and stomp method) can be equally effective and save you money.***
- ***Is control really necessary? Many pest outbreaks are short in duration and do no lasting harm. (Example: Spring outbreaks of tent caterpillars.) Learning to live and let live is a viable and safer alternative to the "dead by any means necessary" approach.***
- ***Always follow the instructions. If chemical application is the chosen solution, be sure to apply the proper chemicals in the proper concentrations under the recommended conditions.***
- ***Coordinate with your neighbors. If a pest or weed infests your area, a single application by all affected parties is better than disorganized multiple attacks.***
- ***Avoid preemptive strikes. It rarely accomplishes anything but costing you money and can result in creation of resistant strains.***

BACKYARD HABITAT DEVELOPMENT

Ask any biologist for a list of reasons why a wildlife species population is declining and you will likely hear the term habitat loss. Habitat is the environment and conditions a species needs to survive and reproduce. While habitat loss is easy to see for large ranging species like black bears or Florida panthers, it is less understandable when the species is a songbird or small animal.

Part of this is attributable to our ever expanding consumption of land for residential purposes. When large tracts of land are converted to residential homesites, significant changes occur even if the big trees or water bodies that we find most noticeable are retained.

Many species are dependent upon an ecosystem's bio-diversity. Even though the acorns that appear on the big Live Oak will help a woodpecker or squirrel survive through the fall, it might need the seeds from a weedy shrub or grass to survive in the spring. As these native plants are eliminated, the local population soon disappears.

The practice of backyard habitat restoration can help curb this problem. By designing your landscape to include native plants, nesting sites, water sources and other wildlife needs, you can help a species or group of species survive in a residential environment.

You don't need a lot of property or make a big investment to develop a backyard habitat. On the contrary, by using native plants and encouraging native wildlife to forage around your home, you may realize a savings in yard costs through reduced needs for irrigation and weed/pest control.

There are many excellent publications on backyard habitat development and since nature is adaptable, you can customize your yard as you wish. The guidelines included within this guide can help you accomplish your goal. Check with your local extension office, local library and the Florida Fish and Wildlife Commission for additional information.

If you want to have your efforts recognized, the National Wildlife Federation will provide a certificate to successful homeowners that achieve the four elements of backyard habitat design; food, water, cover and places to raise young. You can find out more about this program by writing to the

National Wildlife Federation
Backyard Wildlife Habitat Program
1400 16th Street NW
Washington, DC 20036-2266

Aquascaping

If there is one key component to improving your backyard's ability to attract and support wildlife, it is the provision of water. While many areas in Florida have abundant water sources, vast tracts of land, especially in our central ridge area, do not. Even waterfront property can benefit with creation of small isolated pool since many animals avoid or can't use big lake or rivers.

How you choose to provide water on your property is up to you. A simple pre-made bath or shallow pan will find welcome use provided it is kept filled and the water quality is maintained. An even more attractive source is a small pool. These are available in pre-made forms of many sizes and shapes or can be custom made using plastic liners, assorted water holding receptacles or even an old bathtub or sink.

For the truly ambitious, a pool or stream with running water provided by self-circulating pumps is sure to prove a popular gathering site for many species of wildlife. Placement of native water plants in or near a pool will make it even more attractive. The plants will often provide food and shelter to water dependent wildlife that will colonize your pool.

A number of excellent publications and guides are available on aquascaping at your local library or bookstore. They include:

The Backyard Naturalists by Craig Tufts - 1988 - National Wildlife Federation

Planning and Planing a Native Plant Yard by John G. Beriault - 1988 - The Florida Native Planting Society

Brochures and assistance can also be found at the local County Extension Office, your local nursery, hardware of building supply store.

To assist you in creating an aquascape in your backyard, these guidelines are offered:

- ***No matter what method you choose, keep the water clean. Larger systems, like pools, can be made self-sustaining by using aquatic plants to filter the water.***
- ***Locate the water source in a location where birds and other small animals can approach it safely. A sunny location with protective foliage close by is a good choice.***
- ***Provide a shallow area for small birds to use. A shelf made with rocks or bricks or a filled plant pot will work.***
- ***Florida is the mosquito capital of the United States. If you create a permanent source of water, add mosquito fish or other mosquito eating minnows to keep your pond from becoming a public nuisance.***
- ***Limit your use of pesticides and herbicides around your pond.***

- ***Expect the unexpected. Small ponds are quickly colonized by dragonflies, frogs, toads , and other small water dependent creatures. You'll find they are beneficial and enjoyable in their own right.***

Bat Houses and Other Wildlife Housing Projects

For the backyard habitat homeowner or the home craftsman looking for something different, the building of a bat house can be a unique project. Like their fellow cavity dwellers, bat populations have declined as the loss of caves, snags and cavity trees have occurred.

While birds like the purple martin have become popular because of their insect eating habits, their success pales when compared to bats. The smaller bat is not only a better insect catcher (one bat can catch 600 insects in and hour) but their nocturnal flights puts them in the air at the same time our most serous pests (mosquitoes, cutworm moths, June bugs, cucumber beetles, etc.) are out and about. Many organic farmers are now successfully utilizing bat boxes to attract these insect eating machines and protect their crop.

Bat boxes work on the same principle as bird houses with a few notable changes. Since bats are colonial the boxes can be any size or placed in groups. The entrance is also at the bottom and most boxes have multiple layers to allow bats to move within the box to maintain the right temperature. In Florida, likely tenants include the Mexican free tailed bat, southeastern bat and eastern pipistrelle.

Plans for bat boxes can be found at your local County extensiton office or books at your local library or bookstore. An excellent publication is the *Bat House Builder's Handbook by Merlin Tuttle and published by Bat Conservation International.* For the best chance of success, follow these suggestions in building and placing your bat box.

- ***Bats conserve energy by thermoregulation. Bat boxes should be as draft free as possible.***
- ***Bats prefer locations near water. Mounting a bat house on the water side of a boat house or boat cover or on a pole near open water increases your chance of success.***
- ***In Florida, providing ventilation slots in the lower third of the house can prevent overheating.***
- ***Bats prefer open, high locations. Boxes mounted on the side of structures or on poles are often more successful than those in trees.***
- ***Bats, because of their small size are highly susceptible to pesticide poisoning. Avoid or limit pesticide use, especially aerosols, if you want to keep your tenants happy.***

Other wildlife species that can benefit from man-made houses are squirrels, bumblebees, ground bees and toads. Squirrel houses are similar in construction to

bird houses while bee houses consist of properly sized holes drilled into cedar blocks into which the solitary bee builds its nest. A toad house consists of a broken or half buried flower pot in which the toad can bury itself in hiding during the day. These simple projects can be located in your garden or flower bed and often become an amusing conversation piece.

Butterfly Gardening

There is perhaps no more calm and peaceful a scene than to watch a butterfly flitter along and finally alight on a colorful flower. It is a desire to experience this simple act on a regular basis that has lead to the growth of butterfly gardening and Florida is an ideal place to practice it.

The most effective and active butterfly gardens provide for all the needs of these beautiful insects from egg through caterpillar to chrysalis and finally to the colorful adults.

Butterfly gardens are best located in bright sunshine with nectar producing flowers, host plants, damp areas for water and basking stones for warming. The plants you provide, as well as the butterflies you attract, will depend on your location, but the use of potted plants or irrigation can expand your choices.

Butterflies cannot drink from open waters, so provide a shallow saucer filled with saturated sand or pebbles for the butterflies to land and drink. Planting a section of shrubs or trees will provide protection from high winds and rain and a hiding place at night to sleep.

The following chart provides a list of common plants, both natives and imports, whose flowers are favored by butterflies.

ANNUALS **FLOWERS**

Spanish Needles	Biden spp.	White flower with Yellow center	Native
Heliotrope	Heliotropium spp.	Purple	Native
Pentas	Pentas spp.	Red, pink, lilac	NonNa
Cosmos	Cosmos sulphureus	Orange, yellow	NonNa
Phlox	Phlox drummondii	Pink	NonNa

BIENNIALS

Black Eyed Susans	Rudbeckia hirta	Yellow	Native
Thistle	Circium horridulm	Purple	Native

PERENNIALS

Butterfly Milkweed	Asclepias spp.	Orange, Red	Native
Asters	Aster spp.	Yellow	Native
Blazing Stars	Liatris spp.	Lavender, blue	Native
Goldenrod	Solidago spp.	Yellow	Native
Purple Cone Flower	Exhinacea purpurea	Purple	Native
Penny Royal	Piloblephis rigida	Lavender	Native

SHRUBS

Firebush	Hamelia patrens	Orange	Native
Garberia	Garberia fruticosa	Lavender	Native
Lantana	Lantana camara	Orange Yellow	Native
Butterfly Bush	Buddleia davidii	Purple	NonNa
Azalea	Rhododendron spp.	Assorted	NonNa
Hibiscus	Hibiscus spp.	Assorted	NonNa

Since the number of butterflies is dependent on the number of caterpillars that successfully mature, chrysalise and then emerge, the following larval host plants are recommended to help you bring your butterfly wards full circle.

PLANT	**SPECIES**
Asters	American Painted Lady/Pearl Crescent
Milkweeds	Monarchs/Queen
Carrot Family (Parsley, Dill)	Black Swallowtails
Citrus (Wild Lime, Hercules Club)	Giant Swallowtails

Legumes (Beans, Peas, Partridge Pear)	Sulfurs, Hairstreaks, Blues
Cannas	Skippers
Passion Flowers (Maypop)	Gulf Fritillary/Zebras
PawPaw	Zebra Swallowtails
Mustard Family (Peppergrass)	Whites
Laurel Family (Spice Bush, Sassafras)	Spice Bush, Tiger, Palamedes, Swallowtails

Remember butterflies are highly susceptible to pesticides. Therefore, you should use pesticide alternatives or practice low use selective application to deal with other insect pests. Butterflies are also not the only drinkers of nectar, so don't be surprised when hummingbirds, bees and other visitors appear.

For more information on butterfly gardening, contact your local extension agent or look for the following books at your local book store or library.

"Butterfly Gardening with Florida's Native Plants" by Craig Huegel, published by the Florida Native Plant Society.
"The Butterfly Garden" by Mathew Tekulsky, published by Harvard Common Press.
"The Audubon Society Handbook for Butterfly Watchers" by R.M. Pyle, published by Charles Schribner and Sons.

Wildlife Education/Conservation/Tolerance

As you enhance your backyard for wildlife, you will notice many changes. Most will be welcome, the appearance of new birds or butterflies, the sparking of fireflies and chirps of frogs at night and the blooming of new flowers.

You will find yourself checking your existing nature books or visiting the local extension agent, library or bookstore more often to learn about your current wildlife visitors or researching new ones. If you really get hooked, you may find yourself joining the local Audubon Society or Native Plant Society chapter, volunteering at a local state park or spending your weekends visiting plant nurseries or building bird houses.

Just as you will find new pleasure from your successes, you will also face setbacks. Because as you bring your yard closer to the natural environment, the complexity and diversity of nature will become more pronounced.

It will likely start simply. The larval food plant you so carefully chose for a specific butterfly caterpillar, will instead be devoured by a beetle grub or grasshopper. The bird food you put out for the local cardinals and titmice will instead be consumed by a ravenous squirrel.

Soon more and perhaps less tolerable incidents may occur. A raccoon may reek havoc in your carefully designed pond one night. You may find a hawk taking up residence near your yard to feast on your new found avian friends. During your daily visit to your butterfly garden, you may encounter a snake slithering among the flowers or find your lawns studded with armadillo craters or gopher mounds.

These incidents are a testament to your success. You cannot have a truly successful habitat program without accepting incidents such as these. Learn to be tolerant and accept these natural occurrences. If you accept these intrusions, new and more welcome visits are sure to follow. Nature is the ultimate show, every episode is new and you rarely have a repeat. So sit back and enjoy it; you won't be disappointed.

Pet Care and Responsibilities

The popularity and value of pets in our society is undisputed. The keeping of pets has been show to help relieve stress and anyone who has owned a dog or cat can quickly attest to the value of their companionship.

However, unlike a car, television or other mechanical device, pets are living creatures and require responsible care. For this reason the decision to own a pet should be a calculated decision and not a spur of the moment whim. Whether a tropical fish, dog or cat, domestic farm animal or exotic, before a pet is acquired you should fully understand its needs, limitations and faults. The cost of its proper care should be reviewed to make sure it can fit your budget and this must include routine veterinary care.

If you are thinking of acquiring a pet, these guidelines can assist you in making a decision.

- ***If you are thinking of adopting a dog or cat, plan on having the animal properly vaccinated and spayed or neutered. Uncontrolled or unplanned pet reproduction is a considerable problem to both our community and the environment.***
- ***Never allow your pet to go out and roam loose. Beside the risk to your pet of injury or disease, dogs and especially cats can be highly detrimental to wildlife. A recent 4 year study of 30 radio collared cats concluded that cats may kill 19 million songbirds a year in Wisconsin alone. Food habit studies have also shown that 25% of the diet of an urban house cat is wildlife. Dogs have been linked to extensive wildlife lose in many states particularly where deer and small game occur. Within Citrus County the decline in gopher tortoises is partially attributed to pet predation.***
- ***Never abandon your pet in the wild. It will either lead to a cruel, often prolonged death by starvation, or a serious pest that preys on native wildlife.***

- ***If you are considering owning an exotic, learn all you can about it before you purchase it. Never release an exotic into the wild. South Florida freshwater canals are now dominated by exotic fish like tilapia and oscars that have out competed native bass and panfish.***
- ***If you are going to obtain an exotic, whether it is a tropical bird, reptile or something more unusual, only purchase captive born and raised animals. Wildlife trafficking is a major cause of decline of many wildlife species.***
- ***Know your dealer. Only obtain pets from people or companies you know and trust. Ask about their sources and watch carefully how they care for the animals they have. You will receive a healthier pet and help eliminate disreputable dealers and markets.***
- ***If you find you must give up a pet or have surplus animals you wish to sell, evaluate and advise the buyer before you sell.***
- ***Don't buy pets for gifts unless the recipients or their parents are fully aware of what you are doing.***

LIVING ON THE WATER

It is no coincidence that the majority of our great civilizations began on the shores of some body of water. Man has always depended on proximity to water for food, trade and recreation, and waterfront property carries great value.

Today's society is no different and Citrus County is fortunate to have water bodies on three of its four boundaries in addition to many inland water bodies. Until very recently, most development targeted our shorelines and many of us own a home with direct access to surface waters.

It is, therefore, imperative that our presence does not destroy the health and quality of this most valuable of neighbors. Each of our actions, though small, when multiplied by the size and number of waterfront properties, can have tremendous impacts on our rivers, lakes, and streams. The discharge of stormwater, hardening of shorelines, loss of both shoreline and submerged vegetation, and impacts on fisheries have affected our local waters.

By taking steps to correct these impacts, both on a personal level and as a community, we can restore our waters and the pleasure we derive from living near them. Please consider following these guidelines to help restore and protect our surfaces waters.

1. ***Plant or maintain native vegetation along the shoreline. If your view of the water is that important, consider trimming or creating a window instead of removal of all vegetation.***
2. ***Never discharge stormwater into surface waters. Gutters should be routed to grassy areas or swale/berm systems.***
3. ***Support stormwater projects for your neighborhoods. Consider organizing your neighborhood into starting a Lake Watch or similar programs that monitor water quality.***
4. ***Never throw grass clippings, landscape debris, garbage, or fish carcasses into the water. Don't treat our surface waters as a convenient trash dump.***
5. ***If you are on a septic system, make sure it functions properly and have it serviced regularly. Nutrients from drainfield is a major cause of degradation of our water quality.***
6. ***Be careful and conservative in your use of fertilizers, pesticides, and herbicides. Your desire for a bright green lawn can translate into a weed choked water body.***
7. ***Don't overbuild your lot. Many waterfront properties are small and can't accommodate large homes, swimming pools, or garages. Consider this before purchasing a waterfront property, especially if you plan to <u>improve</u> it.***

Aquatic Plant Control

The introduction of exotic weeds, excess weeds and excess nutrients by man into Florida waters has permanently altered many of Florida's aquatic ecosystems and necessitated the need to institute aquatic plant control to restore navigation and fisheries. Plants like alligator weed, water hyacinths and hydrilla created chronic problems that called for bigger and more intensive control programs. The original broad spectrum herbicides often had serious side effects by affecting native plant populations or leaving behind chemical residuals or sediments.

As more specific chemicals and treatment programs were developed, the problem became more manageable, but the rising number of areas needing treatment increased costs to the point where some areas had to be eliminated from public control program. Side canals and shorelines outside of established channels often fall into this category.

Residents have the ability to treat aquatic weeds privately, but to assure the best effect and avoid environmental damage, a permit must be obtained from the Florida Department of Environmental Protection. A local office is located a 6355 South Florida Avenue in Floral City. Before you begin private aquatic weed control, we ask that you follow these guidelines.

1. ***Know what weeds are causing the problem. Native plants that appear to be a problem can often be trimmed or controlled by means other than chemical.***
2. ***If you live in an area where many residents are affected, try organizing your control to maximize the effect and minimize your cost.***
3. ***Consider hiring a professional. They can use chemicals and techniques you can't that can save you money and time.***
4. ***Consider alternatives to chemicals. Mechanical harvesting while more expensive, provides additional benefits by removing nutrients from the system.***
5. ***Never use unapproved or excess herbicides or chemicals. Many old remedies cause extensive and permanent harm to fish, wildlife and native plants.***
6. ***Always apply the recommended amount during the proper conditions at the appropriate time. You'll get the best results at the lower cost.***
7. ***Never plant non-native plants in local waters. Some of today's biggest problems like water hyacinths, wild taro and hydrilla are here because of man.***
8. ***Encourage the growth of native plants. Local fish and wildlife are adapted to using these plants for food and protection.***

Docks/Boat Slips/Seawalls

One of the advantages to living on waterfront property is quick and easy access to water. Those of us who enjoy boating and other water related recreational opportunities, often want a dock or boat slip to improve this access. In some areas, due to erosion or irregular shorelines, we also choose to install seawalls.

While these actions are legal, they do have an impact on the environment. Therefore, if you are going to have a dock built or feel the need to stabilize your shoreline, consideration should be given to measures that help mitigate or "soften" the impact. Please consider these guidelines if you own or going to install a dock or seawall.

1. ***Establish a zone of native plants between your lawn and the shoreline, and leave natural vegetated shorelines when possible.***
2. ***If erosion is a problem, consider installing rip rap (native limestone boulders) instead of flat concrete walls. The irregular shape and cavities provides food and shelter to fish and wildlife.***
3. ***If you already have a seawall, consider softening it by planting native plants or installing rip rap waterside of the wall.***
4. ***Consider dock designs that reduce shading of sea grasses or submerged vegetation. Often board spacing or cover design can be adjusted to allow better light penetration.***
5. ***Design your dock to avoid prop dredging or bottom damage to submerged vegetation. If you own a large boat in a shallow water body, consider an alternative or off-site storage.***
6. ***Consider impacts on navigation when locating and designing your dock. Remember, you are "sharing" the water body with all of us.***
7. ***Docks can become considerable natural communities. Consider the impact before applying antifouling paints or other control measures. Never apply oils, diesel fuels or "other home remedies" to clean your dock or seawall.***
8. ***Many animals depend on shorelines or direct access to water. Consider enhancing your shoreline with a wood duck house, bat box, or dense shrub patch.***

Boating Etiquette and Safety

The operation of watercraft is one of our most ancient activities and has long played a prominent role in our society, economy and recreation. Through the years the types and capabilities of boats has increased and the number of active boating enthusiasts, especially in the State of Florida, has reached record numbers.

Boating, like any other man-related activity affects the environment. To continue to enjoy our surface waters and protect them for the future, every boater has a

responsibility to learn and practices. The following guidelines are provided to help you in accomplishing this goal.

1. ***Refuel on land if possible to reduce chances of spilling. Don't over-fill tanks and if you do have an accidental spill, clean it up with an absorbent pad and dispose of it properly.***
2. ***Always check and clean your engine away from shorelines.***
3. ***Never launch your boat until you have conducted a safety check of equipment, lifesaving devices, and navigational/communication aids.***
4. ***Always let someone know your plans; where you are going and when you plan to return.***
5. ***Use caution in operating boats in shallow waters. They can stir up the bottom, suspending sediments which limit light penetration and deplete oxygen, damaging the environment.***
6. ***Keep to established channels when possible. Watch your depth and running speed to avoid prop dredging and/or sea grass damage.***
7. ***Always be aware of tides and weather. Use extra caution in high use areas and always be aware of what's going on around you.***
8. ***Be mindful of your wake when passing shorelines or other boats. Waves cause shorelines to erode and stir up sediment that impede sea grass growth and survival.***
9. ***Do not consume alcohol or drugs while operating a boat. Always observe boating right-of-way and operational rules. (If you don't know them, take a Boater's Safety Course before you operate a boat).***
10. ***Be aware that the noise and movements of boats may disturb bird populations. Bird rookeries are especially vulnerable to noise from boats. Steer clear of posted bird nesting areas.***
11. ***Those launching into west coast waters need to remember and observe the speed zones established for manatee safety. Water skiers and jet ski operators might want to consider the Tsala Apopka Chain of Lakes instead of the coastal waterways.***
12. ***<u>Never throw garbage in our local waters.</u> Bring a trash bag with you and please recycle whenever possible.***
13. ***Always clean your boat, motor, and trailer of vegetation to avoid spreading hydrilla, hyacinths, and other nuisance plants into other water bodies.***
14. ***Properly dispose of bilge water, holding tank waste, and old fuels and oils. Never discharge these materials into our public waterways.***

If you practice these simple guidelines, you will have taken an important step in protecting our beautiful but fragile surface resources for future generations.

Fish Conservation and Habitat Enhancement

Fishing opportunities abound in Citrus County and many of us devote considerable time and resources to this most enjoyable of past times. This devotion, however, carries a price. As more of us set out on the water to land that trophy fish, they become fewer and fewer. While no one begrudges bringing home a few for the skillet, the pressures from recreational fishing has resulted in catches of many species unseen in previous years.

As an example, the largemouth bass (the ultimate fresh water game fish to many anglers), achieves trophy size (8 pounds +)- only after 8 to 12 years. Since mounted fish are now predominantly fiberglass casts and not skin mounts, the keeping of such a fish after a single landing is regrettable. For this reason many of us have adopted catch and release methods to help preserve our fisheries. The technique for largemouth bass is as follows:

1. ***Pinch down or remove hook barbs. Use single hooks or small trebles.***
2. ***Strike quickly when a fish takes the hook to avoid deep hooking.***
3. ***Play and land your fish quickly to reduce stress.***
4. ***Avoid the use of landing nets, towels, or gloves for landing to reduce the likelihood of infection or disease.***
5. ***Use wet hands to hold the bass, with a firm grasp on the lower jaw when possible. Don't touch the eyes or gills.***
6. ***Use "dehooking" tools to remove hooks.***
7. ***In deep hookings, cut the line instead of tearing the hook out.***
8. ***Return the fish to the water as quickly as possible.***
9. ***Avoid the use of stringers, fish baskets, or live wells.***
10. ***Revive the fish by passing water over the gills, releasing gently.***

Those who prefer our coastal denizens face similar circumstances and also practice catch and release, sometimes by regulatory need, but often by choice. The following guidelines are recommended for coastal fisherman.

1. ***Learn and observe the manatee speed zones established for the area. If your destination is the gulf, consider launching from a boat ramp close to Gulf waters.***
2. ***Keep to established routes and stay in the center of marked channels when possible. Wear polarized glasses while operating a boat so you can see a manatee surfacing (as well as the fish you are seeking).***
3. ***Always be aware of the tides and weather. Watch your depth and running speed to avoid prop dredging and/or grass bed damage.***
4. ***Please consider Catch and Release techniques during your fishing trip. (If you don't know them, see the Specific Rules for Bass Fishermen but remember, a lot of salt water species have teeth, so grabbing the lower jaw is not recommended).***

5. ***Be mindful of your wake when passing shorelines or other fishermen. Waves cause shorelines to erode and stir up sediment that impede sea grass growth and survival (as well as scare away the quarry).***

A final point for all fishermen is habitat enhancement. All fish populations are dependent on good habitat for reproduction and growth. The loss of wetlands, alteration of shorelines by the placement of seawalls (instead of the more condusive rip rap) and loss of water quality to stormwater impacts, nutrients from septic systems and over fertilization, all result in direct fisheries impacts. Therefore, to preserve our fisheries, we ask that you follow these guidelines.

1. ***Guide your personal actions to prevent habitat loss or degradation. Use rip rap instead of vertical seawalls, never discharge storm water directly into surface waters and maintain your homestead in an environmental friendly manner.***
2. ***Support public work projects that correct stormwater or wastewater problems.***
3. ***Encourage your local, state and federal officials to support and fund fisheries management and habitat restoration and acquisition programs.***
4. ***If you are a member of a fishing or sportsman's club, encourage your organization to get involved in Adopt-A-Shore and other worthwhile programs and operate tournaments on a catch and release or photo basis.***
5. ***Practice and teach "catch and release" to your children, grandchildren and peers. We will all benefit from this conservation ethic.***

Manatee Protection

Manatees embody all we can't afford to be; trusting, slow, primitive, overweight and wrinkled.

This wonderful quote perhaps best summarizes why these rare aquatic mammals have captured a place in our hearts. In Citrus County, we are fortunate that the largest wintering herd of Gulf Coast manatees spend cold winter days near our coastal springs. But this proximity demands that, as citizens and a community, we make sacrifices to protect our aquatic neighbors.

Manatees are protected by the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973 and the Florida Manatee Sanctuary Act of 1978. In addition, to these strict federal and state laws, Citrus County became the first County in the State of Florida to adopt a local Manatee Protection Plan. The Citrus County Manatee Protection Plan was created by a Manatee Protection Committee composed of local officials, business representatives, and citizens over a three-year period. The final product was incorporated within the Citrus County Comprehensive Plan. This Plan is a blueprint for the growth of our County and serves as a frame of reference for relating everyday decisions to a carefully considered unified system of long-term policies. The

Manatee Protection Plan contains criteria for marina/boat facility siting, shoreline development, habitat protection, manatee-human interactions, and governmental coordination to protect the West Indian (Florida) Manatee.

After a series of public workshops and hearing, the Citrus County Manatee Protection Plan was adopted by Ordinance in September 1991. In 1993 the Florida Chapter of the *American Planning Association* bestowed their *Award of Excellence* to Citrus County in recognition of the Citrus County Manatee Protection Plan.

To help protect manatees and assure their continued success and survival in our waters, we ask that you follow these guidelines:

If you are a boater:

1. ***Observe all Manatee Speed Zones and caution areas.***
2. ***Wear polarized glasses while operating a boat.***
3. ***Stay in the center of marked channels.***
4. ***Keep your boat speeds slow in waters where manatees are know to occur.***

If you are a diver/snorkeler:

1. ***If you are with a dive tour, listen to your instructor/tour guide and follow their instructions.***
2. ***If you are renting a boat or using your own, read manatee related literature and rules before you launch and obey them at all times.***
3. ***Remember, manatees are wild animals. Do not approach or chase a manatee, NEVER feed or touch them.***
4. ***Stay within designated dive zones and corridors. Allow manatees to stay undisturbed in protected zones.***
5. ***Take pictures as they come. Don't herd or prod a manatee for that "just right" pose. NEVER "ride" a manatee.***

As a citizen:

1. ***Consider making a donation to the Save the Manatee Trust Fund administered by the Florida Fish and Wildlife Conservation Commission.***
2. ***Encourage your state and federal officials to support and fund endangered species and conservation programs.***
3. ***Educate others in the plight of the manatee, other protected species and the environment.***

Emergency Preparedness

When you choose to live in Florida, you have chosen to live in a state renowned for its sun, its beauty, and its weather. Florida's southern location, flat terrain, and proximity to both the Atlantic Ocean and Gulf of Mexico, makes it condusive to severe weather. The 50 to 55 inches of rainfall we receive each year is often delivered in severe thunderstorms that can spawn strong winds, lightning, and tornadoes. If that is not bad enough, each year we anxiously watch through hurricane season to see if this is the year one of these powerful storms will cross our shores.

Therefore, it is vitally important that we are adequately prepared.

TO PROPERLY PREPARE FOR AN EMERGENCY, FOLLOW THESE GUIDELINES:

1. Create a personalized emergency plan. Decide now where you plan to be during a storm. If you intend to stay home, have a plan of action to stock up on supplies, protect yourself, your loved ones, and your home. In addition, plan on where you will go if you are asked to evacuate or your home becomes unsafe.
2. If you intend to evacuate (those in an evacuation zone or living in a manufactured home should), plan on where you will go and what you will take. Make a list of thing you need to do before you leave, now. Notify your friends and relatives of your plans now so they can find you later if necessary.
3. If you will need assistance during an evacuation, register now with your local emergency agency.
4. Know the elevation of your residence and whether you are in an evacuation zone.
5. Know the maximum storm surge for your area and roads you will need to drive to reach your shelter point.
6. If you own pets, make arrangements for their safekeeping. **ANIMALS ARE NOT ALLOWED IN SHELTERS.**
7. Inventory your personal property by listing and/or photograph. Arrange for the safekeeping of your inventory such as with out-of-town relatives, a safety deposit box or watertight permanent storage at a safe location.
8. Review your insurance policies. Remember, most Homeowner's Insurance **WILL NOT** cover flood damage.
9. Locate the nearest official shelter.

IF YOU MUST EVACUATE

1. Pack what you will need (emergency survival kit).
2. Turn off electricity, water, and gas at their main valves and switches.
3. Contact friends and relatives to let them know where you are going. Keep calls short to avoid jamming phone lines.
4. Check on your neighbors. Make sure they are safe or have a safe ride from the area.
5. Lock your doors and windows.
6. Leave early, in daylight if possible.
7. Take water, protective clothing and important papers with you.

8. Be alert for tornadoes, flooded roads, and other safety hazards.
9. Know where you are going. Travel with care and follow recommended routes.
10. Register at the shelter when you arrive.

REMEMBER: PETS, ALCOHOLIC BEVERAGES AND WEAPONS <u>ARE NOT</u> ALLOWED IN PUBLIC SHELTERS.

<u>IF YOU STAY AT HOME</u>

1. Fill your clean water containers. Plan for a minimum of one (1) gallon per person per day for seven (7) days. Remember, private wells will not work without electricity.
2. Obtain a weeks supply of non-perishable food. Be sure to have a non-electric can opener.
3. Keep your emergency survival kit close at hand.
4. Monitor the storms progress on a portable television or radio.
5. Stay indoors until official word is issued that the storm is over.
6. Remain calm.
7. Stay away from windows and glass doors.
8. Be a friend. Offer your home as a shelter to relatives, neighbors, and/or friends who live in vulnerable areas or manufactured homes.

<u>RECOMMENDED ITEMS FOR AN EMERGENCY SURVIVAL KIT</u>

Spare eye glasses/hearing aid and batteries

Medicine/prescriptions (two weeks supply)

First aid kit (including bandages, aspirin disinfectant, alcohol, etc.)

Special dietary and baby foods, quiet games or favorite toy for a child.

One week supply of drinking water (one gallon per person per day)

Canned and non-perishable food for several days

Personal care items (toothbrush, soap, toilet paper, etc.)

Extra Clothing for at least on week.

Container of household bleach

Eating utensils and utility knife

Blankets/sleeping bags

Heavy work gloves

Can of spray paint

Pencil and writing paper

Poncho or raincoat

Hat

Water proof matches

Insect Repellent

Emergency funds (cash or travelers checks)

Identification and important papers (insurance policies, birth certificates, health records)

Change and important phone numbers

Portable radio with extra batteries

Non-electric can opener

Camera and extra film

Plastic trash bags and fasteners

Masking tape/duct tape

Cord and/or rope

Trench shovel

Windup alarm clock

TERMS TO KNOW

TROPICAL DISTURBANCE First stage or **unstable weather** that may develop into a hurricane.

TROPICAL DEPRESSION Storm pattern has a clearly defined low pressure area. **Maximum wind speed to 38 mph.**

TROPICAL STORM Storm pattern has a distinct low pressure area defined by a rotating circulation. **Wind speed 39 to 73 mph.**

TROPICAL STORM WATCH An **announcement** for a specific area that a tropical storm poses a threat to coastal areas generally within **36 hours.**

TROPICAL STORM WARNING A **warning** that a tropical storm condition, including sustained winds to 73 mph, are expected in specific coastal areas within **24 hours.**

SMALL CRAFT ADVISORY When **winds 21-38 mph (18-33 knots)** or hazardous wave conditions threaten a coastal area, small craft operators are **advised to remain in port** and not venture into the open sea.

HURRICANE A tropical storm who's constant wind speed reaches **74 mph or greater.**

SAFFIR/SIMPSON HURRICANE SCALE

CATEGORY	WIND	STORM SURGE

I	74-95 MPH	4-5 FEET
II	96-110 MPH	6-8 FEET
III	111-130 MPH	9-12 FEET
IV	131-155 MPH	13-18 FEET
V	155 + MPH	18 + FEET

HURRICANE WATCH An **announcement** for specific areas that a hurricane or hurricane conditions pose a threat to coastal areas generally within **36 hours.**

HURRICANE WARNING A **warning** that a hurricane is expected in a specified coastal area within **24 hours.** All precautions should be taken immediately. If the hurricane's path is unusual or erratic, a warning may be issued only a few hours before the beginning of hurricane conditions.

STORM SURGE A **large dome of water,** often 50 to 100 miles wide around the hurricane's eye, that sweeps the coastline. Nine out of ten fatalities are due to storm surge.

WHEN A WATCH IS ISSUED

1. **Monitor weather reports** on radio or television. Base your actions on hard facts, not rumors.
2. Check emergency survival kit and other supplies.
3. Fill up your **car's gas tanks.** Check oil, water, and maintenance.
4. Get a supply of **cash. (Remember, ATM's don't work without electricity).** Checks and credit cards may not be accepted after a severe storm.
5. **Prepare to leave.** Collect important papers, valuables, etc., for quick departure.
6. **Anchor small boats** or move them to safe shelter.

WHEN A WARNING IS ISSUED

1. **Monitor weather reports constantly.** Base your actions on hard facts, not rumors.
2. If you live in a **mobile hom**e, check tie downs, turn off all gas valves, main water valves, and main electrical switch, and **leave.** (see Evacuation Section.)

3. **Prepare for high winds** by anchoring securely or brining indoors; TV antennas, garbage cans, awnings, loose garden tools, lawn furniture, and toys. Loose objects become damaging missiles in storm conditions.
4. **Board up** or shutter large windows. Tape exposed glass to reduce shattering.
5. **Unplug** unnecessary appliances.
6. Bring in **pets** or move them to a safe, sheltered location.
7. If you own a **boat** on a **trailer,** fill it with water, lash it securely to the trailer, and use a tie down to anchor the trailer to a solid point.
8. Locate your **car** in a readily accessible area, preferably away from trees and powerlines.
9. Leave your **swimming pool** filled. Super chlorinate it and cover the pump/filtration system intakes.
10. If you stay home, **fill water containers** and/or sanitize tubs as emergency water source. (See Stay-At-Home Section.)

AFTER THE STORM

1. Be patient. **Do not venture out** until authorized by local officials.
2. Seek necessary **medical care** at a Red Cross disaster area or hospital if necessary.
3. If you are involved in **emergency response** or recovery, check in with your supervisor or report to your assigned stations if possible.
4. **DO NOT sightsee.** Stay out of disaster areas unless your presence is officially required.
5. **Walk and drive carefully.** Watch out for loose or dangling wires, damaged trees, buildings, and roadways. Never proceed through flooded areas where visibility is obstructed.
6. Report **downed powerlines** and damaged or broken sewer or water lines.
7. Carry **Valid Identification** at all times.
8. **Beware of animals, snakes, and insects** that have been driven to high ground. **DO NOT** approach unknown domestic animals. **DO NOT** discharge firearms or spread poison. The best rule of thumb is to avoid all unknown animals unless you or your family is personally threatened.
9. **DO NOT** use water unless you are certain it is safe. **Reduce wastewater discharge** as much as possible to prevent contaminating ground and flood waters.
10. **DO NOT turn utilities back on** until they are confirmed safe.
11. Enter your home with **caution.**
12. Take extra precautions to **prevent fire.**
13. Photograph damage if possible. Make **temporary repairs** to protect property from further damage.
14. **Notify** insurance agents.
15. **Monitor radio or television** to keep advised of new situations or information.
16. **DO NOT allow inspection or repair** of your home without confirming the identity and licensing of visitors.
17. **Report all price gouging** immediately.

18. If you need to contact emergency operations or report an emergency, be precise, accurate, and keep your message short. **DO NOT tie up emergency lines.**
19. **DO NOT create unsanitary conditions.** Containerize garbage and other wastes. Sanitize with bleach as necessary.
20. **Avoid contact with flood waters** whenever possible. They may contain raw sewage, water borne diseases, chemicals, or hide downed power lines, or other dangerous conditions.

ACCEPTING THE CHALLENGE

The advancements that have occurred over the last century has provided us opportunities undreamed of by our ancestors. Our new found ability to live longer and healthier lives, communicate and travel great distances quickly and have easy access to a diverse array of food, products and services is unprecedented.

However, these advancements have carried a price. Modern society faces new and complex problems, such as hazardous and solid waste disposal, resource depletion and environmental degradation. Many times the solution to these problems rests with individual choice and action.

Products that use irreplaceable materials, generate toxic by-products or cause excess waste would not be produced if there was not a demand for it. The cost of gasoline, foods and other consumables would not increase except for our ever increasing demand for more.

You can help curb these trends and solve these problems by evaluating your lifestyle and making conscious decisions on your consumer activities. This doesn't mean you have to undertake a drastic change in your lifestyle. In most cases it can be a simple shift or adjustment and many times you will find it’s a better and more economical choice.

History has shown that shifts in every day actions by average citizens can influence political, economic and social change. Do your part to assure that our future will not be burdened by the mistakes of our past.

Water Conservation

When early man first set foot in Florida, they were no doubt struck by the abundance of water. Bordered by water on three sides, crossed by an abundance of rivers and streams, and spaced throughout with swamps, marshes and wet prairies, concerns over availability of water were discarded.

Modern Florida with its 15 million inhabitance and many visitors can no longer look on water as an unlimited resource. Our sheer numbers combined with past actions has resulted in water becoming our most precious and limited commodity.

Citrus County is fortunate that our source of water is the high quality groundwater derived from the Floridan aquifer. This "limestone sponge" lies just below us and is continually recharged by Florida's rainfall. However, we are not alone in drawing from the Floridan. Practically all counties south of Gainesville are dependent on the Floridan aquifer or surface waters derived from that source. Water shortages and saltwater contamination have already plagued our southern neighbors.

The solution for all of us is to use our water wisely. Water conservation cannot succeed if we depend on the other guy to do it. Its success is dependent on you.

The following water conservation tips are offered as a start. For more information, contact the Southwest Florida Water Management District, your local utility or the County Extension Office.

- Repair all leaks and keep your plumbing in working order. Leaks cost you money and benefit no one.
- Use approved irrigation methods and water only at appropriate times.
- Install water conserving devices on your showers, toilets and sinks. The savings in water use will quickly cover the investment.
- Operate water using appliances (dishwashers, washing machines, etc.) only when fully loaded They work better and last longer.
- Don't use running water to clean things like cars, driveways, homes and the like. A bucket and mop, broom or rag, will do just as well.
- Remember you are living on top of your water source. Never dump oils, chemicals or poisons on the ground or into your septic system. Properly dispose of them at an approved facility.

Recycling/Reuse/Resource Conservation

One of the big problems facing Citrus County and many other communities throughout the nation is solid waste. As industrial production has increased, we have adopted a "throw it away" attitude because replacement is so simple.

This new attitude has resulted in a tripling of our solid waste generation in the past 30 years. This increasing production, combined with the safeguards we have placed on all methods of solid waste disposal to protect our health and the environment, has resulted in escalating costs.

While the final method for solid waste disposal is still hotly debated, all sides agree that reduction in our waste flow is needed. One of the best methods to reduce waste flow is recycling. Some materials, like aluminum and the savings in cost and energy is passed along as an incentive to recycle.

Other material, such as glass, plastics and newsprint, are still in flux. As new uses for the recycled material are found, their value increases, especially when there is a benefit to the manufacturer to use them, either because of cost savings or public demand.

Scientists and entrepreneurs are looking at other materials to recycle as well. Cardboard, batteries, cloth and synthetics are being collected and used in many communities and old recycling materials like steel and tin, are generating new interest as reprocessing costs drop.

To help this encouraging trend along, you need to do two things. First, sort this material from your personal waste stream and see that it enters the recycling loop. Second, and just as important, aim your personal purchasing power to target products that use recycled materials. By practicing these two simple steps, you can help solve the solid waste dilemma. The suggestions below list a few things you can do to help promote recycling. For more information, contact your local waste disposal company, the County's Solid Waste Division, your County Extension Office or you local library.

- Practice source reduction. Buy products that you use regularly in bulk or purchase products that utilize minimal packaging.
- Include reuse in your daily habits. Using a personalized washable cup instead of disposable, reusable containers for meals or shopping and washable cloth instead of disposable towels, all play a role in reducing our waste stream.
- Reuse containers and products whenever possible. Use your imagination and be creative. You'll find it's fun and economical too.
- Select products made from recycled materials. Unless we all "close the loop", recycling will never reach its full potential.
- Educate and organize your neighborhood to recycle and reuse. Recycling projects are an excellent way to get to know each other and raise funds for other neighborhood projects.

Volunteering

All of us, at one time or another, have been assisted in some way by a volunteer. Maybe it was when you were young and a coach in a youth league or a scout leader taught you a skill or provided advice that helped you in later life. Perhaps it was during a difficult time such as a neighborhood disaster, family crisis, or financial difficulty when volunteers helped you reclaim your life. Or maybe it was a more casual moment when you read in the paper, or saw on TV, how strangers came to help others and it made you feel good that people rise up to help others.

Volunteer work has the ability to help improve both you and your community. Whether you actively participate over an extended time, join in on a single event, or provide financial or logistical support, all volunteer work is cheerfully accepted and gratefully received.

Finding worthy causes that interest you is not difficult. Each day local papers list organizations, charity events, and calls for assistance. Service organizations, houses of worship, and civic groups all sponsor events or causes that in most cases, are solely manned by volunteers

If your time and resources are limited, that should not dissuade you from volunteering. Many times a unique skill, or ability that you possess, will help fill an important role that will improve the success of the goal.

If you are an owner or work for a local business, look into how you can help within your community. Often allowing a small announcement sign in your window, or on a bulletin board, is a significant contribution. If you work for a large company, find out if they have assistance programs or funds for charitable causes and volunteer to act as a liaison to obtain this assistance.

If there is one drawback to being a volunteer, perhaps it is the fact that it is addicting. Do not be surprised if you find yourself donating more time than intended or joining other causes. You will quickly find that being a volunteer will benefit you as well as you cause.

Becoming an Informed Citizen

In the last century, some of the greatest advances have been made in communication. We now have the ability to obtain quick and easy access to information from all over the world. Whether by print, telephone, radio, television or computer, we can stay informed on any number of issues almost as soon as it occurs.

So why is it that so many of us depend on a few useful, but limited, sources for our information? Five minute radio new updates, 30 minute local television news programs and quick reading of the local paper, is not the basis on which to develop opinions or make informed decisions.

While no one has the time to research every source on every subject, readily available information is available from any number of sources. World or national issues are often discussed at length on public television or radio shows. Out of town newspapers or magazines can often provide a perspective or new information not available locally. If you are fortunate enough to own a computer or personal library, detailed facts are readily at hand.

Local issues have even more sources available. Often a simple phone call or letter can get you first hand information from the best sources. Attending a public meeting or workshop can not only allow you to directly ask questions, but also express your opinion so others are aware about how you feel.

In a nation built upon democratic principles and free speech, it is not only your right, but your responsibility to participate in the decision making process. Don't abandon that right by letting others do your thinking for you.

The following guidelines are offered to help you become a more informed citizen.

- Take advantage of your local library and other public sources of information, such as public radio and television. The best sources of information are usually free.
- There is no such thing as a stupid question. If you don't know or understand something, find the right source and ask.

- Attend public meeting on local issues that interest you. You will never have a better opportunity to obtain first hand information.
- Exercise your right to vote and cast your vote upon your knowledge of the candidate. Billboards, signs and brochures are just advertising. Find out where a candidate stands on issues that are important to you.
- Express your opinion. There is no better way to forward your cause than to present your position in an informed manner supported by facts.
- Respect others opinions and their right to express them. Though you may not agree, listening to an opposing opinion can open dialogue that may result in solutions. The foundation upon which America was founded is the right to have and exercise your personal freedoms.

The Citrus County Environmental Homeowner's Guide was developed by the staff of the Citrus County Department of Development Services and converted to our website by Environmental Science Academy intern Matthew Clark. We hope you find it useful.