

## Maintaining Your Florida Yard

### Caring for our waterways starts with caring for your yard.

The perfect yard is less than ideal if caring for it causes you to pollute streams and bays. A good landscape design incorporating the right plants in the right places reduces maintenance requirements and costs. For most yards, it will be necessary to perform some maintenance, including:

- ☞ Composting
- ☞ Fertilizing
- ☞ Watering
- ☞ Mowing, pruning, raking
- ☞ Mulching
- ☞ Pest management

In this section, you'll learn some of the basics of nurturing your landscape without damaging the environment. You'll find that pollution-free maintenance is easiest when plants are selected with that goal in mind. If your existing landscape is too much work or requires maintenance practices that pollute, you may begin to consider changing some plants in your yard. If so, please review the section on landscape design in this handbook.

*An ideal Florida Yard is one that incorporates the right plants in the right places. ▼*



## Composting

A common misconception about plant care is that plants require fertilizer for proper nutrition. Plants do need nutrients, but they don't necessarily need fertilizer. Plants use their leaves to make food from sunlight, water, carbon dioxide *and* nutrients. Nutrients in soil are necessary for structure, regulating metabolism, growth and reproduction. Some key nutrients for plants include nitrogen, phosphorus, potassium, calcium, zinc, magnesium, iron and manganese.

If a plant is appropriate for the soil and site where it is located, it may not require additional nutrients from fertilization. Fertilizers are generally used to achieve a specific goal: more or larger blooms, faster growth, greener leaves or more fruit. If one of these is your goal, you basically have three choices: using compost, applying packaged fertilizer or applying a specific mineral, such as iron.

A great way to improve your soil is by adding compost, which can be made from partially decomposed yard or food waste. When added to your soil, it can create the perfect medium for



▲ Compost is a great alternative to fertilizer, and it's easy to create a backyard composting pile.

sustained plant health. Adding compost will:

- ☞ Improve soil structure, texture and aeration and increase the soil's capacity to hold water;
- ☞ Help loosen compacted soils;
- ☞ Promote soil fertility and stimulate root development in plants; and
- ☞ Create a favorable environment for micro-organisms and larger creatures such as earthworms and insects that are nature's "soil builders."

Generous amounts of compost frequently added to the soil surface can replace petroleum-based, nitrogen fertilizers. And unlike fast-release fertilizers, nutrients in compost are released slowly so landscape plants can better use them. Also, composting or mulching with yard wastes helps reduce community impacts of hauling and disposal.

Composting can be as simple as placing leaves, grass clippings and small cuttings behind shrubs or in a hidden corner of the yard and letting nature take its course. Homemade or manufactured compost bins are another option to consider and will allow you to easily incorporate kitchen waste such as vegetable and fruit scraps, egg shells and coffee grounds. Numerous types of compost bins are commercially available, and many are designed to be aesthetically attractive. Gardening magazines, catalogs and garden centers are good sources for such products.

The compost pile needs adequate moisture, oxygen and nitrogen/carbon sources to generate the right condi-

tions for decomposition. The more closely these factors are monitored and manipulated, the faster decomposition can occur, and the sooner you'll have rich compost for fertilizing plants and amending soil. Your landscape maintenance professional will be grateful for an opportunity to avoid costly landscape waste disposal fees, too.

#### Here are some tips on composting:

- ☞ Never place meat, animal fat or dairy products in the compost pile.
- ☞ Bins aren't necessary but they help keep piles neat, retain heat and moisture, and prevent complaints from neighbors. The minimum recommended size is one cubic yard (three feet square by three feet high).
- ☞ Composting can take as little as four to six weeks or as long as one to two years, depending on the size and type of material in the pile and the amount of attention you give it.
- ☞ Proper moisture is necessary for micro-organisms to compost the material. Covering the pile helps retain moisture and prevents the pile from getting too soggy when it rains. You should not be able to squeeze water from the material produced at the bottom of the pile.
- ☞ Combining different materials, such as grass clippings and leaves, in the pile can help achieve the right proportions of carbon and nitrogen for effective composting. Bury kitchen waste in the pile to discourage pests and to prevent odor from rotting fruits and vegetables.
- ☞ Generally, for fastest composting, the pile should be turned with a pitchfork or stirred on a weekly basis in warm weather. Stabbing the pile with a length of pipe or rake handle can help with aeration and mixing.

### Florida Yard Tip



Mulching shrubbery beds with leaves and small cuttings provides compost without the extra work of a compost pile.



## Fertilizing

If compost is not available or if you need to fertilize, a basic fertilizer that contains slow-release nitrogen and other essential nutrients is the most environmentally-safe and cost-effective alternative. At least 30 percent of the nitrogen in the fertilizer should be listed as slow release. Slow-release nitrogen fertilizers usually cost more, but fewer applications will be required. Besides, a few dollars can make a big difference in protecting streams and bays.

When shopping for fertilizer, you will usually see three numbers (6-6-6, 15-0-15, 16-4-8 and the like) on the front of the bag. The first number refers to the percent nitrogen content, the second number refers to phosphorus and the third refers to potassium. You'll need to read the label more closely to find if other important nutrients are included.

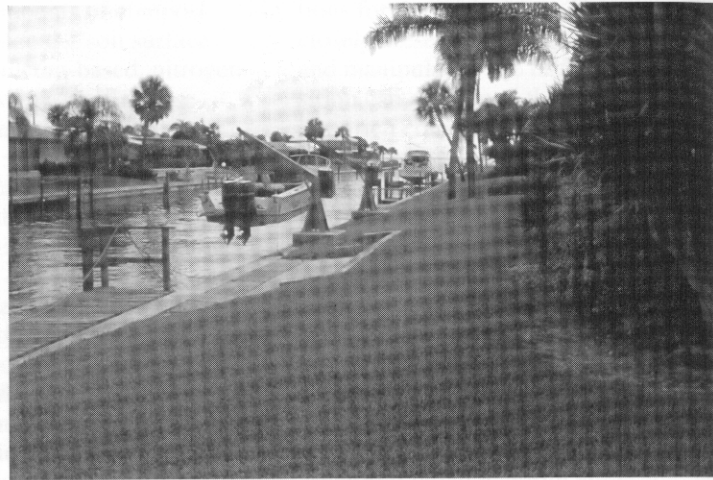
If possible, the first and third numbers (nitrogen and potassium) should be the same. In many parts of Florida, naturally phosphorus rich soils mean you don't need to spend money on phosphorus in your fertilizer. The middle number should be no more than half the value of the first and third numbers. Recommended blends include 10-5-10, 16-4-8 and 15-0-15. And remember, try to select a fertilizer containing at least 30 percent slow-release nitrogen. If your garden center does not stock what you are seeking, ask the manager to order it. As demand for appropriate products increases, they'll be easier to find.

### Florida Yard Tip



#### Help Reduce Runoff Pollution

Apply one-half pound nitrogen per 1000 square feet when fertilizing your lawn. Calculate by dividing the first number on the fertilizer bag (Nitrogen) into 50. Example: For 16-4-8,  $50 \div 16 = 3$  pounds fertilizer per 1000 square feet.



Try to avoid using excessive amounts of fertilizers, especially if you live on the water. ▶

Avoid using fertilizers that contain weed killer or insecticide. Such chemicals should be used only as a last resort when environmentally friendly pest control options fail, and they should be used only on affected areas.

Turf areas tend to have higher nutritional needs. If the lawn just won't green up, even after a good rain, first try applying chelated iron or iron sulfate instead of a complete fertilizer. An iron deficiency may be causing that less robust color.

Four common types of lawn grasses in Florida are Bahia, St. Augustine, Bermuda grass and

Centipede. Bahia requires the least amount of maintenance, but it is not salt-tolerant. Bahia also is prone to damage by mole crickets. St. Augustine is often used in coastal areas because it is very salt-tolerant, but it requires more fertilizer and water. It also can be prone to pests such as chinch bugs. Bermuda, which is used on golf course greens, requires the most fertilizer, pesticides and water, plus careful mowing. Because it requires intensive maintenance, it is not recommended for home landscapes. Centipede varieties create low maintenance lawns best suited to North Florida locations.

When applying fertilizer, use a maximum of one pound of nitrogen per 1,000 square feet no more than twice per year (March and October). However, you may be able to use *half* that amount and achieve excellent results. You can also reduce the risk of nitrate leaching into ground or surface waters by applying one-half pound of nitrogen per 1,000 square feet four times per year (March, May, September and early November).

### Florida Yard Tip



Be cautious about encouraging fast growth that can make your plant pest- and disease-prone while requiring frequent pruning. Fast-growing plants can also be more prone to wind damage, and may have shorter life-spans.

## Watering



◀ Coring tool

Homeowners in some parts of Florida are becoming accustomed to restrictions that limit irrigation to certain days and times. Still, most of us are watering too much. Overwatering depletes our water supply, often makes plants pest prone and adds to storm-water runoff that pollutes our waters.

A sure way to reduce the need for watering is to choose drought-resistant plants, especially those native to your part of Florida, and plant them in the right spots. If you group plants according to their water (and light) needs, your irrigation methods and systems can be simplified. For example, turf irrigation zones should be separate from tree-and-shrub zones.

By choosing and operating a watering system correctly, you can reduce water bills, fungal diseases and maintenance requirements. Remember, the more you water, the faster plants grow and the more your yard will need

### Florida Yard Tip



If the surface soil of your yard appears dry, that doesn't mean the root zone is in the same arid condition. A "coring tool" like the one pictured here can pull up a soil sample from below the soil surface, allowing you to see and feel the moisture below. It can also reveal whether you are watering so much that water is wasted below the root zone. Using this tool can help you judge when to turn off that automatic watering system. Coring tools are available at irrigation supply stores.

to be mowed and pruned. Here are some tips on irrigation that may help protect your plants, your pocketbook and our precious natural resources:

☞ If you have an automatic sprinkler system, install a rain shut-off device or sensor that will override the system when adequate rain has fallen. Your Water Management District, Cooperative Extension Service, the USDA Natural Resources Conservation Service or an irrigation professional can provide technical assistance.



Drip-irrigation ▲

☞ For best results, water in the early morning (4 a.m.-7 a.m.). This is the most efficient time because temperature and wind speeds are at their lowest and evaporation is reduced. Also, grasses will be less

☞ Here's a simple watering schedule for grass: Apply 1/2-inch to 3/4-inch of water when the grass shows signs of distress (bluish-gray color, folded leaf blades). Don't apply more water until symptoms reappear.

☞ Experiment with gradual reductions in irrigation to see if plants can tolerate less water. Some people use no irrigation, yet have healthy plants.

☞ Water less in cooler months (November-March), and turn off automatic systems if rainfall is consistent.

### Florida Yard Tip



There is an inexpensive product that may help you establish a new plant or group of plants where an automatic system is not available. Several manufacturers make micro irrigation hoses that allow water to seep through them. The hose can lay on top of the ground or can be slightly buried in the soil or mulch. In our sandy soils, the water will go virtually straight down, so the hose must be placed near the plant's root zones. When the plant is established and no longer needs frequent watering, store the hose for later use.



◀ Micro-irrigation

If you already have an irrigation system, your options for improving it may be limited. Sometimes low-pressure emitters can be adapted to existing sprinkler heads. This may require an attachment at the source to reduce water pressure. If you are changing areas of your landscape from turf to trees or planted beds, consult with the Cooperative Extension Service or USDA Natural Resources Conservation Service on irrigation options. The Water Management

Districts and Florida Irrigation Society also provide information on irrigation system selection, maintenance and appropriate watering practices.

### To Sprinkle Or Not To Sprinkle

You're probably familiar with sprinklers—the kind that are part of an automated system. With some landscapes, such as a lawn, that's the best method for applying water. For plant beds there are systems that allow you to conserve water by using micro-irrigation equipment such as micro-spray jets, bubblers or drip tubes. If you are in the market for a new irrigation system, find a reputable irrigation contractor who has experience with these systems.

Be aware that drip or micro-spray fittings may clog and require filtration of the source water, regular inspection and possibly cleaning. Drip tape or tubing can be damaged by insects and rodents. Practical advice on state-of-the-art irrigation systems is available from the Cooperative Extension Service and USDA Natural Resources Conservation Service. Free inspection of irrigation system efficiency is available in some areas through the USDA Natural Resources Conservation Service.

### Florida Yard Tip



Use these simple instructions to determine how much water your irrigation system is applying:

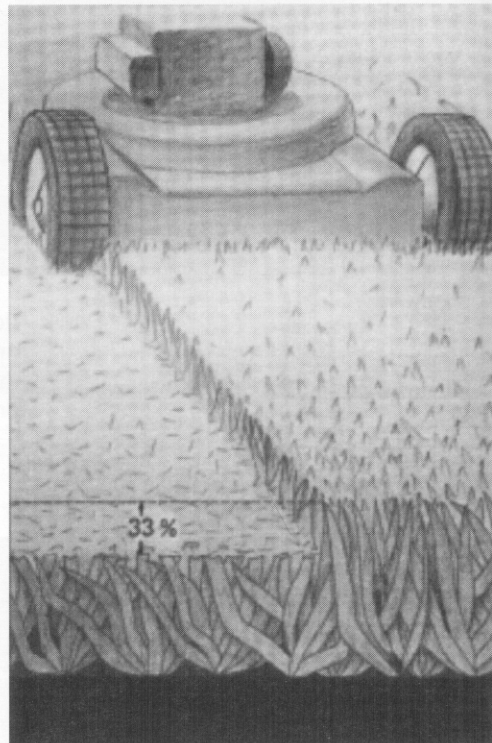
- ☞ Set several flat-bottom cans or cups at various places within one watering zone. Use a stick and rubber band to keep the containers upright.
- ☞ Turn on the sprinklers for 15 minutes.
- ☞ Pour the water from all containers into one container. Measure the water depth with a ruler (to the nearest 1/8 inch).
- ☞ Divide the measurement by the total number of containers. That is the average amount of water applied in that zone in 15 minutes.
- ☞ In the future, irrigate the area only as long as it takes to apply 1/2- to 3/4-inch of water.

## Mowing, Pruning and Raking

Trimming some plants can help enhance the beauty of your Florida Yard. This is also an area of maintenance where you can reduce the workload by doing things the environmentally friendly way.

For example, if you've selected slow-growing plants, the amount of pruning will be reduced. Also, less pruning is required if plants are placed so that when they mature, they don't grow over walkways, driveways or against buildings. If your yard isn't turf intensive, less mowing is an obvious work and time saver. In addition, a beautiful landscape need not have a clipped, formal look. Soft, flowing, natural lines can be attractive and easy to maintain.

If there are turf areas to be mowed, keep in mind that most St. Augustine and Bahia turf grass should be kept at a minimum height of 3 to 4 inches and longer in the shade. Centipede and



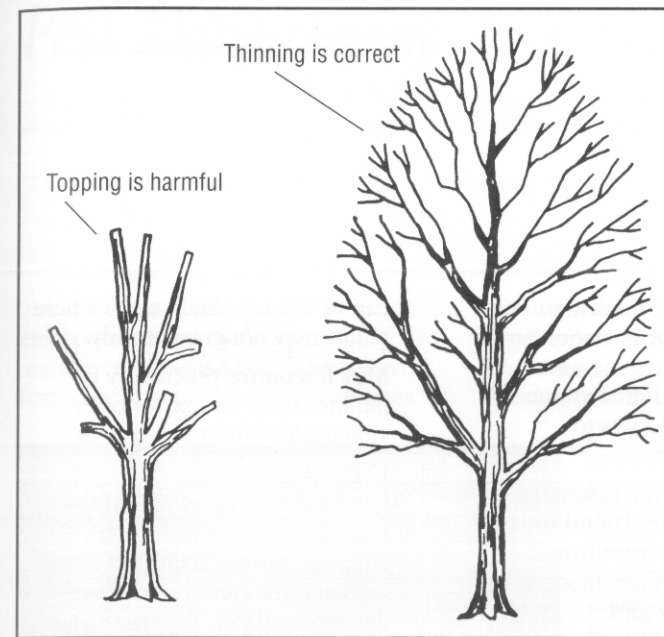
An ideal length for a leaf blade is 3 to 4 inches. ▲

### Florida Yard Tip



Never dump grass clippings or other yard waste into storm drains or waterways. Such activities are illegal and can pollute waters and clog drains.

Bermuda should be mowed at 1 1/2 - 2 inches. If cut shorter, the plants may be stressed. Each mowing should remove no more than one-third of the leaf blade, and those cuttings should remain on the lawn to decompose. For procrastinators who don't mow regularly, mulching mowers will cut grass into smaller pieces, speeding decomposition. If the grass has gotten too long, spread cuttings behind shrubs or add them to a compost pile.



◀ Pruning to retain natural shape encourages the long-term health of the tree.

Grass clippings also can be mixed with leaves and twigs to create a useful mulch that provides nutrients to your plants.

When pruning trees and shrubs, toss small cuttings into a compost pile or behind a shrub. Hauling away huge piles of brush is not necessary and you'll avoid disposal fees that add to the cost of maintenance.

Many new Floridians avoid having deciduous or seasonal trees in their yards because fallen leaves require raking. But deciduous trees help reduce energy costs by shading the house in summer and allowing sunshine to heat the house in winter when their leaves fall. Where turf isn't a concern, allow leaves to remain under the trees because this mulch is good for them. If aesthetics are an issue, plant shrubs under the trees to avoid raking. They benefit from the mulch and help hold leaves in place so they won't clutter the landscape.

Collecting leaves and pine needles provides a source of mulch that is a real asset in the landscape, and it's virtually free. If your yard generates more leaf mulch than you can use, compost the material or share some with a neighbor.

### Florida Yard Tip



If your waterfront landscape includes mangrove trees, refer to the section on waterfront properties. Pruning of mangrove trees is regulated by law.

How and when you prune a tree can dramatically affect the tree's health. Hire a certified arborist to do the work or contact the Cooperative Extension Service to learn proper techniques.

## Mulching

Applying a layer of mulch around trees, shrubs, planted beds and on any exposed soil area will reduce water loss, control weeds and prevent runoff. There are a few simple facts to remember about mulch:

- ☞ A 2- to 3-inch layer (after settling) of mulch around most plants reduces evaporation from the soil's surface, moderates soil temperatures and suppresses weeds.
- ☞ Mulches can replace turf or ground covers in areas that are difficult to mow, irrigate or otherwise maintain. Mulches also

### Florida Yard Tip



Here are sources of recycled mulch. Many of these provide free material, and some will even deliver bulk quantities. If several homeowners team up, large amounts could be delivered to the same neighborhood:

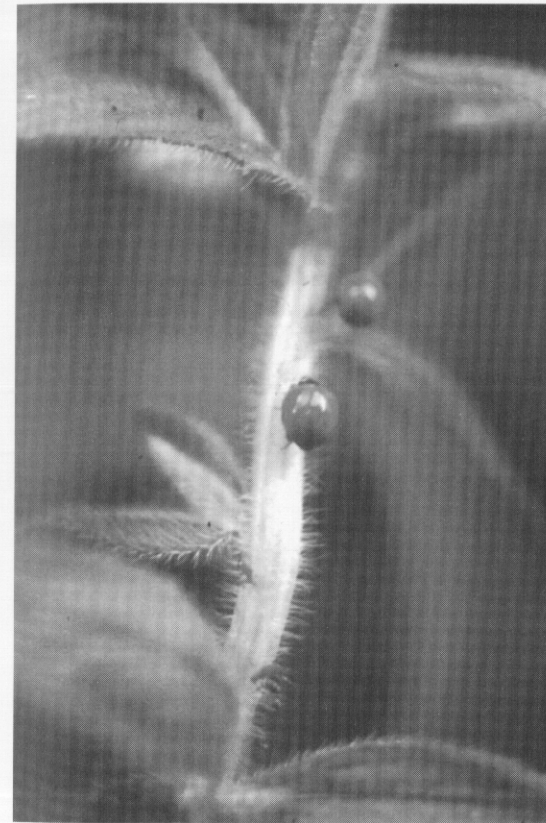
- ☞ Local power companies, municipal solid waste departments and tree services may supply free mulch and sometimes deliver bulk quantities. Try to get only mulch from trimming; mulch from stumps and roots can carry plant diseases.
- ☞ Check the phone book for commercial suppliers of mulch made from recycled materials.
- ☞ If you need lots of mulch for a new landscape, place an ad in the local newspaper so suppliers come to you.

can be used in shady areas where plants may not grow readily.

- ☞ Mulch requires practically no maintenance, except for occasional additions and weeding.
- ☞ Use mulch that originates in your own landscape by recycling leaves, pine needles, grass and shrub clippings. Several sources of municipal or commercial recycled mulches are also available. Start with your local government solid waste department or recycling coordinator.
- ☞ Avoid using cypress mulch because its harvest degrades cypress wetlands.
- ☞ Shell, crushed stone or pebbles can be used as mulch, but will not contribute to the organic content of your soil. Also, be aware that shell mulch will raise the soil's pH as the shell material dissolves. Also it will reflect heat, increasing water needs of plants.
- ☞ Mulch can provide a design element in your landscape, adding a contrast of color and texture that complements plantings.
- ☞ Reduce the chances of rot by avoiding piles of mulch against plant stems or trunks. Citrus trees are particularly prone to rot from such practice.
- ☞ The use of plastic or fabric weed mats under mulch can inhibit air and water interchange and earthworm mobility. This can be a significant problem on poorly drained sites.

## Pest Management

Concerns about health, the environment and the increasing resistance of pests to chemicals have forced people to reconsider practices



▲ There are many insects, such as the lady beetle, that keep other pests off our plants.

they once took for granted. The regular preventive application of traditional pesticides is one example. Most people don't realize that, in

general, nature takes pretty good care of itself. Healthy plants can usually fend off pest attacks, while predatory insects and birds may keep undesirable insects under control. Many insects are beneficial, with less than one percent of all insects harmful to plants. Thus, the preventive use of pesticides is unnecessary.

There is an environmentally friendly approach to pest control called Integrated Pest Management (IPM). IPM emphasizes the use of pest resistant plants, proper landscape management, natural enemies of pests, and the least toxic alternative if pesticides are required. Plants are carefully monitored for harmful pests, and only the safest materials are used to control them. Pesticides are used only on affected plants, not as blanket applications.

Non-chemical controls are not yet available for all pest problems. This handbook attempts to highlight several common pests and the least toxic methods that may control them.

## Avoiding Pest Problems

- ☞ Think before you plant. It takes considerable amounts of pesticides to protect plants weakened by unfavorable growing conditions. Know which plants can tolerate the conditions in your yard and plant them. Concentrate on pest-resistant varieties. Replace those plants that constantly seem to struggle with better adapted ones.
- ☞ Go easy on water and fertilizer. Too much of both can cause excessive growth, which is attractive to insects and disease. Maintain the quality of your landscape by applying fertilizer and water only when needed and in moderate amounts.
- ☞ Mowing grass too short and severely shearing trees and shrubs weakens them and invites pests. Mow to the proper height and prune selectively. Remember, leaves are necessary to produce food for the plant.

### What About Plant Diseases?

Many organisms, including viruses, fungi and bacteria, can cause diseases in plants. Diseases can be quite specific in the plant species they commonly affect, but identifying diseases can still be extremely difficult. Often, home gardeners mistake environmental or maintenance problems for diseases. For example, Spanish moss, lichens and ball moss are not parasites that should be killed or removed; they are merely plants themselves. Another common misdiagnosis in coastal areas is mistaking saltwater damage for disease. Irrigating plants with salty well water can cause yellowing around the edges of leaves and leaf-drop starting from the bottom part of the plant's canopy.

When a plant does have a disease, the problem may be merely cosmetic rather than truly damaging to the plant. Examples are minor leaf spots or other damage to select leaves. Such minor aesthetic concerns are no cause for alarm or treatment. There are serious diseases, however, that can damage or kill plants they affect. Examples are mushroom root rot on woody ornamentals, fire blight on loquat, and brown patch on turf. Such diseases can seriously damage the plant's appearance or yield.

Because diseases are difficult to identify, one should not assume a disease is in the works just because of a plant's appearance. The home gardener can use a magnifying glass to look for insect pests that may be causing the damage. Also they should analyze maintenance practices for causes related to visible symptoms. If a disease is still suspected, it is best to contact your local Cooperative Extension Service for advice on how to collect and submit plant samples for disease diagnosis and recommendations on the least-toxic methods of treatment.

## Identifying Insect Pest Problems

- ☞ Scout the yard for pests. Inspecting plants for insect pests helps identify problems early, before they get out of hand. Common plant pests in this area include aphids, mealybugs, scales, whiteflies, thrips, spider mites and caterpillars. Detecting small insects and mites can be difficult; life cycles as short as one week add to the problem. To detect small pests, strike the leaves of small branches against a sheet of white paper and use a ten-power (10X) magnifying glass. Scales and whitefly larvae attach to the plant. Look for them on branches and the undersides of leaves.
- ☞ Sooty mold on foliage is a good indicator of present or past insect pests. These insects pierce the plant, suck sap, and secrete a sugary product known as honeydew. This substance encourages the growth of harmless black fungi called sooty mold.
- ☞ Ants are another good indicator of the presence of pest insects because they feed on honeydew and care for insects that produce it.
- ☞ Extensive plant damage with few pests may signal the decline of a pest population. Beneficial insects may already be doing the job for you. These may include lady beetles (commonly called lady bugs), lacewings and parasitic wasps.
- ☞ Tolerate some insect damage and leaf disease on plants. No one can maintain an insect- and disease-free landscape, and a little damage won't hurt your plants. Remember, to have the "good guys" there must be some "bad guys" around as a food source.
- ☞ If a pest problem persists, take a sample of the offending insect to the Cooperative Extension Service for identification and IPM treatment suggestions.

### Florida Yard Tip



If you use a landscape maintenance or pest control company, require your contractor to inspect for pests frequently. Also require advance notice and your permission before any chemicals are applied in your home or yard. Ask your contractor whether a safer alternative can be used. Pay for knowledge, not pesticides.

## Controlling Insect Pest Problems

Handpicking, pruning or spraying with water are effective controls of some insect pests if you catch the damage early. Many insect problems can be reduced or eliminated by removing a few affected leaves or plant parts.

Protect the beneficial insects in your landscape by avoiding blanket applications of pesticides. Treat for specific pests and only treat the infested areas. Avoid using broad-spectrum pesticides. Remember, broad-spectrum pesticides are not selective; they also kill beneficial insects.

**Americans spend over \$1 billion a year on pesticides.**

—Environmental Protection Agency, 1993 estimates

Safer alternatives to traditional, chemical pesticides include insecticidal soaps, horticultural oils and products containing a bacterium called *Bacillus thuringiensis*.

### Safer Solutions for Landscape Pests

**Insecticidal soap:** Make your own effective spray with 2 1/2 tablespoons liquid dish soap in 1 gallon of water. Spray liberally on affected plants and repeat application if necessary.

**Horticultural oils:** Labeled as such in garden centers, these products are used as sprays. To make your own oil spray, mix 2 tablespoons vegetable oil, 2 tablespoons liquid dish soap and 1 gallon of water.

**Bacillus thuringiensis (Bt):** A bacterium that infects and controls caterpillars. Available commercially in liquid (spray) form and dusting powder.

### Florida Yard Tip



As a courtesy to your neighbors, the Cooperative Extension Service encourages you to post a sign if you apply any pesticides to your lawn or landscape plants. Florida also has a registry of persons sensitive to pesticides who should be contacted before pesticides are applied near their dwellings. Some of these individuals may become dangerously ill if they do not evacuate the area before chemicals are applied. A posting sign and copy of the registry may be obtained through the Cooperative Extension Service.

### Active Ingredients in Pesticides Commonly Used in Home Landscapes

If label directions are not followed on products containing these and other pesticides, the chemicals may harm children, pets and even adults through skin contact, inhalation or when ingested.

The following compounds are either moderately persistent in the environment or highly toxic to aquatic life and/or terrestrial wildlife. Extreme caution should be used when applying pesticides with any of these active ingredients:

- Chlorpyrifos (Dursban)
- Chlorothalonil (Daconil)
- Diazinon

The following compounds either degrade more rapidly under field conditions than those listed above, or they are moderately toxic to aquatic life and/or terrestrial wildlife. Use caution if you apply pesticides containing the following active ingredients:

- Atrazine
- Carbaryl (Sevin)
- Malathion

The following compound is slightly toxic to aquatic life, moderately toxic to terrestrial wildlife and is moderately persistent. As with any pesticide, however, caution should be used in its application.

- 2,4-D

(Sources: National Oceanic and Atmospheric Administration and the Environmental Fate and Effects Division of the U.S. Environmental Protection Agency Office of Prevention, Pesticides and Toxic Substances.)

**73 million pounds of active pesticide ingredients are purchased for home and garden use annually**

—Environmental Protection Agency, 1993 estimates

### Florida Yard Tip



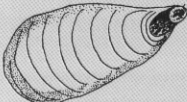
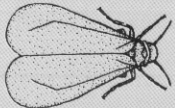
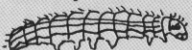

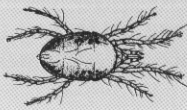


Cockroaches are usually tolerated when they are outside the house, but they can be a common indoor nuisance. Minor infestations of roaches can be controlled with least-toxic alternatives if food is not left out and water sources (wet dishes and sinks, dripping faucets) are eliminated. Try placing non-organic dusts, such as silica gel and boric acid, in cracks and crevices. Traps also may be purchased and placed indoors.

▼ Roach traps and a solution of liquid soap in water are two safe methods of pest control.

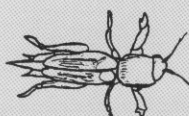

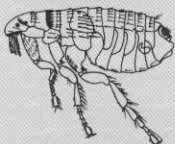



## Common Plant Pests and Least-Toxic Controls

 <p><b>Aphids</b></p>	<p>Winged or wingless; pear-shaped body; usually green; may be yellow, black or other color; typically congregate at twig tips; leaves may be twisted or distorted; ants or sooty mold may be present.</p>	<p><b>Natural controls:</b> Lady beetle adults and larvae; lacewing larvae, syrphid fly larvae, parasitic wasps.  <b>Other controls:</b> Flush from branch tips with water from hose, apply insecticidal soaps.</p>
 <p><b>Mealybugs</b></p>	<p>1/16- to 1/8-inch long; soft bodies; well developed legs; bodies covered by powdery white coating that may also surround egg masses; attack leaves, twigs, roots; white, mealy wax deposits; sooty mold; ants usually present.</p>	<p><b>Natural controls:</b> Lady beetles, lacewing larvae.  <b>Other controls:</b> Spray with horticultural oil. If oil spray fails, systemic pesticide may be applied to root system, affecting only pests that feed on plant sap.</p>
 <p><b>Scales</b></p>	<p>About 1/16-inch diameter; various size, shape and color; some produce honeydew (sugary secretion); body hidden under waxy scale covering; mature scales are stationary and feed on leaves, twigs, stems, fruit; yellow spots on top of leaves with scale underneath; ants; sooty mold.</p>	<p><b>Natural controls:</b> Lady beetles, parasitic wasps.  <b>Other controls:</b> See methods for mealybugs.</p>
 <p><b>Whiteflies</b></p>	<p>Adults appear as white specks on plants; deposit eggs on underside of leaves; stationary larvae are oval, flat, transparent-to-greenish color when alive and dull white when dead; ants; sooty mold; adult flies around or on plant; larvae under leaves. It is only the larval stage that feeds on plants.</p>	<p><b>Natural controls:</b> Fungi (white, orange or tan; most effective in humid weather), parasitic wasps, lady beetles.  <b>Other controls:</b> Spray with insecticidal soap. Follow with horticultural oils if necessary.</p>
 <p><b>Caterpillars</b></p>	<p>Larvae of butterflies and moths, chew on foliage causing skeletonized leaves and notches, greenish fecal pellets on foliage, caterpillars observed.</p>	<p><b>Natural controls:</b> Birds, predatory stinkbugs, big-eyed bugs; lizards.  <b>Other controls:</b> Spray or dust with <i>Bacillus thuringiensis</i>. Most effective when caterpillars are small.</p>
 <p><b>Thrips</b></p>	<p>Tiny (1/32-inch); wings; scar leaves and drink sap from wounds; plant may be dull, grayish; curling, distorted leaves.</p>	<p><b>Natural controls:</b> None identified.  <b>Other controls:</b> Apply horticultural oils.</p>
 <p><b>Spider mites</b></p>	<p>Tiny (1/32-inch); oval bodies; red, yellow or greenish; may have spots; adults spin loose webs on foliage; reproduce rapidly in hot weather; injuries to plants look like light color dots, giving leaves dull, gray green, stippled appearance. Fine, loose spider webs; ashy looking residues.</p>	<p><b>Natural controls:</b> Lady beetles, predatory mites.  <b>Other controls:</b> Flush with water, then alternate soap and oils if necessary.</p>

Information in this chart was adapted from Sarasota County Cooperative Extension Service publications.

## Common Plant Pests and Least-Toxic Controls (continued)

<p><b>Mole crickets</b></p> 	<p>Up to 1 1/2-inch long; velvety brown, front legs flattened and adapted for burrowing; affects Bahia and Bermuda grass; turf may be spongy and thinning, 3/4-inch round holes with signs of tunneling; infestation likely to occur in same area each year. Test for infestation by flushing area with soapy water; crickets will surface if present.</p>	<p><b>Natural controls:</b> Red-eyed fly, beneficial nematode; ibis. <b>Other controls:</b> For chronic infestation, consider replacing turf with trees, shrubs or groundcovers. Spot-treat infestations in June with materials labeled for mole cricket control. Use bait later if necessary.</p>
<p><b>Chinch bugs</b></p> 	<p>Adults 1/5-inch long; black and white patches on wings, young nymphs smaller and reddish; attack St. Augustine grass, yellowing turf grass, often in stressed areas in full sun or near paved areas or on over-fertilized lawns.</p>	<p><b>Natural controls:</b> Big-eyed bug; earwigs. <b>Other controls:</b> Avoid high fertilizer rates. Maintain St. Augustine at height of 3 inches in sun and 4 inches in shade. Use chinch bug-resistant grass varieties (Floritam, Floralawn, FX-10). Spot-treat infestations with materials labeled for chinch bugs.</p>
<p><b>Fleas</b></p> 	<p>Small; dark colored; 1/8-inch long, can hop some distance, obvious effects on pets and people, prevalent in areas where pets bed down or dig holes.</p>	<p><b>Natural controls:</b> None identified. <b>Other controls:</b> Spot-treat pet bed/outdoor resting areas with soap solution. Boric acid products can be employed inside homes on rugs or upholstery. There is also a new once-a-month pill for pets, available through veterinarians.</p>
<p><b>Nematodes</b></p>	<p>Small, unsegmented roundworms; generally transparent and colorless; invisible to unaided eye. Feeds on and damages root systems; may cause premature wilting, stunting, yellowing of leaves, premature leaf loss, thinning of turf, galls or "knots" on roots, short roots, dark roots, root decay. Root-knot nematodes can often be identified by their readily recognized galls on roots of many plants. Laboratory analysis required to identify types and numbers of most kinds of plant parasitic nematodes present.</p>	<p><b>Natural controls:</b> Choose landscape plants that are least susceptible to damage by most common (root-knot) nematodes. Most soil contains millions of spores of many fungi and bacteria that attack and reduce numbers of nematodes in soil. Adding more spores is unlikely to enhance natural level of control. Adding organic matter to soil may help increase food base for "friendly" fungi. Use horticultural practices encouraging more efficient root systems and improving soil's ability to hold water and nutrients. <b>Other controls:</b> "Solarize" empty garden soil by covering soil with clear plastic for 4-8 weeks to generate heat, or replace infested soil. Soil fumigant chemicals sometimes are used before planting. No residual control, however, from any of these controls. Planting site is easily reinfested. No chemical controls available once landscape is established.</p>
<p><b>Ants</b></p> 	<p>Three body segments; sizes range from 1/16- to 1/2-inch, depending on species; most species not harmful; mounds, ants in trails and on plants; controls not recommended in landscape unless fire ants are the problem.</p>	<p><b>Natural controls:</b> None identified. <b>Other controls:</b> Safest chemical methods for fire ant control are baits. Be sure material is dry/fresh and apply in morning or evening around edges of mound. Do not disturb mound.</p>

## When You Don't Do the Work Yourself

There are thousands of companies in Florida offering landscape maintenance services. With all of those folks vying for business, take care to select one that will use sound maintenance practices to produce a Florida Yard that's beautiful *and* friendly to the environment. This handbook will help the do-it-yourselfers, but what about those lacking the time, desire or ability to do the work? Here's a checklist to review with a prospective maintenance provider.

Your landscape maintenance service should:

- ☞ Monitor for pests rather than apply sprays routinely and provide evidence of a significant problem before you allow and pay for treatment.
- ☞ Use least-toxic methods of controlling pest problems as described in this handbook.
- ☞ Use chemical pesticides only when less-toxic methods fail and post a sign to alert neighbors that chemicals have been applied.
- ☞ Apply slow-release fertilizer, and only if fertilizer is needed. See guidelines in this handbook.
- ☞ Avoid fertilizers containing weed killer or

insecticide, unless applied with your permission.

- ☞ Leave grass clippings on the lawn and use other yard waste as mulch or compost.
- ☞ Selectively prune shrubs rather than shear them.

*Many professional landscape maintenance services are becoming more familiar with Florida Yard techniques. ▼*



## On the Waterfront

Waterfront Florida Yards present special challenges and responsibilities.

Waterfront property owners have firsthand knowledge of the special contributions that bays, lagoons, rivers, streams and lakes add to our quality of life. But a special responsibility goes along with the benefit of being a next-door neighbor to these natural resource treasures.

Landscapes bordering our surface-water resources need to be designed with special sensitivity to the environment. Those landscapes also present some unique management challenges for the environmentally conscious homeowner. Some of those considerations are highlighted here.

### Shoreline Considerations

If you have a naturally sloping, vegetated shoreline, count yourself among the lucky few. Approximately 40-50 percent of the natural shorelines around Tampa Bay and Sarasota Bay have been altered by shore protection structures like seawalls or rock revetments. Naturally sloping shorelines, particularly when buffered by a fringe of trees and/or marsh grass, help smooth out waves and reduce turbidity (cloudiness) in the water. Shoreline plants contribute to the aquatic food web, attract wildlife such as wading birds and help prevent erosion of the shoreline.

The area in which these shoreline plants grow is known as the littoral zone, or the boundary or interface between land and water. Unfortunately, seawalls have

traditionally been placed directly in this zone. While returning to a naturally vegetated shoreline is ecologically desirable, removing a shore protection structure is likely to be a complex process.

If a shore protection structure has replaced the littoral zone along your property, your options are limited by the depth of your lot, the distance from the waterline to upland structures, the wave impact against your shore, your budget and the shoreline condition of neighboring properties.

Shoreline protection alternatives are very site-specific considerations, and expert advice is essential. The Florida Sea Grant marine extension agent in your county, natural resources employees of local governments and

### Florida Yard Tip



If you live next to a surface water body, with or without a seawall, a swale and berm feature along your property will reduce runoff from the yard. Keeping that first inch of rainfall on your yard will help keep surface waters clean. See Page 25 for a schematic of a typical swale and berm designed for this purpose. Remember: Seawall construction and other alterations of the shoreline, including most mangrove pruning, require permits from regulatory agencies.

the Florida Department of Environmental Protection are good places to start. Keep in mind that submerged land waterward of the Mean High Water line (see definition in this section) may not be your property, but may belong to the state.

One of the following scenarios may relate to your property and may provide ideas on how you can be part of restoring natural shorelines.

**1. No existing shore protection structure and no need for erosion control.**

Seek advice from one of the agencies listed above on how to enhance and protect your natural shoreline. If invasive plants, such as Brazilian pepper or Australian pine are present, remove them and replant with marsh grass to reduce erosion. You can help protect the shoreline at the same time by installing a maintenance-free zone of landscaping along the water-front edge of your yard. This buffer zone protects the water from areas that are mowed, fertilized or treated with pesticides. Plant selection for the buffer can maintain ecological diversity, further protect your shoreline from erosion and enhance the aesthetic value of your waterfront.



◀ *Natural shorelines can be very aesthetically pleasing.*

**2. No existing shore protection structure, but apparent need for erosion control.**

If the waterline is moving landward and causing the loss of shoreline vegetation, the degree of erosion risk should be assessed by agency staff. They can recommend options to control erosion but may find that structural protection is not necessary. If structural protection is recommended, it should be placed landward of the Mean High Water line. This leaves the littoral zone undisturbed and allows natural vegetation to be maintained or placed waterward of the shore protection structure, thus providing habitat value and shoreline protection. The structural protection could be large boulders; a planted, timber terrace effect; or a seawall. The latter is usually the most costly to construct and maintain.

**3. Existing shore protection structure is in excellent condition.**

If your seawall or revetment preempts the littoral zone and you don't want to move it landward, a perched planter for aquatic plants or an artificial reef habitat for fish could be considered. If your seawall or

*Natural shorelines can be both attractive and functional. ▶*



revetment is landward of the littoral zone, consider suggestions in No. 1 above for enhancing and protecting the littoral zone.

**4. Existing shore protection structure needs minor repairs.**

Weigh the cost of repairs and eventual replacement with the cost of removal and reestablishing a planted, sloping shoreline. If you opt to repair the existing seawall, see No. 3 above.

**5. Existing shore protection structure is not functioning properly and needs replacement.**

It is often less expensive to remove a seawall, regrade the shoreline and replant with appropriate vegetation than to replace the wall. If structural protection is required, see No. 2 above. Replacing a seawall located within the littoral zone is a last resort, but may be necessary in your case.

**6. Lakes, Rivers and Streams**

Lakes, rivers and streams—even most stormwater retention ponds—also have littoral zones where the land and water meet. Many of the same considerations apply in these freshwater systems as in the bay. Definitely do not mow the littoral zones along these

water bodies, and protect them from fertilizer and pesticide runoff. Erosion problems are typical along water bodies where vegetation has been disturbed by construction activities. Enhancing natural vegetation with additional plantings and removing non-native, invasive plants can improve both the function and aesthetics of your shoreline.

**What is Mean High Water?**

This is an important point for property owners on tidally influenced waterfronts because their property typically ends at the Mean High Water (MHW) line. Mean High Water is not the wrack line where seagrass debris is piled in a storm, nor is it the extent of wave impact. The exact elevation of MHW above sea level may vary somewhat around the state of Florida. For those of us who are not land surveyors, that translates to slightly above the line where barnacles grow on pilings or seawalls.

Remember that anything you wish to do that affects submerged lands waterward of MHW requires the state's permission. For information on permitting requirements, contact the Florida Department of Environmental Protection and your local government's natural resources department.

## Those Marvelous Mangroves

The beauty, wildlife value, erosion protection, importance in estuary ecology and declining numbers make mangrove trees an asset to all Floridians. If you have mangroves, contact the following organizations for information on properly managing these fascinating plants: Florida Sea Grant Extension Program, Florida Department of Environmental Protection (FDEP) and your local government's natural resources department. Remember that some mangrove pruning requires a permit, and the rules are periodically revised. Here's a quick primer to help you identify the mangrove species found in central and south Florida.

**Red mangroves** usually live closest to open water. They have arching prop roots and their seeds, or propagules, look something like green cigars. Their leaves are large and bright green.

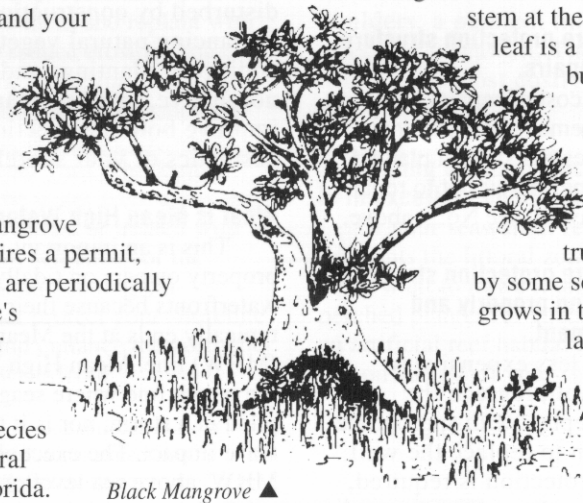
**Black mangroves** usually are found growing landward of red mangroves. Their leaves are dull green with silver undersides. Black mangroves "sweat" salt from their leaves and send up

from their roots twiggy projections called pneumatophores, which provide oxygen to the tree's roots.

**White mangroves** usually grow landward of or interspersed with black mangroves. Their leaves are more rounded than those of other species and have a small notch at the tip, and are lighter in color. On each leaf stem at the base of the leaf is a pair of small bumps.

**Green buttonwood** is not considered a true mangrove by some scientists. It grows in the most landward location of the littoral zone, behind the other mangrove

species. It generally has small, elongated leaves and bears round "buttons" that turn brown. Once established, the green buttonwood is quite drought-resistant. It also can withstand flooding, which makes it an ideal landscape plant for coastal areas. Its cousin, the silver buttonwood, is prized in coastal landscapes for its distinctive silver-gray foliage. Pruning of buttonwoods does not require a permit.



Black Mangrove ▲

## Septic Systems

In some communities, wastewater produced in the home is treated in an individual septic system located in the yard. Scientists have documented that even properly operating septic systems now in use do not protect ground or surface waters from the nitrogen that is a component of human waste.

When septic systems are located near streams, bays, lagoons or other surface waters, their drainfields seep nitrogen into ground and surface waters. Too much nitrogen causes algae to overgrow, smothering aquatic plants and sometimes causing fish kills.

Additionally, water that is treated by septic systems cannot be retrieved for irrigating farms, golf courses or yards. This is a common conservation practice with many centralized wastewater treatment systems.

In many areas, centralized sewer service may become available, providing homeowners with an environmentally responsible option for wastewater treatment. Testing is also under way to determine whether new septic systems that remove nitrogen are appropriate for Florida. Meanwhile, homeowners with septic systems in their yards are responsible for properly maintaining the systems to reduce health and pollution hazards.

The Florida Septic Tank Association has the following recommendations for homeowners using septic systems:

- ☞ A septic tank should be opened and inspected every two to three

years by a septic tank contractor, who will determine whether it needs to be pumped out.

- ☞ Do not plant trees or shrubbery over a septic tank or drain field. Roots can choke the drain field, reduce the tank's capacity or block the tank's inlet or outlet.
- ☞ Do not place grease or fibrous products, such as fruit peelings, in the kitchen's garbage disposal.
- ☞ Replacement is the only remedy for a clogged drain field. It cannot be repaired by cleaning or the infusion of enzymes.
- ☞ Do not add yeast or bacteria to your septic tank.
- ☞ Avoid overtaxing your septic system by spacing laundry loads throughout the week rather than several loads on just one or two days.

For more information on septic system operation and maintenance, contact the Florida Septic Tank Association, P.O. Box 1025, Lakeland, Fla., 33802.

### Warning Signs of Septic System Trouble

- ☞ Plumbing backups or sluggish flushing in the toilet.
- ☞ Gurgling sounds in the plumbing.
- ☞ Grass in the yard growing faster and greener in one particular area.
- ☞ Ground mushy underfoot.
- ☞ Offensive odors indoors or outdoors.
- ☞ Low spots beginning to appear in the yard, regardless of other symptoms.

Source: Adapted from Florida Septic Tank Association

## Ponds In the Florida Landscape

A backyard pond can be a very appealing feature in Florida yards. Ponds provide landscape charm, water retention and treatment, wildlife habitat, recreation and gardening opportunities. But they are not without their own unique costs and considerations. Whether they are natural or constructed as part of site development, they must be considered when making choices about house design, lawn care or general yard use. If planned right, ponds can represent the best feature of a landscape.

### Ponds in the Landscape

Water adds a magical element to most landscapes. The change of texture, variety of lighting conditions and sounds all add to our increased interest in the landscape. Selecting a good pond site is a decision that involves many site factors such as correct slopes, soil types and water table, but also practical matters such as septic tank and house foundation setbacks, and utility easements.

Natural Florida ponds are usually located in the lowest spots of a landscape. There may be some advantage to constructing a pond at midway of the drainage but consider downstream flooding and drainage effects. Most Florida ponds have a high edge-to-depth ratio, that is, they are wide and shallow. This ratio increases the amount of littoral shelf area in the pond, the area of maximum sunlight penetration and subsequent rooted plant production and pond life activity. Ponds less than 4 feet deep often carry a

complete plant cover. It takes 6-10 foot depths to maintain open water.

If deeper depths are required, (typically for production of construction fill material), aerator pumps can help maintain proper aeration conditions. Local county excavation regulations, federal wetland regulations and the other required local permitting must be considered when designing these ponds.

### Stormwater Control

As part of a mandated stormwater management system, frequently required by local water district permitting, the small pond can serve as a final collection point for runoff after a series of swales and channels. Pollutants are filtered by vegetation, filter traps, and the settling action in the pond itself. This can have a significant effect, improving water quality for discharge into estuarine bodies. These systems also have the advantage of extending the "soak time" of stormwaters, or increasing the amount of water allowed to percolate downward, recharging the groundwater table directly.

Unlike ponds in natural systems, ornamental and stormwater ponds have a specific job to do and will need management. If you find yourself managing/living with one of these systems, here are some guidelines—several DOs & DON'Ts—to assure they continue to function properly:

### Wildlife Habitat

Whether the pond surface can be measured in square feet or acres,

- ☞ DO plant appropriate aquatic, emergent and upland vegetation according to hydroperiod needs and habitat qualities. (They will greatly enhance stabilization)
- ☞ DO use pond water for non-potable local irrigation needs.
- ☞ DO set growth goals for surrounding plantings and fertilize the least amount possible to meet them.
- ☞ DO keep pet wastes out of watercourses.
- ☞ DON'T allow livestock to graze pond banksides,
- ☞ DON'T swim or eat fish caught in stormwater ponds.
- ☞ DON'T allow invasive plants to clog waterways.
- ☞ DON'T direct grass clippings into ponds, stormdrains or waterways.

ponds will provide a significant contribution to the wildlife of the area. A common pond type, and perhaps the easiest to imitate as a yard feature, are shallow "seasonal" ponds, typically from 2 to 5 feet deep and 25-150 feet across, found across much of the peninsular Florida flatwoods.

The wet/dry variation in seasonal rainfall causes great changes in shallow pond water levels, appearances and functions. Standing water recedes in the Florida winter, often drying down completely, depending on the pond's

water depth, soil type and the local water table. Even in this "dry-down" condition, these sites provide "damp habitats" required by many amphibians, reptiles, birds and small mammals.

If you wish to construct a pond to replicate these important habitats, choose an area where:

- ☞ a wide and shallow profile can be accommodated;
- ☞ present plant life and soil types are suitable; and
- ☞ wildlife can get to the pond without disturbances.

### Recreational Fishing

Many ponds are constructed with recreational fishing in mind. Bass and other large species depend on a complex food chain that requires a stable habitat. Ponds of at least 1/2 acre surface area, a minimum 60-foot-wide bottom and depths of at least 6-8 feet have a better chance of offering the stable conditions for successful sport fish management.

### Pond Gardening

Aquascaping - landscape gardening with aquatic plants in wetland habitats - is a satisfying form of gardening in seasonal or permanent ponds. Different aquatic plants grow best at specific water depths. The profile of the pond (a cross-section of elevation contours) must be determined before plants are selected. Plants will tend to completely cover ponds less than 4 feet deep.

## Helpful Literature

Northwest Florida Water Management District: (904) 539-5999  
Southwest Florida Water Management District: 1-800-423-1476  
South Florida Water Management District: 1-800-547-1066  
Suwanne River Water Management District: 1-800-226-1066  
St. Johns River Water Management District: 1-800-451-7106

These are some additional publications that can help you in your quest for a better Florida Yard. Some are free and others must be purchased.

### Cooperative Extension Service

- ☞ Florida Guide to Environmental Landscapes (SP-114)
- ☞ Your Florida Landscape SP135
- ☞ Florida Lawn Handbook (SP-45)
- ☞ Insect Identification Flashcards (SP-128)
- ☞ Pests In and Around the Home (SP-134)
- ☞ Florida's Estuaries (SGEB-23)
- ☞ Introduction to Planting and Maintaining Selected Common Coastal Plants in Florida (SGR-97)

### Southwest Florida Water Management District

- ☞ Plant Guide
- ☞ Sensible Sprinkling
- ☞ 50 Ways to Do Your Part

### USDA Natural Resources Conservation Service

- ☞ Plants for Coastal Dunes (Bulletin 460)

### Florida Game and Fresh Water Fish Commission

- ☞ Planting a Refuge for Wildlife

### Tampa Bay National Estuary Program

- ☞ Tampa Bay Repair Kit

### Association of Florida Native Nurseries

- ☞ Xeric Landscaping with Florida Native Plants

### Florida Native Plant Society

- ☞ Butterfly Gardening with Florida's Native Plants
- ☞ Florida Plants For Wildlife

### Other Publications

A variety of publications on landscaping, environment, wildlife, and related issues are available through bookstores, and garden centers.



◀ Protecting our environment now will enable future generations to enjoy these natural resources.

*"Man is that uniquely conscious creature who can perceive and express. He must become the steward of the biosphere. To do this he must design with nature."*

**Ian McHarg**

*Professor of Landscape Architecture at the University of Pennsylvania from his book **Design with Nature**, 1969*

