Environmental
LANDSCAPING
IN THE GULF OF MEXICO REGION

Acknowledgment
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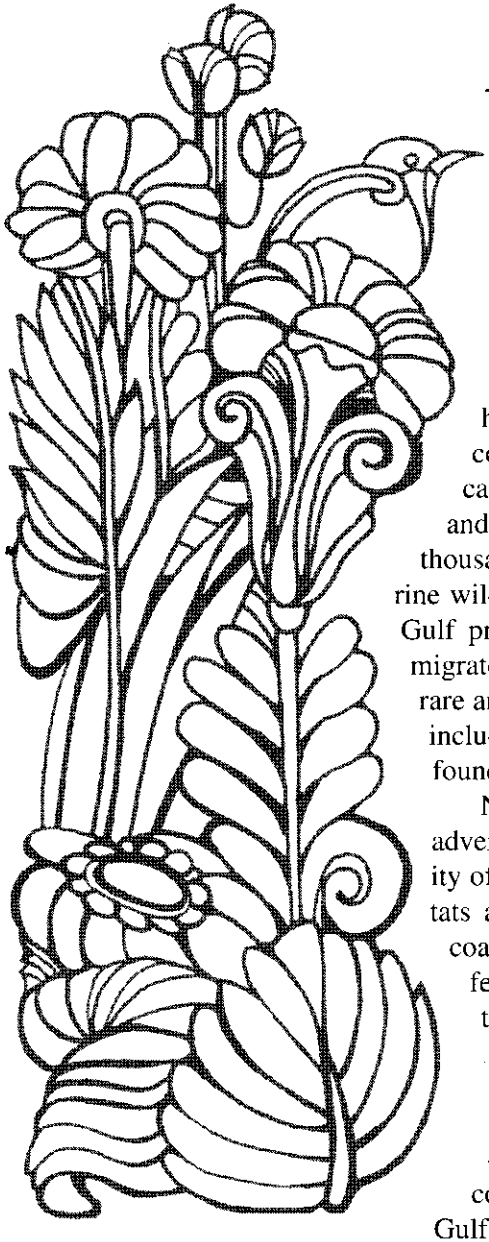
Contents



Introduction

Habitats and ecosystems along the Gulf of Mexico coast include such diverse areas as freshwater swamps, mangrove forests, sea grass beds, and salt marshes. About half of the coastal wetlands in the conterminous United States are located along the Gulf. These habitats and breeding grounds shelter and feed thousands of species of coastal and marine wildlife. The coastal wetlands of the Gulf provide habitat for 4 to 7 million migratory waterfowl every winter. Many rare and endangered species of wildlife, including sea turtles and manatees, are found in the Gulf.

Natural and man-made causes can adversely affect the environmental quality of the Gulf. Formerly pristine habitats and many species of marine and coastal life have been adversely affected by an increase in human activities. Today, one-sixth of the U.S. population lives in the five states bordering the Gulf. Of these 42 million people, 15 million live in coastal counties. By the year 2010, coastal population densities in the Gulf are projected to increase to an average of 227 people per square mile

(over 1,000 per shoreline mile). These new coastal residents will further strain Gulf resources as they demand housing, jobs, fresh water, and the conveniences of modern life.

Water from two-thirds of the United States drains into the Gulf of Mexico, and one-quarter of the runoff from all this land actually makes its way into the Gulf. Excessive levels of nitrogen, phosphorus, and other nutrients come from city sewage treatment plants, industrial operations, septic tanks, lawns, gardens, and agricultural activities. An overdose of nitrogen and phosphorus can lead to algal blooms that deplete the water's dissolved oxygen, making it unsuitable for other forms of life. A 3,600-square-mile oxygen-deficient "dead zone" located off the coasts of Texas and Louisiana contributes to a dramatic reduction in species diversity and abundance in the region. This area is in the heart of one of the nation's richest and most extensive fishing grounds.

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Erosion and surface runoff cause sediments and contaminants to enter Gulf waters **directly** by washing into tributaries and **indirectly** by being carried through storm drains and water-treatment facilities. Erosion also causes the loss of valuable wildlife habitat, and, in some cases, may actually threaten building structures located on shorelines. There are simple steps you can take to reduce erosion and surface runoff from your property.

Recent toxic release inventory data showed that the Gulf States of Alabama, Mississippi, Louisiana, and Texas were 4 of the top 10 states in the country in total surface water discharge of toxic chemicals. Some 460 municipalities and large industries pipe discharges directly into the Gulf. Farmers spread more than 21 million pounds of

chemical fertilizers and pesticides on croplands in the Mississippi River region each year. Many suburban homeowners use 5 to 10 pounds of pesticides per acre. That's about 10 times more chemicals per acre than farmers use!

Lawn and garden chemicals are beneficial when correctly used, but when nutrients such as fertilizers enter waterways, they can cause algal blooms that lead to oxygen depletion and have a negative impact on other forms of life. Many fish kills can be traced to oxygen depletion caused by an overabundance of nutrients in the water. Many herbicides and pesticides can kill nontargeted species if they enter surface waters directly. You should always strive to reduce the amount of these toxic substances released into the environment.

Nonpoint-source pollution is increasingly recognized as a significant factor in coastal water degradation. Nonpoint-source pollution includes lawn and garden pesticides and fertilizers, street or parking lot runoff, pet waste, and septic tank drainage. In urban areas, storm water and combined sewer overflow are linked to major coastal problems, and in rural areas, runoff from agricultural activities adds to coastal pollution. **These sources are attributable to people conducting their everyday activities and are examples of just a couple of ways your actions can have a large impact on the quality and future of the Gulf.** The first step is to recognize the connection between your way of life and the health of the Gulf. Everyone is responsible for the future of the Gulf, so get involved and start making a difference. As a homeowner or land developer involved in landscaping projects, there are many things you can do to save on water use, prevent pollution from entering Gulf waterways, and, best of all, save time and money!

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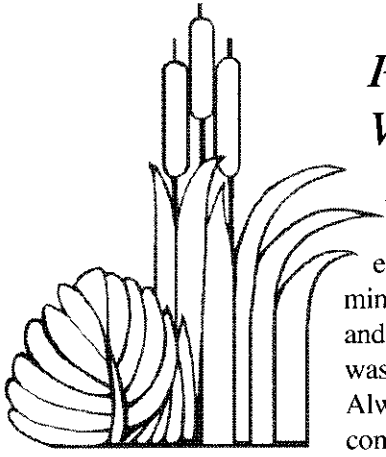


Planting and Maintaining Vegetation

Have Your Soil Tested

A soil analysis assesses pH level and nutrient availability. This information helps determine the appropriate type and quantity of fertilizer and lime to apply, saving money and preventing waste and water contamination by misapplication. Always fill out the soil test information sheet as completely as possible. Lab recommendations are based, in part, on information such as soil texture, last lime application, and what you intend to grow in that area. Soil test kits and forms are available from your local Cooperative Extension Service office.

Know Your Plants

Make sure proposed planting sites meet the plant's requirements for soil, sun, and water. Proper siting helps reduce maintenance and irrigation needs and produces healthier plants. The most common error in landscape design is improper siting of species with regard to light conditions. Select plants that will fit available space when they have matured. A healthy tree or shrub with room to grow will be better able to withstand drought stress and require less pesticide.

Site Plants Properly

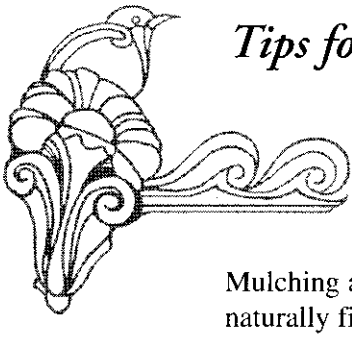
Plant and maintain trees, shrubs, perennial grasses, or legumes along steep slopes, drainage channels or ditches, and around bodies of water. These are "buffer strips" that trap surface water and sediments. Choose plants that are pest resistant and don't require much fertilization. Native plants generally survive best. Table 1 is a list of suggested native plant species suitable for use in the Gulf of Mexico region. The proper width of buffer strips of vegetation between the land being used and the water body depends on the type of soil, the degree of slope, and the type of vegetative cover. Consult a landscape architect or your

local Extension agent. Forested areas are more effective than grasslands. A one-acre buffer of trees 50 feet wide will protect almost 900 feet of a waterway by reducing soil erosion caused by rainfall impact and allowing more water to filter through the soil.

Proper siting of plants on your property in relation to building structures can create an energy-efficient home landscape that will save on heating and cooling costs. Plant deciduous trees along the east, south, and west sides of your home to provide shading for the walls and roof in the summer and to allow the sun to warm the house in winter. The southwest corner of the house is the most critical area to cool. Plant evergreen shrubs close together to form a wind barrier on the northwest side of your home to slow the chilling winds of winter. Windbreaks and fences can also be used as wind scoops to channel cooling summer breezes into desired areas. Fences have two advantages over planting windbreaks: (1) they require less ground space; and (2) they provide *immediate* protection. Do not use a solid fence. Solid surfaces do not stop the wind -- they simply make it more vicious. Use a slat fence with spaces between each vertical board.

Pruning is Necessary

Some pruning may be necessary the first few years after planting trees or shrubs in order to develop a sound and attractive branching habit. Most trees should be pruned to develop a single leader and to reduce branches with extremely narrow crotch angles, since these are weak points and may break when the tree matures. At planting time, remove broken, crossing, and diseased branches, but avoid unnecessary pruning at transplanting because it tends to retard plant growth and inhibit survival. **Hand prune** to remove dying or severely damaged branches, which can be entry points for insects or diseases. Avoid shearing because it can result in excessive branching and dead wood. Prune in late winter or early spring to allow wounds to heal quickly. However, to get the best flowering from plants that bloom in the early spring, prune soon after the flowers die. Remove dead or diseased wood as soon as it is noticed.



Tips for Water Quality Protection

Use Water Wisely

Minimize hard surfaces such as paved areas and maximize the absorption capacity of your ground. Protect soil by planting ground covers, grasses, shrubs, and trees by adding mulch. Mulching allows water to sink into the soil where it can be naturally filtered to remove sediments and contaminants.

Use terraces to reduce water runoff velocity on long or steep slopes. Grade your land with a series of gentle swales (or low areas) and berms (elevated areas) to drain water away from the house, yet allow water to sink into the soil. This system will allow particles to settle or filter out as the water percolates into the soil. Keep heavy equipment off exposed soil during the rainy season to reduce erosion and allow for vegetative growth. Use gravel cover for unpaved parking areas.

Direct sprinkler heads away from paved surfaces, especially if drainage is directly into the street or drainage ditch. Irrigate or water lawns in the evening or early morning, but never on windy days or when it has rained recently. This reduces the amount of water lost to evaporation and runoff. Plants don't need water for several days after a heavy rain. Native plants in appropriate places do not need supplemental watering.

Irrigate only when necessary instead of on a schedule. This minimizes water consumption and reduces the potential for contaminant-laden surface runoff. Apply no more than three-fourths of an inch of water at a time for grass. Lawns need watering when they have a bluish cast or when you can see your footprints after walking across them. Native lawns with native grasses such as carpet grass are desirable since they require little or no watering, fertilizer, or pesticides.

Group together plants with similar water requirements. For areas that need more frequent watering, use efficient watering devices (e.g., pop-up sprays, bubblers, drips, microsprays, and soaker hoses). Minimize the size of your lawn by inclosing more "natural areas" in your landscape plan.

Reduce watering requirements by using landscape plants that are drought tolerant. Check with your local Cooperative

Extension Service for a list of drought-tolerant species suitable for your area. Some suggestions for drought-tolerant species suitable for the Gulf of Mexico region are listed in Table 1.

Drip lines under roof eaves and down spouts are particularly susceptible to sediment erosion. Place gravel or plant hardy vegetation under roof eaves. Add downspout attachments to slow and spread out the draining water. This reduces erosion and runoff.

Use Chemicals Properly

Select a fertilizer that has at least one-fourth of the nitrogen in a slow-release water-**insoluble** form. Fertilize in late winter, around February. Use the minimal amount of fertilizer necessary, and apply it in small, frequent applications. An application of two pounds of fertilizer five times per year is better than five pounds of fertilizer twice a year. Always read and follow label directions. Avoid applying fertilizer to paved surfaces. If any fertilizer is inadvertently spread on sidewalks or driveways, sweep it off before watering. Apply fertilizer when the soil is moist, and then water lightly. The fertilizer will sink into the root zone where it is available to the plants, rather than stay on top of the soil where it can be blown or washed away.

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Always consider natural alternatives to lawn and garden chemicals. Pesticides kill beneficial as well as harmful insects. Biological controls (such as natural predators and companion planting) and a well-planned pest management program can prevent pollution and save money. Some pests can be dislodged merely by forcefully spraying them with a stream of water. Use products with a beneficial bacterium, such as *Bacillus thuringiensis*, to control caterpillars. Instead of chemical pesticides, consider using natural alternatives such as nondetergent insecticidal soaps, garlic, and hot pepper sprays.

Always keep lawn and garden chemicals away from surface water. Never spray when it may rain in the same day, and do not water heavily after application. Do not

spray on windy days. Be particularly careful in spring or early summer, because many species of wildlife are much more sensitive to toxics during their juvenile stages.

Never dump poisonous chemicals into sewers, drains, toilets, or any other connections to wastewater treatment systems.Triple-rinse containers, and apply the water to the treated area. Wrap single containers in several layers of newspaper, tie securely, and place in a covered trash can. Do not burn container— smoke and fumes may be hazardous. The **best** way to dispose of lawn and garden chemicals is through proper use.

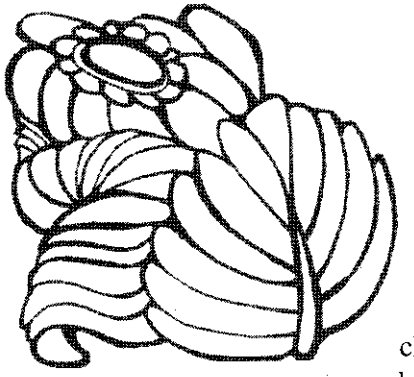
Maintain Your Landscape Efficiently

Make a compost pile instead of throwing grass clippings, leaves, and food waste in the trash. After the leaves, food, and grass decompose, you can use the compost as fertilizer for your garden. Your local county Extension agent can provide you with information on composting.

Pull weeds instead of using herbicides. Use mulch to discourage weeds from growing in the first place. Weeds that have started to go to seed and grasses that spread by rhizomes or stolons should not be left in gardens after pulling. Composting may not destroy weeds or their seeds if the pile doesn't heat up enough after they are added. In this case, it's better to put them in the trash or burn them. When mulching around buildings, do not provide a "bridge" between the mulch and wood surfaces in order to discourage termites.

Mow your lawn frequently, and leave the grass clippings to decompose on the lawn. Annually, this will provide nutrients equivalent to one or two fertilizer applications. Remove grass clippings within 50 feet of waterways. Never dump grass clippings or other organic material into a waterway. When these materials decay, they remove oxygen from the water and can cause fish kills.

Weakened plants are susceptible to pests. Make sure the blades on your mower are sharp and adjusted to a high setting to reduce the temporary stress caused by mowing. Mulch around trees to avoid using string trimmers, which can damage bark at the base of the tree.



Landscaping With Native Plants

You should promote the use of native plants and natural systems in residential and public landscaping projects. These efforts should include the preservation of existing plants and natural systems, the restoration and development of altered landscapes, and the use of native plants as practical landscaping alternatives. A "natural system" can best be thought of as the way plants, topography, and soils relate to each other in an undisturbed state, such as wilderness area. Native plants are naturally adapted to their local soil, moisture, and weather conditions. They generally tolerate freeze and have natural resistances to insects and disease so they require minimum maintenance (i.e., watering, fertilization, use of pesticides). In the past, one of the biggest drawbacks to using native plants in landscapes was their limited availability. This is changing as many conventional nurseries are adding natives to inventories, and specialty nurseries are being established where 50 percent or more of the stock is native. To find a nursery near you that carries native plants, look in the Yellow Pages or ask for recommendations from your local native plant society, arboretum, or nature preserve. A brief list of sources for native plants in the Gulf of Mexico region is included in the "Resources" section of this publication. As with all plants, native plants will fail if planted in wrong soil, light, or moisture conditions. Because of the broad diversity of climate and soil types in the Gulf of Mexico region,you should check with local information sources (e.g., Cooperative Extension Service) when planning your landscape. The following table lists some native plants indigenous to the Gulf of Mexico region; these plants are among the easiest to buy and grow.

Table 1.

Some native plant alternatives for landscaping in the Gulf of Mexico region

Name	Sun	Soil*	Drainage
Ground covers, ferns, low shrubs			
Pteridium aquilinum Bracken	Shade to partial	Acid, sand preferred	Dry to moist, does not tolerate flooding
Osmunda Cinnamomea Cinnamon fern	Shade to full	Acid	Wet to moist, tolerates shallow water all year
Sabal minor Dwarf palmetto, Bush palmetto	Shade to partial	Acid to alkaline, salt spray tolerated	Seasonally wet to moist
Herbaceous plants			
Hibiscus aculeatus Pineland hibiscus	Partial to full	Acid, sand preferred	Moist, tolerates winter flooding
Iris fulva Cooper iris	Partial to full	Acid to neutral	Moist, seasonally flooded
Hymenocallis liriosme Spiderlily	Partial to full	Acid	Shallow fresh water, 0 to 2 feet deep
Climbing vines			
Bignonia capreolata Crossvine	Partial to full	Acid	Moist to dry, brief flooding tolerated
Passiflora incarnata Passionflower, Maypop	Partial to full	Any except saline	Moist to dry
Lonicera sempervirens Coral honeysuckle	Partial to full	Acid	Moist, brief flooding tolerated
Small to medium shrubs			
Callicarpa americana American beautyberry, French mulberry	Shade to full	Acid, tolerates poor soils	Dry to moist
Calycanthus floridus Sweetshrub	Shade to partial	Acid to neutral	Moist, flooding tolerated
Clethra alnifolia Clethra, Sweet pepperbush	Partial to full	Very acid to acid	Wet

Small to medium shrubs - continued			
Rhododendron austrinum Yellow azalea	Shade to full	Very acid to acid	Moist, tolerates seasonal flooding
Viburnum dentatum Arrowwood	Shade to full	Very acid to acid	Dry
Large shrubs, small trees			
Myrica cerifera Wax myrtle, Southern bayberry	Partial to full	Acid to neutral	Wet to dry
Ilex vomitoria Yaupon holly	Shade to full	Acid, saline ok	Moist to dry
Cercis canadensis Redbud	Partial to full	Acid to neutral	Moist to dry
Cornus florida Flowering dogwood	Partial to full	Acid to neutral	Moist to dry
Chionanthus virginicus Fringetree, Graybeard	Partial to full	Very acid to acid	Moist to dry
Cyrilla racemiflora Titi, Leatherwood	Shade to full	Very acid to acid	Wet to moist, still or running water
Large trees			
Acer rubrum Red Maple	Partial to full	Acid to neutral	Wet to dry
Ilex opaca American holly	Shade to full	Acid to neutral	Wet to dry
Taxodium distichum Bald cypress	Partial to full	Acid to neutral	Wet, can be inundated all year
Nyssa sylvatica Blackgum, Black tupelo	Partial to full	Acid	Moist to wet
Quercus virginiana Live oak	Full	Acid to neutral	Moist to dry
Magnolia grandiflora Southern magnolia	Shade to full	Acid to neutral	Dry
Magnolia virginiana Sweetbay	Partial to full	Acid	Wet to moist

*__Very acid__ - pH 4 to 5 **Acid** - pH 5 to 6 **Acid to neutral** - pH 6 to 7

Resources

References and Recommended Reading

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Perry, J.H. and J.E. Davis. 1993. Selecting Landscape Plants. Mississippi Cooperative Extension Service Publication 666. Mississippi State University, Starkville, Mississippi.

Wade, G.L. et al. 1992. Xeriscape™, A Guide to Developing a Water-Wise Landscape. University of Georgia College of Agricultural and Environmental Sciences. Athens, Georgia.

Wasowski, S. and A. Wasowski. 1994. Gardening With Native Plants of the South. Taylor Publishing Company, Dallas, Texas.

Wilson, J. 1992. Landscaping With Wildflowers - An Environmental Approach to Gardening. Houghton Mifflin Company. Boston, Massachusetts; New York, New York.

Native Plant Sources

Sources of Native Plants and Wildflowers
Virginia Native Plant Society
P.O. Box 844, Annandale, VA 22003

Commercial Seed Sources for Southeastern Native Plants
North Carolina Botanic Garden, UNC-CH
Totten Canter 457A, Chapel Hill, NC 27514

Some Sources of Plant Material Native or Adapted to Seashore Conditions
South Jersey Resource Conservation and Development Council
P.O. Box 676, Hammonton, NJ 08037

Garden Paths
P.O. Box 4865, Meridian, MS 39304

Nursery Sources of Native Plants of the Southeastern United States
234 Oak Tree Trail, Wilsonville, AL 35186

Natives Nurseries
320 N. Theard Street, Covington, LA 70433
Telephone - 504-892-5424

Prairie Basse Nursery
Rt. 2, Box 491-F, Carencro, LA 70520
Telephone - 318-896-9187

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