**GARDENING**

**Planting for Energy Conservation**
by Marc C. Dick

Florida continues to gain 800 to 900 new residents every day. Their presence increases the stress on water resources, increases land development, and taxes the capacity of the state's electricity generators. The native Florida vegetation has been overlooked as a potential solution to some of these problems. The proper application of energy conservation principles to the "new" landscapes of Florida may offer some solutions. Vegetation can be integrated into land development to conserve energy and water.

Residential use consumes the majority of the electricity available for air-conditioning (cooling and heating). Homeowners (and sometimes business owners) should be able to reduce their energy expense by modification of the "microclimate" around their home or business. A simple strategy of shading walls, the ground surface, and where possible, the roof of a structure should be considered.

Water is our world's life blood, not only in human bodies, but in all living things. The use of water-efficient landscaping is one approach to conservation of this precious resource. Xeriscape principles were introduced in the 1980s and legislation enacted in sections of the Florida Statutes and Florida Administrative Code in the last several years has required local governments in Florida to consider and implement "xeriscape ordinances" appropriate for their communities. Some communities simply modified the criteria outlined by the state laws.

The seven basic principles of water-efficient landscaping include: planning and design, soil analysis, appropriate plant selection, practical turf areas, efficient irrigation, mulches, and appropriate maintenance.

Native Florida plant materials can be utilized to accomplish energy conservation when used in the proper manner. Our pocketbooks and our future generations will be thankful for the insight gained and applied to our environment today. Spread the word that native plants can do more than just be something pretty to look at!

Marc Dick is a native Floridian. He grew up in the Panhandle and is currently living in Brevard County. He received his Bachelor of Landscape Architecture from the University of Florida, and his business provides professional landscape architecture services throughout Florida.

**GARDENING**

**Wildlife Gardening and Plant Selection**
by Craig Huegel

Gardening for wildlife is not equivalent to "attracting" wildlife. The latter approach often relies on feeders and fails to consider habitat. Without habitat, we can hope to attract only those animals that live nearby and this will greatly limit our effectiveness. By using the habitat approach, we can design our landscapes for the wildlife that we most want to live near us. Our landscape will then support reproducing wildlife. Understanding the concepts of habitat can ensure that a diversity of wildlife will survive in developed areas of Florida.

Our plant selections and landscape design will be the major determining forces in the types and diversity of wildlife habitat needs. We will want to direct our landscapes to provide habitat conditions for the wildlife that we most desire. Plants differ in their ability to provide food and cover. Various factors need to be considered, including foliage and branch characteristics, and the size, timing, and nature of fruit production. Plants need to be critically evaluated for their wildlife value; plant species need to be more diverse than are typically used, and our landscape designs need more creativity.

Craig Huegel is the manager of Brooker Creek Preserve, Pinellas County. He was the Urban Wildlife Extension Specialist for the University of Florida from 1987-92. He is chair of the Education Committee for the FNPS, and author of Butterfly Gardening with Florida's Native Plants (published by FNPS) and of numerous articles on wildlife gardening. His new book, Florida Plants for Wildlife, will be published by FNPS in early 1995.

**EDUCATION**

**Multimedia in Natural History Education**
by Kerry B. Clark

Multimedia technology is rapidly evolving as a powerful and sophisticated system for information delivery, with capabilities especially suited for natural history education. Current technology allows development of highly structured, yet flexible, user-controlled information delivery, using video, advanced graphics, solid modeling, animation, sound, and other media.

Off-the-shelf data compression technology allows storage of vast amounts of sound and visual data on a CD-ROM disk. This is particularly appropriate for natural history presentations, and drastically lowers publication and distribution costs: a CD-ROM disk can contain thousands of detailed pictures, sounds, and video clips, at a publication cost of two dollars. This empowers self-publication by authors for smaller markets (e.g., field guides and taxon-centered atlases), as well as custom development of localized programs (such as reference guides for local parks and reserves). Such projects are often unfeasible in paper-based media because of high publication costs, particularly for color illustrations. Powerful software also gives authors control over content development, including photorealistic modeling and easy video capture. Examples include Metazoa, a CD-ROM exploration of the invertebrate world.

Multimedia is effective because it mimics and exploits the functions of the human nervous system. For example, sound, text, and images are interpreted and stored as memories in different parts of the brain, and the "richer" an experience (the more kinds of information transmitted), the more firmly the information is retained, and the more likely to influence future thought, ideas, and behavior.

Though this technology is currently available and production costs are quite reasonable, presentation equipment costs are still high (though rapidly declining), both for individual use (e.g., microcomputers) and group use (LCD projection systems). However, individual system costs are reasonable for institutional use, and are offset by long product life, compact storage, and low media acquisition costs (computers are cheaper than the buildings needed to house vast numbers of books, buying the books, and replacing them periodically). Thus, institutions will rapidly begin acquisition of multimedia stations.

Kerry B. Clark earned his M.S. and Ph.D. in Invertebrate Zoology at the University of Connecticut in 1971. He is the founder of the Marine Biology Program at the Florida Institute of Technology, and is an expert in computer graphics and multimedia.

**EDUCATION**

**Integration of Environmental Education with Ecological Research**
by C. Ross Hinkle

Brevard County is in the process of obtaining a significant number of Environmentally Sensitive Lands as part of the Environmentally Endangered Lands Program (EEL). The network of areas obtained under this program will be excellent sites for ecological research and environmental education. It is expected that significant data will need to be collected at these sites for the development and implementation of management plans and
Kennedy Space Center has provided many opportunities for students to participate in ecological research. NASA has several graduate students, undergraduate students, high school and elementary teachers, and high school students in hands-on research activities. Students and faculty have participated in wildlife surveys, radio tracking of indigo snakes and gopher tortoises, vegetation studies, water quality studies, aquatic ecology studies, and many other environmental activities. These activities have varied from a very short-term "demonstration type" participation to an extended period of active data collection, analysis, and report development. Teachers and students benefit from having first-hand knowledge of ecological research, and the research program and researchers benefit from having extra help with field studies and the satisfaction of sharing their knowledge with others.

C. Ross Hinkle is the Group Manager of Biological Research Programs for the Bionetics Corporation at John F. Kennedy Space Center. He received his M.S. and Ph.D. in Ecology from the University of Tennessee, Knoxville. Dr. Hinkle directs research programs in ecology, bioregenerative life support systems, and space biology. He is an adjunct assistant professor at the University of Central Florida and has worked with graduate students at the Florida Institute of Technology, the University of Florida at Gainesville, and the University of Virginia, Charlottesville. He is serving on the Brevard County Committee for the Selection of Environmentally Endangered Lands.

The National Estuary Program (NEP) was created during the 1987 revisions of the Clean Water Act. The purpose of the NEP is to develop Comprehensive Conservation Management Plans for estuaries of national significance.

The Indian River Lagoon was nominated for inclusion in the National Estuary Program by Governor Bob Martinez in 1990 and, following review by the Environmental Protection Agency, included. Staff were hired and a Management Conference Agreement developed and signed by the participating agencies and local governments. The agreement anticipates completion of a comprehensive Conservation Management Plan for the Indian River Lagoon in 1996.

Given the short life span (five years) of the initial phase of the NEP and the limited amount of funding available, it was determined that the Indian River Lagoon National Estuary Program (IRLNEP) needed to focus on one or two issues rather than attempting to address the myriad of issues concerning the lagoon. The IRLNEP Management Conference agreed that protection, enhancement, and restoration of the submerged aquatic vegetation community (SAV) in the Indian River Lagoon should be the focus for IRLNEP.

The SAV community, which in the Indian River Lagoon is largely seagrasses, was chosen because the habitat is vital to the survival of many important species in the lagoon, requires good water quality to survive and flourish, and, as a result, is a good indicator of the health of the lagoon. It was the opinion of the IRLNEP Management Conference that efforts to protect and enhance the SAV community would also address many of the identified problems of the lagoon. In addition, the general public could develop an understanding of the relationship between good water quality, improved SAV coverage, and good fisheries.

The IRLNEP, working in cooperation with the Indian River Lagoon Surface Water Improvement and Management (IRL-SWIM) program, have developed a strategy to protect and enhance the SAV community. The overall goal of this strategy, known as the Submerged Aquatic Vegetation Initiative, is to increase the amount and quality of SAV and associated resources in the Indian River Lagoon.

Robert Day currently serves as Project Scientist for the Indian River Lagoon National Estuary Program. He received his B.S. in Biology from Florida Technological University (now the University of Central Florida) in 1976. Since then, he has worked for the Florida Department of Environmental Regulation and the Brevard County Division of Natural Resources Management as an environmental specialist involved in the monitoring and management of the natural resources of the Indian River Lagoon region.

The new food label makes it easier to find out what's in the food you eat. Look for "Nutrition Facts" on the side or back of the package—that's how you know it's the new food label.

Check It Out!

A public service of this publication and the U.S. Food and Drug Administration.