Proc. Fla. State Hort. Soc. 93:96-97. 1980.

USING ECOLOGICAL COMMUNITIES IN LANDSCAPING

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Abstract. **The ecological community concept is a grouping of similar soils, plants, and animals. The U.S. Department of Agriculture, Soil Conservation Service in Florida, has identified community locations; predominant soils, plants, and animals; interpretations for environmental value, rangeland, wildlifeland, woodland, and urbanland; and endangered and threatened plants and animals that may occur there. The urbanland interpretations include a listing of native plants that have value for beautification and landscaping. This information has been developed for each of 26 major communities that occur in Florida.**

The ecological community concept has been recognized by ecologists for years as a method of studying the interaction of groups of living organisms with their environment. The two major types of studies are the descriptive approach and the community metabolism approach (4). The use of this concept as applied by USDA, Soil Conservation Services (SCS) plant science specialists in Florida is the descriptive approach and resulted from an effort to provide a means for making broad interpretations for environmental values and land uses involving natural vegetation. The basic concept as applied by SCS can be explained as follows: The plant community on a particular site is determined mostly by soil conditions, if climate and topography are held relatively constant. The species of wildlife on that site are supported by and vary according to the plant community. This interrelationship forms an ecological community.

The ecological community can be used to group the soils, plants, and animals known to occur there and serve as the basis for various interpretations. One interpretation is the native and naturalized plants suitable for landscaping within a specific ecological community. This information can easily be developed, according to ecological communities, by correlating the plants having beautification and landscape values with the native plants known to occur in the community. Even where a particular site has been cleared of vegetation, once the soil type is known, the natural vegetation that occurred there can be determined. The natural vegetation that should return through plant succession can also be predicted.

Materials and Methods

The authors first developed their material from experience with the interrelationships of soils, plants, and animals. Publications on the subject were studied and appropriate information on Florida's soils, native plants and animals was tabulated. The most recent work on ecological communities in Florida has been by Florida's Department of Natural Resources (3) and the University of Florida's Center for Wetlands (6). An early and comprehensive study on vegetation types in Florida was done by the late John H. Davis (2). These works and field experience formed the basis for the SCS descriptions of Florida's ecological communities. SCS identified 26 ecological communities in Florida which are readily recognizable features of the landscape. Table 1 contains a classification system for the 26 communities.

Table 1. Classification System for Florida's Ecological Communities.

Community	Primary Plant Association	Ecological Community
Xeric[z]	Grassland	North Florida Coastal Strand
	Grassland	South Florida Coastal Strand
	Forest	Sand Pine Scrub
	Forest	Longleaf Pine-Turkey Oak Hills
Mesic[y]	Grassland-Forest	South Florida Flatwoods
	Forest-Grassland	North Florida Flatwoods
	Forest-Grassland	Cabbage Palm Flatwoods
	Forest-Grassland	Everglades Flatwoods
	Grassland-Forest	Cutthroat Seep
	Forest	Upland Hardwood Hammocks
	Forest	Cabbage Palm Hammocks
	Forest	Tropical Hammocks
	Forest	Oak Hammocks
	Forest	Bottomland Hardwoods
Hydric[x]	Forest	Wetland Hardwood Hammocks
	Forest	Cypress Swamp
	Forest	Scrub Cypress
	Forest	Mangrove Swamp
	Forest	Swamp Hardwoods
	Forest	Shrub Bog
	Grassland	Salt Marsh
	Grassland	Pitcher Plant Bogs
	Grassland	Sawgrass Marsh
	Grassland	Freshwater Marsh & Ponds
	Grassland	Slough

[z]Communities adapted to small amounts of moisture.
[y]Communities adapted to moderate amounts of moisture.
[x]Communities adapted to abundant amounts of moisture.

The section on Land Use Interpretations—Urbanland contains a writeup on suitability and limitations for urban development, ways to overcome any limitations such as soil erosion or wetness, native plants for beautification and landscaping and methods to enhance wildlife values. Plants native to a community should receive preference for beautification and landscaping. This is because they are usually better adapted, thus more easily established and require less maintenance than most non-native plants. Table 2 is an example of how this information can be used in tabular form for a specific area.

Results and Discussion

The use of ecological communities as a basis for developing ways to increase interest in environmental education is already proven to be better than conventional methods (1). This technique is also being used by SCS field personnel to determine native plants for beautification and landscaping on a site-specific basis.

The ecological community approach uses soils to determine the potential animal and plant communities. Lists of plants and animals occurring in each ecological community have been developed by SCS, along with important information on native plants for beautification and landscaping. This information can be used by the local SCS representative to develop useful data for the landuser and it replaces trial-and-error techniques often used by the landuser. This information is readily available through soil and water conservation districts throughout Florida.

The demand for this type of information has caused the SCS to begin the preparation of a publication which

Table 2. Example of Table Used to Show Woody Plants for Beautification and Landscaping According to Ecological Communities.

Plant Name	Ecological Community			
	Sand Pine Scrub	South Florida Flatwoods	Cabbage Palm Hammock	Swamp Hardwood
American holly, *Ilex opaca* A.T.		x	x	x
Cabbage palm, *Sabal palmetto* (Walt.) Lodd		x	x	x
Dahoon holly, *Ilex cassine* L.			x	x
Eastern red cedar, *Juniperus virgiana* L.	x		x	x
Live oak, *Quercus virginiana* Mill	x	x	x	
Longleaf pine, *Pinus palustris* Mill		x		
Loblolly bay, *Gordonia lasianthus* (L.) Ellis				x
Red maple, *Acer rubrum* L.				x
Sand pine, *Pinus clausa* (Chapm.) Vasey	x			
Sweet Bay, *Magnolia virginiana* L.				x
Slash pine, *Pinus elliottii* Engelm.		x	x	
Turkey oak, *Quercus laevis* Walt.	x			
Water oak, *Quercus nigra* L.		x	x	x
Coastal plain willow, *Salix caroliniana* Michx.				x

contains the information discussed above and photographs that visually portray each community.

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Proc. Fla. State Hort. Soc. 93:97-99. 1980.

MANAGEMENT OF STING NEMATODE ON CENTIPEDEGRASS WITH KELP EXTRACTS[1]

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Additional index words. Belonolaimus longicaudatus, Seaweed Extract, Kelp products, and Non-pesticide control.

Abstract. **Centipedegrass infected with plant-parasitic nematodes at the University of Florida Horticultural Unit in Gainesville was treated with three kelp products. The kelp products are known commercially as Kelp Meal, Maxicrop Seaweed Extract, and Sea-Born Liquid Seaweed. Each of the treatments was applied to five replicate plots. The turf was predominantly infected with** Belonolaimus longicaudatus **Rau (sting nematodes),** Hemicycliophora **sp. (sheath nematodes), and** Criconemoides **sp. (ring nematodes). Of these only** B. longicaudatus **was found to have a significant response to two of the materials used. Maxicrop and Sea-Born liquid kelp preparations effectively controlled sting nematodes one month after application but only Sea-Born remained effective after two months.**

Reduction of plant-parasitic nematode populations by addition of organic matter to the soil has been reported numerous times (1, 2, 3). The kelp from which the products used were obtained, *Ascophyllum nodosum*, has been found to contain a high concentration of phenols which initiate root development and exhibit growth promoting properties (4, 5). Tarjan (6) reported increased weights of treated citrus seedlings over those that did not receive kelp additives.

This study was designed to determine the efficacy of kelp products, and their rates and methods of application against nematodes infecting turfgrasses. Rates at which the materials were applied were 1, 2, and 3 times the rate recommended. An additional factor investigated was the efficacy of split treatment in contrast to a single application.

Materials and Methods

Nematode-infected centipedegrass at the University of Florida Horticultural Unit in Gainesville was found to contain *Belonolaimus longicaudatus* Rau (sting nematodes), *Hemicycliophora* sp. (sheath nematodes), and *Criconemoides* sp. (ring nematodes). The test area selected was divided into fifty—6 x 9 ft (1.8 x 2.7 m) plots. A randomized block design was applied involving 5 replicates of each of the following 10 treatments: 1) untreated controls, 2, 3, 4) kelp meal at 200 lb./acre (224 kg/ha), 400 lb./acre (448 kg/ha), 600 lb./acre (672 kg/ha), 5, 6, 7) Maxicrop Seaweed Extract at 2 lb./acre (2.25 kg/ha), 4 lb./acre (4.5 kg/ha), 6 lb./acre (6.75 kg/ha), 8, 9, 10) Sea-Born Liquid Seaweed at 1 gal/acre (2.47 liter/ha), 2 gal/acre (4.94 liter/ha, 3 gal/acre (7.41 liter/ha).

Each plot was divided into three subplots, two of which received split applications of the treatment. These were: 1) the full amount in one application, 2) half that amount in two applications a week apart, and, 3) one-third of the full amount in three applications, one week *apart.* Kelp meal, the single dry formulation was applied uniformly

[1]Florida Agricultural Experiment Station Journal Series No. 2798.