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Saturn/University of Tennessee Partnership

Native Landscaping

Tree of the Month- Eastern Red Cedar

Saturn/UT Land Use

100 Saturn Parkway

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Ground Facts

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A Progressive Partnership

Saturn and the University of Tennessee

The Land Use Project is a part of the Saturn/University of Tennessee Partnership which was formed as a "joint long-term cooperative relationship" with a purpose "to share and exchange information and resources for the mutual benefit of each organization." Approved in January of 1997, the Land Use Project has continued to pursue its goal of long-term land maintenance cost savings through improvement of ecological systems which demonstrate innovative leadership in land stewardship. In particular, new ideas were to be implemented. Here are a few highlights of what has been implemented:

Native Species Landscaping Using native species (species naturally occurring in a region) is a new, cutting edge approach to landscaping. At Saturn, we are using such species as red maple, redbud, cedar, and smooth sumac, to name a few, to increase biodiversity. In old fields and forests, one species of plants will give way to another in natural succession, and we are working with this. Native plants are adaptive which make them more practical (less watering, chemicals, and fertilizer) and more valuable ecologically.

Exotic Pest Plant Monitoring Exotic pest plants are invasive species that have been brought in from other countries. They spread rapidly and will eventually shade out the native plants and upset whole natural communities. The Land Use Team has spent some time controlling (pulling up and limited hand spraying with Round-up herbicide) exotics such as Japanese honeysuckle, privet, multiflora rose, thistle, and johnson grass. In experimental trials we have been able to effectively control them by natural means after their initial eradication.

Applied Landscape Ecology The arrangement of different tracts of habitat across the landscape affects what the landscape can support in the way of wildlife, biodiversity, and ecological services to people. At Saturn, we have worked ambitiously along streams, wetlands, ponds, and existing wooded tracts to improve their natural habitat condition. Often this involves widening and lengthening wooded corridors and planting native species to improve understory habitat. It has also meant converting mowed turfgrass to wildlife habitat and restoring wetlands. Of extreme importance has been the establishment of an 80-acre wildlife sanctuary that will better act as a source of biodiversity that can spread to these other areas. Along the way, we have monitored birds, small mammals, tree seedlings, and stream fauna to assess the success of our efforts.

Tree of the month Eastern Red Cedar

Juniperus virginiana

There are few naturally occurring evergreens in the Saturn area. Eastern red cedar (really a juniper) is, by far, the most common of these. Because it grows fast in poor soil and dry moisture conditions, it is particularly successful in worn out agricultural fields and fence rows. In spite of its good landscaping qualities, our association of cedar with poor sites has taught us to look at it as a weed and not as a tree to use in our landscape plantings. Its main pests are bagworms, cedar-apple rust, and ice storms. Its wide range extends from the Atlantic coast to central Nebraska and from southern Canada to southern Alabama.

In native species planting at Saturn, the transplanting success rate of trees collected from the wild is only about 60%. Success can be improved by planting smaller trees and using containerized nursery stock (not yet available) or stock with oversized root balls (requires special requests). Watering during the first year after transplanting and not replanting too deeply also increases the chance of survival. Transplanting in late fall through mid-winter is highly recommended over any other time of the year.

Native Landscaping: A New, More Natural Approach

The first of many interpretive signs on native landscaping were installed at several locations along Homecoming tour routes. They describe aspects of native landscaping and identify characteristics of several native species. Signs will eventually be placed at all such locations to help describe this new, still somewhat experimental, but more environmentally friendly, approach to landscaping. Several team members are already experimenting with this new approach in their own yards.

During the course of establishing native landscaping at Saturn, it became clear that most people, including professional nursery and landscape companies, landscape architects, and the public, are not yet familiar with the principles involved. Generally, landscaping is viewed as being very neat, comprised of non-native species available at nurseries, and relatively unchanging through time as prescribed by planting plans. Costs of installation and maintenance are relatively high and involve moderate use of chemicals, fertilizers, and watering. Alternative approaches, other than mowed non-native grasses never seem to be considered.

The new native landscaping works much closer with nature and is dynamic through time. The concept is to plant a limited variety of native species appropriate for sunny sites and highly disturbed soils. Some of the plants are often used in land reclamation and environmental restoration work. The plants are smaller and planted closer together. Nuts and seeds are also worked into the soil. As the plants grow and

create shade, some will prosper and others will die; the appearance and plant species will change through time. Invasive non-native plants will need to constantly be removed along with any other undesired plants to maintain an aesthetically pleasing arrangement. However, no fertilizer or watering will be necessary and much less herbicide is required.

Sometime in the process of maintenance it gets difficult to know what to eliminate and what to keep. This requires knowledge of native species, non-native pest plants, ecology, and landscape aesthetics. At Saturn, we are attempting to educate the public along with grounds maintenance teams about the process. Newsletters, posters, a display at the Welcome Center, brochures, small workbooks, interpretive signs, and involvement of volunteers are part of this process.



Mown to Grow

Though the cost of mowing turf grass is generally very inexpensive, a manicured lawn offers very few, if any, environmental benefits. In fact, most turf grasses are not even native grasses. Chemicals and fertilizers are often used to help maintain an attractive lawn. Converting mowed turf grass to natural habitat is a step in the right direction as far as best land management practices are concerned.

Saturn has started a program that is initially attempting this practice by converting a total of 17 acres. These areas mainly exist in the median along Ephlin Parkway and along Sanchez Street

near Ponds 6 and 7. These areas may look a little rough at first, but eventually, native trees, prairie grasses, and wildflowers will occupy these areas. Saturn has helped speed up this process by planting a number of Eastern red cedars, white pine seedlings, smooth sumac, and other native species.

Perhaps the biggest problem with conversion of lawn to natural habitat deals with invasive pest plants (e.g. thistle, johnson grass) which can be controlled with minimum chemical use. But once heavy forest shade gets established, these weeds will have a much harder time surviving. Another problem concerns the fact that since most turf grasses are non-native, they are tough and aggressive, making it difficult for other species to survive.

Saturn hopes to eventually convert another 50-100 acres to “no-mow zones.” Most of this acreage can be found in an 80-acre area at the south end of the Plant which includes two springs, a small marsh, a stream, and a well-developed forest community. Soon to be signed “Saturn Springs Sanctuary,” this area will serve as a hub from which uncommon native plants and wildlife species can spread to other communities.

Success is dependent on cooperation between the Saturn/UT Land Use Team, Premier Grounds, and Farm Operations.

Ground Facts is a monthly update on the application of new ideas to reduce grounds maintenance costs, improve aesthetics, and increase environmental benefits at the Saturn site. Work is sponsored by Facilities Maintenance at Saturn and the University of Tennessee in a partnership agreement. For questions or comments, please contact Karen Lorino at (931)486-5029; e-mail at KareELo@aol.com or Dr. Jack Ranney at (423)974-3938; e-mail at jwranney@utk.edu.