

# A NATIVE PLANT COMMUNITY APPROACH TO LANDSCAPE DESIGN FOR WATER CONSERVATION

Darrel G. Morrison

---

*AUTHOR:* Darrel G. Morrison, Professor and Dean, School of Environmental Design, 609 Caldwell Hall, University of Georgia, Athens, Georgia 30602

*REFERENCE:* *Proceedings of the 1991 Georgia Water Resources Conference*, held March 19 and 20, 1991, at The University of Georgia, Kathryn J. Hatcher, Editor, Institute of Natural Resources, The University of Georgia, Athens, Georgia.

---

## INTRODUCTION

In many urban areas in this country, one-third or more of water consumption is devoted to the maintenance of lawns and ornamental landscape plantings. Peak demands for such water use typically coincide with the hottest, driest periods during the growing season.

Traditional American landscape design, with historical roots in the green, pastoral landscapes of England, relies heavily on large expanses of lawn with trees, shrubs, and perennial borders outlining these lush open spaces (Howett, 1987). With the inexpensive and abundant water supplies of the past, drought has been no particular incentive for the development of landscapes with less water-demanding plants.

More recently, however, with growing human populations and with the advent of serious droughts, and the resultant prospect of ever-greater demands on finite water supplies, there is a growing need to consider alternatives to the traditionally accepted water-consumptive landscapes in residential, commercial, and institutional grounds.

## ALTERNATIVE LANDSCAPES

Some cities, especially in the Southwest, have provided incentives to homeowners who replace their irrigation-dependent landscapes with less water-demanding ones. Taken to an extreme, this has led in some cases to paved or graveled landscapes with no plant materials present. Such an approach is leading to excessive heat build-up and increasing energy costs for cooling. (McPherson, 1990).

Other alternatives include the concept of "xeriscaping" -- an approach whereby irrigation of landscapes is minimized through careful selection of drought-tolerant plants, minimizing lawn areas, and "zoning" plantings so that those with similar water needs are placed together in the design.

A logical extension of the "xeriscape" concept is one which utilizes native successional plant communities of a

region as the basis for landscape paintings that require little or no supplemental water, since the plants are adapted to the region's climate. An additional benefit is the fact that such an approach perpetuates or strengthens a regional landscape character (Morrison, 1987).

Such an approach in the Southeast could lead to the following zones in a designed landscape:

(1) Lawn areas, if needed for functional purposes or to improve public acceptance, would be minimal in size, and would be comprised of native sod-forming, drought-tolerant grasses.

(2) "Alternative" lawns: areas that are comprised of low-growing, predominantly native grasses and forbs which tolerate mowing. These species might be selected from those that have become established on infrequently-mown roadsides: stiff verbena (a naturalized exotic), purple lovegrass, bluets, field pansies, toadflax, sheep sorrel.

(3) Meadow areas, mown probably just once each spring, and populated by native grasses and forbs to include: broomsedge, splitbeard bluestem, purple top, Indian grass, lanuleaf coreopsis, black-eyed Susan, gayfeather, asters and goldenrods.

(4) Shrub borders between lawn/meadow areas and successional forests. These might include such species as wild roses, Chickasaw plum, sumac species, and native Vaccinium species (e.g., blueberry, sparkleberry).

(5) Successional forests: areas that are either already canopied forest communities or zones which are permitted/encouraged to evolve through successional processes. There could be a level of "restoration" involved, i.e., the re-introduction of native hardwood saplings. Or the strategy might be more one of managing such zones to encourage native species and to remove aggressive exotics such as kudzu, privet, and Japanese honeysuckle.

Far from being a hands-off approach, the one described involves selection and introduction or re-introduction of native species in appropriate zones. The configuration of zones, i.e., the formation of open spaces versus shrub or canopied spaces, constitutes the are or design component. Subsequent vegetation management

practices maintains the intended spatial composition, but species composition within zones may change over time.

### SUMMARY

As water needs for a growing population increase, there is a need to modify our approaches to landscape design, departing from the English park model and utilizing, instead, native or naturalized plant communities as models. Such an approach can lead to landscapes which not only conserve water, but also express a regional character.

### LITERATURE CITED

- Howett, Catherine. 1987. "Systems, Signs, Sensibilities: Sources for a New Landscape Aesthetic," Landscape Journal 6(1):1-12.
- McPherson, E. Gregory. 1990. "Modeling Residential Landscape Water and Energy Use to Evaluate Water Conservation Policies." Landscape Journal 9(2):122-134.
- Morrison, Darrel G. 1987. "Landscape Restoration in Response to Previous Disturbance." In, Turner, Monica G., ed., Landscape Heterogeneity and Disturbance, Springer Verlag, New York, 159-172.
- Nelson, J.O. 1987. "Water Conserving Landscapes Show Impressive Savings," Journal of the American Water Works Association 79(3):35-42.