

# Landscape Architects' Use of Native Plants in the Southeastern United States

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**SUMMARY.** In their efforts to provide better land stewardship and management, landscape architects are increasingly addressing site ecology in a wide variety of project types. From urban developments to rural properties, designers are using more sustainable design and management techniques, which include the expanded use of regional native plants. This survey study explores the use of native plants by landscape architects in the southeastern United States. Survey results show that southeastern United States designers are using a significant proportion of regional native plant species in their project specifications. Rather than using native plants strictly for conservation measures, landscape architects have found local species to be better suited to difficult or unique site conditions. The findings show that there is potential for expansion in the production and marketing of plant species indigenous to the southeastern United States.

Demand for native plants is increasing in certain regions of the United States (McMahan, 2006). Native plants are considered an emerging niche market in the green industry, and increased sales are being spurred for a variety of reasons (Hamill, 2005). Paramount are state and community ordinances that increasingly require or recommend use of native plant species and recent increases in the number of landscape restoration and reclamation projects. Additionally, an increase in the number of North American cities and communities with water restrictions for landscape use has promoted the use of adapted native plants. Better marketing techniques for native plants within the green industry, as well as greater public awareness, have also increased demand for natives. Much of this increased demand is thought to be enhanced by the expanded use of native plants by landscape architects and contractors (Morgan, 1997; Potts et al., 2002). Previous studies conducted in the southeastern United States have determined that retail plant buyers are influenced to purchase native

plants primarily through landscape architects and contractors (Waterstrat, 1997). However, no research has been conducted to evaluate the extent of native plant use and recommendations by landscape professionals in the southeastern United States.

Landscape architects have often used native plants to some degree in their designs, and early designers were eager proponents of using native plants. Frederick Law Olmsted typically specified native American trees and shrubs for park and community designs in the 19th century (Grese, 1992). The current policy statement on "Vegetation in the Built Environment" by the American Society of Landscape Architects (2001) mentions that the society endorses "Federal and State policies for the use of native or indigenous species in projects, while avoiding the use of known noxious and invasive species."

Previous research has noted an increase in the use of native plants by landscape architects in certain regions of the United States. One survey of landscape architects in Utah revealed that 41% of practicing professionals polled use native plants more frequently today than they did 5 years ago (Hooper, 2003). The increase in use was because native plants are more readily available today and that clients are requesting them more often. Likewise, a survey of landscape architects in Hawaii showed that 93% of respondents had increased their native plant usage within recent years

(Tamimi, 1999). In order of importance, the main reasons given for enhanced usage include increased awareness of the environment; development laws requiring native plantings; increased availability of plant species; and the need for low water use in the landscape (Tamimi, 1999). Although a few local communities require the use of native plants in development, Hawaii is the only state with a statewide native-plant ordinance. Acts 73 and 236 mandate use of indigenous and Polynesian-introduced plants "for new or renovated landscaping of any building, complex of buildings, facilities, or housing developed with public moneys by the State or its several counties" (Hawaii State Legislature, 1994).

While Hawaii's statewide plant ordinance may be the primary reason that 96% of Hawaii's landscape architects use natives (Tamimi, 1999), a more recent study in Utah found that most professionals (59%) "use native plants sometimes" (Hooper, 2003) and would prefer to use natives over nonnative species if they meet the same landscape objectives. Studies have shown that the use of native plant species is not restricted to residential design. A large number of Hawaiian respondents said that they use native plants for all projects, including public, residential, commercial, and resort landscapes (Tamimi, 1999). Utah designers used natives according to the type of project, with responses showing a ranked list that included fire rehabilitation, mine reclamation, controlling invasive species, enhancing biodiversity, creating wildlife habitat, and personal interest (Hooper, 2003). A survey of the Colorado green industry revealed that landscape restoration and its related professions constitute the largest market for native plants, with wholesale ornamental plant outlets ranking second (Potts et al., 2002).

The majority of Hawaiian landscape architects averaged 10% to 24% of their project budget as native plant expenditures (Tamimi, 1999), whereas over half of the Utah professionals listed native plant usage from 1% to 40% of their project budgets (Hooper, 2003). Nearly a quarter of the Utah respondents (22%) used natives in 61% to 80% of their projects (Hooper, 2003). A survey of landscape architects and designers in

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Colorado found that the majority of professionals surveyed listed their percentage of revenue derived from native plant sales and services as moderate to significant (Potts et al., 2002).

Landscape designers from these states listed the lack of availability of native plants from nursery sources as the primary reason for not using more native plants in their projects (Hooper 2003; Potts et al., 2002; Tamimi, 1999). Another factor that influenced professionals' use of native species in their designs included concern that the market demand for native species in larger container sizes (as typically specified in landscape installations) was exceeding the market supply (Potts et al., 2002). Hooper (2003) found that most Utah professionals would prefer to purchase native plants from sources within their own state. These respondents indicated that they would use more natives if they knew more about the particular plant characteristics (Hooper, 2003). Knowledge of native species was derived primarily from books and magazines, followed by word of mouth and actual experience (Hooper, 2003).

Landscape architects from the southeastern United States were also surveyed about recently observed native plant trends and use in their projects. The research instrument for this study determined the percentage of native plant use by landscape architects, opportunities and constraints of native plant use in the region, primary plant species specified, and how landscape architects obtained native plant information. The objective of this study was to understand how landscape professionals view the opportunities and constraints of the current southeastern United States native plant market.

## Materials and methods

An e-mail survey was developed for landscape architects in the southeastern region of the United States. Landscape architects listed as current members of the American Society of Landscape Architects (ASLA) in Alabama, Georgia, Louisiana, Mississippi, Texas, and South Carolina were targeted. These states were selected to provide consistency for collected plant species data because the majority of their land areas fall within zones

7 and 8 of the U.S. Department of Agriculture (USDA) Plant Hardiness Zone Map. Survey questionnaires were e-mailed to 311 active ASLA members in the southeastern region on 15 Dec. 2005. The e-mail included a short paragraph explaining the objective of the research and instructions for returning the completed questionnaire. The questionnaire contained 16 numbered questions in both closed- and open-ended formats requesting respondents' perceptions about their usage of native plants in their projects and business demographic information.

A total of 81 e-mails were undeliverable. A second e-mail of the survey was conducted on 9 Feb. 2006 to both the returned e-mail addresses and the nonrespondents to the first questionnaire. A third reminder e-mail was sent on 25 Feb. 2006 to any nonrespondents of the second e-mail to provide a last request for survey response, as recommended by Dillman (2000). The survey information was then analyzed using SPSS (version 13.0; SPSS, Inc., Chicago) for frequency data.

## Results and discussion

Responses were received from 145 practicing landscape architects from the 223 e-mails successfully sent to ASLA members in the southeastern United States (65.0% response rate). Ten respondents noted that they did not work with or specify any plant materials, and these were removed from the survey data, resulting in  $n = 135$ . Of these 135 respondents, the majority of the surveys were completed by the owners or managers of the firms (72.6%), who had been in business for over 10 years (62.2%). Most respondents classified their business as landscape architecture *only* (62.4%), followed by landscape architecture, architecture, and engineering firms (14.9%); and landscape contracting (13.5%). The majority of landscape architects practiced in large urban centers, and most respondents (68.1%) indicated that their business was located in a population area serving over 100,000 people.

Landscape architects in the southeastern United States used native plants in a wide variety of project types. Residential projects ranked highest in the use of native

plants (30%), followed by commercial (25.1%), municipal (16.1%), and federal project types (8.5%) (Table 1).

Because there are fewer federal and state landscape restoration projects or landscape ordinances requiring the use of natives in the southeastern United States as compared with western states, project types using natives in the southeastern United States were markedly different from Hooper's study (2003) of Utah designers. In Utah, native plant species were used mostly for rehabilitation and reclamation purposes (Hooper, 2003), while Hawaii's statewide native plant ordinance mandated their use in state-funded projects (Tamimi, 1999). Nearly half of the southeastern United States respondents (48.4%) used natives as at least 61% to 80% of the plant material for their projects (Table 2). This is slightly higher than Utah's 22% of designers who used natives in over 60% of their projects (Hooper, 2003).

When asked the primary reason why native plants were selected for a project, respondents indicated that natives were best adapted to the site conditions (31.2%). Aesthetic reasons, low maintenance requirements, and ecological reasons for the use of native plants were ranked closely together at 19%, 18.6%, and 16.6%, respectively. Interestingly, just over half of the respondents (50.8%) noted that less than 20% of their clients requested the incorporation of native plants into their project. This demonstrates that landscape architects are selecting native plant species over exotic plants independently from client demand, due to the

**Table 1. Types of projects using native plants reported by landscape architects in the southeastern United States**

Types of landscaping projects using native plants	Responses (no.)	Valid responses (%) <sup>z</sup>
Residential	67	30.0
Commercial	56	25.1
Municipal	36	16.1
State/federal	19	8.5
All of the above	42	18.8
Resort or planned communities	3	1.3
Total	223	100.0

<sup>z</sup>Percentage accounting for missing responses.

**Table 2. Proportion of landscaping projects reported by landscape architects in the southeastern United States involving the use of native plant material.**

Proportion of projects using native plants (%)	Responses (no.)	Valid responses (%) <sup>z</sup>	Cumulative proportion (%)
0–20	26	19.7	19.7
21–40	19	14.4	34.1
41–60	23	17.4	51.5
61–80	25	18.9	70.5
81–100	39	29.5	100
Total	132	100	

<sup>z</sup>Percentage accounting for missing responses.

perception of a native plant’s superior performance under certain site conditions. When asked to list the top 10 native plant species most often specified in their designs, respondents listed, in order of response frequency, the following plants: wax myrtle (*Myrica* spp.), yaupon holly (*Ilex vomitoria*), southern magnolia (*Magnolia virginiana*), live oak (*Quercus virginiana*), oakleaf hydrangea (*Hydrangea quercifolia*), red maple (*Acer rubrum*), bald cypress (*Taxodium* spp.), flowering dogwood (*Cornus florida*), muhlygrass (*Muhlenbergia* spp.), and oak (*Quercus* spp.). The first two plants are known for their durability in a wide range of difficult site conditions and are used primarily as space-forming elements, not necessarily because of their striking flowering/fruiting or ornamental properties. Tree species ranked highest in native plants listed (53.9%), followed by shrubs (30.6%), herbaceous plants (8.7%), grasses (5.5%), and vines (1.2%).

Use of native plants for functional reasons supports Waterstrat’s (1997) findings from southeastern United States nursery producers that landscape architects and contractors were the primary influence on retail customers purchasing native plants. Despite a low request response by clients for natives, southeastern United States landscape architects perceived significantly more interest in native plants today than 5 years ago, a shift from minimal to moderate customer interest, as shown in Fig. 1.

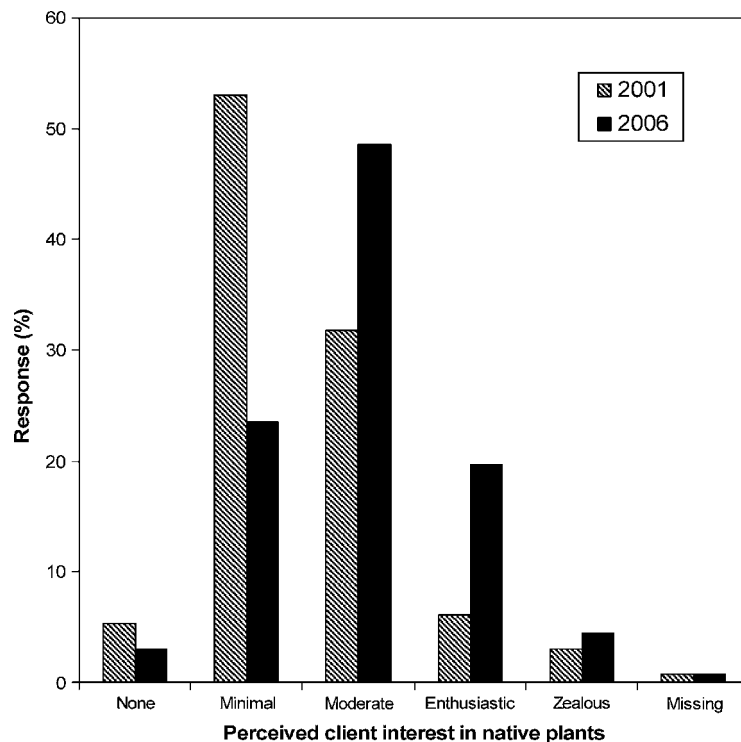
The majority of southeastern landscape architects purchased or specified a significant quantity of native plants each year. Over half of the respondents (51.1%) indicated that the approximate dollar value of native plants specified in the last year exceeded \$75,000, with 38.5%

exceeding \$100,000 dollars in sales. Texas respondents represented the largest amount of native plants sold by landscape architects (n = 18 in excess of \$100,000 per year), followed by Georgia and South Carolina (Table 3). The higher dollar value of natives in the Texas practitioner responses may indicate larger projects and greater planting budgets as well as increased demand.

Results from this study support Hooper (2003) and Tamimi (1999) in their findings that landscape architects are unable to use more native plants in their work mostly because too few sources or insufficient quantities are available (Table 4). Our study also identified other significant

reasons for not using more natives as insufficient customer interest and suppliers having too few species available. However, the respondents listed 148 native plant species currently being used, indicating a wide variety of available plant material.

How do landscape architects learn about native plants? The predominant method by which designers obtained their information was through growers’ catalogs (32.5%), which indicates that nurserymen interested in selling more of their native stock should provide more cultural and growth information in their plant lists. Other methods used by landscape architects to access plant information included internet websites, magazines, cooperative extension services, other landscape professionals, or conferences and seminars (Table 5). In contrast, when asked how they *best* learned about native plants, the responses shifted to conferences and seminars (29.3%), internet websites (25.8%), and garden magazines (21.7%) as being the most effective ways of learning. A few respondents noted that internet and catalog information offered insufficient or unverified information.



**Fig. 1. Southeastern U.S. customer interest in native plants as reported by southeastern U.S. landscape architects.**

**Table 3. Dollar value of natives sold or specified in 2005 by landscape architects in the southeastern United States compared with number of responses by state.**

Value (\$)	Responses by state (no.)						Total
	South						
	Alabama	Carolina	Louisiana	Mississippi	Texas	Georgia	
Less than 10,000	1	1	1	2	2	5	12
10,000–24,999	1	5	2	2	4	3	17
25,000–74,999	0	3	5	8	3	3	22
75,000–99,999	2	6	0	5	4	5	22
Over 100,000	2	9	2	5	18	11	47
Missing	1	1	0	0	0	0	2
Total	7	25	10	22	31	27	122

**Table 4. Reported reasons why landscape architects in the southeastern United States do not use more native plants.**

Stated reasons for not using more native plants	Responses (no.)	Valid responses (%) <sup>z</sup>
Too few sources	53	27.9
Not enough customer interest	27	14.2
Prices not competitive	10	5.3
Too few species available	26	13.7
Insufficient quantities available	40	21.1
Lack of familiarity	14	7.4
Missing	2	1.1
Non-natives superior	5	2.6
Natives are deciduous/weedy in appearance	3	1.6
Natives don't fit style used in designs	5	2.6
Lack of larger sizes available	4	2.1
Natives are improperly grown in nurseries	1	0.5
Total	190	100.0

<sup>z</sup>Percentage accounting for missing responses.

**Table 5. Sources of information from which landscape architects in the southeastern United States learn about native plants.**

Information source on native plants	Responses (no.)	Valid responses (%) <sup>z</sup>
Nursery/grower catalogs	79	32.5
Magazines	31	12.5
Extension	30	12.3
Other landscape/gardeners	27	11.1
Conferences/seminars	26	10.7
Internet websites	46	18.9
Missing	2	0.8
Books	1	0.4
All the above	1	0.4
Total	243	100.0

<sup>z</sup>Percentage accounting for missing responses.

## Conclusions

This study indicated that native plants are increasingly used in the southeastern United States by landscape professionals. Landscape architects are initiating this push to use of native plants as a substantial proportion of plants specified for a wide variety of project types. Rather than being selected for primarily aesthetic reasons, the majority of native plants selected are being used as adapted and

hardy alternatives to solve functional site problems. Once viewed as a small niche market in the region, native plants are gaining in popularity and use.

Results indicate significant room for expansion in the production and marketing of native plant species. Too few wholesale nursery sources offer them, and insufficient quantities and species are available. Respondents in this study indicated that demand

exceeds supply. Nursery catalogues and plant-availability lists were the primary sources of information for landscape professionals responding to this study; therefore, better descriptions and cultural information in these publications could better inform designers of the value of specific native plants. Presentations on native plants and new cultivars at conferences and seminars were also identified as effective ways of promoting plant species to the design profession.

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