

Golf Course Environmental Profile

Property Profile and Environmental Stewardship of Golf Courses
Volume I Summary



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For the full report, visit www.eifg.org.



Summary of Volume I

This report is the result of a systematic process to collect golf course data on a national basis. Volume I covers the first of five planned surveys, each of which is an important element that will ultimately provide a more complete understanding of environmental management of golf courses. While research to date indicates that golf courses can be compatible with the environment, the Golf Course Superintendents Association of America's (GCSAA) Golf Course Environmental

Profile will provide reliable information that will identify areas of strength and point out opportunities for improvement. The first survey on the physical characteristics and environmental improvements on golf courses, as summarized in this report, provides the industry with a new set of data, which will be complemented by the ensuing surveys. To view the full report of the first survey of the Golf Course Environmental Profile, visit www.eifg.org.

Project Overview

GCSAA is the professional golf organization for the men and women who manage and maintain golf courses. Through its philanthropic arm, The Environmental Institute for Golf (The Institute), it develops and delivers programs and services focusing on information collection, research, education and outreach that will enhance the environmental stewardship on golf courses.

At an Institute strategic planning session in July 2003, representatives from the golf industry and environmental community, as well as regulatory representatives, began to identify projects that could advance the position that golf courses are community assets. Participants noted that the golf industry has been proactive through the efforts of voluntary stewardship programs such as the Audubon International, as well as through research in issues related to golf course management and golf's relationship with the environment funded by the United States Golf Association (USGA) with support of GCSAA and its chapters. The data supports that golf courses can be compatible with the environment when properly managed.

What is missing, however, is aggregate data on golf courses that could be examined on a regional basis to document environmental practices. All parties involved agreed that if golf is to remain viable, there must be more information about its relationship with the environment. GCSAA accepted this challenge and, with assistance from a myriad of individuals and organizations, developed a process to collect the data. Thanks to funding from The Institute and a grant from The Toro Foundation, the multi-year Golf Course Environmental Profile was launched in October 2005.

"We see the GCSAA Golf Course Environmental Profile as a continuation of the golf industry's commitment to environmental stewardship. It will fill in information gaps and provide a road map for advancing golf course management."

*Clark Throssell, Ph.D.
GCSAA Director of Research*

The project, which enlisted the services of the National Golf Foundation, involves a series of five planned surveys that will be sent to GCSAA member and non-member golf course superintendents to collect data focusing on the following:

- ▶ physical characteristics of golf courses
- ▶ water use and conservation
- ▶ nutrient use
- ▶ pesticide use
- ▶ energy use and environmental practices

The entire series of surveys will be replicated at a later date to evaluate change over time.

The data from each survey will be submitted to a scientific journal then presented to other interested parties. The entire project is designed to collect information that will allow golf superintendents and other facility personnel to become better managers and lead to GCSAA's development of more valuable programs and services for its members, facilities and the industry. The information also will address inquiries from regulators and legislators, the media, environmental advocates and other special interest groups.

"This report is just one of several that will be released in the near future that will communicate in great detail the environmental performance of golf courses. The industry will have at its disposal data on every aspect of golf course management from an environmental perspective. I encourage you to use these reports to demonstrate your work in ensuring golf's compatibility with the environment."

*Greg Norman
The Environmental Institute for Golf
Advisory Council Chair*

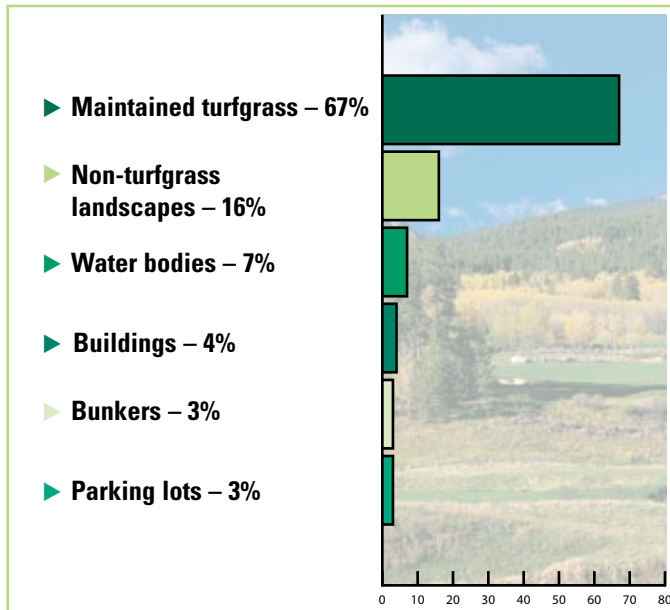


Physical Characteristics of Golf Courses

GCSAA surveyed superintendents at 16,009 golf facilities and received an 18.6 percent return from across seven agronomic regions – Northeast, North Central, Transition, Southeast, Southwest, Upper West/Mountain, and Pacific.

On an aggregate basis, golf courses cover an estimated 2,244,512 total acres. Of that total, 67 percent (1,504,210 acres) is defined as managed turfgrass (greens, tees, fairways, rough, driving range/practice areas, turfgrass nurseries, clubhouse grounds). The non-turfgrass component – which accounts for 33 percent of the total – includes non-turfgrass landscapes, water bodies, buildings, bunkers and parking lots.

Land use (by percentage) on an average 18-hole golf course.

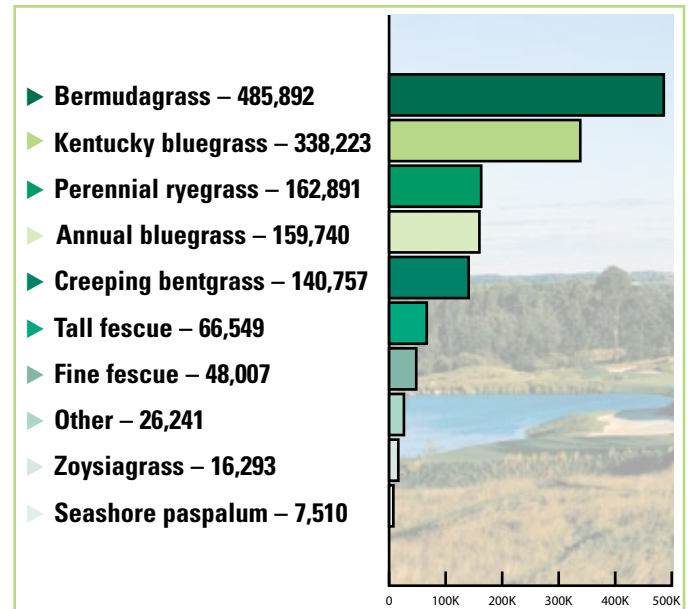


Acres estimates for land use on U.S. golf courses.

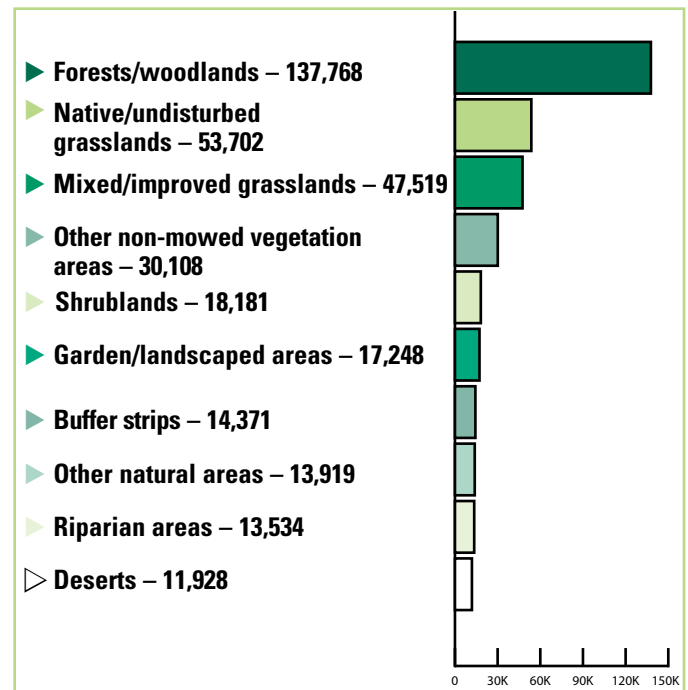
Golf course land use	Acres	Percentage
Maintained turfgrass	1,504,210	67
Non-turfgrass landscapes	358,278	16
Water bodies	161,183	7
Buildings	78,814	4
Bunkers	74,383	3
Parking lots	67,644	3
Total	2,244,512	100

At the individual level, an average 18-hole golf course covers 150 acres, approximately 100 (67 percent) of which is maintained turfgrass. This area is predominantly comprised of rough (51 acres) and fairways (30 acres). The remaining 50 acres are devoted to non-turfgrass landscapes including forests, woodlands, grasslands and water bodies.

Total estimated acreage for turfgrass species on U.S. golf courses.



Non-turfgrass landscape acreage (Total U.S. Acreage – 358,278).



While golfers place great importance on putting, it is interesting that putting greens represent a small percentage of the managed turfgrass on a golf course. An average golf course has approximately three acres each of tees and greens. Surprisingly, an average golf course has more acreage (11 acres) of water bodies – mostly ponds, wetlands and streams – than tees and greens.

(continued on back)

Physical Characteristics of Golf Courses (continued)

Turfgrass Species

Many different turfgrass species are maintained on golf courses. Cool-season grasses (bentgrass, bluegrass, perennial ryegrass, fescue) are grown on 66 percent of the turfgrass acreage on the nation's golf courses, while warm-season grasses (bermudagrass, zoysiagrass, seashore paspalum) are grown on the remaining 34 percent of the turfgrass acreage. More bermudagrass is planted on golf courses in the U.S. than any other turfgrass species. An estimated total of 485,892 acres of bermudagrass are maintained on U.S. golf courses, followed by an estimated 338,223 acres of Kentucky bluegrass.

Eighty-one percent of golf facilities in the Southwest, 80 percent in the Southeast and 38 percent in the Transition agronomic regions overseed at least one component (greens, tees, fairways, rough or driving range/practice areas) of the golf course. Of the golf facilities that overseed, 81 percent overseed tees, 50 percent overseed fairways, 40 percent overseed greens and 19 percent overseed rough.

Environmental Improvements

The survey clearly indicates that golf facilities are proactively making environmental improvements. Since 1996, 96 percent of golf facilities have completed at least one environmental improvement. Fifty-seven percent of golf facilities have implemented five environmental improvements in that time. The most common environmental improvement among golf facilities was upgrading the irrigation system (65 percent), followed by improving chemical storage, increasing native plantings, enhancing wildlife habitat and erosion control.

Responses indicate that 29 percent of 18-hole golf facilities in the U.S. currently participate in a voluntary environmental stewardship program. Most participants (24 percent) are involved in The Audubon Cooperative Sanctuary program. Key advances for those golf facilities involved in voluntary environmental stewardship programs include fewer acres of maintained

turfgrass, increased acres of low maintenance vegetation, and an average of approximately seven environmental improvements versus approximately five for non-participants in voluntary environmental stewardship programs.

A major advancement in environmental management has been the creation of naturalized or non-turfgrass areas on the property. These "naturalized" areas provide for wildlife, and decrease labor and product expenses for the facility. Since 1996, 44 percent of golf courses have increased their "native" acreage by 9.8 acres.

"How will this data be used? It will enable GCSAA to develop improved programs and services. It will help the golf industry better respond to information requests from a variety of audiences. And ultimately, it will allow golf course superintendents to be better managers."

Ricky D. Heine, CGCS
2007 GCSAA President



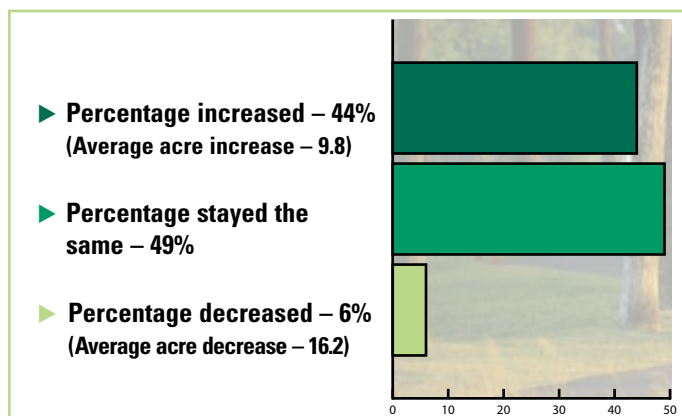
About the Golf Course Superintendents Association of America

GCSAA is a leading golf organization that has as its focus golf course management. Since 1926, GCSAA has been the top professional association for the men and women who manage golf courses in the United States and worldwide. From its headquarters in Lawrence, Kan., the association provides education, information and representation to more than 21,000 members in more than 72 countries. GCSAA's mission is to serve its members, advance their profession and enhance the enjoyment, growth and vitality of the game of golf. Visit GCSAA at www.gcsaa.org.

About The Environmental Institute for Golf

The Environmental Institute for Golf is the philanthropic organization of the Golf Course Superintendents Association of America (GCSAA). It is a collaborative effort of the environmental and golf communities, dedicated to strengthening the compatibility of golf with the natural environment. The Institute concentrates on delivering programs and services involving research, education and outreach that communicate the best management practices of environmental stewardship on the golf course. For more on The Institute, visit www.eifg.org.

Changes in non-turfgrass acres since 1996.



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