



The Audubon Cooperative Sanctuary Program for Golf Courses seeks to protect and enhance wildlife habitat, like that seen here at the Shinnecock Hills Golf Club, in Southampton, New York.

THE USGA'S ENVIRONMENTAL PROGRAM

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IT'S SURELY NO NEWS that the environment is a hot topic in golf today. Environmental issues are having a dramatic impact on how golf courses are built and how they are operated and maintained. Concerns often center around pesticide, fertilizer, and water use on golf courses, as well as land use policies and the loss of "natural" habitat and open land. In many instances, concern about the effects of golf courses on the environment is used as an excuse to block the development of adjacent properties into housing units or other uses.

The exact nature of the effects of golf course construction and maintenance activities on the environment is not completely known, though many studies are now in progress to investigate this relationship. It is essential to understand the extent to which pesticides and fertilizers affect groundwater and surface water supplies, and their effects on humans, wildlife, and other non-target organisms, so that we can address with scientific facts the concerns about golf courses. Many of the criticisms about golf courses as polluters of the environment probably

are not true, but where there is a sound scientific basis for concern, we want to take the appropriate steps to mitigate the problem.

The USGA is approaching the environmental concerns of golf from several angles. Essentially, the program consists of the following components:

1. The USGA/GCSAA Turfgrass Research Program.
2. The Environmental Research Program.
3. The Audubon Cooperative Sanctuary Program for Golf Courses, and associated educational activities.

The USGA/GCSAA Turfgrass Research Program

Since 1921 the USGA Green Section has been involved in turfgrass research. For 30 years the Green Section staff actually conducted research work in cooperation with the United States Department of Agriculture at its Arlington, Virginia, and Beltsville, Maryland, research stations. After 1952, research support was provided by way of grants to many universities throughout the country.

In 1982 the USGA committed substantially more money to turfgrass research and established a special advisory committee to oversee project selection and progress. Through 1991, the Turfgrass Research Committee will have disbursed more than \$4.3 million in support of 40 projects at 19 universities.

Among the original goals of the current turfgrass research program was to develop grasses for golf that use significantly less water, are tolerant of pests and environmental stresses, and cost less to maintain. This goal has a decidedly environmental slant, addressing water use and pesticide use issues that are at the forefront of the environmental concerns of private organizations and governmental agencies today.

The turfgrass research program has accomplished much during the past eight years. Among the highlights of interest from an environmental standpoint are the following:

- The development of cultural maintenance practices that increase the ability of turfgrasses to tolerate or resist the effects of stresses such as heat, cold, drought, diseases, and insects.

- The investigation of mechanisms by which turfgrasses endure and resist environmental stresses such as heat, cold, drought, salt, etc., and the use of this information in turfgrass breeding programs.

- The establishment of turfgrass breeding programs that are producing grasses inherently more tolerant and resistant to environmental stresses and pests.

An improved seeded bermudagrass (Nu-Mex Sahara) and an improved buffalograss (NE-609) have already been introduced. During the next few years a host of new grasses, including bentgrasses, bermudagrasses, zoysiagrasses, and buffalograsses, will be generated by the program and will be available for use on golf courses and other turf areas. Various other native



A group of researchers observes buffalograss selections from the breeding program of Dr. Terry Riordan at the University of Nebraska. An improved cultivar from this program, NE 84-609, is available on the market this year.

grass species also are being improved through breeding efforts and may find their way into golf course management programs. Golf and the environment will both be winners as these new grasses are marketed and used.

The Environmental Research Program

At its August 1989 meeting, the USGA Executive Committee agreed in principle to fund research relating to the impact of golf course activities on the environment. Subsequently, the USGA Turfgrass Research Committee commissioned a complete literature review of the subject by Spectrum Research Inc., an independent research agency located in Minneapolis, Minnesota. Spectrum completed the study and submitted a 400-page document to the Committee entitled "Environmental Issues Related to Golf Course Construction and Management: A Literature Search and Review." It consisted of information from more than 1000 references from the scientific literature; each had to have a sound scientific basis to be included in the review. Currently, the review is being updated and will be published in book form by the end of 1991 if all goes well.

Based upon the results of the literature review, the Research Committee developed a set of priorities for the

environmental research program. It was determined that the following topics were most in need of being addressed:

- The fate of pesticides and nutrients applied to golf courses.
- Alternative methods of pest control.
- The impacts and benefits of golf courses on people, wildlife, and the environment.

At its June 1990 meeting, the USGA Executive Committee allocated \$2.8 million for a three-year period to fund research projects related to the priorities set forth by the Research Committee.

From more than 80 pre-proposals, the USGA Environmental Research Committee has thus far agreed to fund 15 projects: eight in the category of pesticide and nutrient fate, six having to do with alternative methods of pest control, and one concerning the benefits of golf courses. Other proposals related to the last category are being requested and will be evaluated and acted upon at the committee's July 1991 meeting.

It is anticipated that this three-year study will produce a much greater understanding of the effects of golf course activities, including pesticide and fertilizer applications, on people, wildlife, and the environment. At the end of the study, it is expected that further research will be required. Areas of study will likely include:

- The development of mathematical models to predict the fate of pesticides and fertilizers applied to various turf/soil systems, based upon the data generated in the initial study.

- The further development of alternative methods of pest control.

- The continuation of breeding programs to produce turfgrasses that use less water and are tolerant or resistant to pests and stresses.

- The development of cultural practices that reduce the dependence of turfgrasses on water and pesticides.

- Other areas where critical unanswered questions remain.

Audubon Cooperative Sanctuary Program for Golf Courses

A new and exciting program being sponsored by the USGA and administered by the Audubon Society of New York State is titled the Audubon Cooperative Sanctuary Program for Golf Courses. It's an attempt to match the interests of environmental groups for conservation programs and the welfare of wildlife with the interests of golf, which include the preservation of water and wildlife resources as well as the playing of the game.

The program's objectives are several:

1. Protect and enhance wildlife habitat on existing and planned golf courses.

2. Enhance the image of golf courses as sanctuaries for wildlife.

3. Encourage golf course superintendents, course officials, and golfers to become more knowledgeable about environmental issues and take an active role in conservation practices on golf courses.

Among the topics to be encompassed by the program are wildlife protection and habitat enhancement, Integrated Pest Management (IPM) practices, and water conservation programs. Courses that participate in the program and follow through with appropriate conservation practices can become certified and will be eligible for regional and national awards. Activities of these courses will be publicized through Audubon and golf-related publications, and press releases will be sent to selected media in the cities where the courses are located. It is hoped that this recognition program will enhance the image of golf courses as good neighbors within their communities.

One of the requisites of becoming certified will be to establish an environmental resource committee at the

course and to develop a plan for the various conservation projects to be undertaken. The resource committee consists of several golfers and at least one non-member who has expertise in some facet of the planned program. This person (or people) can come from the ranks of the county extension service, the Soil Conservation Service, the local environmental center, or the local chapter of the Audubon Society or some other environmental organization. The purpose for involving outside people is twofold:

1. To make available to the golf course a person or people who have special expertise that would be of value in following through with planned conservation practices.

2. To establish a dialogue between golf courses and local environmental organizations or agencies. A pro-active relationship between these groups can be nothing but a win/win situation for golf and the environment.

To assist golf courses in becoming certified in the Audubon Cooperative Sanctuary Program, New York Audubon Society and the USGA will combine resources to provide cooperating courses information via:

- Mail and phone correspondence.
- On-site visits by Audubon or USGA personnel.

A method for determining the volatilization loss of pesticides from turf used by Dr. Richard Cooper at the University of Massachusetts.



- Periodicals, bulletins, fact sheets, etc.

- Presentations at meetings and seminars.

It is anticipated that the Golf Course Superintendents Association of America (GCSAA) also will encourage its members to participate in the program through its own certification programs and will provide training and educational opportunities to those participants.

USGA Staff Additions

The USGA has committed itself to the Green Section's environmental program by adding several professional positions to the Green Section staff. A research director, a technical writer and an environmental specialist were hired in 1990 and will enhance the environmental program by providing:

- Coordination and oversight of research projects.

- Preparation of annual research reports, environment-oriented bulletins, newsletters, fact sheets, articles, videotapes, and other publications for interested parties.

- On-site visits to interested courses, architects, developers, and builders.

- Presentations on environmental themes at golf and turfgrass meetings, conferences, and seminars.

- Training for the Green Section's 15 regional agronomists, thereby expanding the reach of the program.

Opening Communication Channels

The Green Section has opened a dialogue with ten national environmental organizations, a dozen prominent foundations active in environmental issues, and regulatory agencies such as the EPA. They have been informed of the USGA's research program and other activities and about golf's commitments to the environment through the Audubon program and other endeavors. As information on the effects of golf course activities on the environment is generated by the research program, these organizations and selected media will be kept abreast of the findings.

Criticisms of golf courses are often based on a lack of knowledge, a problem that can at least be partly overcome by maintaining good communications channels. By communicating and interacting with environmental organizations and agencies, we hope to improve people's perceptions about the positive role golf courses can play in the environment.