



Environmental Management and Habitat Restoration Programs for European Golf Courses

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As of 1994 there were some 5000 golf courses in Europe, with an average 18 hole course occupying roughly 100-125 acres of land (EGA Ecology Unit, 1996). The nature of the game dictates that much of this land is relatively unused. The out of play areas often support a diverse mixture of natural vegetation types. The mixture of natural vegetation and cultured sports turf can make for a rich wildlife habitat (EGA Ecology Unit, 1996). The relationship between golf and the environment has become a tremendous field of study within the last 10 years. The landscapes over which golf is played, and its relationship to the environment bestow upon the game of golf a unique responsibility for ecological conservation and restoration. It also gives those involved in the game an opportunity to make a positive contribution to the study of restoration ecology.

In response to a growing interest in the environmental effects of golf courses, the European Golf Association's Ecology Unit was formed in January of 1994 (EGA Ecology Unit, 1996). In 1994 the Environment Directorate General of the European Commission met on several occasions with the EGA Ecology Unit. The result was a plan for a joint project to formulate an environmental management program for golf courses on a European scale. This type of project fits within the Commission's environmental awareness raising program. It also provides an opportunity for assessing the feasibility of adopting environmental management principles within the context of a recreational land use (EGA Ecology Unit, 1996). In 1995 the EGA Ecology Unit carried out a pilot scheme to develop a pan-European environmental management program for golf courses. This paper will examine some of the results of earlier environmental management programs on golf courses in Europe. It will also summarize some of the findings of the EGA's pilot scheme and the recommendations the Ecology Unit made based on that project.

Agricultural intensification in Britain presents an ever increasing threat to wildlife and natural landscapes (Green, 1981). Some landscapes and types of natural and semiarid vegetation now survive mostly on unfarmed land. Golf courses are one example of this type of land. Defense training areas, water catchments and specially appointed nature reserves represent the other areas where these landscapes survive (Green and Marshall, 1986). There are roughly 1500 golf courses in England, Scotland and Wales. With 35% of each course made up of areas which are out of play, that means that in the UK golf courses have over 52,000 acres of potential habitat restoration sites (Daniels, 1972).

Golf in Kent dates back to the founding of Royal St. George's in 1887. By 1930, fully 70% of all the golf courses in Kent had been laid out (Green and Marshall, 1986). No planning controls were in place at the time to consider the environmental implications of such development. Noted golf architect and author Robert Hunter in describing his ideal golf course said, "There shall be no obvious erections or ridges, no embankments and terraces, but the ground shall be sculpted in gentle, flowing lines as if the wind had played upon it and tumbled it about before the turf had

bound it down" (Hunter, 1927). Many of the earliest golf developments in Kent were along the coast. "Traditionally it was here that golf developed as a game over the natural wild terrain of the fixed sand dune grasslands where natural features such as sand blowouts and slack pools provide the hazards of the course" (Green and Marshall, 1986). It is this unique setting which makes these courses such an interesting ecological study.

The study done by Green and Marshall employed 20 of the 41 golf courses in Kent. Selection was based primarily on their nearness to designated protected areas, and secondly to ensure representation of sites on the varied geology of the county. Field surveys of each of the selected courses began in July of 1983. They involved a one day visit to each of the sites to record habitat representation and the main species components of the vegetation on the site. Plant and animal species of particular interest were noted and the effects of different management practices on them were assessed. Interviews were done with either the club secretary or the head greenskeeper where possible to discuss current management practices. The information from the field surveys and subsequent research was sent to club secretaries and greenskeepers as a site report. These reports included the geology, soils, vegetation, animals and land use history of the site. They also made some suggestions about how best to maintain some species of particular interest or of limited distribution. Over 40 % of the area of the 20 courses in this survey, including all or the greater part of 6 sites, has been statutorily notified as a Site of Special Scientific Interest by the Nature Conservancy Council. The three links courses in Sandwich Bay have as part of their landscape, sand dunes which are part of a coastal complex recognized as one of the richest areas for wildlife in the country (Green and Marshall, 1986).

In the final analysis the only immediate result of this study was a set of management recommendations for the clubs involved. Often times the members of a given golf club may be fully aware of the conservation and restoration potential of their course. Unfortunately, they know neither where to seek advice on management practices required to retain wildlife, nor do they know the best way to integrate those measures into everyday course maintenance. Green and Marshall (1986), in an attempt to help rectify this problem, outlined some management recommendations which they felt would be of some immediate value to the club managers and greenskeepers in Kent who had some interest in conservation and restoration based management. Green and Marshall also indicated that they felt the best source available to golf clubs for this type of information were County Trusts for Nature Conservation, but there was little exchange of information between these two entities (Green and Marshall, 1986). Far from being a failure, however, this study served notice to both the golf industry and those interested in ecological restoration that there was a tremendous untapped resource available, and that there was an interest in this type of information from both sides of the aisle. If this report initiated communication between restoration ecologists and the golf industry then it had an even greater effect than the authors could have hoped.

In 1992 A.M. Brennan published an article in which he addressed the need for management plans for natural areas on golf courses. Courses which are managed with conservation in mind, and which maintain diverse plant and animal populations are less likely to suffer from problems which plague their more artificial counterparts (Brennan, 1992). Brennan gives a poignant example of a need for a management plan concerning a course at Lindrick in Yorkshire. Founded in 1891, the course at Lindrick Common was located on a typical heathland landscape. By the

1970's the course was suffering from several problems, in particular birch (*Betula pendula*), hawthorn (*Crataegus mongyna*) and gorse (*Ulex europeaus*) had begun taking over the heathland (Brennan, 1992). Prior to the building of the golf course the land had been grazed. That grazing prevented the scrub from encroaching on the heathland. The ungrazed heathland now reverted back to woodland. The presence of the dense scrub along with the use of fertilizers and herbicides was causing a loss of plant species diversity.

The club members determined that some action needed to be taken. They sought advice from the Nature Conservancy Council and the Yorkshire Wildlife Trust. An ecological evaluation and survey of the site was done, and in 1983 a management plan which outlined short, medium and long-term objectives for the site was formulated. The club formed a Conservation Committee to oversee the implementation of the plan. Some key features of the management plan were the removal of scrub, carried out by the course staff and volunteer laborers, as well as rotational mowing. Thus far the initiative has been a success (Brennan, 1992).

Several valuable lessons emerged from the Lindrick case. First among these is that public interest is a key component of this type of project. It is well known through experience with public nature reserves that public awareness and support for ongoing management projects is very important. Likewise, conservation management within multiple use amenity areas such as golf courses requires high profile public relations to foster a climate of appreciation of the site's conservation value and management requirements" (Brennan, 1992). The second important lesson which came out of the Lindrick experience was that conservation based management should not be regarded as optional, rather it should be an integral part of day to day course maintenance (Brennan, 1992).

In 1989 the Nature Conservancy Council, recognizing the interest in the ecology of golf courses, published a booklet entitled, "On Course Conservation: Managing Golf's Natural Heritage". "The booklet outlines the conservation resource of golf courses and addresses the management issues involved, it also contains guidelines for the incorporation of ecological considerations in the design, construction and mature operation of golf courses" (Brennan, 1992). The NCC followed its 1989 publication with another booklet in 1990. This was a shorter document designed for course managers and greenskeepers. It outlined the basic principles of an on course management plan. The booklet contains sections club members and staff can fill out, including a wildlife inventory and a list of management projects (Brennan, 1992). In this way the NCC program began to take on some of the same characteristics of the Audubon Cooperative Golf Course Sanctuary Program which is widely used in the US and Canada.

The NCC program still has some significant shortcomings. The greatest of which is that it is not widely publicized. Audubon International in their booklet, "A Guide to Environmental Stewardship on the Golf Course" gives several suggestions on how to publicize restoration efforts. One of these suggestions is to make a clubhouse display including the art print the club receives when it becomes registered with the Sanctuary Program and the accompanying certificate (Audubon International, 1996). A display such as this is a simple way to publicize the clubs efforts to all club patrons. Secondly, there is no system of recognition in place for those who actively participate in the program. The Golf Course Superintendents Association of America (GCSAA), in cooperation with the United States Golf Association (USGA) and

Audubon International, every year give several awards to superintendents who are spearheading successful restoration projects (Perrault, 1998). There is no strong affiliation between the NCC and a professional association the local greenskeeper is likely to be a part of, most notably the British and International Golf Greenkeepers Association (BIGGA). The NCC publications are endorsed by the Royal and Ancient (the governing body of golf throughout Europe), but very few of the people actually doing the day to day implementation of the management plan will have strong ties or frequent interaction with the Royal and Ancient. The third shortcoming of the NCC program is a common one: there is no system for monitoring the implementation process and answering questions. A lack of follow up is a common flaw among all golf course environmental management programs. The reason all these programs have this common flaw is that they are all voluntary programs. The only golf courses which are required to provide a formal Environmental Assessment (EA) are new developments, and even this is not a universal requirement (EGA Ecology Unit, 1995). Existing golf courses are not statutorily required to participate in any sort of environmental management or restoration program.

The latest program specifically targeting environmental management and habitat restoration on golf courses is the program initiated in 1994 by the EGA Ecology Unit. Eight golf courses were chosen from all across Europe to participate in this study. The golf courses were not chosen because they were considered the best environmental golf courses. Rather they were chosen to represent a broad age range of courses, and because they represent different types of courses. Selection was based on a judgment of which courses would be most interesting and illustrative for this project (EGA Ecology Unit, 1996). Site ecologists from the country in which each course was located were given the task of performing an environmental review. A format was agreed upon at a meeting held in March 1995 and the clubs were evaluated in 5 areas:

1) Planning and Policy: This is an examination of the clubs existing environmental policies. Does the club have written environmental policies and what controls or reviews are in place?

2) Water Resource Management: Does the club have a water conservation policy in place? What is their water source and do they monitor water quality?

3) Pollution: What are the clubs policies and procedures related to chemical usage? Do they follow an IPM program?

4) Flora, Fauna, and Nature Conservation: A site survey was done to determine what type of habitat was present and the amount and distribution of that habitat. Also, are there key species or species of special interest on the site?

5) Information and Education: What information or interpretive material is available concerning environmental issues relating to the golf club? (EGA Ecology Unit, 1996).

With this latest initiative the EGA is hoping to stimulate an environmental interest in golf at the club level. There are several important elements of this program which need to be recognized. First of all the review covers several issues, such as water quality and IPM strategies, it is not focused solely on nature conservation matters. Secondly, the emphasis is on golf clubs using sound environmental practices in their daily management. Finally, the goal of the program is not

scientific study, rather it is to provide the clubs the basis for environmental enhancement (EGA Ecology Unit, 1996).

A wealth of information was gathered through the EGA Ecology Unit's 1996 study. There were positives and negatives related to each of the 5 main areas of inquiry. Several of the findings are helpful in advancing the cause of environmental management for golf courses. For example, even though many clubs have no formal policy concerning environmental management issues, they are aware of their importance and are willing to adopt such policies. Another finding of the study was at clubs where environmental initiatives have been adopted too much of the burden of carrying out these initiative fell to too small a number of people. A third finding was that in many cases effective monitoring and continuity of environmental initiatives was being hindered by poor record keeping. The study also pointed out that communication concerning environmental initiatives was poor, that includes both communication within the club itself (between members, managers and staff) and with the community at large (including environmental interest groups and public authorities). On the positive side the study found endorsed environmental practices are compatible with ordinary course management practices (EGA Ecology Unit, 1996).

There are many misunderstandings about the environmental impact of golf courses. In Continental Europe, the public perception of golf is that it is environmentally unfriendly. These misunderstandings will persist, despite a growing body of evidence including the findings of the EGA's pilot scheme, until golf clubs make more efforts to communicate the possible environmental benefits of golf to local communities and environmental interest groups (EGA Ecology Unit, 1996).

Much of the criticism that has been leveled at golf courses in recent years has been based on invalid, "pseudo-scientific" arguments (Beard, 1996). The way for golf club managers, grounds superintendents and other golf supporters to combat this flood of misinformation is to bring the facts to light. Golf courses are not the bad guys, indeed as more and more habitat is altered or destroyed by human activity golf courses become increasingly important environmental resources. However, golf promoters cannot rest either. They must realize the important niche the areas they maintain occupy in environmental management and habitat restoration, and they need to take this responsibility seriously. The research has been done, and we have a good informational base from which to work. Its time to explore the expanding role of golf courses in environmental management and habitat restoration.

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