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## Golf Course Benefits and Influence

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achieved. A tentative outline for a position paper, to be submitted to *Science*, was completed in June 1991. Currently we are writing a preliminary draft which should be completed in early 1992. A final draft of the manuscript will be submitted to the USGA Green Section on or before May 1, 1992.

This has been a rewarding and enlightening project because there is a need for it, and because our perspective has evolved concerning the environmental issues challenging the golf course industry. This position paper, and other USGA projects, are needed first steps. We agree, however, that the lasting solution will be achieved from the golf course industry and environmental groups working together to achieve common goals and objectives.

Dr. James Beard

### The Earth Fund

#### *On Course with Nature*

This project will adapt information on ecoregions across the United States for use in naturalizing landscapes around golf courses. By increasing the natural areas around the golf course, it is hoped to increase or preserve wildlife habitat.

Earth Fund researchers look at golf courses as valuable green space within the urban environment. Golf courses, however, are not regularly cited in scientific literature concerning wildlife habitat, and more often receive negative attention in popular press. This project has surveyed the literature on natural areas and established woodland size, vegetation structure, and other information to encourage wildlife usage of golf courses. The United States is already divided into natural eco-regions and the book developed from the project will describe how to recreate or manage the natural vegetation previously on the site.

An outline of the book contents was developed and an extensive literature review was completed during the last three to four months. Lists of native plant species and nurseries in the United States that produce these materials will be incorporated into the book. The landscape side of the problem, or the "how to do it" principles, will be a major portion of the book. Careful attention to recommendations on adapted plant materials for a

region will be emphasized. A detailed map of the United States indicating the natural ecoregions and plant communities was developed in 1991. Landscape architects and horticulturalists can use this map and then go to a nursery to select suggested plant species. Currently, native plant species do not have something similar to this approach, and the project will help a great deal to meet this need.

The Green Section will help select photographs of golf courses that are already utilizing some of the principles the book will develop. From an urban planning perspective, the book could help develop scenarios for natural corridors through urban areas by linking golf courses, parks, and larger tracks of land. The concept of 'sustainable development' and 'quality of life' will be covered.

Dr. Donald Harker

### Institute of Wildlife and Environmental Toxicology

#### *The Effects of Golf Course Activities on Wildlife*

The Institute of Wildlife and Environmental Toxicology (TIWET) at Clemson University has conducted numerous studies on the environmental effects of pesticides used on golf courses. TIWET, with USGA funding, initiated research in golf course management practices to institute environmentally sound approaches based on knowledge of chemical use, fate and effect. Attempts will be made to determine those products and management procedures which reduce non-target wildlife exposure to pesticides. Resulting information will aid in the development of golf course management practices that provide satisfactory playing surfaces, without damage to the environment.

The pilot study on the Ocean Course, Kiawah Island, began in July, 1991. This investigation has focused on two areas: 1) developing a thorough water sampling program to measure the quantity of pesticides reaching adjacent marshes; and 2) assessing the potential for exposure of wildlife on the Ocean Course and adjacent habitats.

The development of Kiawah was conducted with environmental foresight, resulting in a residential and resort community endowed with diverse habitat and abundant wildlife. The Ocean course, constructed with an innovative drainage