

A FRAMEWORK FOR BIODIVERSITY ASSESSMENT OF GOLF COURSES

Jordan P. Howell¹, Patrick Crumrine², Jordan Moore¹

¹Rohrer College of Business, Rowan University

¹Dept. Of Environmental Science, Rowan University

Corresponding author email: howellj@rowan.edu

Introduction

There are many types of impacts on ecosystem services, on human health, and on social issues that golf can make, both positive and negative. In this project we focus in particular on the relationships between golf courses and biodiversity. We first review existing research studies linking biodiversity and golf. Next, we identify key ecological principles at play when considering the potential for golf courses to impact (positively or negatively) biodiversity. Then, we develop a set of criteria that can be used to evaluate the biodiversity impacts for any golf course, regardless of biome, climate, or geographic location, with an eye towards devising a “biodiversity index” or score that can be used to assess any course. We believe that this biodiversity index score could be a useful new component of any framework for assessing the overall sustainability impacts of golf courses. We conclude that golf courses can be a positive force for biodiversity, and that given this potential, course owners and operators should take biodiversity factors into consideration when designing or renovating courses.

Methods

We conduct a literature review of existing studies linking biodiversity and golf. Through a systematic assessment of the 23 peer-reviewed research studies that have been published since 1987, we identify research trends and also gaps in examining the relationships between design, development, and management of golf courses and the growth (or decline) of different plant and animal species. Next, we identify and articulate the general ecological concepts that are “at play” in assessing the biodiversity performance of a golf course, drawing from expertise and experience in the field of ecology. Our goal is to identify the key pieces of biodiversity theory and practice that are most salient for the unique physical environments that golf courses represent. We combine these to propose a set of criteria that will be key to assessing the biodiversity impacts of any particular golf course, with the intention of creating an actionable framework for those who design and manage golf facilities.

Results and Discussion

Our analysis shows that studies linking biodiversity and golf over the past approximately 30 years have yet to develop any sort of unified, cohesive theory about the drivers of biodiversity gain or loss on golf courses. Most studies have been focused on a particular species and/or a limited geographic region with little attempt to generalize findings. Studies have examined many different types of both plant and animal species. With regard to ecological concepts, we find that the ecological concepts of fragmentation (how “continuous” is the landscape of the course?), spatial context (what is around the golf course?), and internal diversity (what types of habitats are found on the course itself?) are central to determining the positive or negative nature of contributions towards biodiversity that courses are making. We propose a scoring system that can be used to assess biodiversity on any course and be included as a part of assessing a course’s overall sustainability performance.

Significance

Many corners of society have received greater scrutiny with regard to environmental performance in the past few years, and the world of sport has not escaped this analysis. Few sports have as intimate a relationship with the landscape as golf, as the physical territory is a vital aspect of the game. It is well-known that golf course design, development, and management can cause negative environmental impacts including the destruction of habitat for all types of plant and animal species. However, we believe that golf can also be a very positive force for environmental protection and the enhancement of biodiversity outcomes. Our research illuminates one way in which golf courses can make contributions in this arena.

References

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