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### An Environmental Bogey

Golf is a game of pleasure. Businessmen leave work for the links and make deals while playing. It motivates old men get to do a little activity in their early mornings. Also, the success of players such as Tiger Woods encourages parents to practice with their children. Golf is just one of those things that brings people together. It creates good, old fashioned quality time with another person. It puts smiles on faces and brings pleasure to most. There is something that draws these people together, and it is the opportunities to fellowship. The joys of golf are great, but this innocent sport may be more harmful than we think.

A large amount of these new players are younger and less experienced. These Novices create a headache for many, because of the divots they create. They seem to hit more shots resulting in a loss of grass and damage to the root system. Sand is supplied to help the grass grow back, but not all problems on the course can be fixed this easily. Creating these divots is the only way that most golfers feel that they hurt the earth by playing this harmless game. The problem lies a little bit deeper than these badly played shots though. We are tainting the water around us. Peter Bronski of Planning magazine explains that contaminated groundwater comes from golf course pesticides and fertilizers (Bronski 24). We are hurting the environment through our upkeep of the course. We are using unnatural things that can harm our environment and ultimately harm us. Fertilizers and pesticides are choking our environment, and we do not even care. We can not just replace this damage with sand.

There are a lot of questions that arise with this issue. Have we already done too much damage? Is there anything that can be done? The main issue though is whether or not the pleasures of

golf can remain while still maintaining a nice, environmental-friendly golf course. Basically, can both nature and humans be happy? Indeed they can. Golfers can enjoy the pleasures of the game on an appealing course without injuring the environment around it. There are some necessary steps needed, but if we are to do our part, we must take these steps. These actions, however, are not all monumental. There are things that we can change in the ordinary that can help save our courses impact. Bronski continues to say that cities are now becoming hesitant about constructing golf courses for fear of environmental factors (24). This can be stopped, but not without a higher price tag.

Take a drive throughout South Carolina and notice some of the over 111 golf courses. People are all over the courses, all over the state. South Carolina is not the only area with this situation. This is going on around the U.S. and the world. Crop Science reveals that there are over 16,000 golf courses in the U.S. alone (Moss 73). The money is out there, and it is being made. Golf courses can make such high profit, but why not put this money into something that can pay you back in other ways. It can pay you back in another type of green, an earth caring green.

There have been some proposed ways to fix our predicament with the environment. We want to be happy fiscally and physically, while mother earth approves. We can try to achieve this as painlessly as possible. We will dig through the problems, and propose some ways to fix them in the next few pages. To achieve our goal we must first push past our egocentrism.

Edward Wilson, author of The Future of Life, warns us about our egos, "A country that levels its forests, drains its aquifers, and washes its topsoil downriver without measuring the cost is a country traveling blind. It faces a shaky economic future" (26). If we continue to impact our environment negatively, and "Travel blindly", then we are certain to have even bigger problems in the future. We can pretend to be in the dark about many of the problems that we are causing on this earth. We can act like we do not know about global warming or pollution. We can act like we do not know that our two ton SUV is tearing apart our ozone. We can even do this about our golf courses.

We can go out, have a great game and fool ourselves into thinking that the course is natural. We can design a magazine worthy course and never take note of the living things around it, besides ourselves. Our egocentrism can trick us into thinking that those perfectly placed fairways have always been there, and that the grass has always been that radiant. We can talk ourselves into thinking that a course is nature and nothing has been added, but we would be totally, utterly incorrect. There are so many foreign elements in that course, that it is anything but natural. Environmentalists may argue that this is reason enough to consider golf courses as a terrible place. They could place the game of golf in the careless category. Many course designers have not been as careful as they should have been, but this does not mean that we can not fix what has already been done.

The place that gives golfers the most headaches is also giving environmentalists headaches, the putting green. Greens are mainly thought of as just smooth grass that does not do much. Most do not make a second thought about the putting surface. You make a divot in it and you clean it up; that's about it to most golfers. These headache creators, though, are also contaminating the groundwater near the golf courses.

Larry Shuman is in the Department of Crop and Soil Sciences at the University of Georgia and has experimented with these greens (605). He says that greens create such a problem because they are mainly on top of sandy soils (Shuman 606). This soil is very porous and opens them up to the opportunity of leaching through watering (Shuman 606). This is the leaking of nitrogen and other elements from fertilizers into the groundwater through rains and irrigation. Greens are also mainly made of turfgrass, a grass that helps to create an outflow of water (Shuman 606). As the fertilizer and pesticides are added to the green, it begins to spit it back out into surrounding water areas, thus creating a problem of greater magnitude.

Shuman ends his experiment by concluding that though the leaching can be controlled, the weather can not (618). Writers from *Crop Science* agree with him, "Ideally, all of the fertilizer

applied on golf course turf will be taken up by the plant. However, sudden heavy rains or irrigation system malfunctions can cause nutrient runoff into bodies of water nearby” (Moss 73). This is cause for concern. One large storm can help contaminate all of the surrounding water. Think of all the animals in that area are going to drink that potent water. The fish and the plants in the water will suffer even greater consequences. *Crop Science* continues by telling that this runoff of nutrients creates a bunch of other living organisms that steal oxygen and kill the life inside the water (Moss 73). This is a scary thought, bearing in mind that people regard golf courses as natural places. Another thing that is contributing to our destruction is the frailty of the greens. Karin Grobe of BioCycle says they are very prone to diseases and fungus (Grobe 22). They also have a lot more foot traffic that can damage the root systems (Grobe 22). With death always at the door for greens, they must be fertilized heavily. Once again, our need for perfection is causing problems that we do not want to deal with, nor think about. It is just causing problems for others.

There are a lot of what some would call “Simple” ways to stop this pollution. One is to, well, stop playing golf. It is that easy to some, but that would also take away from the enjoyment that we were meant to have. Golf courses do not have to be places of devastation; they can be environmentally friendly too. Some would think that golfers should deal with it, and just play on sloppy courses. Once again this would just cause more problems down the long run. Golfers would not even respect the land at all because it has no real meaning to them. They would end up polluting it themselves and destroying it. There is a way to go about balancing the relationship of nature and humankind.

Yes, there are a lot of environmental problems with the use of pesticides and fertilizers, but there is hope. Many different people have come up with real solutions or even aides that can slow down the destroying of our environment and keep everyone happy. John Garrity of *Sports Illustrated* affirms this, saying, “Golf courses, in other words, can be places where environmental science and recreation coexist” (Garrity). We can have our perfectly mowed, green fairways and still play guilt-

free golf. This should be the silver lining for both the golfer and the environmentalist. After looking over the problem many would say, “Ok, back off the fertilizers,” but it is not that easy. Anne E. Platt of *World Watch* magazine explains that golf consumers demand such a perfectly taken care of course that owners are scared to stop fertilization (Platt 29). This helps to understand why Shuman experiments with this. We want ideal course conditions so bad that we are willing to kill our environment for them. This would also be a cheaper way out, but it may be an illogical decision down the road. With this high demand for courses, if a course’s physical beauty declines, you can also expect the amount of customers to decline. This would be a lot more damaging to the bank in the future. We do not have to go to these types of extremes in order to fix our ecological problem, there are many other ways that can help us to maintain our destruction.

There is no cheap way to a completely environmental friendly golf course, though. Anything that is going to deal with new equipment or new methods is usually going to cost money. This is the price we pay for our egocentrism. Wilson asks “How much is the Biosphere Worth?” (103). It is worth a lot of money considering some of the channels that we have to go through. It is mandatory though, the natural environment was here before we were. Hitting your ball into the rough is usually pretty disappointing, but this bad lie may be helping to save the environment around you. The experts at *Crop Science* feel that this long grass may be the key to creating a more ecological golf course (Moss 73). They continued to explain that the rough has proven to be a filter for runoff, but there still was not enough evidence to conclude that it was effective enough to help (Moss 73). So, they decided to do their own experiment. They concluded that the rough can be very useful in preventing nutrients from entering groundwater. It is even more effective if there are differing heights of rough (Moss 82). Two buffers decreased the Nitrogen and phosphorous loss by 18 and 14 percent (Moss 82). This grass also stayed playable at the length it was tested (Moss 82).

This sounds like a very effective way of preventing runoff. It does make the course a little more difficult for the players, and some may not like that, but that’s one of the features that makes

championship golf courses like Winged Foot or Carnoustie so tough—golfers have to deal with the rough. Overall, it seems like a great idea. Cutting less often can help. This also opens up some opportunities to maybe work on some other ways to help the environment. While skipping some of the grass clipping days, someone could be doing something that could help clean up the course. More rough sounds great, but it is not the end all. It is most likely the most inexpensive way, and this may be where most courses start. At the end of the day, there may be another solution that could help or even end all of it.

Golf is loved all throughout the south and so is tea. So, it is only fitting that tea would find its way onto the course, but it may actually do more than just quench thirsts in the clubhouse. We already know that greens are very susceptible to fungus growth and disease. This threat turns the putting surface into a fertilization and pesticide monster. Organic Recyclers Anonymous supporter Karin Grobe reveals that tea helps to protect this fragile grass (22).

This is a great idea, especially for here in the south. Tea should be easy enough to create and use. Grobe interviewed Phil Rossi,<sup>i</sup> the Integrated Pest Management Coordinator for Golden Gate Park in San Francisco, and got all of the details (Grobe 22). The tea is made in two 100-gallon brewers and a 25 gallon brewer given to them by Growing Solutions (Grobe 22). They then mix the tea with a vermicompost and a thermophilic compost; it is then diluted with dechlorinated water and sprayed (Grobe 22). This helps to coat and shield the grass against disease (Grobe 22). Tea sounds simple, but is it as effective? Well, Rossi says that it is not necessarily the one and only treatment, but when added to another treatment system, it can be the icing on the cake (Grobe 22). It has been so effective though when paired with another treatment that it has helped to start a city ordinance in San Francisco that restricts chemicals until last resort (Grobe 23). This interview helps us to see inside a strange way to combat the war on environmental carelessness.

This tea solution does not seem like enough. It seems very time consuming to only obtain modest results. The article does say that it should not be the only solution, so it may be need to be

only a part of the solution (Grobe 23). There may also be a lot of work that could go into another solution that is quicker and more effective. The only problem with that is most golf course managers want to make money, and if we want to do that they need to spend less time fixing the course and let people play on it.

Purdue University may have a solution to compete with the tea in San Francisco. The Boilermakers have come up with a system that both serves a purpose and is visually attractive (“Wetland System” 6). They have produced a wetland that system that is both a golf hazard and an environmental filter (“Wetland System” 6). The harm done by fertilizer runoff is being reduced by this new method, and it may be a cut above the tea sprayer. Their operation consists of three ponds that flow in to each other creating a filter for chemicals (“Wetland System” 6). In the Purdue study they found that the number of aquatic plants in the ponds helped to strain out a lot of the chemicals (“Wetland System” 6). Pulitzer Prize winner Edward Wilson agrees with this approach. He feels that if there more life in an ecosystem, then the more stable it becomes (Wilson 108). The Purdue press release reads, “Microbes and the almost 11,00 water plants placed in the Purdue ponds are responsible for filtering ammonia, chlorine, nitrate, nitrogen, organic carbon, phosphorus, potassium, and other chemicals” (“Wetland System” 6). This is a lot of chemicals, but it is not all of them.

These numbers were also after storms that created large amounts of runoff. Yes, runoff chemicals from storms are a huge problems, but rain will not always put the chemicals into the water. The rain can dilute the chemicals, because it is adding more water to the system. Chemicals can enter through pollution or human error, and there may be no water added to dilute the substance. If someone were to accidentally throw some fertilizer in the wetland, could it handle it? This little bit of foreign interference could throw off the ecosystem. Purdue answers this by clarifying that the chemicals that entered during dry periods were contained inside the ponds on the course (“Wetland System” 6).

The Purdue press release never really answers the question though. Ok, the pond held the chemicals, but did it hurt life inside that particular pond? Larry Shuman of the University of Georgia helps to expand on what Purdue left out: “Once a body of water becomes eutrophic, the condition is persistent and recovery is slow” (606). Eutrophication is when nutrients overtake a body of water. The chemicals that stay inside the pond could greatly affect the life there, and thus create more problems on the course. These problems may be cured by more fertilizer; this just keeps piling up the problems. Maybe this is where more organic fertilization comes into play. The pond idea is also a very expensive one. Purdue never releases how much the procedure cost, but digging wetlands can not be cheap. They do believe, however, that it could help the entire earth if all 16,000 U.S. golf courses were to establish a three pond system (“Wetland System” 6). Yes, it would definitely be a help, but would it be enough?

More may need to be done. Further research, such as that conducted by C. LeAnn White and Martin B. Main with the funding of the U. S. Golf Association and the Florida Department of Agriculture, has established that “a diversity of habitat features among ponds within a golf course would provide the greatest benefits to the largest number of species” (White and Main). While this may not be unbiased research, it suggests that environmentally-aware course design may have more benefits than drawbacks to the areas where courses are located. In terms of cost, they conclude that

Maintenance problems associated with wet areas along edges of ponds may be ideal for modifications to benefit waterbirds while simultaneously reducing management costs and maintenance challenges. Consequently, opportunities likely exist on many golf course ponds to improve habitat for waterbirds while providing financial savings and generating positive public relations for practices that provide benefits to wildlife. (White and Main)

In their view, environmentally-aware course management is a win-win situation.

All of these solutions have both their pros and cons, but they can all help. There may be one big problem, though. Taking a look at all of these none of them is the end all to the predicament.



They all reduced runoff, some significantly, some not, but they all reduced it somehow. Each of these proposed solutions could not stand by themselves to protect the environment.

There is a new way to look at it, though. These could all be a part of one solution. If each of these aids were to come together, they would be a great help to one another. A course could start off by letting its rough grow a little higher. This would be the cheapest way to start and the easiest. As the money came, they could begin to start building the three-pond system. This may take a little while, but you have to start somewhere. As they are building their ponds, they could also begin to look into more organic materials. As they begin to do this, they could work their way to the tea compost mentioned.

This, of course, is a lot easier said than done. Money is a huge question, but with over 25,000 golf courses in the world, and people flocking to them every day, money should be coming in pretty well. Courses will not be able to become eco friendly overnight, but it is something to work on. This need for green products and environment friendly methods is not only a problem in the golf world, but in almost every facet of life. There needs to be action against this ruining of the environment worldwide, and golf courses can be the leaders. Leading the pack on environmentalism may bring awards and more money to these courses.

With all of these, I think that a golf course can come close to, if not be, a natural environment. If both sides want to be content, then this is the only way. Golfers are going have to play harder courses, with more water and higher rough; while the course managers use more natural materials. Environmentalists are going to have to let the golfers play. Managers and owners are going to have to give a little to receive a lot, and in the end everyone wins. The future is not so grim for the game of golf. Many things need to be improved upon, but it can happen. Golf does not have to destroy the natural environment around it. If golf course directors everywhere were willing to take the plunge into caring; we might actually be able reduce our negative footprint. We can replace the ecological divot that we have created.

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