

Do You Have Green Creep?

Time marches on – and so does turfgrass. Some basic preventive maintenance procedures can keep a golf course design the way it was originally intended.

by RONALD W. FREAM

GOLF COURSES experience evolution, alteration, maturation, and aging just as all other living things do. Having the benefit of almost 35 years as a golf course architect and observing some courses for 25 years or longer, it is quite easy to notice the incremental and, at times, profound changes that time induces.

The alterations I refer to are natural and evolutionary. Golf course maintenance crews cause and enhance alteration. Technological advances have accelerated change. Plant physiology, human genetics, nutrition, television, and golf publications have expedited the demand or need for alteration. The focus of this article is on those alterations that are more or less naturally occurring as distinguished from green committee action or periodic remodeling for design sake.

Green creep is a catchall phrase I use to describe the inevitable alterations that emerge on every course. The rate of emergence, the frequency, and the extent are variable in response to the type of course, location, climate, turfgrass varieties, soil conditions, original design, and construction methods, intensity of and quality of maintenance, volume of play, and financial strength of the owner or operator of the golf course. Alterations can occur faster with tropical and warm-weather grasses than with cool-season or northern-climate grasses.

Green creep begins to emerge as maintenance commences on a new course. However, it increases in prominence as the course gets older. Green creep is part of the aging process of almost every course everywhere. There really is no easy way to

avoid some component of green creep. That green creep is so prevalent and yet so unnoticed is due to the almost glacial rate of occurrence.

At its most basic, green creep is altered shapes and sizes of putting surfaces, the repositioning of bunker edges, and altered tee surfaces due to insidious, little by little, mowing changes and sand edging practices. These changes can become several to many feet of distance over time.

Maintenance personnel keep their jobs by not killing the grass. As the person mowing the putting surfaces does the job, each day a little uncut collar is kept to prevent scalping. The person mowing tends to cut inside yesterday's cut. Concurrently, straighter lines or more rounded lines of cut emerge over time. The putting green surface becomes smaller in overall sur-

An all too typical round and boring greensite. Green creep is part of the aging process of almost every golf course. Little by little, mowing changes can result in several feet of change over time.



face and rounder or more oval, more uniform, and less visually appealing in shape.

Bunker edging often does not cut back all of the growth that has occurred since the bunker edge was last trimmed. The person doing the edging often overlooks the original outline shape. The grass remaining has grown more onto the sand than before. Continued edging over time tends to cut off or ignore originally designed undulations or irregularly outlined shapes. The sand surface area becomes reduced. What were visible sand surfaces from the tee now are grass. What had been a visible bunker in the fairway is now a slightly visible sand depression, or appears from the players' view to be only grass. The aesthetic and strategic reason for the bunker has been lost. Now the sand is blind to the player and has become an unfair hazard. What was visually a nicely outlined bunker is now, 10 years on, another round, saucer-like bunker or a square or rectangular one. Excessive adding of sand over time tends to flatten and make shallower what originally was a meaningful sand hazard. Siltation has clogged the drainage system and the bunker is a pond when it rains. In some environments, the action of blowing wind can cause sand to accumulate at one prevailing edge or side of the bunker. Sand accumulates and the grass continues to grow. Now that portion is substantially higher than before. A mound or ridge now obscures what was once visible sand. This same result occurs from the use of mechanized sand bunker raking machines.

As the green surfaces become smaller and rounder, day by day and year by year, the area for hole location is reduced. The spatial distance relationship between hole location and adjacent sand bunker is expanded. The golfers' visibility of the sand basin often is reduced. Topdressing of greens, as a normal process of maintenance, will over time smooth out a green surface, remove some original contour, and perhaps not make it easier for most golfers, but make the putting surface flatter and less contoured.

Progressively smaller greens, greater distance between flagstick and sand, and less before-shot awareness of bunker locations all contribute to substantially different playing conditions than the original design possessed. Changing putting surface shapes do alter what were originally designed-in



"Tree creep" has made the left side of this tee obsolete.

approach play strategic factors, often lessening the challenge and diversity. Smaller greensites that are flatter and rounder all begin to look the same. Reductions of 25 percent or more in hole locations is common after 10 or 15 years.

Smaller putting surfaces reduce hole location options. The original variety of placements now has become lost. Smaller putting surfaces concentrate golfer wear and tear and increase soil compaction even as play increases. Deteriorating putting surfaces are the result. Increased maintenance costs are a result. Missed putts are also a result.

Similar slow-motion changes occur on teeing surfaces. Day by day, mowing can change the shape, reduce the usable surface, alter the outline edge, and adversely impact play and wear and tear. Often, smaller teeing surface area is a result. Incorrect or inattentive divot repair and inadequate or incorrect tee surface topdressing will, over time, turn a flat, comfortable surface into one more crowned, bumpy, or

with a surface sloping in several directions. Traffic-induced compaction problems increase. Turf quality often deteriorates. Any of these creeping changes can alter how the player addresses the ball. Inattentive mowing can lead to tee surface alignments not focused on the center of the fairway or par-3 greensite. The person setting the tee markers often then does not orient the markers correctly and perpendicular to the desired line of play. Inattentive golfers often line up their shot on this incorrect orientation, hitting inaccurate shots, wasting time, and raising scores. Miss-hit shots result at no fault of the golfer.

Changes such as these are incremental and very slow. Ten to 15 years after opening is a good time to really begin to see the difference. However, some green and bunker shape changes often can be noted by year five. When visiting older courses, the extent of change can be remarkable. These changes are so glacial that to the Green Committee, general manager, or superintendent, the changes may

not even be apparent. The players hardly notice, unless turf deterioration becomes obvious. Many players will never even think of what might have been. They play in the here and now.

A new superintendent, a new pro, or general manager taking over 10 or 20 years after opening, or a first-time player, seldom will even be aware of what might have been the original design intent. The golf course architect's name may have been lost. The original design drawings often have been lost or discarded. Unfortunately, these creeping changes tend to soften the course and remove much of the original playing strategy. This often turns what may have been visually interesting and exciting design into a course that is round, common, and boring. The fame or talent of the original architect does nothing to prevent these changes. USGA greens seedbed mixtures do not prevent green creep. A certified superintendent is not immune. The course now can be greatly different from that on opening day long ago.

Tree growth also creeps up on a course. Too often, superintendents budget little for annual tree care, particularly proper pruning. Players seldom notice the annual growth of a tree, yet overplanting of new courses in originally open areas and too gentle a clearing on wooded sites leave ample tree growth over time. Ongoing general thinning and reshaping of trees is lacking, so excessive growth results. Creeping tree expansion directly influences golf shots on the same hole differently over time if left untouched. Fairways become narrower. The strategy of play around a tree can be significantly altered. More shots are in the rough. Play is slowed. Other problems related to turfgrass maintenance also arise from encroaching shade and surface roots as the trees age.

Two of the most profound changes that have crept rapidly in the past 10 years have been the explosion of new technology and enhanced physical well-being. An increasing number of senior players also are an evolutionary result.

Innovations in golf club heads, shafts, and grips, new shaft materials, and significantly altered golf ball designs have, in effect, shortened many courses.

Tiger Woods is not the only taller, leaner, more flexible golfer out there. Put better equipment in any player's

hands and the ball will go farther, if not straighter.

Increased tee shot length has greatly affected play. Twenty-five years ago, fairway bunkers set in the 220- to 250-yard area had impact upon the better players and even the pros. No longer is this the case. Today fairway bunkers 260 yards off the back tee do not intimidate the better players. Club players or daily fee golfers expect to drive 230 or 250 yards, and often that range is beyond the fairway bunkers. Women hitting farther can almost reach the fairway bunkers when those bunkers were not originally positioned for that purpose. Green creep and bunker creep shift targets and modify bunker positions. Bunker creep alone, when extensive, can move the sand basin 10 or 20 or even 30 feet over time. Ten yards shorter or longer can incorrectly impact a shot. While smaller putting surfaces may in some ways compensate against longer tee shots, these size reductions are not design or play strategy driven. Therefore, the changes do not contribute to the benefit of the game.

Increased tee shot length also impacts tee positions. Many courses do not have much extra room to add longer back tees. Lengthening a hole by 20 or 30 yards often is not possible. Repositioning of middle and forward tees may be one partial remedy to counteract increased hitting lengths. Increasing the number of teeing positions and playing lengths from only two or three to four or five is often necessary to fully accommodate today's wider range of players, playing lengths, and ages of players. Increased volumes of play over time increase wear and tear, also necessitating larger tee surfaces. Increasing tee surface size can provide more playing diversity and ease tee maintenance demands.

An alert superintendent can regularly overcut the green or tee edge apron by a few inches. A yellowish discoloration will be visible for a few days. However, this repositioning of the putting or teeing surface can help retain the original outline shape and surface area.

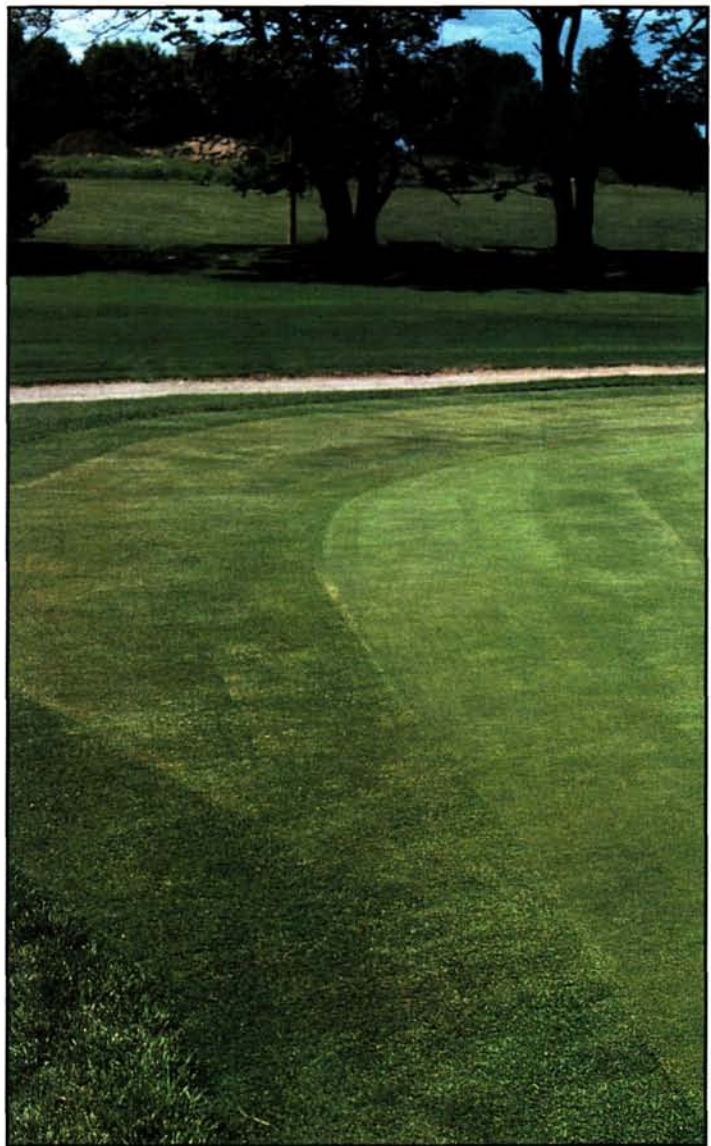
Fairway mowing patterns and fairway outline shapes often have crept over time. New machinery at least can provide visually attractive patterns, even if the width or outline shape of the fairway has changed over the years. Fairways often become narrower. Maintained or semi-maintained rough

gets closer to the preferred lie. Rough areas tend to creep inward as well, partially due to inadequate maintenance staff. Recontouring and expanding fairway and maintained rough areas can help compensate for increased tree growth and more senior players. Longer hitters often will benefit from expanded fairway widths since length and accuracy are not synonymous and speed of play is always a factor. Increasing the depth and area of rough may have a place at some courses. However, increasing the area of semi-rough or more or less maintained rough only toughens any course. In today's economy, most courses seek rapid play as an economic necessity. Deep and thick roughs are counter productive. Introducing new mowing patterns can add eye appeal and make even flat fairways look better.

Evolution alters the turfgrass, too. "As long as it is green" suits some; however, what was originally a homogeneous blend or single variety has become infested with *Poa annua*, weedy broadleaf species, common bermudagrass, or worse in fairways and maintained roughs as well as putting surfaces and tees. Seedbed improvements and replanting may be the remedy. The introduction of newer turfgrass varieties by overseeding will help improve playing conditions and appearance.

Bunker creep and technology have overtaken the irrigation system, too. A new, more versatile and efficient pumping plant may be necessary. Upgrading the irrigation system controls to computer operation may save labor, improve turf quality, and help conserve water and electricity. Reshaping of greensites or repositioning of fairway bunkers can also require sprinkler head replacement, repositioning, or the addition of heads to assure uniform coverage. Recent improvements in sprinkler head operation, water distribution, and water efficiency may encourage sprinkler head replacement. Adapting to the use of sewage effluent irrigation water may be a necessity of the times in some areas. Adding additional irrigation water storage lakes may be desirable and can be an aesthetic and strategic enhancement as well.

Green creep also impacts water storage lakes and ornamental lakes, ponds, and streams. Water vegetation can expand in number and begin filling the lake. Grass from the edges



Two options are available when restoring lost area on putting greens. The area can be severely scalped back (left) in one step and the golfers endure the temporary turf stress, or the cutting height can be taken down in steps to reduce the scalping damage (right).

can grow into the water over time, reducing surface area. Excessive algae growth can clog a pond or lake over a few years with unrestrained growth. Uncontrolled lake edge waterweed growth can obscure ornamental walls. Irrigation storage capacity or flood control capacity may be reduced.

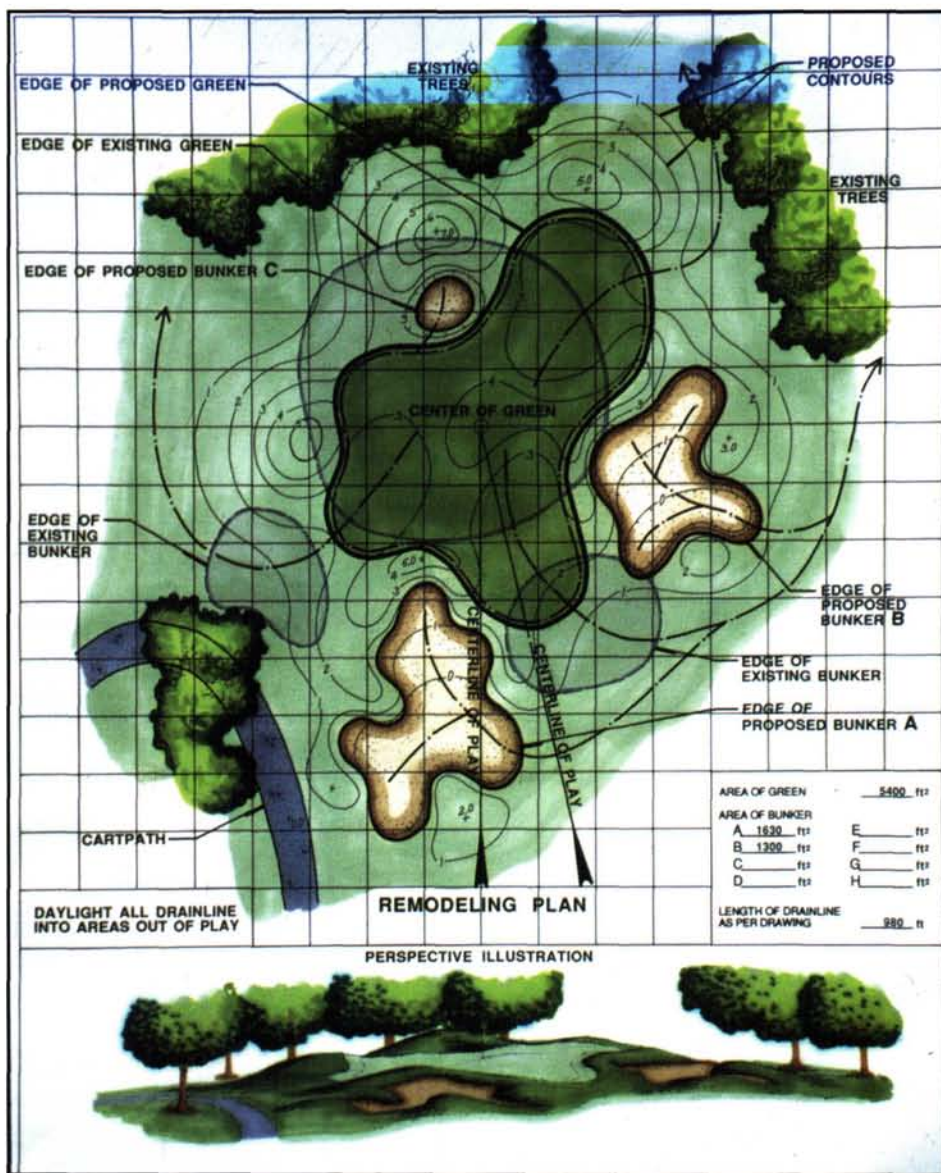
Time and increasing golfer traffic adversely change soil structures. Fairways once mostly dry can evolve into at first small muddy spots. As rainfall and pedestrian, cart, and maintenance traffic continue, the compacted and wet or muddy and degraded areas can migrate and spread like a cancer. Turf deterioration follows. Adding subsurface drainage or even sand capping fairways may be necessary to expand playing opportunities during wet weather. Putting surfaces can become wet sponges or brick-hard when the

seedbed has deteriorated due to compaction. Tees are one of the first areas to demonstrate the impact of compaction on turfgrass quality.

The addition of golf cart pathways or the extension of existing paths often becomes necessary as the volume of play increases. Placing fairway cart traffic onto cart paths will help combat fairway compaction and seedbed deterioration. Adding expanded “lay-by” cart parking positions can ease congestion near greens and tees. Adding curbing can help control wayward drivers. Repositioning some cart paths can improve utilization and even help speed up play. Converting from gravel or dirt to concrete or asphalt will help improve maintenance and enhance the visual elements. Cart traffic always will cause compaction when not on a path.

Few old and older courses are today as they were when they first opened. Noted examples, such as Augusta National, Pine Valley, and Pebble Beach, bear little resemblance to their early years of operation, even though current owners or members believe they are holders of the original design or original product. Some changes are committee induced, not green creep, however, and still result in substantial alteration from the original design.

Green creep makes courses more homogeneous, more similar in visual and playing appearance and certainly decreases the playing challenge of the original design. Few professional golf course architects of the last half of the 20th century would have designed every green round, every fairway flat, and every bunker in the image of a peanut.



Bunker and green creep corrections are really a remodeling and modernization program, and much can be done with minor alterations and adjustments in maintenance procedures. Sometimes, however, major work is needed to recapture the lost glory of a venerable old course, and a comprehensive and precise master plan by a golf course architect is a good investment.

When I am doing bunker and green creep corrections, I feel just like a plastic surgeon. I am doing nip and tuck, wrinkle removal, a little middle-age facelift and enhancement, a few hair grafts. Pouty lips on a bunker are preferable to thin ones. Our work also involves some liposuction, taking the excess accumulated fat out of a mature golf course.

Correcting green creep really becomes a remodeling and modernization program, even if some effort is devoted to recapturing a long lost glory. Modern volumes of play, enhanced expectations for turfgrass quality, a focus on visual dynamics, and who has the toughest course will

influence some remodeling efforts. Remodeling to a budget, to meet user market green fees or membership capability is certainly feasible. Revitalizing an older course to join today's standards and meet today's expectations while accommodating more play is attainable and can occur in an affordable way. Often, corrections can involve only mowing pattern changes or bunker edge recutting. A comprehensive master plan should guide more elaborate directives. The master plan for a hole or a course should be precise and comprehensive. Accurate working drawings should be utilized. Not only golf design, but also ornamental horticulture and turfgrass agro-

nomics are part of the solution. The corrective effort can occur over an extended period of time, be sequential or priority phased, or occur quite quickly over an entire course. Bunker edge corrective changes can occur quickly and have clear, obvious, and beneficial results.

To do nothing and continue with the status quo is a continuing downward slide. From a competitive viewpoint, the slowly deteriorating course that does nothing in response certainly loses market share to newer courses in the area. Golfers today are highly attuned to the visually dynamic style of golf. Countering years of evolutionary change will have direct and positive economic benefit. To see the problem, to understand there is a problem, is not for everyone to do. Being too close, being there too long, being too new to the situation, and not being attuned to the action shields the viewer from the knowledge of what had been and often also what can be. An impartial, experienced eye brings great value.

Much of this article's focus is on easy-to-implement, relatively inexpensive actions to reclaim what once was there. This must not be confused with the more extensive makeover or upgrade and repositioning that can be very elaborate, involved, costly, and beneficial. An assessment of existing playing conditions, the members' desires, analysis of current market competition, user demographics, operational goals, economics, agronomics, local competition, and other factors becomes part of any renovation or modernization program. The restoration or modernization program must be carefully planned and correctly implemented. The results can be spectacular and the cost of implementation need not be excessive. Green creep is here to stay and we must deal with it, sooner or later.

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