

# Annual Ecological Assessment of the Old Course undertaken on behalf of The R&A

STRI

St. Andrews Links Trust – Old Course

Report Date: 7 June 2011

Consultant: Bob Taylor



STRI is completely independent and has no alliances to commercial products, services or contractors. This ensures that our design, project management and advisory services provide the best solutions for each individual client.

If you have any queries with regard to this report please call +44 (0)1274 565131

Report Title: Annual Ecological Assessment of the Golf Old on Behalf of The R&A

Sports Facility Name: St. Andrew Links Trust, Old Course

Date of Visit: 31 May 2011

Present: Mr Gordon Moir, Director of Greenkeeping  
Mr Gordon McKie, Old Course Manager  
Mr Simon Connah, Ben Hillard, Ian Nicholls, Joe Tiplady  
Joshua Baker, Michelle Yue (Greenkeeping Assistants)

## Executive Summary

Limited evidence of the 2010 Open was noted during this visit, indeed all areas identified under last year's Post-Open Management Report have been effectively restored. A few sunken pits in areas of the central grassland separating the outward and returning holes were noted, but these were localised and no doubt will be dealt with on an ongoing basis as and where noted.

The course was in particularly good condition at the time of the visit with the majority of the grasslands having improved considerably over the last few years, both with respect to sward composition and playing quality. The general condition of the wider grasslands will now allow a greater focus to be given to those more problematic areas such to the back of the 1<sup>st</sup> tees/back of the 18<sup>th</sup> green, right of 17<sup>th</sup> carry, between the 2<sup>nd</sup> and 17<sup>th</sup> holes and through to the grassland separating the 4<sup>th</sup> and 15<sup>th</sup> holes. Work through these areas will continue with cutting, scarification and litter collection and on a localised basis through careful use of graminicides.

Gorse management is being carried out to a high standard. We discussed the need for additional coppicing including work to the right of the 3<sup>rd</sup> hole in front of the 4<sup>th</sup> Championship tees, through the mounds running right of 4<sup>th</sup> fairway, right of 5<sup>th</sup> carry (to improve site lines) through the 6<sup>th</sup> carry and to left of the 11<sup>th</sup> tees. These areas are detailed further below.

An objective of this visit was to consider the extent of wildlife that has recolonized following the 2010 Open and it is clear that in less than one year a significant number of birds and mammals have returned, indeed quite noticeable this year was the number of orchids that have appeared through areas of rough grassland, particularly on the 14<sup>th</sup> of the New where over 50 spikes of northern marsh orchid (*Dactylorhiza purpurella*) were recorded. On the Old course, fewer but more widespread spikes were noted within the grassland between the 4<sup>th</sup> and 15<sup>th</sup> holes. I was informed by the greens staff that brown hare (*Lepus capensis*) are still present in high numbers and evidence of fox (*Vulpes vulpes*) and roe deer (*Capreolus capreolus*) was also noted. Birds including skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*) were observed together with yellowhammer (*Emberiza citronella*) and chaffinch (*Fringilla coelebs*) nesting within the gorse. Plant species within the grasslands included common vetch (*Vicia sativa*) and bird's-foot trefoil (*Lotus corniculatus*), these appearing to be increasing through most areas.

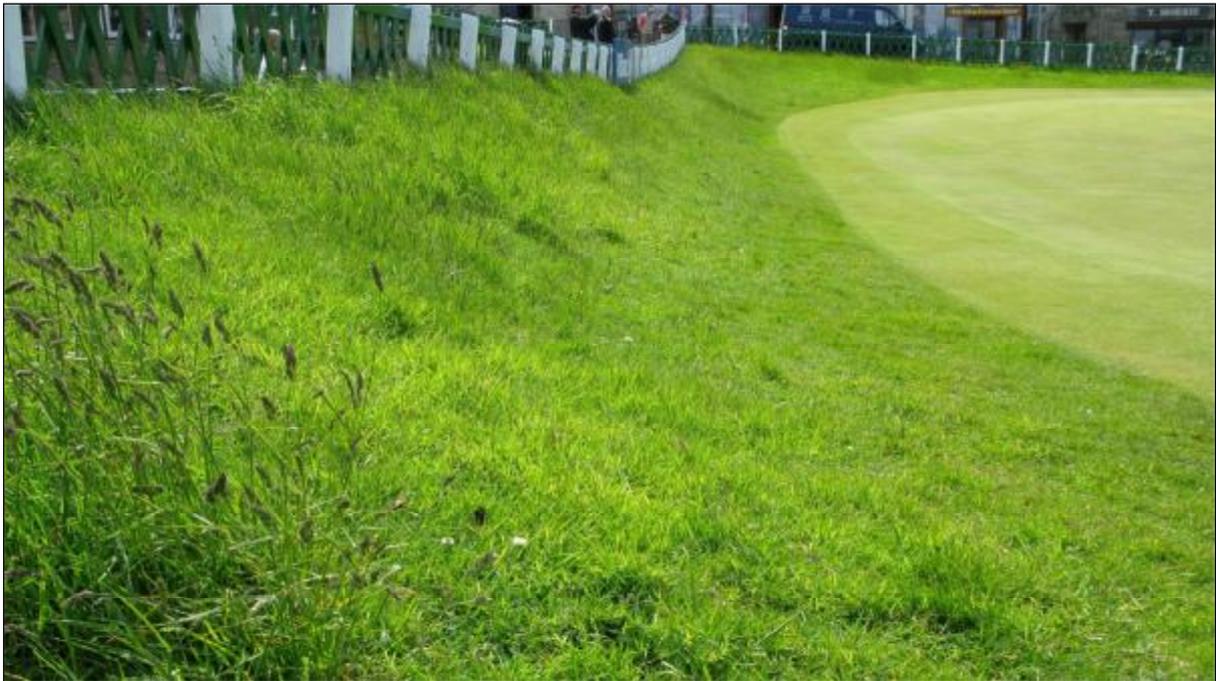
## Introduction

The aim of this annual assessment of the golf course was to identify any obvious increases in wildlife that may have occurred following the 2010 Open and to continue with appropriate management recommendations for management of gorse and grassland habitats for both wildlife and golf. This year the Director of Greenkeeping, Course Manager and I were accompanied by the summer staff, this providing somewhat more in-depth discussions into the reasoning behind the management work being recommended and the methodologies required. The main points discussed during the visit are outlined further below.

## General Comments, Observations and Specific Recommendations

### Back of 1<sup>st</sup> Tees/18<sup>th</sup> Green

The back of the 1<sup>st</sup> tees supports a high level of Yorkshire fog (*Holcus lanatus*), this giving way to the back of the 18<sup>th</sup> green to a much finer grassland with localised tussocky cocksfoot (*Dactylis glomerata*). The difference in sward characteristics is clearly the result of recent management intervention, resulting in a general improvement of sward (through the lower sections) and a greater visual prominence of the cocksfoot. The sward to the back of the tees is cut to around 50 mm and that to the back of the green is now being encouraged to flower.



Tussocky cocksfoot back of the 1<sup>st</sup> green

It is the area to the back of the 18<sup>th</sup> green that is of greatest concern, scarification work will need to continue through the lower section and if possible should be extended to include the whole of the banking. The degree of slope will dictate the kind of mechanical scarification treatment to be employed i.e springbok rake or pedestrian scarification equipment etc.

I recommend implementation of an immediate and intensive scarification treatment, concentrating on the more tussocky areas of cocksfoot, working to significantly oust these from the sward, following up with litter collection and immediate overseeding treatment. Towards the end of the summer apply a single treatment of Rescue through those areas where Yorkshire fog remains dominant and follow three weeks later with a scarification and litter collection treatment, again followed by additional overseeding.

It is essential that the above work is carried out more intensively over the areas of localised cocksfoot, with the intention being to severely weaken its continued growth.

Repeat the above during the spring of 2012, collecting all arisings and providing an additional overseed treatment.

Beyond of the burn i.e. right of 1st fairway an excellent but relatively localised area of wildflower grassland was noted supporting bladder campion, pink campion, ribwort plantain, hawkbit, white and red clover, common vetch, greater stitchwort, weld and dove's-foot cranesbill. Grasses here included red fescue and bent with sea lime. This area is of high value for invertebrates and in particular pollinating insects i.e. bees and butterflies and it will also provide valuable feeding habitat for seed and insect eating birds.

This grassland extends round and into the playing line and becomes dominated with Yorkshire fog. We agreed that this area should be included in an ongoing management regime to involve an intensive late summer scarification treatment following cutting, overseeding immediately thereafter, repeating this work during early spring; and depending upon degree of take from the overseeding work and spring application of Resuce. Note: This should only be undertaken if a successful establishment of the earlier overseeding work has occurred. Use a seed mix as indicated below.



Wildflower grasslands to right of 1<sup>st</sup> hole

## 2<sup>nd</sup>/17<sup>th</sup> Holes

To the back of the 17<sup>th</sup> green i.e. offside of the road, a narrow band of variable grassland still remains quite weak, at least through the first 1.5 – 2 m. Management should continue this year, giving focus to strengthening growth through the outer margin and thinning closer to the wall, to create a more homogenous sward structure.

Implement an immediate verticut (very light scarification treatment) to open up the surface in anticipation of overseeding work. Following collection of any arisings, overseed using the seeds mix outlined below and carry out a programme of fertilisation to both stimulate growth and early establishment of the seed. A low nitrogen product such as the TX10 or a NPK 8:0:0 at half rate should be suitable here.

The 1 m or so from the wall will require a more intensive late summer cut plus scarification treatment followed by litter collection (end of September to early October), repeating during March 2012.

To the right of the 17<sup>th</sup> approach the grassland has improved considerably through recent management intervention. Red fescue is dominant overall, but does give way to yorkshire fog further round and towards the hotel.

Implement an immediate scarification treatment through the above area, concentrating at this time through the area of the Yorkshire fog and follow by collecting all arisings. At the end of the season i.e. end September/early October implement a late summer scarification treatment following cutting through the entire area of the grassland and again collect all arisings. Oversow the entire area with an agreed seeds mix as indicated below, concentrating this through the weaker sections and through the area of Yorkshire fog.

Repeat the spring cut plus scarification work during the spring of 2012 through the area of Yorkshire fog only.



Grassland right of 17<sup>th</sup> approach



Grassland left of 17<sup>th</sup> fairway

The grassland to the left side of the 17<sup>th</sup> hole has improved considerably over the last few years although Yorkshire fog is still represented on a more localised basis. Indeed, it is the more tussocky cocksfoot that is becoming of greatest concern and this will require repeated intensive scarification work, undertaken on a localised basis, using pedestrian equipment to gradually weaken the sward and fine it down.

Through this area of grassland, implement an immediate intensive scarification treatment, concentrating locally i.e. within the more concentrated areas of cocksfoot. During the autumn period, i.e. immediately after the Dunhill, implement a localised application of Rescue to eradicate the remaining, more problematic areas of Yorkshire fog, following this by scarifying through the entire grassland and overseeding using an agreed seeds mix (see recommendations below).

The grassland left of the 2<sup>nd</sup> approach also of good quality supports a few localised patches of Yorkshire fog, these being more pronounced through the low hollows where the scarification equipment has tended to miss. This autumn period, implement an additional cut plus scarification treatment, concentrating through the hollows on a more intensive basis. Having completed all litter collection, apply a heavy sand top dressing, taking care not to overly smother the sward and overseed using your agreed seed mix. Review these areas during the spring of 2012 and if required apply a treatment of Rescue, concentrating again on a spot basis i.e. through the localised hollows only. A further overseeding treatment with additional sand top dressing will help to both raise these areas and further weaken the Yorkshire fog.

### Hole 3

Some gorse removal work has been completed in line with the previous recommendations, this being undertaken to open up the crossover points in front of the tees. The margins around the Championship Tees have also benefitted from an intensive cutting and scarification programme that has already started to create a pronounced improvement in sward characteristics. The gorse to the right of the 3<sup>rd</sup> general tees is clearly compromising use to the right side of the tees and should at least in part be removed. This would be best carried out by:

1. Selectively removing the gorse to the back (of the main stand) this to include one whole plant and a number of selected limbs.
2. Moving and relocate the grass collection bay closer to the gravelled road.
3. Installing a low but wide mound not exceeding 600 mm in height.
4. Planting gorse over the created mound, allowing this to establish over the next two to three years.

Once established and as a second phase of work the outer gorse should be removed to accommodate the additional planting of gorse on the playing side of this stand.

Through the area of the carry, remove the gorse on the green side of the crossover together with the low growing gorse on the adjacent mound (green side and slightly right). Re-grade this whole area as a lower series of mounds following grass stripping and reinstate using the agreed overseeding mix to create a more appropriate and in-keeping dune grassland cover.

Ensure that when reinstating any area formerly supporting gorse or when creating mounds that a sandy rootzone is provided, ideally one that grades from relatively clean sand to the indigenous rootzone. This can be accommodated by applying layers of soil and rotovating into the existing until the final surface profile has been achieved.



Remove gorse to green side of crossover.

#### Hole 4

The gorse between the Championship and general tees is becoming topiaried due to topping, prior to The Open and we agreed that this area of gorse would be better managed on an ongoing three to four year rotation involving topping back 50% of the stand (green side) in year 1, continuing through the tee side in years 3 to 4. These low areas of gorse are important for breeding birds, indeed yellowhammer was noted nesting (with young) within this area.

#### Holes 4 and 15

Between the 4<sup>th</sup> and 15<sup>th</sup> holes the grassland rough was in good condition, again following recent cutting and litter collection work. A few localised bare patches were noted (a result of scalping). Yorkshire fog was also represented through some of the lower lying hollows.

Intensive localised scarification work implemented immediately would help to improve the lower lying areas of Yorkshire fog, particularly if followed with a heavy sand top dressing to both raise the levels and further compromise Yorkshire fog growth

During the autumn period i.e. early October, implement an overall cut and follow with litter collection. Follow with overseeding work through the weaker sections or indeed through the areas of Yorkshire fog following each treatment. The condition of this grassland is such that one cut plus litter collection on a three year ongoing rotation could be implemented.

The linear tract of gorse running over the mounds right of 4<sup>th</sup> fairway is tending to force play to the left and we agreed that the gorse should be reduced in height over time. This could be achieved by coppicing back the central section to near ground level this winter, allowing this to regenerate to a low 0.75 – 1 m in height. Once good regeneration has been noted the first section could be removed in its entirety.

Between the 4<sup>th</sup> and 15<sup>th</sup> holes the grassland (running through the central section) is becoming dominated with sweet vernal grass as a result of appropriate management. Northern marsh orchid is locally represented, together with wildflowers including greater stitchwort, bird's-foot trefoil and heather. Management of this grassland should include one cut plus litter collection on an ongoing three year basis, avoiding the obvious areas of heather. Implementing this work towards the end of the summer i.e. September through to October will negate any impacts on the orchids.



Northern marsh orchid

Site lines through the 5<sup>th</sup> hole have been compromised, given the height of the gorse to the right of the carry. This winter give consideration to coppicing back the highest section (green side). Once reinstated and as a second phase of work coppice back the middle section to a more suitable height.



Coppice gorse (phased basis) right of 5<sup>th</sup> hole

Whilst undertaking the above work coppice back the gorse (now being cut in a topiaried manner) on the tee side, giving emphasis here to reinstate these in a more fragmented and natural manner. Management of this gorse thereafter should involve repeated four to six year topping and/or coppicing.



Remove gorse from top of mound

A large stand of gorse was noted on top of the sand hill (right of the 5<sup>th</sup> fairway). This stand is clearly out of place and could be removed, providing the underlying grassland is appropriately restored back to good quality fixed dune grassland using the agreed overseeding mix (see recommendations below) and following clearance of all trash and restoration of a sandy rootzone.

This should involve scraping out and removing the brash and any heavier nutrient enriched soils, reinstating with a series of 4 inch layers of sand, rotavating these into the existing and building up until acceptable levels have been reinstated. Should turf be preferred, then deep cut turves from appropriate and similar areas of rough should be considered, these to be butted together and all joints top dressed with a clean sand material to prevent desiccation and/or frost damage.

#### Hole 6

This hole has changed considerably given the removal of the gorse to the right and through the centre of the carry. The remaining gorse through the centre of the carry could be removed to create a more simple view through the first section of this hole. With this in mind I recommend removal of the gorse on both the tee and green sides of the cross connecting maintenance track this winter together with that through the lower section of the mounds to the front right of the forward tees.

Heather has been introduced through the carry and this, at least in part does appear to be surviving. It will be necessary to ensure sufficient irrigation water is available should we enter into any prolonged periods of drought and this would be best achieved using the bowser and acidified water i.e. water processed through the sulphur burner. Aim to achieve a pH of between 3 and 4.5, applying sufficient on an ongoing basis, both to water the heather and to acidify the surface, locking up nutrients (some of which have been proven to be deleterious to heather) and in doing so restrict competition.

## Hole 7

The gorse through the 7<sup>th</sup> carry has been coppiced through the late winter of 2010/2011 and is already starting to show good signs of recovery. The longer term objective here should be to reinstate a narrow tract of gorse running with the roadside back and towards the tee i.e. over 30 m (5 m band width). The centre of the carry should be restored by physically grubbing out all of the older gorse, reinstating more acceptable surface conditions thereafter and regenerating a more in-keeping rough grassland carry. Over time heather could be introduced on an ongoing phased basis so as to add additional interest.

The gorse in front and to the front left of the 11<sup>th</sup> tees is becoming degenerate, whilst that to the back clearly does help to provide screening between holes, the more centrally located stand could be coppiced back and allowed to regenerate at a lower height so enabling and thereafter conserving views through and out to the coastline. Whilst undertaking the coppicing of the central gorse stand, implement some localised coppicing through the retained sections so as to remove some of the more degenerate growth and improve the health of that remaining.



Scope exists to coppice the gorse from left of the 11<sup>th</sup> tees

## Hole 10

Kerb has been applied through the area of the heather on the 10<sup>th</sup> hole, the underlying grass, now largely dead has not however been removed. If heather is to spread through this area then it is important that all fibre and thatch is lifted from the surface to reinstate gaps from which heather seed can germinate.

This summer period work towards removing the dead grass and moss growth, using springbok rakes and/or pedestrian scarification treatment and if necessary adopting a GUR policy through the more important tournament periods.

Further back and around the Championship tees the gorse has been coppiced back to near ground level and although some obvious signs of regeneration are occurring it is likely that seed establishment arising from the retained brash will serve to reinstate a gorse cover. Once gorse has re-established retain a lower height of around 0.75 – 1 m only.



Coppiced gorse left of Championship Tees – once re-established manage to a low height

## Reedbed

A reedbed has been constructed just off the Old Course, its function to serve as a washdown facility for equipment used on the Old Course. Construction work was completed during early spring 2011 and common reed was planted during April of this year. Reed growth to date has been relatively slow and we agreed that this should be bolstered using indigenous reeds, collected from the pond on the Eden course and planted at close 200 – 300 mm spacings, in-between the rows of the existing planted reeds. This work should be



undertaken with immediate effect and I recommend that the reedbed be opened for use over the course of the next month or so for all but the majority of routine maintenance equipment. Any nutrient residues being washed through the system will encourage the reed development further, speeding up full use and benefit of the reedbed. The increase of water provided through regular washdown activities will also help speed up the reeds establishment.

## Specific Recommendations

### Preferred Grassland Seeds Mix

For all overseeding and general seeding work consider a rough grassland seeds mix consisting of the following as available through Scotia Seeds:

Sweet vernal grass	20%
Wavy hairgrass	15%
Sheep's fescue	25%
Red fescue	40%

Apply using a drill seeder, working with the lines of any scarification work to ensure the seed penetrates to below the depth of the surface fibre. General overseeding work (where some grass cover is represented) should be at a rate of 8 – 10 g/m<sup>2</sup>. Bare areas supporting little grass cover should be sown at 10-15 g/m<sup>2</sup>. A better take may be obtained if applied in conjunction with sanding.

### Grassland Management

Over the last few years, those more coarse and rank grasslands, particularly through the 17<sup>th</sup> and 2<sup>nd</sup> holes have improved markedly with continued cutting and scarification intervention, this clearly demonstrating the value of such work. Ongoing improvements of this nature are allowing greater focus to be concentrated through those more problematic localised areas i.e. the lower hollows etc being missed by scarification work. This is where the new graminicide Rescue may help, but it is clearly another herbicide that should be used with extreme care and sensitivity, ideally reserved for local and specific use through the most problematic areas and as with any chemical it must be applied in strict accordance with the label and manufacturers recommendations, using appropriate application rates for the differing times of the year, following best practice working and again concentrating only through those more difficult areas.

The use of the herbicide could be reduced given greater emphasis on raising the hollows through turf stripping, sanding etc and in some areas of the course this was clearly discussed and will hopefully be taken on board. Much greater emphasis on the Old course does need to be given towards fining down the more tussocky cocksfoot given directed and focused deep localised scarification of work on a repeating basis as and when opportunities allowed.

**ADDITIONAL NOTE OF INTEREST:**

Northern marsh orchids were noted in profusion through a section of the 14<sup>th</sup> hole New Course see pictures below:



Bob Taylor  
Ecology & Environment Manager