



Grassland Management

There are often many opportunities to increase the amount and quality of rough grassland on golf courses without making the course too difficult for the higher handicap golfer. Opportunities can be sought through identification of out of play areas and by looking creatively at how the course plays. GIS digital mapping can also assist this process but a good aerial photograph or course plan can be just as useful. It is crucial the club have a good understanding of how their average handicapper plays the course and which areas are common landing zones in order to minimise current mowing regimes, saving time and money as well as improving habitat provision on the course.

Nature benefits of grassland management

Long rough can be used to create physical linkage between neighbouring habitats or to incorporate isolated habitat features such as off-set specimen trees. The whole notion of this is based on facilitating access routes for organisms between habitat areas. Most evidently this relates to small terrestrial creatures like voles, shrews and mice which do not like crossing bare earth or short grass as they have no cover. However, continuous rough means more efficient hunting and feeding for owls, hedgehogs, foxes and badgers as they don't have as much terrain to cross and their chances of coming across food increases. Bats also benefit from linkage. For them, hedges and occasional trees between main feeding areas provide important landmarks for echo location, enabling them to go further in their search for food than they would without landmarks.

Bumblebees were a common feature in the countryside, but in recent decades, the disappearance of flower-rich pasture and arable weeds including thistles and other species of Knapweed have put their survival under threat. All Scottish bee populations are currently in decline. By managing rough and semi-rough grassland to promote flowers such as red clover, bird's-foot trefoil and white clover the bee population may recover. For further information refer to 'Help the bees' and click on 'Farming and land Management' section of <http://www.bumblebeeconservation.org>. Rough grass also provides much needed nest sites for birds such as Meadow Pipit and Skylark, both in decline nationally due to loss of habitat.

Rough Grassland management

Rough grassland, managed for wildlife, is beneficial to the golfer if in the correct balance and place. Wildflowers depend on fine leaved, slow growing grasses also desirable on the golf course. The thick, rank grassland that is undesirable for golf smothers flowers. It is best practise to break up the sward so wildflowers can establish, cut and lift at the same time to prevent thick, rank growth. In some areas on the course fine leaved grass species may predominate, which is the ideal. Over time grasslands develop thick thatch layers and their composition gradually changes, favouring thicker, ranker species. Grassland must be managed by cutting or grazing if it is not to become rank and species-poor and eventually revert to scrub. Annual or alternating biennial mowing of grasslands and removal (and composting) of cuttings at the end of the summer would help maintain a tidy look, encourage fine-leaved grasses and a greater diversity of wildflowers. Such management can result in wildflower species, which were previously suppressed, regenerating naturally. However, grassland creation by natural generation is unlikely to be suitable for most locations, though it may be worth pursuing near to existing semi-natural grassland which can act as a seed source.

Wildflower grassland creation

Scottish Golf realise that it is often the case the club do not have the machinery to cut and lift rough grass and suggest that in small areas cuttings could be raked and hand lifted, alternatively a neighbouring farmer may be able to assist you and take the cut grass as fodder for animals – minimising your waste. Another useful tool may be the machinery share website:

<http://www.ringlinkscotland.co.uk> or through contacting other clubs to share machinery through www.bigga.org.uk.

The creation of wildflower grasslands has the greatest chance of success on soils of low fertility, such as shallow soils and upper slopes. Wildflower grassland creation on fertile soils requires more work to control undesirable species and maintain the balance of sown wildflower species. If the grass is rank or flattened cut and remove the turf. Coarse grasses such as cocksfoot, false oat grass, Yorkshire fog and rye-grass are too fast growing to co-exist with the majority of wildflowers and outcompete them for sunlight and space. Sowing seed into an established sward is also rarely successful. Therefore, 10-14 days after removing the turf, plough or rotovate the soil and work down to a firm and well consolidated seedbed.

Dormant seed will now germinate, harrow once the 'weeds' are clearly visible to kill them off. Repeat this process until the dormant seed diminishes. The ground is now ready for wildflower grassland seed mix.

Choice of wildflower seed mix is vital. Your seed supplier should be able to advise on the most appropriate seed mix for your locality. Consider aspect, shade cover, soil type, soil moisture, length of flowering season. Have a look around your area and see what grows naturally. Most wildflowers are spotted by their flowers and so observations are best carried out over the spring and summer months.

It is good practice for your seed supplier to provide information about the best wildflower mix and techniques to use. It may also be useful to know that planting bulbs in the same area can interfere with the mowing and cutting requirements of many wildflowers, so is best avoided.

Wildflower seed mixtures usually consist of 80-90% grass seed and 10-20% wildflower seed. Semi-natural grasslands normally contain higher proportions of flowers than this but, since grass seed is normally cheaper than forb seed, costs can be kept down by maximising the proportion of grass seed in the mixture. The proportions of the individual species used will also affect the cost.

Once a suitable wildflower seed mixture has been selected, successful establishment relies on good seed-bed preparation, good control of undesirable species and careful management, especially in the first year.

Both spring and autumn sowing can be successful. Autumn sowing is usually recommended in the south. However, seedbed preparation for an autumn sowing must be carried out early enough to allow adequate seedling growth before the winter and this is not always possible in Scotland.

The wildflower and grass seed should be thoroughly mixed before and during sowing to avoid separation. As seeds are often small it may be useful to mix the seed with an inert substance (such as fine sand, barley meal or sawdust) to ensure an even distribution. Where large areas are to be sown, it is best to sub-divide the land into smaller areas and to sow with weighed quantities of seed. Seed companies tend to recommend sowing rates of 30-50 kg/ha but 20 kg/ha has been shown to produce good results. Lower sowing rates may also work well, with careful management. After sowing, the site should be rolled to ensure good contact between the seed and soil. This encourages rapid germination and establishment.

Careful management is required during the first growing season to control competition from undesirable species (weeds) and to encourage shoots to grow (tillering) and vigorous establishment of the sown sward. This is the priority in the first year, so flowers should not be expected until the second season.

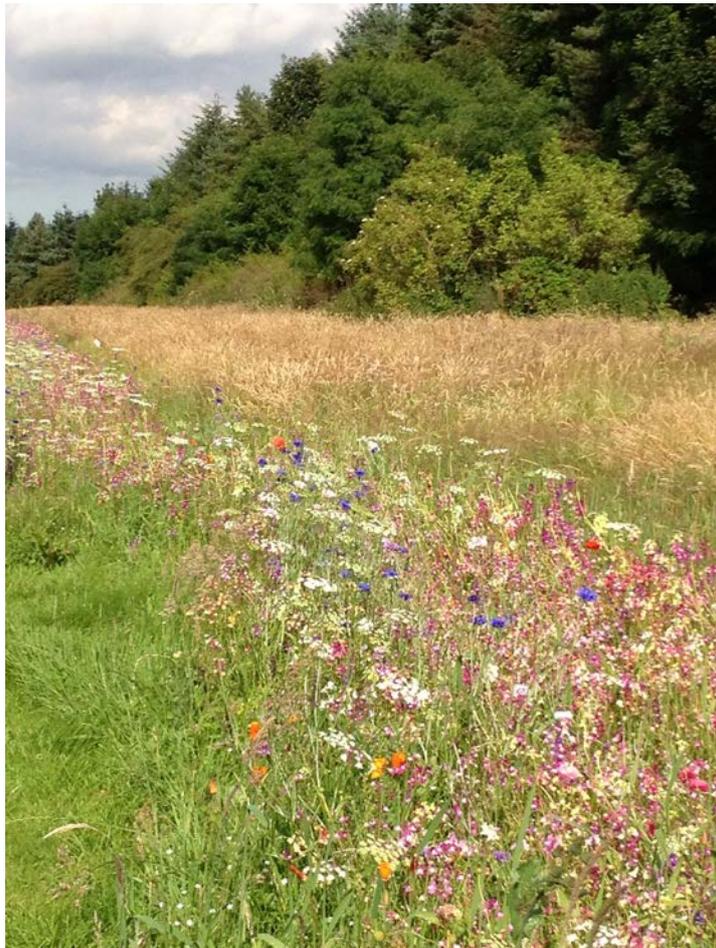
In the newly established sward, undesirable species can only be controlled by cutting or spot treatment. Annuals are best controlled by cutting at a height of 8-10 cm approximately eight weeks after sowing. Cuttings should be removed. Perennials are better controlled by spot treatment, with glyphosate applied by wipe-on applicator.

Once established, the sward should be cut to encourage tillering. The first cut and lift should be at least eight weeks after sowing. Further cuts may be necessary, depending on soil fertility and growing conditions. This could also be achieved in some clubs through grazing. Initial grazing levels should be low and carefully monitored, using appropriate herbivorous species. For further information refer to: www.grazinganimalsproject.org.uk

Fertilisers should never be applied since they encourage the rapid growth of a small number of highly competitive species at the expense of greater diversity. The precise timing of a cut should depend upon local conditions and should mimic a hay cutting regime. Wildflower grassland management involves grass cutting in late summer after the flowers have set seed, and nesting birds have left the area. It is vital that the cuttings are removed to avoid nutrient build up. Cuttings left on the surface will suppress germination of wild flower seed the following year.



Open grasslands are attractive features for many species of butterfly and nesting birds. This particular image shows Devil's-bit scabious (*Succisa pratensis*) – an important plant for the threatened Marsh fritillary butterfly larvae (*Eurodryas aurinia*).



An example of beautiful wildflowers in bloom

By creating a wildflower meadow on your course you would be helping many invertebrate and mammal species as well as improving the aesthetics and game for golfers.

Scottish Golf also promote the use of the Yellow Rattle plant to aid the thinning of rank grassland to prepare for wildflower seeding. This method is ecologically sound and involves no chemical usage or turf stripping but inevitably requires a much longer time period.

Where to reduce mowing

It is equally important to try to reduce the amount of mowing, both its frequency and scale throughout the course. Less mowing would reduce fuel and emissions, save on machinery and release labour for other golfing and environmental tasks around the course. By reducing cutting frequency and chemical use in such areas it will also be possible to reduce annual maintenance costs and green waste production. Allowing the grass to grow, and ideally linking planting to nearby woodlands or grasslands on and out with the golf course will significantly enhance the biodiversity and habitat value. By increasing grass length in areas like carries and around tees and greens there is potential for very significant cost savings. Rough grassland could be extended to carries in front of tees, through the greens and contoured fairways. This will all add character and challenge to the course without necessarily adding too much difficulty or slowing up play.

Any tee positions with steps or a man-made path to them could be cut less often than at present. Scottish Golf is aware of concerns of the course looking 'untidy' but through communication as to the reasoning behind this to players they become more receptive, especially if it keeps club costs to a minimum. Any changes like this are best done slowly and gradually throughout the course to reduce conflict from golfers. The average play of your golfers must be taken into consideration when such course changes are put in place. Although the game should be enjoyable it should also be a challenge, it is important to obtain the right balance between the two.

Even without enhanced wildflower content these rough grass areas create superb small mammal habitat which in turn will entice owls, kestrels, buzzards and other raptures to visit the site.



Grasses around tees are possible and improve habitat linkage



Minimise access/traffic routes through ecological rough grassland where possible to reduce habitat loss



Longer rough can add biodiversity value and challenge to the course