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LAND MANAGEMENT FOR WILDLIFE

Gorse



C.H. Gomersall (rspb-images.com)



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Gorse is ideal for a range of nesting birds, including linnets (above left)

Gorse scrub occurs wherever the soils are light and free draining, in areas that are relatively free from severe frosts. Gorse is very important for birds and for invertebrates. However, it does have the potential to encroach on to otherwise valuable land. Gorse is relatively short-lived (up to 25 years), but with careful management, its vigour and value for wildlife can be maintained.

There are three species of gorse in Britain. Common gorse (*Ulex europaeus*) is the most familiar and widespread, and has the most robust growth character. Western gorse (*Ulex gallii*) is frequent in the western half of Britain and occurs along the East Anglian coast; it is relatively low-growing yet robust.

Dwarf gorse (*Ulex minor*) is a low-growing sprawling shrub that is a relatively uncommon component of the heathland shrub layer in central southern and eastern Britain. This leaflet discusses the first two species together, whereas dwarf gorse is best treated as part of the heathland dwarf shrub community.

BENEFITS FOR WILDLIFE

Compact gorse is ideal for a range of nesting heathland, downland and farmland birds, including the Dartford warbler, stonechat, linnets and yellowhammer. The dense structure also provides important refuge for these birds in harsh weather, and is essential for the survival of Dartford warblers in winter.

Gorse is important for invertebrates; it is in flower for long periods, so is an important nectar source in early spring and early winter, when little else is in flower. A number of scarce invertebrates are dependent on it.

What conditions does gorse need?

Gorse thrives on free-draining, low-fertility soils and can be out-competed in nutrient-rich conditions. It seeds freely and readily colonises disturbed ground, so can be highly invasive in open areas. This also means that, in appropriate areas, it can also be easily cultivated.

Common gorse is not restricted to acidic soils; it also grows well on free-draining limestone and chalk soils. However, it does not tolerate frequent frosts so is not found at altitude in the north.

GUIDELINES OVERLEAF

MANAGING GORSE

How much, and where should it be?

- Gorse is valuable as scattered bushes or as discrete clumps of up to 0.25 ha.
- A maximum of 10% gorse cover is usually appropriate on priority habitats or farmed land.
- 5% cover of common gorse in mature heath is ideal for Dartford warblers.
- Large continuous patches colonising open habitats could shade out herbaceous interest, and might not be appropriate.
- Gorse hedges provide nest sites and stock proofing.
- For wildlife, gorse is best located in sheltered areas, away from frost hollows.
- Avoid wet ground; the growth will usually be straggly and of little value to nesting birds.

Encouraging gorse

Establishing gorse should be relatively straightforward if a few principles are followed.

- Prepare a fine loose seedbed of dry, low-fertility soil, free from competing vegetation, using for example a rotovator.
- Areas like former bracken beds and cleared scrub are ideal. Avoid areas of important vegetation like heather.
- Collect seeds (in litter) from existing gorse areas; broadcast and tread in.
- Water in dry weather until the seedlings are growing strongly.
- Young plants can be translocated. Dig these out, avoiding damage to the roots and plant into areas free of competition.
- For small clumps of gorse, plant seedlings in clusters of 10-15 plants so sufficient survive.

- For larger stands, plant well spaced clusters, 1-1.5 m apart; these will grow together rather than compete with each other.

Restoring old and degenerate stands

Old gorse is relatively poor for wildlife, and accumulated plant debris increases soil fertility, aiding colonisation by for example bracken, and increases fire risk.

- Very old gorse rarely regenerates when cut, however, a large bank of seeds is usually in the soil beneath. This germinates when the gorse and loose organic litter is removed.
- Burning old gorse can be dangerous, because of the high volume of combustible material. But where safe, the fire exposes and heats the seeds, encouraging germination.
- Alternatively, cut old gorse and burn with loose litter in small fires across the restoration area to encourage seed germination.

Maintaining gorse

Gorse bushes and stands start to lose their compactness after about 10 years and begin to degenerate, losing their value for wildlife and their ability to regenerate.

- Plan to ensure continuity of gorse in good condition across the site.
- Manage large stands in small coups to create age diversity. Manage all gorse in a rotation across the site, starting with the most mature bushes and stands first.
- Cut gorse to ground level and remove or burn together with the accumulated plant litter to remove fertility that could help bracken to

colonise. Most cut stumps will regenerate within a year.

- Preferably cut by chainsaw or clearing saw, but larger stands could be flailed, although the large volumes of shredded gorse need to be removed.
- Patches isolated from other vegetation could be burnt with extreme caution, as gorse is very flammable. Burning removes most of the accumulated litter, so helps to remove nutrients, and seeds to germinate.
- High rabbit populations often suppress regeneration, so recently cut stands may need protecting with appropriate fencing.
- Control bracken – otherwise it will grow up quickly and shade developing gorse.
- Gorse hedges can be maintained by trimming.

Controlling gorse

Gorse can be restricted or removed relatively easily depending on local conditions.

- Cutting the gorse to ground level and treating the cut stumps with an approved herbicide has low impact on surrounding vegetation and archaeological features.
- Livestock, deer or rabbits will control regeneration where the surrounding vegetation has low palatability.
- Repeated cutting could take several years to control gorse.
- Grubbing-out gorse with the rootstock is effective, but can lead to weed colonisation, and is not appropriate for archaeological features.

KEY POINTS

- Common and western gorse are very valuable nest sites for a range of heathland, downland and farmland birds, as well as for invertebrates. Conserving gorse is therefore important.
- Management is essential to maintain gorse in good condition, and cutting or burning will encourage regrowth, but arisings need to be removed.
- Burning gorse is hazardous and needs extreme care and preparation.
- Agri-environment grant aid schemes can fund gorse management where it is a component of suitable landscapes. Contact Natural England for guidance on funding.

You can get further information on this and other ways of managing your land for wildlife from:



The RSPB, Conservation Management Advice,
UK Headquarters, The Lodge, Sandy,
Bedfordshire SG19 2DL
Tel: 01767 680951
www.rspb.org.uk/countryside/advice



Gorse and Broom Management

Broom adds colour when in flower, and year round structure, texture and challenge to a golf course. However, the club may want to consider the use of gorse (*Ulex europaeus*) in place of broom (*Cytisus scoparius*) as it is slower growing and less labour intensive management is required, plus gorse is more beneficial for biodiversity.



Gorse (*Ulex europaeus*) adds colour when in flower and year round structure, texture and challenge. Gorse scrub in particular is an important wildlife habitat, providing perching, feeding and nesting habitat for a variety of birds such as Linnet, Stonechat, and Yellowhammer. It also provides cover for the many small mammals such as voles, mice and shrews that are the main food source for Weasels, Stoats, Owls, and Kestrels.

Stoats and weasels can be valuable allies on the golf course. They predate heavily on rabbits, as well as other small mammals and birds. They can play a significant role in rabbit control. They favour rocky crevices and burrows as habitat. Creation of rock piles in rough grass and gorse thickets, and maintenance of dry stone dykes will contribute to a healthy population of both species.

Sustainable gorse management provides a wide variety of age and structure within the gorse, which is ideal for wildlife and creates an interesting and attractive challenge for the golfer. Future

management should aim to ensure that a diverse age structure is maintained and that the stands of gorse are not allowed to reach a woody degenerate stage all at the same time.

Mature gorse plants can withstand, but do not thrive, in areas with severe frosts, and seem to prefer habitats sheltered from cold winds. Gorse growing in the UK suffered severe frost damage during a winter when temperatures fell to -5.4°F (-20.8°C). However, the plants recovered completely within 2 years due to trimming back of frost damaged vegetation and compliance of standard gorse management practise.

Gorse grows cyclically, from the young establishment and building phase to maturity, and finally a degenerate phase where it becomes woody and leggy with little growth at the base. Gorse reaching such a stage can be regenerated by cutting back to six inches (15cm) or so above ground, and the cuttings removed from site. This will allow light in to regenerate the cut plants, and raking up the litter beneath will help to expose seed from which plants will regenerate. This management should be carried out in a cyclical manner to ensure that there is Gorse at all stages of growth throughout the course.

This treatment can look unsightly for the first couple of years until the gorse has grown. If necessary the visual impact can be lessened by cutting at the back, or in the centre, of the stands. When that new growth is well established and vigorous, the more visible areas can then be cut, with less visual impact.



Gorse eradication work is best done in the early winter period, from October to December. Early cleared gorse appears less prone to regeneration, possibly because the winter frosts do more damage to the longer exposed roots.

Gorse coppicing works are often more effective if carried out later in the winter, after the worst frosts have passed. It can be necessary to protect the coppice gorse stumps from rabbit grazing through the erection of temporary rabbit exclosures, either standard specification rabbit fencing or exclosure panels.

No gorse removal/management should be carried out during the bird nesting season (April – September) as disturbing nesting birds is in breach of the Wildlife & Countryside Act. It would also be advisable to ensure no badger sets or fox earths are present before going ahead with clearance of gorse.

Gorse areas may look particularly sparse and ‘spotty’ once the mature, leggy gorse has been removed. To create a dense scrub feature then replacement planting must be undertaken. It is recommended that broom/gorse is planted at no more than 1.5m distance (and preferable less if budget allows). If rabbits are a problem then rabbit netting the area would be the most cost effective protection. It can be removed once the young plants are established. It is also worth considering introducing local rules to protect areas of new planting, on a temporary basis until the planting has established.

During the first spring after planting, cut back all stems by about a quarter to one-third to encourage bushy growth. Once established, clip back new growth after flowering each year using shears, to keep growth dense.

If the course have a lot of leggy or frost damaged gorse the club could contact a local conservation volunteer group (SWT, SNH, BTCV, Volunteer Centre, Community Service, etc.) to assist in its management and replacement.

Broom can also be managed in this way but is less likely to survive if cutting is left until the plant is very old and woody.

Some areas of broom may look particularly sparse and 'spotty' once the mature, leggy broom has been removed. To create a dense scrub feature then replacement planting must be undertaken. It is recommended that broom/gorse is planted at no more than 1.5m distance (and preferable less if budget allows). If rabbits are a problem then rabbit netting the area would be the most cost effective protection. It can be removed once the young plants are established. It is also worth considering introducing local rules to protect areas of new planting, on a temporary basis until the planting has established.

Broom can encroach and out-compete the heather and grasses. The club should consider what it is they want to establish in each area and manage accordingly as in time if left to nature this area will lose the heather and grassland and be dominated by broom – losing interest, colour and habitat variability. To keep the variability it is suggested the club aim to arrest this process of succession. The scrub/broom can be cut back to desired limits, the rough grass mown periodically (with clippings removed and preferably composted) and the heather topped. This will manage the grassland and inhibit further scrub invasion. Ideally the scrub stands should be cut back periodically to and allowed to re-grow, creating a diversity of age and structure within the habitat.

Gorse management techniques

Restoring old and degenerate stands

- Old and degenerate gorse is relatively poor for wildlife. Meanwhile, the accumulation of plant debris increases soil fertility, aiding colonisation by, for example, bracken. The accumulated dead material also presents an increased fire risk.
- A large bank of seeds usually survives in the soil surface beneath the stand. Clearing the gorse and removing the loose organic litter exposes the seeds to germinate.
- Burning in situ can be dangerous, because of the high volume of very combustible material. Where it is safe, the fire will expose the seeds and heat them, which encourages germination.
- Otherwise, cut the old gorse and burn the arisings and litter in a series of fires across the restoration to encourage seed germination.

Maintaining gorse

Management is essential to keep the gorse healthy and robust. Bushes and stands of gorse start to lose their compactness after approximately 10 years and they then degenerate with time, losing their value for wildlife, increasing the fire risk and reducing their ability to regenerate.

- Adopt a planned approach to ensure a continuity of gorse in good condition across the site at all times. Break up large stands into several parcels and manage these on rotation, and apply a rotation to scattered gorse across the site.
- Aim to manage the most mature stands first.

- Cut gorse to ground level and remove or burn the arisings. Also remove the accumulated litter of dead plant material as it is highly flammable and adds to the nutrient load in the soil – bracken could take over the area and surrounding habitats. Most cut stumps will regenerate within a year.
- Small patches and individual bushes are usually best cut by chainsaw or clearing saw, but it is more economical to flail large stands, although removing the large volume of shredded gorse is likely to be a problem unless a cut and collect machine is used.
- Where discrete patches can be completely isolated from other habitats, they could be burnt in situ, although extreme caution is required as gorse is very flammable. Burning removes most of the accumulated litter, so significantly offsets the accumulation of nutrients. Regeneration is from both the rootstock and from seed.
- High rabbit populations often suppress regeneration, so recently cut stands may need protecting with appropriate fencing.
- Control bracken – otherwise it will grow up quickly and shade developing gorse.
- Gorse hedges can be maintained by regular trimming.

Controlling gorse

- Gorse can be restricted or removed relatively easily using a number of techniques depending on local conditions.
- Cutting the gorse to ground level and treating the cut stumps with an approved herbicide is likely to have the least impact on surrounding vegetation or any archaeological features.
 - Cutting to ground level and letting livestock, deer or rabbits browse the regeneration is often effective where the surrounding vegetation has low palatability. High numbers of livestock can, however, compromise sensitive vegetation and vegetation structure.
 - Repeated cutting will eventually kill gorse but may take several years and so be expensive.
 - Grubbing out whole bushes with the rootstock is effective but can create conditions for gorse to recolonise. It is also not appropriate for archaeological features.

Root Structure of a Cherry Tree

Written by Evan Gillespie, December 06, 2018



A cherry tree's (*Prunus* spp.) root system serves two critical functions. First, it pulls water and nutrients from the soil and directs them upward so that they can feed the trunk, stems, leaves, flowers and fruit of the tree. Second, it holds tight to the ground and supports the rest of the tree, allowing the tree's superstructure to perform its own functions.

Permanent and Temporary Roots

The root system of a cherry tree consists of substantial permanent roots and a network of smaller feeder roots. The permanent roots are large and anchor the tree to the ground. The permanent roots also transport nutrients from the feeder roots to the rest of the tree. The small feeder roots are covered with root hairs. The root hairs and feeder roots absorb water and nutrients from the soil and channel them to the permanent roots and the rest of the tree. Feeder roots usually only live for a year or two, after which they either die or become permanent roots and cease to function as feeder roots.

Root Spread

The root systems of most trees spread out in a relatively shallow formation that is generally about two to three times as wide as the tree's crown. Cherry tree root systems grow closer to the surface than those of many other trees, and cherry trees tend to have a large number of surface roots and sucker shoots that grow vertically from them. Because of their shallow root systems, cherry trees have the potential to cause significant damage to surface landscaping and nearby plant species.