Views About Management

ENGLISH NATURE

A statement of English Nature's views about the management of Barnby Broad & Marshes Site of Special Scientific Interest (SSSI).

This statement represents English Nature's views about the management of the SSSI for nature conservation. This statement sets out, in principle, our views on how the site's special conservation interest can be conserved and enhanced. English Nature has a duty to notify the owners and occupiers of the SSSI of its views about the management of the land.

Not all of the management principles will be equally appropriate to all parts of the SSSI. Also, there may be other management activities, additional to our current views, which can be beneficial to the conservation and enhancement of the features of interest.

The management views set out below do not constitute consent for any operation. English Nature's written consent is still required before carrying out any operation likely to damage the features of special interest (see your SSSI notification papers for a list of these operations). English Nature welcomes consultation with owners, occupiers and users of the SSSI to ensure that the management of this site conserves and enhances the features of interest, and to ensure that all necessary prior consents are obtained.

Management Principles

Artificial standing waterbodies

Artificial standing waterbodies include manmade lakes, reservoirs, gravel pits, subsidence pools, and flooded peat diggings. They may support wildlife equal to that of natural lakes, and can be important habitats for a range of specialised aquatic plant and animal species. They often support important populations of wintering wildfowl and breeding bird assemblages, as well as a varied invertebrate fauna (in particular dragonflies and damselflies).

Conservation value is largely determined by structural diversity and water quality. Increases in the amount of nutrients within the waterbody can lead to a loss of aquatic plants in favour of excessive growths of algae. This may result in a fundamental shift in the way a waterbody functions, reducing plant and invertebrate abundance and diversity, both of which are important food sources for a range of wetland birds. Increases in the amount of sediment entering a lake may smother stony beds and plants, reduce water depth in shallow lakes and also increase the amount of nutrients present. Some lakes may also be susceptible to acidification though control of this will require action at a catchment scale.

Sympathetic management of water levels is necessary for the maintenance of optimal water depths throughout the year (according to the requirements of the plant and animal species present). For example, the presence of extensive shallow water and wet marginal substrates will provide the feeding conditions required by a variety of wintering, passage and breeding wildfowl, such as dabbling ducks and waders, whilst other species may require areas of water at least 3 metres in depth. Water level management should take into account the requirements of submerged aquatic plants that are restricted to areas where there is sufficient light for growth and minimal wave action. In shallow waterbodies (with an average water depth of less than 3 metres) plants may be able to grow throughout the waterbody, whilst in deeper waters plants will be restricted to the shallow margins. Changes in waterlevels can also alter nutrient regimes.

Management should aim to maintain the habitats associated with shallowly sloping margins that are not too exposed to wave action, as they are important for many species associated with standing open waters. For example, the maintenance of structural diversity within and between stands of aquatic vegetation (including emergent, floating and submerged vegetation) can provide important habitat for the immature stages of different dragonfly and damselfly species that require a wide variety of vegetation types.

Artificial waterbodies are susceptible to the introduction of invasive species, such as non-native crayfish, bottom feeding coarse fish, and plant species such as Australian swamp stonecrop, therefore some management may be necessary to control these. Where native crayfish are present any measures which may limit the risks of transferring non-native crayfish or crayfish plague (such as information and awareness-raising initiatives amongst visitors to the waterbody) should be encouraged. The control or removal of the natural aquatic vegetation can lead to a decrease in aquatic plants in favour of algae, and should therefore be avoided.

Standing waters and their surroundings are often also a popular environment for recreational activities such as angling and boating which should be managed sympathetically to avoid conflict with the management of the waterbody for nature conservation.

Floodplain Fen

Floodplain fens develop on flat areas that have historically been flooded by waters from rivers and streams that meander across the plains. Floodplain vegetation may also be dependent on water seepage from subterranean aquifers or from seepage down or at the base of the constraining slopes.

Floodplain fen is commonly composed of tall grasses and herbs, such as reed, willowherb, milk parsley, meadowsweet, angelica and nettles. If left unmanaged the sward becomes dominated by tall, vigorous grasses and rushes which, together with an associated build up of dead plant matter and the encroachment of scrub, suppress less vigorous species, thus lowering the botanical richness of the sward. Rotational cutting or intermittent grazing is usually required. Cattle are often the preferred stock, being relatively tolerant of wet conditions and able to control tall grasses and rank vegetation. Cattle also tend to produce a rather uneven, structurally diverse sward.

However, ponies, or even hill sheep, can be used if necessary. Grazing usually takes place at times between late spring and early autumn, but the precise timing and intensity will depend on local conditions and requirements, such as the need to avoid trampling ground-nesting birds. Heavy poaching should be avoided but light trampling can be beneficial in breaking down leaf litter and providing areas for seed germination.

Rivers are dynamic and can cause erosion on some parts of the floodplain and deposit of silt in others. Management should not necessarily aim to maintain each component of the floodplain fen in exactly the same place, but should ensure that the full range of niches remain available for use by plants and animals over the course of time.

River water quality is important for floodplain fen and management should ensure it remains within acceptable limits. It is normal for the lower reaches of rivers to contain more plant nutrients than at source, and most floodplain fens depend on an adequate supply of nutrients being maintained. However, excessive nutrient enrichment may result in the replacement of the characteristic floodplain fen communities with very species-poor vegetation, composed of little but a tall dominant grass such as reed or reed sweet grass with nettles.

Winter flooding is an important factor in the management of some floodplain habitats and management should ensure the frequency and extent of flooding is appropriate for maintaining the nature conservation interest of the site where this is the case. For example, river engineering has in many cases reduced the frequency and extent of flooding. Changes in agriculture and the use of floodplains for built development have also often resulted in smaller floodplains and the requirements of floodplain habitats should be considered in the design of such schemes in the future. The balance between groundwater and floodwater influence on the floodplain should be identified and maintained when designing the extent and frequency of controlled flood events.

Swamp

Swamp habitats develop on the fringes of open water, or in shallow depressions with permanent standing water. The plants may be rooted in the submerged soil or form a floating mat of inter-twined roots, rhizomes and stems. Swamps usually consist of a dominant single species of plant (e.g. reeds, tussock sedges, reedmace, reed sweet grass, reed canary grass and bull rushes) with a few other species thinly distributed among them. In common with most other types of wetland, swamps represent a transient stage in the change from open water to dry land.

Management should either seek to retain swamp communities in the same place or should acknowledge the dynamics of succession by ensuring there is always a new niche for the swamp communities to develop in. The succession from swamp into floodplain fen, for example, as the diversity of species present increases, may be slowed by raising the water table and by periodically removing any encroaching scrub. If the vegetation surface of the whole wetland appears to be building up or drying out for some other reason it may be necessary to lower the ground level by creating scrapes or ponds. A programme of rotational cutting to maintain the reedbed may be necessary to encourage the vigorous growth of reed whilst preventing

excessive build up of litter. Cutting should take place during the winter (November – March) and all cut material should be removed.

Management should ensure that appropriate water quality is maintained according to the requirements of the wetland communities present. Where swamp is in continuity with a waterbody, the water quality in the waterbody will affect the swamp. While some communities, such as reed swamp are unlikely to be very sensitive to nutritional enrichment, others, such as tussock sedge and narrow leaved reedmace, will be out-competed by other species (e.g. reed or reed sweet grass) where any increase in the amount of nutrients present occurs.

Swamp habitats have often survived where the vegetation has traditionally been cut for a variety of purposes, including use as building materials or animal bedding. It may be beneficial to consider re-instating these traditional management practices where they are not in conflict with other nature conservation objectives, such as the specific requirements of certain birds or invertebrates.

Floodplain and coastal grazing marsh

Flat land around sluggish rivers and inland of salt marshes has historically been used for grazing and is referred to as grazing marsh. Although very wet in winter, these marshes are generally dry in the summer except for the water that remains in ditches. Traditional methods of management have produced a mixture of flower-rich meadows, rhynes and scrub that support a rich variety of flowering plants, invertebrates, birds and amphibians.

In order to maintain a species-rich sward, each year's growth of vegetation must be removed to prevent the sward from becoming progressively dominated by tussocky and vigorous grasses which, together with an associated build up of dead plant matter, suppress less vigorous species and reduce the botanical diversity of the site. On grazing marshes, the above objective is commonly achieved by closing the fields to stock in the spring and taking the standing crop as hay. This is usually done in early July, but the precise timing of the cut depends on local factors, including past management and current weather conditions. It should be after ground-nesting birds have fledged their young and any short-lived, characteristic plants have set seed.

The aftermath is then grazed in late summer/autumn. Aftermath grazing is important for maintaining a species-rich sward, both through controlling competitive grasses and through hoof-prints providing suitable sites for seedlings to establish. Heavy poaching must be avoided, however. Trees and scrub are of particular importance for invertebrates and birds but should be confined to small, scattered groups.

Periodic dressings of well-rotted farmyard manure may be acceptable if the sward does not receive regular input of nutrients from flooding. Lime should be used with caution. The meadow should not be re-seeded.

Regular and careful maintenance of surface drainage including ditches and drains may be necessary. Occasionally cleaning out ditches is also of benefit to the plant, invertebrate and amphibian species the ditches support and ideally, ditch management should be undertaken on a rotation to create a range of different management stages

ranging from open water to denser vegetation growth. Management should allow winter flooding to occur. Deepening of surface drainage should be avoided.

Management should ensure the protection of appropriate water quality, which is usually dependent on land-use in the wider catchment. Where water is excessively rich in fertilisers such as nitrogen and phosphorus, enrichment will alter the plants found in the meadow and the ditches, usually for the worse, by encouraging tall rank grasses and nettles.

Ditches

Ditches are artificial habitats created by land drainage, or occasionally by the channelisation of small streams. They may represent the only remaining freshwater habitat within former wetland areas, and often support a wide range of aquatic plant and animal (in particular invertebrate) species that would have previously been more widespread in ponds and wetlands.

If left unmanaged, silt accumulates in the bottom of the ditches, and emergent plants such as reeds are able to colonise across the width of the ditch, leading to a loss of aquatic plant diversity and a gradual drying out of the ditch. To prevent this, periodical removal of sediment and vegetation may be necessary to return the ditch to an early stage of the management cycle. Ideally, ditch management should be undertaken on a rotation, creating a series of different management stages across a site at any one time. All stages of the management cycle have wildlife interest; recently cleared ditches are good for plants and animals which favour newly created habitats and cannot tolerate competition with other species; middle-stage ditches support a rich aquatic plant flora; and late-stage ditches may be important for a variety of invertebrates. The removal of both sediment and vegetation is usually better than simply cutting the vegetation, which does not recreate the earliest stages of the ditch management cycle. Where possible, management should aim to create shallow shelving margins rather than steep ditch sides. Where water voles are known to be present, the relevant good practice guidelines for ditch management and conservation should be followed.

Most ditch systems are subject to water level control, which should be managed to ensure that there is a sufficient depth of water (0.3-0.5m) in ditches throughout the year. Rapid or extreme changes in water level should be avoided unless they are known to be important to plant or animal communities relying on such fluctuations.

Ditches are susceptible to increased levels of nutrients which can cause a loss of aquatic plants and increases in algal growth. Other activities that can lead to this include the control or removal of aquatic plants, or the introduction of species such as bottom feeding coarse fish which uproot plants and disturb ditch sediments. Ditches are also susceptible to invasion by non-native aquatic plants such as floating pennywort and water fern, which are able to grow rapidly taking up available habitat and smothering other plants. Some native plants including a number of duckweed species are also able to take over in this way (although such growths are usually exacerbated by increased nutrients in the water) and management may be necessary to control such invasions where they cause a problem.

Lowland wet woodland
Wet woodland includes a range of different woodland types but usually is dominated by ash, alder and willow species. It often supports important invertebrate species and assemblages.

Areas usually benefit from minimum intervention and are often best left undisturbed to limit damage to their fragile soils. This allows the development of old stands where individual trees reach maturity and die naturally to create gaps in the canopy, leading to a diverse woodland structure. However, works to remove dangerous trees in areas of public access may be necessary.

Where particularly important light-demanding or glade species interests are present, including where the woodland is spreading on to valuable open wetland habitat, it may be necessary to periodically clear areas of vegetation. In some woods a more active programme of management by coppice may be appropriate, where this has been the historical management and the conditions are such that it will not lead to heavy ground disturbance.

All habitats
The habitats within this site are highly sensitive to inorganic fertilisers and pesticides, applications of which should be avoided both within the site itself and in adjacent surrounding areas. Herbicides may be useful in targeting certain invasive species, but should be used with extreme care. Access to this site, and any recreational activities within, may also need to be controlled.