

CITATION

County: Norfolk

Site Name: Stanford Training Area

District: Breckland

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: Breckland District Council

National Grid Reference: TL870940 **Area:** 4681.10 ha

Ordnance Survey Sheet: 1:50,000: 144 1:10,000: TL89 NW, NE, SW, SE
TL88 NE, TL99 NW, SW

Date Notified (under 1949 Act): 1971

Date of last revision:

Date Notified (under 1981 Act): 1985

Date of last revision: 25 March 1999

Other Information:

A number of areas around the margin of this site were deleted in 1985 and others were added in 1999. Stanford Training Area is a Grade 1 Nature Conservation Review site. Part of the SSSI is also a Geological Conservation Review site.

Reasons for Notification:

This Site of Special Scientific Interest incorporates the main area of semi-natural vegetation within the Stanford Training Area. It contains very extensive area of Breckland grassland and heath. Habitats of particular nature conservation importance include the calcareous grass-heath, the heather heath, and the areas which support an intimate mosaic of acid and calcareous communities. The fluctuating meres, fed by groundwater, are internationally important. The site also includes other areas of standing water, wetlands and many springs and streams. These benefit from the large area of the SSSI because they are largely unaffected by drainage, pollution, eutrophication or water abstraction. Many of them are consequently extremely species-rich. The SSSI also contains a substantial acreage of woodland which increases the overall habitat diversity. This diversity is reflected in the great variety of bird and insect life that the area supports.

The grasslands and heathlands of the area reflect not only the soil conditions but also its history. The site includes areas that are long-established heath and other areas that have been allowed to revert to heath from cultivation in stages from the 19th century to the 1940's. Given that the history of the Breckland has been one of sporadic cultivation followed by reversion this is a most interesting series of grassland types.

In more calcareous areas the older established vegetation is dominated by Sheep's Fescue, sometimes with other grasses such as Creeping Bent (*Agrostis stolonifera*) and Crested Hair-grass (*Koeleria macrantha*). This supports plants such as the Larger Wild Thyme (*Thymus pulegioides*), Bird's-foot Trefoil (*Lotus corniculatus*), Quaking Grass (*Briza media*), Purgings Flax (*Linum catharticum*) and the Common Milkwort (*Polygala vulgaris*). Old established ant-hills are often found in these areas and add considerably to the diversity of the sward.

The longer established vegetation on the more acid soils typically consists of a mosaic of heather-dominated heath, bracken and grassland dominated by Sheep's Fescue (*Festuca ovina*) and/or Wavy Hair-grass (*Deschampsia flexuosa*). Plants present which are associated with this type of vegetation include Heath Bedstraw (*Galium saxatile*), Field Woodrush (*Luzula campestris*), Mouse-ear Hawkweed (*Hieracium pilosella*) and Harebell (*Campanula rotundifolia*). Lichens and bryophytes are also prominent in many of these areas.

In the more recently abandoned areas the grassland tends to be dominated by Smooth Meadow-grass (*Poa pratensis*), False Oat-grass (*Arrhenatherum elatius*) and Cock's-foot (*Dactylis glomerata*). Other species present which are typical of this type of grassland include Germander speedwell (*Veronica chamaedrys*), Ground Ivy (*Glechoma hederacea*) and Common Mouse-ear Chickweed (*Cerastium fontanum*).

Sheep and rabbit grazing maintain most of the grassland in a fairly short, open condition, though some areas, especially around the margin of the site, are largely ungrazed and have started to be invaded by trees and shrubs. Where grazing is heavy, especially where rabbits are numerous, another group of plants is found. These are the annuals which are a feature of Breckland grasslands and heaths and which require bare ground in order to grow. The species found include Thyme-leaved Sandwort (*Arenaria serpyllifolia*), Rue-leaved Saxifrage (*Saxifraga tridactylites*), Fine-leaved Sandwort (*Minuartia hybrida*) and Whitlow Grass (*Erophilla verna*).

The standing water bodies of the Stanford Training Area are also of great interest and support very diverse invertebrate populations including many rare species. These water bodies are of three main types: first there are the fluctuating meres; secondly the numerous small pools and water filled pits; and thirdly the large artificial lakes.

The fluctuating meres, which include Fowl Mere, the Devil's Punchbowl and Home Mere, have unusual and highly characteristic plant and animal communities associated with them which are adapted to survive the periodic inundation and drying out that these meres experience. One consequence of this continual movement of water is that no dense marginal vegetation develops.

Bagmore Pit is a small shallow depression, originally man-made, that is fed by spring water. It is partly invaded by Tussock Sedge (*Carex paniculata*) and an exceptionally rich aquatic fauna has been recorded there. Other small pits of great interest include those around Tottington where the rare water plant *Ceratophyllum submersum* grows. By contrast to the fluctuating meres, the artificial, non-fluctuating meres possess well-developed marginal vegetation and are much used by waterfowl.

The Wissey and the many chalk streams that run into it contain many flowing water invertebrates not found in the lakes and pools. Some are of particular interest as lowland watercourses in a comparatively natural state. The Wissey itself suffers somewhat from pollution and silt carried down from upstream but many of the side streams contain very clear water and have gravelly beds. Fools Water Cress (*Apium nodiflorum*) is the most abundant macrophyte in these streams.

In the valleys and wet hollows grasslands have developed. Still grazed mainly by sheep, Red Fescue (*Festuca rubra*), Yorkshire Fog (*Holcus lanatus*) and Cock's-foot are the most common dominants, with Soft Rush (*Juncus effusus*) and Tufted Hair-grass (*Deschampsia caespitosa*) in the wetter areas. These grasslands are mostly unimproved, often tussocky

and 'sometimes quite species-rich with plants such as the Greater Bird's-foot Trefoil (*Lotus pedunculatus*), Hairy Sedge (*Carex hirta*), Ladies Smock (*Cardamine pratensis*), Lesser Knapweed (*Centaurea nigra*), Marsh Thistle (*Cirsium palustre*) and Sorrel (*Rumex acetosa*) amongst those found.

The wetlands of the training area are extensive and varied. Reed Fen is a large and well preserved area of reed dominated swamp and efforts have recently been made to keep it clear of scrub. There are also a number of areas of mixed fen in the Wissey Valley, dominated variously by Reed (*Phragmites australis*), Reed-grass and Greater Pond Sedge (*Carex riparia*) and with species such as Panicle Sedge, Great Hairy Willowherb (*Epilobium hirsutum*), Hemp Agrimony (*Eupatorium cannabinum*), Yellow Loosestrife (*Lysimachia vulgaris*) and Wild Angelica (*Angelica sylvestris*). Swamp vegetation has developed around several of the non-fluctuating meres, and there are some extensive beds of Bulrush (*Typha latifolia*), Reed-Mace and Reed.

The most extensive type of wetland in the area is wet Carr woodland which is found in several main blocks, largely dominated by Alder (*Alnus glutinosa*) and Willow (*Salix sp.*). Most of the Carrs have well-developed shrub layers with Bird Cherry (*Prunus padus*) being the most widely distributed shrub species. The ground flora is often rather sparse with a mixture of shade-tolerant fen species, bryophytes and grasses. Stinging nettles (*Urtica dioica*) occur in large patches. The main interest of the Carrs is their insect life, but each block differs somewhat from the others: Great Carr has a rich collection of mosses and liverworts; Madhouse Plantation, which contains a series of wooded pools, is noted for dragonflies; and Sturston Carr is noted for the many species of lichen that have colonised the tree trunks.

Woodland on drier land occupies a substantial area. Much has been planted, either in the 19th century or more recently. Oak (*Quercus sp.*) and Sweet Chestnut (*Castanea sativa*) are the most abundant species in the older, deciduous plantations. The shrub and field layers are often restricted by grazing and by excessive shade, although in the marginal woods where sheep are excluded Birch (*Betula sp.*) is regenerating freely. The value of these woods to wildlife is increasing as the woodland structure and the individual trees mature. The main blocks of coniferous woodland lie outside the SSSI, but a few smaller areas are included. In some of these a deciduous understorey has developed which has increased the ornithological interest.

The bird interest of the area stems partly from the sheer number and variety of species that can be seen and which are recorded breeding within the area each year. However, within this number, three main classes of bird may be picked out for special mention. These are the birds of heathland, the birds of wetland and those birds requiring large areas of land.

The dry grasslands and heaths are used by the birds of the first group, particularly birds typical of Breckland such as the Stone Curlew and the Wheatear. Stone Curlew favour short, open, stony ground, which tends to be most abundant around rabbit warrens. Wheatear breed in old rabbit burrows and so tend to be found in the same areas. By contrast, the Common Curlew, which also breeds in the area, favours the longer grassland which affords it better protection.

The open water areas are much used by wildfowl. The flowing water being particularly important in severe winter weather as it does not freeze over. Shelduck, Gadwall, Tufted Duck, Shoveler and Teal are amongst the more abundant species, and many of

these breed in the carr woodlands of the valleys. Herons and Kingfishers primarily use the river itself, at least for feeding, whilst the damp tussocky grasslands of the river valley are used by Snipe and other waders such as Redshank. Sedge Warblers, Reed Warblers and Whitethroat favour the fen areas and Woodcock, Willow and Marsh Tits and several species of warbler use the wet woodlands.

The large size of the Stanford Training Area, with its preponderance of semi-natural habitats rich in prey species, provides ideal hunting grounds for the larger predatory birds. Kestrels, Barn Owls and several other species use the Training Area for all or part of the year.

The insect life of the Stanford Training Area is very rich, reflecting the quality and diversity of habitats. The exceptional interest of Bagmore Pit has already been mentioned but many of the open water, wetland and carr areas are also of great interest. Many species of Odonata (Dragon and Damsel-flies) have been recorded from the site, which is an outstanding assemblage for this part of eastern England. These include the vulnerable Scarce Emerald Damselfly (*Lestes dryas*).

Within the Stanford Training Area SSSI, there are certain areas which are of particular importance for the rare species that they support. The grassland around Harrier Strip is one of the best areas for Breckland rare plants. In this grassland can be found the nationally scarce grasses, Dense Silky-bent (*Apera interrupta*) and Loose Silky-bent (*Apera spica-venta*), along with the nationally scarce Wall Bedstraw (*Galium parisiense*), Bur Medick (*Medicago minima*) and Sickle Medick (*Medicago falcata*). Knapweed Broomrape (*Orobanche elatior*) and Spiny Restharrow (*Ononis spinosa*), which are uncommon in Breckland have also been recorded there.

Mount Epping Barn Pit contains a bat hibernaculum in chalk tunnels and a former lime kiln. The species recorded in the pit, listed in approximate decreasing order of abundance are: Daubenton's bat (*Myotis daubentonii*); Natterer's bat (*Myotis nattereri*); Brown Long-eared bat (*Plecotus auritus*); Brandt's bat (*Myotis brandtii*); Whiskered bat (*Myotis mystacinus*); and the Barbastelle (*Barbastella barbastellus*).

Within Stanford Training Area a small area situated at TL 878 892 and known as the Devil's Punchbowl consists of a cone-shaped hollow about 150 metres in diameter, with slopes of 15-18 degrees, and containing a small lake, the level of which fluctuates.

The Devil's Punchbowl represents a single, very deep, subsidence doline (depression), formed by the collapse of Pleistocene glacial sands and boulder clays into a space created by the solution of the underlying chalk. The intermediate morphology of the Devil's Punchbowl suggests a generic link between the large, shallow basins containing meres and the smaller, steeper conical dolines, both of which are common in the Breckland.

Several explanations have been proposed for the origin of the Breckland dolines, but their formation is still not fully understood. The Devil's Punchbowl will provide the basis for further research on the origin and development of the Breckland dolines.