



*CARAVAN CLUB ECOLOGICAL
SITE APPRAISAL*



**Sandringham Estate Caravan Club Site
The Sandringham Estate
Glucksburg Woods
Sandringham
PE35 6EZ
England**



General Information

Site Name and County: Sandringham Estate, Sandringham, Norfolk

Grid Reference: TF 683268

Area: 3.6 ha

Date: 14/07/04

Recorder: Rodney West and Harriet Whittle, Ecologists with Just Ecology Environmental Consultancy.

Weather Conditions: Warm, overcast with sunny spells.

Site Description

Tarmac roads lead to gravel pitches, which are surrounded by mown grass. The groups of pitches are interspersed with small areas of planted woodland and shrub. The site is surrounded by pine/oak woodland with small patches of remnant heath and acid grassland. The site is in effect a large woodland glade with over a kilometre of woodland edge – a prime habitat for many species.

Context

This rural site is surrounded by extensive pine and oak woodland and is set in the heart of the Royal Estate of Sandringham. It is close to Sandringham House and Country Park, and is within easy reach of King's Lynn and Hunstanton. Roydon Common SSSI lies five kilometres south of the site and is one of best lowland mixed valley mires in the UK, with large areas of dry *Calluna* heath on acidic sand broad-leaved woodland, acid grassland and considerable ornithological and entomological interest.

Dersingham Bog SSSI lies 3km north west of the site. It harbours an extensive area of acid valley mire, heathland and considerable ornithological and entomological interest. Remnants of the heathland, acid grassland and woodland occur on the caravan site.



Habitat Information

Broad Habitats Present: Amenity grassland, coniferous and broadleaved woodland, heathland, acid grassland.

BAP Priority Habitats Present: Lowland acid grassland, Lowland Heath.

Subsidiary Habitats Present: Dead wood

Plant Communities Present:

Grassland Communities:

The grassland between the pitches is species poor. Perennial rye grass (*Lolium perenne*) is the dominant species with occasional white clover (*Trifolium repens*) and creeping buttercup (*Ranunculus repens*), although prior to re-seeding it is likely that this area would have been acid grassland, given the sandy nature of the underlying soil. Small patches of sparse grassland and bare sandy soil had a slightly more diverse flora where annual meadow grass (*Poa annua*), common bent (*Agrostis capillaris*), daisy (*Bellis perennis*), field pansy (*Viola arvensis*), lesser trefoil (*Trifolium dubium*), common cudweed (*Filiago vulgaris*), crane's bill (*Geranium pusillum*), common stork's bill (*Erodium cicutarium*) and common cat's ear (*Hypochoeris radicata*) were noted. This more diverse flora was noted behind the Glucksburg Toilet Block.

On some of the steeper banks where soil has been banked up to level pitches, a ruderal flora with cock's foot (*Dactylis glomerata*), canadian fleabane (*Conyza Canadensis*), yarrow (*Achillea millefolium*), sheeps' sorrel (*Rumex acetosella*), common chickweed (*Stellaria media*) and thyme-leaved speedwell (*Veronica serpyllifolia*) was noted particularly around the King's Rise area.

Woodland:

The site was surrounded by woodland – and lies in a large clearing within the extensive Glucksburg Wood. Groups of pitches are divided with linear areas of planting using mixed hardwood species. These were surveyed individually but contained similar groups of species which comprised gorse (*Ulex europaeus*), silver birch (*Betula pendula*), rowan (*Sorbus aucuparia*), hawhorn (*Crataegus monogyna*), snowy mespilus (*Amelanchier lamarkii*), field rose (*Rosa arvensis*) and bird cherry (*Prunus padus*). At the site entrance and along the southern boundary are considerable areas of mature rhododendron (*Rhododendron ponticum*). In some areas alder (*Alnus glutinosa*) has been planted along with birch and rowan. Alder is unlikely to thrive in the dry, free-draining soil. Hazel (*Corylus avellana*) has also been planted in the hedges and appears to be doing well although it is generally better suited to clay soils.

The mature woodland surrounding the site, part of the main Sandringham Estate Woodlands, was mature scots pine (*Pinus sylvestris*) with scattered birch (*Betula pendula*), larch (*Larix decidua*) and pedunculate oak (*Quercus robur*). The field layer consisted mainly of bracken (*Pteridium aquilinum*) and bramble (*Rubus fruticosus*) with occasional holly (*Ilex aquifolium*) and ivy (*Hedera helix*), although the shrub layer of the woodland was largely absent.

Woodland edge:

The site was effectively a large woodland glade, thus creating over 1km of woodland-edge habitat which contained a mix of ruderal and acid grassland species. Bracken and bramble (*Rubus fruticosus*) covered the wire boundary fence, with occasional patches of hawthorn and gorse. Nettle, ivy (*Hedera helix*), mosses, selfheal (*Prunella vulgaris*), greater plantain (*Plantago major*), ribwort plantain (*Plantago lanceolata*), common mouse-ear (*Cerastium fontanum*), daisy and ground ivy (*Glechoma hederacea*) were recorded at the woodland edge on the eastern side. The northern woodland edge was more diverse, with yorkshire fog (*Holcus lanatus*), yarrow, bramble, smooth cat's-ear (*Hypochoeris glabra*), common cat's-ear, smooth hawk's beard (*Crepis capillaris*), ragwort (*Senecio jacobaea*), groundsel (*Senecio vulgaris*), wood sage (*Teucrium scorodonia*), rough meadow grass (*Poa trivialis*) and spear thistle (*Cirsium vulgare*) were all encountered relatively frequently.

Heathland:

The north-eastern edge of the site was the most interesting area in terms of biodiversity. This comprised a strip of remnant heath and dry acid grassland interspersed with areas of bare sandy ground. Patches of heather (*Calluna vulgaris*) were abundant but kept low by mowing. Broom (*Sarothamnus scoparius*) and gorse (*Ulex europaeus*) were noted frequently along with wavy hair-grass (*Deschampsia flexuosa*), *Polytrichum* moss, ragwort (*Senecio jacobaea*), sheep's sorrel (*Rumex acetosella*), white clover, common cudweed, greater bird's foot trefoil (*Lotus uliginosus*), white campion (*Silene alba*) and smooth cat's-ear (*Hypochoeris glabra*).

Wetland:

There were no wetland habitats on site.



Remnant heathland



Gatekeeper butterfly



Habitat Evaluation

The heathland area in the north east of the site has a relatively diverse flora and provides suitable habitats for invertebrates, particularly butterflies and herpetofauna such as common lizard and possibly adder. Lowland heath is a priority habitat listed in both the UK and the Norfolk Biodiversity Action Plan. This area also provides a transition zone from woodland to grassland habitat, giving cover for birds and small mammals. Areas of shrub planting between the pitches provides cover and also some food resources for birds, invertebrates and small mammals although these areas could be improved.

Where acid grassland flora has developed on the areas of poorer, free-draining soil, flowering plants, heather, gorse and broom are providing a nectar source for butterflies and other flying insects. The grassland between the pitches is of little value, being very closely mown and rather desiccated.

Woodland surrounding the site forms an extensive tract of woodland covering much of the Sandringham Estate. This woodland provides feeding and nesting habitat for a wide variety of birds and possibly other mammals such as bats, grey squirrels and badgers although these were not recorded on the day of the survey.



Species Information

BAP Species Seen: None

BAP Species Potential: Pipistrelle and other bat species are priority species listed in the UK and Norfolk Biodiversity Action Plan. Woodland surrounding the site had good potential for bat roosts.

Other Notable Species: None

Flora:

The unimproved grassland areas have species indicative of a sandy acidic soil such as common cudweed, yarrow, wavy hair-grass, sheep's sorrel and ragwort (*Senecio jacobaea*) and some of the steep banks also show reasonable floral diversity. Remnants of heathland on the northern edge of the site are relatively species-rich. Although there is little woodland actually on site, it is surrounded by woodland which provides a valuable woodland edge habitat favoured by birds, invertebrates and small mammals. Shrub and hardwood planting around the site boundary and between pitches is uses predominantly native species.

Avifauna:

In total 13 species of birds were recorded on the site during the survey period but this is undoubtedly augmented by other woodland species including woodpeckers and owls. During winter the short turf areas would probably attract winter visitors such as; redwing, fieldfare and scandinavian blackbirds. The large thickets of rhododendron are of value as nesting sites for some bird species and also as roost sites, especially during the winter months.

Birds recorded using the site during the survey visit included;

Blackbird (*Turdus merula*)
Black-headed Gull (*Larus ribibundus*)
Blue Tit (*Parus caeruleus*)
Chaffinch (*Fringilla coelebs*)
Chiffchaff (*Phylloscopus collybita*)
Garden Warbler (*Sylvia borin*)
Great Tit (*Parus major*)
Greenfinch (*Carduelis chloris*)
Jay (*Garrulus glandarius*)
Pied Wagtail (*Motacilla alba yarrelli*)
Robin (*Erithacus rubecula*)
Wood Pigeon (*Columba palumbus*)
Wren (*Troglodytes troglodytes*)

Invertebrates:

The small areas where taller grass and some bare sandy ground occurred were attractive to several invertebrates including; common field grasshopper (*Chorthippus brunneus*). On

the day of the survey only gatekeeper butterfly (*Pyronia tithonus*) was seen but several other butterfly species probably occur, particularly those which use the woodland edge. Various day flying moths and buff-tailed bumble bee (*Bombus terrestris*) were also recorded. The dead wood under the woodland areas provides suitable habitat for invertebrates, particularly detritivores and other litter dwellers.

Invertebrates recorded using the site during the survey visit included;

Gatekeeper (*Pyronia tithonus*)

Various day flying moths

Buff-tailed bumble bee (*Bombus terrestris*)

Common field grasshopper (*Chorthippus brunneus*)

Herptofauna:

Common lizard (*Lacerta vivipara*) was seen on the northern boundary in Lynnwood, among the small area of heather. Other species using the dry heathy areas of the site could be adder (*Viparus berus*) and slowworm (*Anguis fragilis*), both of which have been recorded in the locality.

Seen during the survey:

Common Lizard (*Lacerta vivipara*)

Mammals:

Rabbit (*Oryctolagus cuniculus*) and mole (*Talpa europaea*) were recorded during the survey but other small mammals like long-tailed fieldmouse (*Apodemus sylvatica*) and field vole (*Microtus agrestis*) probably use the site as will stoat (*Mustela erminea*) and weasel (*Mustela nivalis*).

Certain species of bats use the site, anecdotal evidence suggest they hawk for moths around the electric lights on site. These will probably be pipistrelle bats (*Pipistrellus pipistrellus*), which are priority species in the UK and Norfolk Biodiversity Action Plans. Although it remains the most abundant and widespread bat species in the UK, the pipistrelle is thought to have undergone a significant decline in numbers this century. Estimates from the National Bat Colony Survey suggest a population decline of approximately 70% between 1978 and 1993. The current pre-breeding population estimate for the UK stands at approximately 2,000,000 (see Appendix 1). Other woodland specialists like natterer's bat (*Myotis natterii*) may use the woodland edge. This slightly less common species is also a priority species in the UK and Norfolk Biodiversity Action Plans.

The species recorded during the survey were:

Mole (*Talpa europaea*)

Rabbit (*Oryctolagus cuniculus*)



Species Evaluation

The grassland around the pitches is species poor and is kept short by frequent mowing although in several places where soil had been banked up to level out pitches a more interesting ruderal/acid grassland flora had developed.

The most interesting area of the site in terms of biodiversity, was the strip of heathland at the northern edge of the site. This is a remnant semi-natural habitat, representative of the vegetation of the area prior to development as a caravan site. This area contains heather, fine-leaved grasses such as wavy hair-grass (a typical heathland grass), gorse, broom and a number of low growing flowering plants.

As well as providing an important transition zone between woodland and grassland, the plants and shrubs provide valuable nectar sources for butterflies and other flying insects. The longer grass in this area, coupled with the shrubby plants provides cover and foraging habitat for birds, small mammals and possibly bats.

Bare, sandy places between heather are valuable basking areas for reptiles such as the common lizard and also important for ground-dwelling and burrowing invertebrates such as beetles and ants. This area is particularly important as it is south-facing, thus providing a warm micro-climate.

Areas of linear shrub planting provide useful food source for birds during the winter months when food is scarce. Species such as bird cherry (locally common in Norfolk), rowan, holly and ivy are particularly valuable in this respect.

Management Recommendations

- **Nestboxes** – both open-fronted and conventional single hole (32mm diam.) could be added to selective trees in the secluded areas of the site. Nestboxes need cleaning out each autumn.
- **Bird feeding stations** – the warden already has a feeding station behind the reception area and this was much in use by young, inexperienced birds during the survey visit. Further feeding stations could be added at two or three additional sites i.e. near the Lynnwood T. block and the Glucksburg T. Block. Two or three feeders at each station could hold a variety of food. One with niger seed; one with husked sunflower seed and a third with general purpose food plus fat balls. Large plastic dishes are available to place beneath feeders to catch most of the fallen debris, these can be cleaned periodically.
- **Heathland** - The bank along the northern edge of Lynnwood appears to be a relict of the original heathland vegetation and unlikely to have been disturbed by soil levelling activities when the site was created. The area is south facing and on quite a steep slope. Managing this area as dry heath - a mosaic of dwarf shrubs (heather, gorse and broom) with grassy areas and bare ground is recommended. Removing all trees/saplings growing in this area and cutting the grass/heath once a year between August and September will prevent the area returning to woodland. Rake up and remove all grass cuttings which will keep the area starved of nutrients and create more floral diversity as new plant species colonise.

Heather on the top of the slope should be left undisturbed unless it becomes very leggy, in which case it should be cut back to ground level.

- **Linear areas of planting** – These have already been created using mixed hardwood species, mainly native. The intention here is presumably to create screens between the parked caravans. As the trees mature and grow only the trunks will be acting as a visual barrier for the first 2/3 metres of height. We propose a rolling programme of coppicing some of these trees. By cutting a few each year, they will soon bush up and can be cut again in around seven years. The following year cut a few more trees so eventually there is a seven year cycle of trees regenerating from the base (stool). This way the first 2/3 metres will be full of leaf and branch and will provide a good screen. Adding honeysuckle will also provide nectar for feeding butterflies and moths and an evening fragrance for the visitor!
- **Habitat piles** - When cutting grass or hardwood cut and stack in ‘habitat piles’ in out of the way places – in sunny areas if possible. Try not to burn material.
- **Bats and Trees** - If any mature trees are marked for cutting down it is advisable to get them checked by and a bat expert.
- **Diversification of grassland** - Less frequent mowing of some areas of the site would be beneficial for a range of insect, mammal and bird species, and would help to diversify the grass sward near the pitches. This could be done at a 1 metre width around the perimeter of the site, and if left to grow longer, should be mown once a year in late August. All cuttings should be removed. Margins of long grass can provide a valuable habitat for wildlife. Invertebrates, including the caterpillars of butterflies and moths, feed on grasses. Long grass is also favoured by many small mammals, reptiles and amphibians which in turn will attract kestrels, owls and other predators. Bats frequently hunt for insects over long grass. A variety of lengths will produce a range of habitats and species assemblages. Keeping areas of longer grass also creates an important transition zone between the mature woodland and the short grass, creating a greater range of habitats and thus a greater diversity of plants, birds, small mammals and insects.

Further surveys:

Bats –there is anecdotal evidence of bats using site

Appendix 1 - Pipistrelle Bats

Certain species of bats may use the site for foraging (flying insects) and some may roost in convenient trees on the site or nearby. These will probably be pipistrelle bats (*Pipistrellus pipistrellus*).

The common pipistrelle is the smallest British bat with a wingspan of about 20cms and weighing around six grams. It is the most abundant and widespread bat in Norfolk and throughout the UK and have suffered large losses in numbers over the last twenty years.

Although it remains the most abundant and widespread bat species in the UK, the pipistrelle is thought to have undergone a significant decline in numbers this century. Estimates from the National Bat Colony Survey suggest a population decline of approximately 70% between 1978 and 1993. The current pre-breeding population estimate for the UK stands at approximately 2,000,000.

Females form maternity roosts of up to several hundred adults from May, often in house roofs but also in woodland. They give birth to a single live young in July. Males are much more solitary. Hibernation takes place from November to March. Pipistrelles forage for small insects in varied habitats but woodland edges, hedgerows and waterways are particularly important.

The pipistrelle bat is listed on Appendix III of the Bern Convention, Annex IV of the EC Habitats Directive and Appendix II of the Bonn Convention (and is included under the Agreement on the Conservation of Bats in Europe). It is protected under Schedule 2 of the Conservation (Natural Habitats, etc.) Regulations, 1994 (Regulation 38) and Schedules 5 and 6 of the WCA 1981. It is also a priority species listed in the UK and Norfolk Biodiversity Action Plans.

Current threats to Bats:

- Exclusion from roosts by human intervention
- Destruction or damage to roosts as a result of building work/development
- Barn conversions and modifications to buildings such as security lights
- Toxic effects of remedial timber treatment in roofs and other parts of buildings
- Loss and damage to natural habitats such as woodlands and older trees with crevices and cavities.

Other bat species like natterer's bat (*Myotis natterii*) may use the woodland edge habitat surrounding the Sandringham site.