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CONVENTION ON THE CONSERVATION OF EUROPEAN WILDLIFE
AND NATURAL HABITATS

**Standing Committee**

39th meeting
Strasbourg, 3-6 December 2019

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# REPORT

# ON THE SPOT EXPERT APPRAISAL OF THE MINSMERE NATURE RESERVE

# (UNITED KINGDOM)

28-29 June 2018

*Document prepared*
*by Mrs Blanca Ramos (Spain)*

## INTRODUCTION

The Committee of Ministers of the Council of Europe, by means of its Resolution (79) 13, awarded the European Diploma for Protected Areas category "A" to the Minsmere Nature Reserve (United Kingdom) at its meeting of 13th September 1979. It was renewed in 1984, 1989, 2004 and 2009. For the last renewal no appraisal visit was took place.

Having regard to the decision of the Group of Specialists on the European Diploma for Protected Areas at its meeting of 21-22 February 2018 to perform on-the-spot appraisal visits to areas subject to EDPA renewal in 2019, the undersigned was invited as independent expert to carry out the visit to Minsmere Reserve in the United Kingdom. The objective stated was "*to assess whether the conditions of the site remain the same as when the Diploma was awarded and extended, or whether they have improved or deteriorated*", following the provisions of the Terms of Reference stated in Appendix 3 of Resolution CM/ResDip(2008)1 on the revised regulations for the European Diploma for Protected Areas.

The visit took place from 28 to 29 June 2019. Some areas of the Reserve were visited and some interesting conversations took place with different staff members and stakeholders.

The Director of the Reserve had previously established a Programme of the visit, which is enclosed as annex I to this report. Two consecutive days were devoted to successfully complete the programme, having a great opportunity to obtain relevant information on the most challenging issues and also to discuss in depth a good deal of them.

*From left to right: Mel Kemp, Katie Fairhurst, Graham White and Adam Rowlands during the visit to areas of heathland restoration*

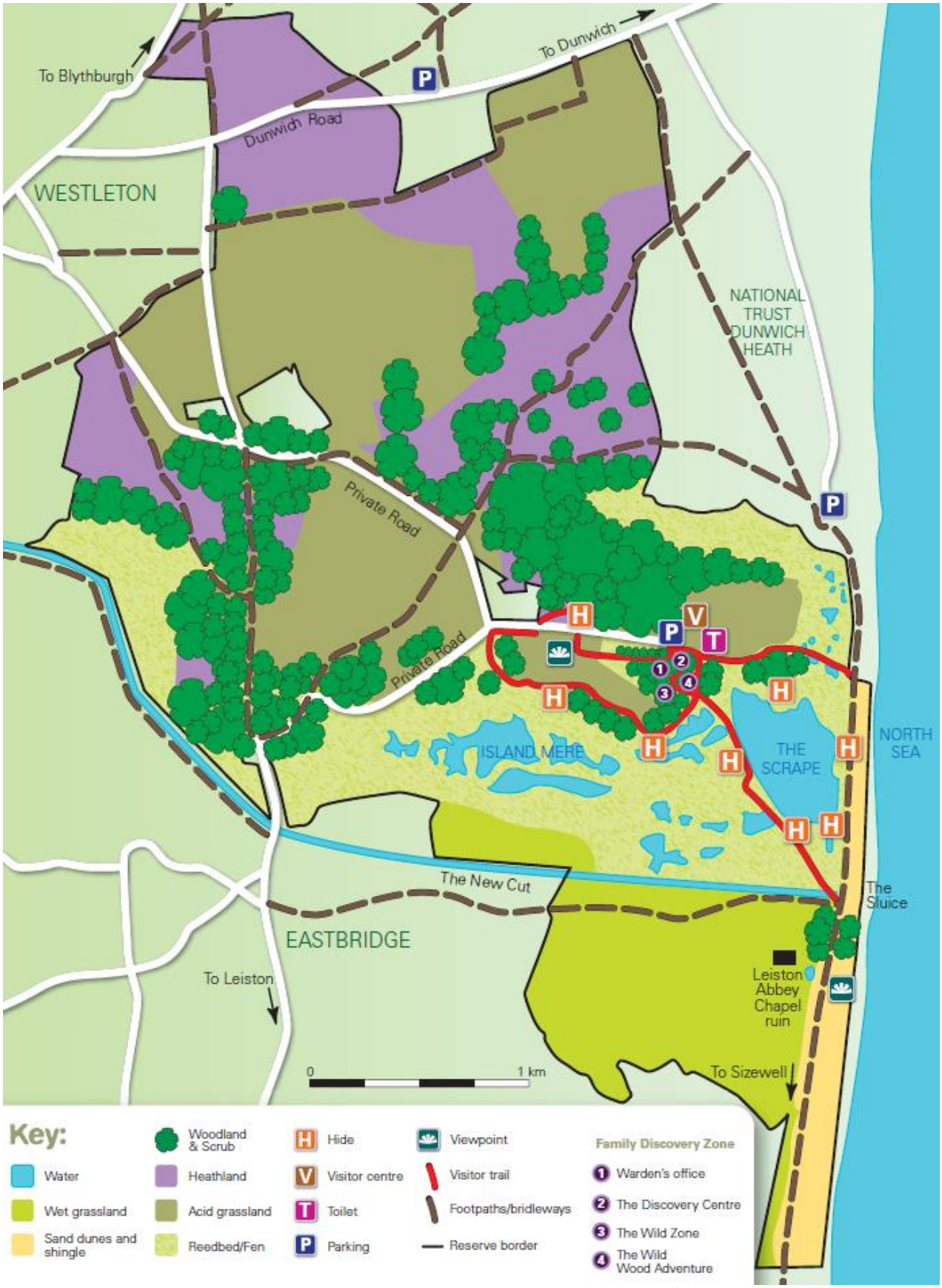
## BRIEF DESCRIPTION OF MINSMERE RESERVE

Minsmere Reserve is located in the Suffolk coast, East of England, on the shore of the North Sea. Its current surface area is of 982,15 hectares of wetland, heathland, woodland, sand dunes and beach. The Reserve has a peculiar history which explains many of its most highlighting features. During the early decades of XX$^{th}$ century, the area was a private game estate and some management practices to increase the abundance of game species revealed its good conditions for wild birds and more specifically for wildfowl. The Royal Society for the Preservation of Birds (RSPB) and its owner, Captain Stuart Ogilvie, reached an agreement in 1947 to manage the Reserve for conservation purposes and finally in 1977 RSPB purchased the property of 598,39 ha. Further purchases of farmlands of and grazing marsh have increased the Reserve's size to the current surface area.


The climate is temperate oceanic type. The average annual total precipitation is lower than 700 mm, being among the driest areas of UK. Mean monthly rainfall is quite even throughout the year. Winter Atlantic depressions have a lesser influence compared to western UK and in summer convective rainfall is relatively frequent. Mean average temperature is 10ºC, being January and February the coldest months with mean daily minimum temperatures of 2ºC and mean daily maximum temperatures of 7-8 ºC. July and August are the warmest months with mean daily minimum temperatures of 12 ºC and mean daily maximum temperatures of 23ºC. Prevailing winds are from the South-West and gales are less frequent than in other UK areas.

Minsmere and its surroundings have traditionally been a devoted to farming and game activity. However the water sources of Minsmere Reserves are not affected by agricultural waste, since it comes from the northern zone, where water quality is quite high, partly because Minsmere is surrounded by semi-natural areas where pollution is not an issue.

Its natural, cultural and heritage value has been recognized with different national and international awards.




*Map of the Minsmere Reserve and its main habitat types.*
*Image provided by the Direction of the Reserve*

From the ecological point of view two parts can be clearly distinguished: the wetlands in the lowest areas and the woodland and heatherlands in the medium-higher elevations. Altogether, a number of different habitat types and its numerous transitions and borders create an intricate mosaic where a great diversity of plant and fauna species meets their requirements in a relatively limited area.

The wetlands, covering nearly one third of the Reserve (303,5 ha), occupy most of the former Minsmere estuary, which in the XIX$^{th}$ century was drained out by a channel network leading into a main channel, the New Cut, to get rid of flooding. Along with the construction of a clay barrier isolating the lands from the sea, allowed the area to be reclaimed as grazing grounds.

The progressive natural filling of the old estuary along with human management practices have given rise to a number of flooding grounds with different characteristics according to their specific water regime, topography, land use, management and other factors:

- Reedbed, swamp and fen: 157,5 ha
- Grazing meadows and wet grasslands: 108,5 ha
- Open water: 20 ha
- Coastal lagoon: 17,5 ha

The reedbed is one of the largest in England. The so-called Scrape is an artificial lake to re-create a coastal lagoon as habitat of some threatened bird species.

*Aerial view of Minsmere Reserve. The wetlands occupy the former Minsmere estuary, which in the XIX$^{th}$ century was isolated from the sea by an artificial barrier and drained by means of a channel network. The straight one at left is the so-called New Cut. The Scrape is the coastal lagoon just behind the dunes*
*Photo: Mike Page*

The rest of the territory is high enough to remain excluded from flooding and is currently covered by mixed woodlands and scrub (218,3 ha), heathlands (176,85 ha) and acid grasslands (213 ha) of great ecological interest. Other habitat types are neutral grasslands (17 ha), a quarry pit (3,5 ha), cultivated lands (3,5 ha) and other areas (13,5 ha) occupied by facilities (tracks, roads, buildings and car parks, etc). A dune system (22,5 ha) and coastal shingle (10,5 ha) east of the Reserve completes the scenario towards the North Sea.

In areas of higher topographic levels mixed woodlands alternate with heatherlands and acid meadows. The peculiar Suffolk Sandlings heathlands can still be found in Minsmere as relic and some

methods are being tested for its restoration. Tree species occur scattered or forming areas of mixed deciduous and coniferous woodlands, with oaks (Quercus robur), silver birch (Betula pendula), scots pine (Pinus sylvestris), etc.

The Minsmere Reserve is owned by the Royal Society for the Preservation of Birds (RSPB), one of the most famous charity of this kind, with more than one million members across UK and beyond. This Society owns and manages more than 100.000 hectares as nature reserves with the specific aim to provide habitats for bird species and particularly for the most rare and/or threatened at national level. Even though RSPB is an organization created and developed for bird protection, progressively has been widening its initial focus towards a more integrative habitat approach of nature protection, without giving up its bond with the bird's world.

For that reason, RSPB reserves are paradigmatic cases of what can be considered as "intensive management", since their properties are relatively small and they can get deeper on their specific features and provide tailored conditions for a number of selected bird species. This is a different approach in comparison to bigger natural areas where the management priority is the habitat as a whole in search of providing good conditions to a great deal of species. In the opinion of the undersigned, both are absolutely legitimate and even complementary, since both can learn from one another.

Minsmere Reserve must cope with two important threats that are being increasingly evident during the recent years and need special attention. Climate change is posing additional difficulties to the already existing problems of coastal erosion. On one hand an increase of the sea level is expected or even is already taking place. On the other hand higher frequency of storms, gales and extreme climatic events, an increase of the mean temperature and a reduction of precipitation have been predicted. Altogether are expected to increase the chances of saline intrusion into the up to now freshwater wetlands. Adaption strategies are already being drafted.

Another threat with unforeseeable consequences is the project of a third reactor of the existing nuclear power plant of Sizewell, located 5 km south to Minsmere closest boundaries. This is a massive project, feared to produce severe impacts, not only on natural terrestrial areas outside Minsmere but particularly on the coastal dynamics, both from the hydrological and from the morphological point of view, with potential implications on the marine and wetland wildlife and thus on Minsmere and other nature Reserves of the Suffolk coast.

*At bottom, the Sizewell nuclear power plant, south to Minsmere Reserve. The picture is made from the top of the dunes*

## II. EUROPEAN INTEREST OF THE SITE

### II.1 - The situation in 1980

When awarded the European Diploma for Protected Areas in 1980, Minsmere Reserve was a highlighting site because of the diverse and skillfully managed habitats where breed a variety of birds (at the time 95 -100 species) while at least 210 species could be seen throughout the year. It was considered one of the best places for bird-watching in the UK and so it has been since then. Its location on the main bird-migration route and the presence of an extensive wetland of *Phagmites communis*, open meres along with coastal lagoons and wet meadows with different salinities, provide habitats for good numbers of rare wetland birds at European scale, like bearded tit (*Panurus biarmicus*), bittern (*Botaurus stellaris*) or garganey (*Anas querquedula*). Some declining species like marsh harrier (*Circus aeruginosus*), Savi's warbler (*Locustella luscinioides*) and very specially avocets (*Recurvirostra avosetta*), found in this area one of the few breeding grounds in UK. Heathland birds like nightjar (*Caprimulgus europaeus*) were still breeding species at Minsmere, suffering from a severe reduction at UK level, probably because of agricultural reclamation. Woodland habitats support a rich variety of breeding birds like nightingale (*Luscinia megarhynchos*) and woodcock (*Scolopax rusticola*).

The high quality management model, aiming at maintaining the successional stages of the wetland and heathland vegetation for the sake of rare and threatened birds, along with the value of the preserved biotopes, the interest of the scientific research as the basis for the conservation action, the importance of the site for awareness raising and education on nature conservation, and its good protection and guard were the main arguments for the award of the European Diploma in 1979.

### II.2 - The situation in June 2018

The current renewal of the European Diploma to Minsmere expires in 2019 and it is the time to assess whether a new renewal is to be awarded, or in other words, to ascertain whether the site maintains its European Interest and deserves such a designation. According to the information collected during the two-day visit, complemented with the Annual Reports of the Reserve's authorities to the Council of Europe of the years 2014, 2015, 2016 and 2017, along with complementary documents provided by the managers and the stakeholders, the following features can be reported:

#### II.2.1 - Geology and hydrology

From centuries ago the Suffolk coast is suffering from an intensive retreat of the shoreline, since its platform is sinking by a natural geo-dynamical process. As a matter of fact, the city of Dunwich north to Minsmere, which at the Middle Age was one of the most populated of Britain with about 4.000 people and an important port, practically disappeared by constant and progressive sea invasion and consequent erosion of the shoreline. The same happened to Aldeburgh, south to Minsmere. Since the XIV$^{th}$ century the coastline has retreated about half a mile (800 meters) due to periodic surge tides and gales (Price & Robb, 2015).

The original hydrological natural regime has been deeply modified since big works for the wetland drainage (completed in 1815) and for isolating the site from sea influence with a lime wall (in 1824) were performed. Water sources are located north to Minsmere and, after going across the area, excess water is collected in the so-called New Cut, the main drainage channel which has a Sluice allowing controlled discharges to the North Sea when necessary. Sometimes sea water is allowed to flood specific areas. Some hydraulic devices are located in strategic places all around the area, allowing the water to be moved according to the existing conditions at any time. The experience gained throughout the decades that Minsmere is being managed for conservation purposes is a great asset and it has been comprehensively transferred to their successive Management Plans.

*The Sluice, between the New Cut and the North Sea, is a key element for water management at Minsmere*

Water quality is quite good, especially at the sources where clean freshwater springs. The hydrological network of the Reserve is independent from water irrigating agricultural fields and farms, which drain at Minsmere River. The water quality of the latter has recently been discovered to be relatively good and can be used for some specific purposes, wetland management included, if some precautionary measures are taken.

When hydrology issue is considered a main subject raises immediately: the effect of the climate change and the rise of the sea level and its consequences on the coastal areas of Suffolk, Minsmere included. The UKCP09 projections indicate that the sea level will rise by 8,6 cm between 2010 and 2030 under the high emissions scenario.

II.2.2 - Vegetation and flora

As already described, the wetlands are mostly covered by reedbeds (*Phragmites australis*). Other aquatic plant species are also worth to mention, like marsh sowthistle *Sonchus palustris*, marsh orchid *Dactylorhiza praetermissa*, frogbit *Hydrocaris morsus-ranae*, marshmallow *Althaea officinalis*, etc.

In areas of higher topographic levels mixed woodlands alternate with heatherlands and acid meadows. In all cases the soil is characterized by a quite low pH of about 3. Minsmere area contains relics of the so-called Sandlings heathlands, very typical from the lowlands of Suffolk with sandy, free-draining acid soils and shrub dominated by bell heather (*Erica cinerea*), Common Heather (*Calluna vulgaris*), Western gorse (*Ulex gallii*) and lichens, alternating with acid grasslands.

After centuries of intensive human uses, the natural forests have practically been replaced by plantations of different tree species. In the fifties of the XX$^{th}$ century the national forest administration proceeded to cover adjacent areas with pines and the landowners also cultivated several plantations on the Reserve. Other grounds were planted with deciduous species, sometimes exotic ones, like sycamore (*Acer pseudoplatanus*), turkish oak (*Quercus cerris*), *Rhododendron spp*., etc. Some native species also appear, like beech (*Fagus sylvatica*) or silver birch (*Betula pendula*). The latter is the main species appearing in natural recovery processes and to some extent has an invading behavior during the early stages, along with the native bracken *Pteridium aquilinum*.

In a natural regeneration process, the areas currently covered by heather and woodland would be an early stage of acid grassland, followed by the Sandlings heatherlands and patches of deciduous forest of beech (*Fagus sylvatica*) progressively replacing silver birch (*Betula pendula*) as it approaches to stages of forest maturity. The initial successional stages of a spontaneous regeneration consist of a

quick and extensive coverage of *Pteridium aquilinum* which after a few years form a layer of several centimeters of mulch covering the soil. This layer only allows to silver birch and gorse to grow up, and it prevents the local seedbank to recover the original vegetation of *Erica* and *Calluna* and of course of further successional stages. For that reason this layer of bracken mulch must be artificially removed to allow or accelerate the recovery process.

II.2.3 - Fauna

Linked to the history of Minsmere Reserve some rare and/or endangered bird species are worth to be highlighted, since this area holds a high proportion of the total for the UK. The average between 2010 and 2014 are:

- Bittern (*Botaurus stellaris*) - 11 booming males
- Marsh harrier (*Circus aeruginosus*) - 11 nests
- Avocet (*Recurvirrostra avosetta*) - 110 pairs
- Lapwing (*Vanellus vanellus*) - 37 pairs
- Nightjar (*Caprimulgus europaeus*) - 12 males
- Woodlark (*Lullula arborea*) - 18 pairs
- Stone curlew (*Burhinus oedicnemus*) - 9 pairs
- Little tern (*Sterna albifrons*) - 4 pairs (at beach)
- Turtle dove (*Streptopelia turtur*) - 10 pairs

Minsmere is also a good wintering area for white fronted goose (*Anser albifrons*), and other common waterfowl. A few Bewick's and Whooper Swans (*Cygnus columbianus* and *C. cygnus*) are also wintering in the area.

An interesting nesting colony of sand martin (*Riparia riparia*), present since at least the 1940s within a bank exposed by human activity, is located very close to the reception centre, where more than 300 pairs (with a peak of 366 in 1987), delights the numerous visitors during the spring.

The harvest mouse (*Micromys minutus*) is an interesting mammal species, since it is not frequent at national level, being the rest quite common: red deer (*Cervus elaphus*), rabbit (*Oryctolagus cuniculus*), red fox (*Vulpes vulpes*), badger (*Meles meles*), etc. The water vole (*Arvicola amphibius*) maintains a stable and healthy population.

Characteristic and now rare fauna species like adder (*Vipera berus*) or silver-studded blue butterfly (*Plebejus argus*) find good habitat conditions in the open Sandlings heatherlands, whose recovery is making this species to increase. Other interesting species are the ant-lion (*Euroleon nostras*), which colonised the UK at Mismere and the local area, and the bee wolf (*Philanthus triangulum*), which has expanded its range in the UK to Minsmere in the current Century.

II.2.4 - The challenge of managing fauna species

One of the most relevant features of this Reserve is the intensive management made to create good habitats to attract specific bird species considered rare or threatened at UK scale. For instance the Scrape is an artificial coastal lagoon excavated in the ground, topographically "designed" to have a ditch network, islands with and without vegetation, either covered or not with shingle and flooding parts with different water depths. The response of the vegetation and of fauna species, like avocets, Mediterranean gulls, terns, marsh harriers, etc., combined with a skillful management of the reedbed, as described below, has been spectacular.

Another brilliant example is the specific management that is made to attract Stone-curlews to Minsmere. The species disappeared as breeder in 1969, being the vegetation encroachment one of the probable major causes. The return of stone-curlews was possible by providing 16 cultivated plots in open areas of Sandlings heathland, duly maintained by ploughing and harrowing. To reduce predation the plots are also fenced with wires or electrified netting. Up to 10 breeding pairs have been recorded and even relays and second/third broods have been achieved. Something similar happened with nightjar, nightingale, turtle dove or woodlark, benefitting from specific management of the woodlands, such as grazing and rotational scrub management, to maintain the appropriate vegetation structure and to restore open habitats.

Other significant species that were lost have been successfully re-introduced, like otters (*Lutra lutra*) and natterjack toads (*Epidalea calamita*).

Interesting challenges still need to be addressed, like for instance to increase the productivity of the avocet colony, mainly reducing the predation on young avocets by lesser black backed gulls (*Larus fuscus*) and black-headed gulls (C*hroicocephalus ridibundus*), also nesting at the Scrape. Little tern (*Sterna albifrons*), once nesting on the beach and Scrape, last bred in 2008 and the suitable shingle habitat has been reduced by coastal erosion. The current Management Plan states a target of 5 pairs on the Scrape and a total of 12 including the shingle habitats. Coastal erosion may render these targets unachievable, and it may be more viable to concentrate effort on accreting areas of the coast north of the reserve which have proved to be more attractive to little terns in recent years. However, Sandwich terns (*Sterna sandvicensis*) have successfully recolonised the Scrape in recent summers, fledging young for the first time in 40 years in 2017 and 2018. The future management of the site should take account of this species, which bred in significant numbers in the 1960s and 70s.

II.2.5 - The challenge of managing key habitat types

The main habitat types being intensively managed in Minsmere are the wetlands and the complex woodland - Sandlings heathlands. The management methods of each one of them can be summarised as follows:

**Wetlands**

The natural trend of the reed *Phragmites communis* (= *P. australis*) is to invade all favorable areas (either freshwater or slightly brackish shallow lakes or wet soil areas) if not managed. When it becomes too dense wild birds avoid this habitat, since they seem to prefer sites with more open

vegetation where they feel safe and at the same time they easily find food either fishes or small invertebrates, water plants, etc. For that reason an intensive management of the reedbed to rejuvenate it is periodically necessary and Minsmere managers have reached a high degree of specialisation for optimizing the space and providing good habitats for specific bird species, like bitterns, marsh harriers, etc. Some years ago herbicides were used to reduce the reedbed coverage, but this method has progressively been replaced by mechanical labours. The main management practices that must be performed periodically at the reedbeds are:

- Reedbed rejuvenation by bed lowering, consisting of removing and excavating mechanically the upper parts of the soil to increase water depth. It is necessary because the reedbeds suffer from an intensive siltation causing the loss of water capacity of lakes and lagoons, channels, ditches, etc.
- Reedbed mowing, consisting of rotationally cutting blocks of reed and removing the cut material to reduce the accumulation of decaying vegetative material which would eventually lead to the habitat drying out.
- Wet meadows topping: the highest part of the taller vegetation is cut with tractor-mounted mechanical mowers. In this way the flowers and seed parts are removed reducing the total sward height which combined with grazing, benefits key bird species.
- Ditch restoration improves water movement, improves habitats for key bird species, namely bittern, provides refuges for benthic fauna, improves floral diversity and creates protection barriers against predators when flooded.
- uprooting *Salix* saplings invading marshes
- Maintaining the artificial structures at the Scrape, to improve its conditions for bird nesting: selective excavation shaping the islands, ditch conservation, vegetation management, etc.
- Conservation and restoration, when needed, of the fence protecting nesting birds against terrestrial predators (red fox, badger, etc.)
- Grazing during the summer with Konik horses and Highland cattle
- Selective desiccations and flooding with sea water alternating with freshwater, for the control of invasive species, like mare's tail (*Hyppuris vulgaris*)

*Mare's tail (Hyppuris vulgaris) growing at the Scrape*

## Woodlands and heathlands

As already described, woodlands would be the mature stage of a natural successional process. Heathlands would be the response of the vegetation to ancient human practices like sheep grazing: farmers have, since centuries, cleared the original forest and introduced sheep to graze the lands. The sandy free-draining acidic soils existing at the Suffolk coast allow the development of characteristic vegetation dominated by heather and grasses. For that reason this particular heathland locally known as "Sandlings" is considered not only a valuable natural habitat, but also a part of the local cultural heritage. Minsmere contains an important representation and its conservation and restoration is a major priority and, as such, is incorporated in the 2015-2020 Management Plan as it was also in the previous ones.

During the last decades intensive efforts to develop efficient methods for heathland restoration have been made. It is neither easy nor cheap, and it poses numerous constraints and difficulties.

The initial stage of areas where heathland restoration can take place is a dense coverage of bracken (*Pteridium aquilinum*) and scattered gorse (*Ulex europaeus*), which quickly invade the sites where agriculture and/or grazing have been abandoned. Many attempts to mechanically remove this coverage have been made but this method is very expensive and unproductive. Some trials with selective herbicides of low ecological impact have been made with much better results, although being aware of possible side-effects not yet identified.

Once removed the dense coverage of bracken and gorse there is a second difficulty: the presence on the ground of a layer of bracken mulch produced by the accumulation year after year of the vegetative bodies of this plant. It forms a layer of about 5-10 cm preventing to any kind of seed to germinate. Only the removal of this layer allows the seedbank to spontaneously recover the area.

*The reddish layer above the ground is the bracken mulch (also in the left hand). When excavated the 5-10 superficial centimeters, the original sandy soil in grey color (right hand) appears, containing the natural local seedbank.*

The removal of bracken mulch must be made by mechanical means with excavators.

A third difficulty appears right after: in some cases the pH of the soil is not acid enough for the recovery of the heathland vegetation and it must be artificially acidified up to pH=3. After many tests, the adequate dose of sulphur and other compounds have been found to provide the perfect condition for the natural recovery of the Sandlings heathlands (Ausden & Kemp, 2005). Normally the seedbank makes the work on its own, but sometimes it is necessary to spread some natural heather soil or crushed heaths all over the soil to promote the recovery of the native species.

The areas where this management practice is made can be of different type, ranging from agricultural grounds (like the properties recently bought by RSPB and added to Minsmere Reserve) to artificial forests of Scots pines (*Pinus sylvestris*) or other tree species. In the latter case the recovery of the heathland starts with the total removal of pines and encroaching silver birch (*Betula pendula*).

*This area has been treated in 2015 to recover the Sandlings heathland. The bracken mulch excavated from the ground is piled on one side of the plot and quickly gets covered by the vegetation.*

*Initial stages of heather recovery after the treatment made in 2015.*

Recently a restoration project co-financed with European Rural Development Agricultural Fund started in 2015. In total it will increase the initial 177 hectares to approximately 242 ha of Sandlings heathland. The previous stage of tree felling and gorse clearance has already been completed. The next stage of removal of tree stumps and ground litter will take place during the coming months, in autumn-winter 2018. In 2019 and beyond bracken control and bare ground creation will start. Regular management practices will be necessary in the future to prevent encroachment of trees and also to provide bare grounds and promote a diverse age structure to heathlands.

Insofar as the recovery of heathlands takes place, grazing by domestic and wild herbivores must be kept under control. Red deer population should not exceed certain levels to prevent an excessive pressure on the regeneration of natural vegetation.

II.2.6 - The problem of the exotic and invasive species

Apart of the already mentioned sycamores and *Rhododendron spp*., Minsmere Reserve and other areas of the UK have a severe problem with some exotic and invasive species very difficult or even impossible to eradicate. The most damaging species are, by far, the pirri-pirri bur - *Acaena novae-zelandiae*, a herbaceous plant native to the South Pacific area and with a huge spreading capacity. Some eradication methods, like grazing, cultivation, uprooting, ploughing, chemical control, etc. have been tested but the results are not yet completely satisfactory, although additional tests are being made.


*Left: Pirri-pirri bur fruits. Right: A test to control pirri-pirri by ploughing*

A native invasive plant species is the mare's tail (*Hyppuris vulgaris*), covering great areas of open water. Some attempts for its control are being made by temporary desiccation through drying compartments of the lagoons in the early summer (aligned to the practice of rotational fallowing to increase benthic invertebrate populations), followed by flooding with sea water and then re-flooding with freshwater.

There are also some fauna species, but their abundance is limited. The american mink (*Mustela vison*) did not appear anymore during the last few years. Nevertheless, it is still being monitored to early prevent any eventual re-colonization. Other species like the coypu (*Myocastor coypus*) does not appear either. Reeve's muntjac (*Muntiacus reevesi*) or Chinese water deer (*Hydropotes inermis*) are not considered to have an adverse impact on the key conservation interest features.

**II.3 - Exploitation of resources**

Minsmere Reserve is a private tenure owned by the Royal Society for the Protection of Birds (RSPB) and it is totally devoted to nature conservation, and more specifically to the conservation of birds and their habitats. No exploitation of resources takes place and only a modest fee is obtained from visitors to contribute to the maintenance of the Society and of the Reserve itself.

Notwithstanding that, in recent years several habitat management activities have provided income that supports the successful function of the site. This includes the sale of timber arising from the restoration of Heathland and management of woodland and the provision of grazing to local cattle owners on the wet meadows.

**II.4 - European Interest justifying the Diploma**

As already described, nesting bird species like bittern (*Botaurus stellaris*), marsh harrier (*Circus aeruginosus*), avocet (*Recurvirrostra avosetta*), lapwing (*Vanellus vanellus*), nightjar (*Caprimulgus europaeus*), woodlark (*Lullula arborea*), stone curlew (*Burhinus oedicnemus*), little tern (*Sterna albifrons*) or turtle dove (*Streptopelia turtur*), as well as wintering species like white fronted goose (*Anser albifrons*), etc., are of very special European interest. Relevant mammal species like water vole (*Arvicola amphibius*), harvest mouse (*Micromys minutus*) and otter (*Lutra lutra*) are also worth to be

mentioned, as well as invertebrates like ant-lion (*Euroleon nostras*) or the butterfly (*Plebejus argus*).

Important habitats like the different types of wetlands, as already described above, and Sandlings heathlands, very typical from Suffolk coast, having a relic representation in Minsmere, are very important from the natural and cultural heritage point of view.

When looking at Minsmere Reserve as a whole, one of the most highlighting features is the great command of habitat management techniques to improve the conditions for rare and/or threatened bird species. Some of them, like the avocet (*Recurvirrostra avosetta*) was extinct for over 100 years in the UK until, just by chance, some coastal marshes at Minsmere were flooded during the Second World War to avoid enemy invasions and a few years later some avocets were discovered nesting in the area. This was the beginning of a successful recovery of this species, driven by a skillful management of the wetlands.

Something similar happened with the bittern (*Botaurus stellaris*) which have today more booming males (11) than the total for the UK forty years ago (9). Other significant rare species which have colonized Minsmere are nightjars, woodlarks, stone curlews, little terns, and others, benefiting from wise management techniques. These, not only have positive influence on the species abundance, but also allow a better ecological knowledge that is very important for managers of other areas and countries. RSPB manuals are quite well known and in many protected areas the techniques developed in Minsmere and other Reserves have been successfully used providing quite good results.

Another feature deserving a warm recognition is the capacity to combine nature conservation with awareness raising and education in a Reserve with limited surface area (982 ha). Besides the efforts for improving the ecological conditions of wild birds, Minsmere receives a huge amount of visitors, more than 100.000 per year. In 2015 a peak of more than 122.000 visitors was reached, probably influenced by a successful live BBC broadcast. Additionally, their staff organizes numerous activities for small children and their families, for scholars, for teenagers, etc. and has a relevant team of volunteers helping with the conservation and education tasks. All this activity is absolutely admirable from all the points of view and makes Minsmere one of the natural Reserves best known and most beloved in the UK.

A third reason justifying the European interest at Minsmere Reserve is the scientific research and its association to the assessment and monitoring of the ecological conditions of its habitats and species. All the management procedures are assessed and scientifically validated. Particularly important are the studies related to the habitat management for the recovery of the Sandlings heathlands, in particular the use of herbicides and their impact on the environment, or the measures against exotic and invasive species, along with the follow up of red deer and rabbit on the vegetation and its relationship with their population levels. Monitoring bird breeding success, wintering, etc. are most valuable indicators of healthy ecosystems, as well as invertebrate species being at the base of their feeding resources. The catalogue of species is also worth to be mentioned, since it provides a good image of the importance of Minsmere for the European biodiversity.

Minsmere is a private Reserve managed by true professionals of bird conservation and ecology that not only show a huge degree of specialisation but also a very high personal and emotional commitment with the Reserve and the work they do for it. Their enthusiasm is so evident when they speak about their tasks that they deserve a special recognition. Their education and awareness raising programmes go back to many decades already and it can be said that the knowledge and the emotion they feel are transmitted from one generation to the next and this is the way to maintain a common feeling of love towards the nature and to transmit it to visitors, stakeholders and to the whole society.

## III. CONSERVATION MEASURES

According to the information collected during the two-day visit, complemented with the Annual Reports of the Reserve's authorities to the Council of Europe of the years 2014, 2015, 2016 and 2017, along with complementary documents provided by the managers and the stakeholders, the following features can be reported:

### III.1 - Legal protection status

Minsmere Reserve is a private property owned by the nature conservation charity RSPB which devotes the area for the conservation of wild birds and their habitats.

The Reserve is included in other **national designations** for its protection:

- Site of Special Scientific Interest (SSSI) Minsmere and Walberswick Heaths and Marshes. Category I. Surface area: 2.305. The responsible institution is Natural England.
- Area of Special Protection (previously Bird Sanctuary): This designation aims to prevent the disturbance and destruction of the birds for which the area was identified, by making it unlawful to damage or destroy either the birds or their nests.
- Area of Outstanding Natural Beauty (AONB) Suffolk Coast and Heaths. Surface area: 40.200 ha.
- Suffolk Heritage Coast

The site has also some **international designations**:

- Wetland of International Importance of the Ramsar Convention. Surface area: 2.019 ha.
- Special Protection Area (SPA) Minsmere-Walberswick, pursuant to Birds Directive. Surface area: 2.019 ha.
- Special Area of Conservation (SAC) Minsmere to Walberswick Heath & Marshes, pursuant to Habitats Directive. Surface area: 1.238 ha


*Map of the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB)*

**III.2 - Boundaries/zoning/buffer zones**

Minsmere Reserve has been divided in units according to the existing habitats and particularly to their specific management needs. The whole area is devoted to the conservation of birds and their habitats, and also of other relevant fauna and flora species and habitat types. Each plot is managed according to what is established in the Management Plan.

As said in the previous section III.1, Minsmere Reserve is surrounded by other natural areas of different statutory character, like SSSIs, AONB, areas under the responsibility of the Forestry Commission, National Trust, Natural England and Suffolk Wildlife Trust. Other neighbouring land in private ownership is protected by SSSI designation and managed sensitively by the landowners supported by the European Agricultural Fund for Rural Development. These areas act as buffer zones for the reserve and RSPB are working with the Forestry Commission through management agreements and proactively with neighbours to ensure enhancements to wildlife management and monitoring.

**III.3 - Supervision and Warding**

The Minsmere staff responsible for supervision and warding is 9 permanent posts. Nevertheless, volunteering is somehow contributing to some extent for surveying the area and the new programme Minsmere Young Wardens, established in 2015, actively cooperates in these works.

**III.4 - State of conservation of the main species and their habitats**

As already described, the main species at Minsmere are, by far, the birds. The most relevant are the following:

| Common name | Scientific name | Status | Observations |
|---|---|---|---|
| Eurasian Bittern | *Botaurus stellaris* | Stable, following decline and recovery | Resident - breeding |
| Marsh Harrier | *Circus aeruginosus* | Stable following recent increases | Resident - breeding |
| Stone-curlew | *Burhinus oedicnemus* | Stable, following recolonization in 2003 | Migrant - breeding |
| European Nightjar | *Caprimulgus europaeus* | Stable | Migrant - breeding |
| Avocet | *Recurvirostra avosetta* | Stable following recent recovery | Migrant - breeding |
| Lapwing | *Vanellus vanellus* | Stable following recent increase | Resident - breeding |
| Little Tern | *Sterna albifrons* | –Last bred 2008, possibly lost | Migrant - breeding |
| Turtle Dove | *Streptopelia turtur* | Declining | Migrant - breeding |
| Bearded Tit | *Panurus biarmicus* | Stable | Resident - breeding |
| Woodark | *Lullula arborea* | Stable following recent increase | Resident - breeding |
| Dartford Warbler | *Silvia undata* | Stable, but fluctuations | Resident - breeding |
| Nightingale | *Luscinia megarhynchos* | Slightly decreasing | Migrant - breeding |
| Bewick's Swan | *Cygnus columbianus* | | Wintering |
| Whooper Swan | *Cygnus cygnus* | | Wintering |
| White-fronted goose | *Anser albifrons* | | Wintering |
| 'Tundra Bean Goose' | *Anser fabalis rossicus* | | Wintering |
| Smew | *Mergus albellus* | | Wintering |

As a consequence of climate change and habitat management, some currently accidental species are expected to be more frequent, like spoonbill (*Platalea leucorodia*), great white egret (*Ardea alba*), glossy ibis (*Plegadis falcinellus*) and common crane (*Grus grus*).

**III.5 - Land use planning**

During the last years, Minsmere management is being increasingly integrated in wider scope Management Plans or similar ordinance instruments, like the following:

- North Suffolk Coast Reserves Coastal and Climate Adaptation Plan
- Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) Management Plan 2013-18. The draft of the period 2018-23 is on public consultation process.
- Higher Tier Countryside Stewardship agreement 2017-2021, for Minsmere - Walberswick Heath & Marshes Site of Special Scientific Interest (SSSI).

These instruments establish the land use of the area and the mechanisms for any change that eventually can occur.

**III.6 - Threats**

Some factors threatening the Minsmere Reserve, not considered in previous on-the-spot appraisal reports, appear during the recent few years. Three of them need special attention:

III.6.1 - Climate change and sea level rise

Predictions foresee a reduction of the total annual precipitation, an increase of the average temperature and also an increase of extreme climatic events, like gales, strong wind episodes, droughts, heavy rainfall events, etc. These changes are likely to produce an increase in vegetation growth, running beyond the summer months, and potential soil moisture deficit.

Combined with sea level rise, the probabilities of saline intrusion on up to now freshwater habitats are increasingly higher. Instead of measures to maintain the current conditions of the habitats, the authorities are making emphasis of the need to promote the adaptation to the changes. New global strategies promoting the adaptation of the Suffolk coast to the risks of sea level rise are being adopted. The authorities are aware that some habitats will progressively change towards a higher saline influence, particularly in coastal wetlands. Decisions like giving up to repair damages in some coastal infrastructures that were created to prevent the sea water entering freshwater and terrestrial areas, are being made. They also assume that it is necessary to prepare the population for such changes.

Meanwhile, in Minsmere some projects are being drafted with the following priorities:

i. To ensure that the freshwater habitats are protected in situ for as long as it is environmentally and technically sustainable
ii. To seek management options which maximize the ecological potential of new and adapting habitats, including provision for new colonists
iii. To identify likely requirements for compensatory habitat
iv. To ensure effective public affairs profile during the public consultation and beyond

III.6.2 - Project for a third reactor at Sizewell Nuclear Power Plant (Sizewell C)

As already pointed out by the Minsmere Reserve Director in his successive Annual Reports, conversations with the authorities and the enterprise EDF Energy, promoter of the project, are being held during the last few years. Nevertheless, very little information is provided not only to the Minsmere managers but also to citizen organizations, quite concerned by the consequences of the project. The undersigned had the chance to make the acquaintance, just by chance, of members of the Minsmere Levels Stakeholders Group, which weekly meets on the pub-restaurant besides the accommodation site in Theberton. They provided additional information and their deep concern by the lack of information on the real consequences that the project would introduce in their community and in their way of life was expressed.

To date, there have been two phases of public consultation on the project (see http://sizewell.edfenergyconsultation.info/szc-proposals/stage-2/). In addition, RSPB have been provided with some additional technical information in confidence by the developer as a key stakeholder. However, the details known by the public and the Minsmere managers continue to provoke great concern as sufficient technical information to assess potential impacts has not been forthcoming. On one hand it has been known that a big jetty will be mounted in the shoreline besides

the current Plant during the construction phase that will not be shorter than 10 years. This is feared to produce important changes in the water coastal circulation, likely to introduce substantial and significant modifications on the marine water-sediment dynamics. In combination with threats posed by the climate change and the sea level rise these changes are subject of great concern on the local population, on the civil society and the Minsmere and RSPB managers.

The other element causing public reaction is the intention of creating a residential area for more than 3000 people, working at the Nuclear Power Plant, that will destroy a forest and will overcrowd the local services (roads, water, garbage, etc.) and produce noise and pollution within a rural and usually quiet community. This element of the project is not anticipated to have direct impacts on the integrity of the nature reserve or designated site, so is not of immediate concern to RSPB. However, all elements of the development and associated infrastructure that may impact via effects on hydrology, noise, light and visual disturbance are being considered.


*This poster was exhibited in Theberton (28th June 2018)*

The new Sizewell C reactor will approach the limits of the nuclear power plant to Minsmere boundaries. Limited information about the ongoing or already made studies on the environmental impact, both at terrestrial and marine grounds, have been provided in confidence and therefore the preparatory process is progressing in an atmosphere of lack of sufficient transparency regarding the environmental aspects.

The current phase of the process at the moment of drafting this report is the analysis of the contributions made during the 2nd consultation stage run between November 2016 and February 2017, according to Sizewell C Project Website (http://sizewell.edfenergyconsultation.info/). The message " Your responses from Stage 2 Consultation are currently being reviewed. Feedback will be shared through the Sizewell C Community Forum and our community newsletter." appears on it. The RSPB overview of the project has been published on their website (https://www.rspb.org.uk/our-work/our-positions-and-casework/casework/cases/sizewell-c/) and their response to the Stage 2 consultation is at https://www.rspb.org.uk/globalassets/downloads/documents/campaigning-for-nature/case-studies/rspb-response-to-sizewell-c-stage-2-consultation.pdf

A third consultation process is anticipated, and EDF have recently indicated that this will be conducted in early 2019.

The newspapers during April and May 2018 have informed on the possibility to give up the project if the UK authorities do not provide to EDF Energy sufficient guarantees that "a viable funding model exists" for Sizewell C this year (2018) which would reduce costs for consumers:

- https://www.newcivilengineer.com/business-culture/sizewell-c-nuclear-plant-may-not-be-feasible-says-edf-boss/10029739.article
- http://www.eadt.co.uk/business/edf-denies-threat-to-abandon-work-on-sizewell-c-1-5462796

*This image was published in the newspaper East Anglian Daily Times on 4th April 2018. It is a computer-generated image of how Sizewell complex could look after the construction of the third nuclear reactor Sizewell C (in yellow). The red line encloses the existing Sizewell plant. http://www.eadt.co.uk/business/edf-denies-threat-to-abandon-work-on-sizewell-c-1-5462796*

III.6.3 Post - Brexit challenge

At the end of the visit some reflections were shared concerning the post-Brexit scenario for Minsmere Reserve. The main concerns dealt with the legal consequences of the lack of coverage of Birds and Habitats Directives, and thus that of the European Court of Justice.

Another consequence is that the EU Funds will not be available anymore. The European Agricultural Fund for Rural Development has proved to be extremely important for financing the Sandlings Heathlands and Woodlands restoration project. Also LIFE instrument has financed important conservation projects, as well as the European structural funds and its associates (INTERREG, etc.). Alternative financial sources will be necessary to compensate this unavailability.

## IV. MANAGEMENT

### IV.1 - Management Plan

Minsmere Reserve has a Management Plan which is reviewed every five years. The current one is in operation since April 2015 to March 2020 and replaced the 2010 - 2015 one. The current Plan not only covers Minsmere, but also Dingle Marshes Reserve located north to Minsmere and also belonging to RSPB, as well as the land managed by agreement for restoration to Heathland with the Forestry Commission in Dunwich Forest.

Other Management Plans affect Minsmere to a great extent. As already mentioned, the Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) has its own Management Plan 2013-2018 (http://www.suffolkcoastandheaths.org/assets/AONB-Management-Plan-20132018.pdf), covering Minsmere as well. A new Plan to replace it is already drafted and a consultation process has been undertaken. The draft Plan 2018-2023 can be downloaded at: http://www.suffolkcoastandheaths.org/assets/About-Us/Man-Plan-Docs/2018-2023/SCH-AONB-Man-Plan-2018-23-Public-Consult-Draft.pdf

Natural England, an administrative body responsible for SSSIs, SACs and SPAs, keeps very good relationship with RSPB, supporting its works through a Higher Tier Countryside Stewardship agreement. The current one runs between 2017 and 2021, covering the Minsmere - Walberswick Heath & Marshes Site of Special Scientific Interest.

**IV.2 - Institutional responsibility**

Minsmere is a privately owned Reserve, although it is submitted to the environmental legislation and its management practices are under the screening and supervision of the national environmental authorities. The following administrative bodies have responsibilities in this area:

- The Environment Agency is the statutory body responsible for the direct supervision of the correct fulfillment of land management and environmental regulations.
- Rural Payments Agency is the auditor body concerning land management that ensures the correct implementation and interpretation of good practice for environmental and agricultural issues.
- The Area of Outstanding Natural Beauty team advises to RSPB managers to ensure that they are following good practice concerning landscape management
- Suffolk Coast District Council is the authority providing planning permissions to RSPB for the development of their work, as necessary

**IV.3 - Capacities**

The permanent staff at Minsmere is made up by the following posts:

| | |
|---|---|
| Supervision and Wardening | 9 |
| Visitor engagement (incl education, retail and catering) | 19 |
| Administration | 2 |

**IV.4 - Budget**

The global budget during the last 5 years has been as follows (data provided by the Direction):

| Time periods | Net income | Operating costs |
|---|---|---|
| 2017/18 | £1,098,307 | £955,508 |
| 2016/17 | £1,254,784 | £1,080,243 |
| 2015/16 | £1,345,677 | £1,095,147 |
| 2014/15 | £1,194,160 | £1,097,486 |
| 2013/14 | £850,557 | £838,633 |

**IV.5 - Research and Monitoring Programmes**

The Minsmere Reserve Management Plan contains a whole set of measures for monitoring the physical and biological environment and protocols for specific actions when required. Key avian and non-avian species and environmental factors for annual monitoring are identified in consultation with national experts from RSPB's Reserves Ecology department. Breeding populations and, where appropriate, breeding productivity are monitored for key species against the objective targets in the site management plan. Likewise the environmental factors are also monitored at a frequency identified in the management plan against targets linked to the habitat and species objectives. These include, for example, water levels and salinity in the wetlands and species frequency and age composition, alongside extent of bare ground in the Heathland areas.

This monitoring helps inform how successful the management programmes are in maintaining the habitats in favourable conservation condition and how well the key wildlife is responding to this regime. This data is reviewed on an annual basis in consultation with regional and national authorities and experts and where necessary changes to management regimes to reach the desired outcomes are proposed.

The scientific activity is implemented not only by the staff and volunteers, but also by Research Institutions implementing their studies in an exceptional natural laboratory. Significant efforts have been made to update the species inventories for fauna and flora, particularly for invertebrates and aquatic species.

**IV.6 - Relationship between the Reserve Administration and other stakeholders**

The character of RSPB as a charity organisation makes the contact with different sectors of the civil society and with the Administration to be very fluent. They actively participate in the very many social and environmental events and activities taking place in the area. Their volunteering programmes

also ensure that local people living close to the Reserve are very much integrated in the day to day activities. Also RSPB actively participates in the consultation process of any activity, plan or project that can affect the site, particularly in the Management Plans of Minsmere as SSSI and AONB. It can be said that RSPB has an excellent reputation across the UK and has a strong degree of integration within the British society and at local scale it is also very well integrated.

**IV.7 - Public services including waste management**

The Visitor Centre and the office-laboratory building have efficient wastewater systems to avoid pollution of air, water and soils.

**IV.8 - Use of renewable energy systems**

The Visitor Centre, Discovery Centre and the office building obtain a relevant part of the energy needs by means of solar panels. A project to introduce further solar generation to the site, with an anticipated generation of 49,68 kWp, is planned for autumn 2018.

## V. USES AND SOCIO-ECONOMIC ACTIVITIES

**V.1 - Exploitation of natural resources**

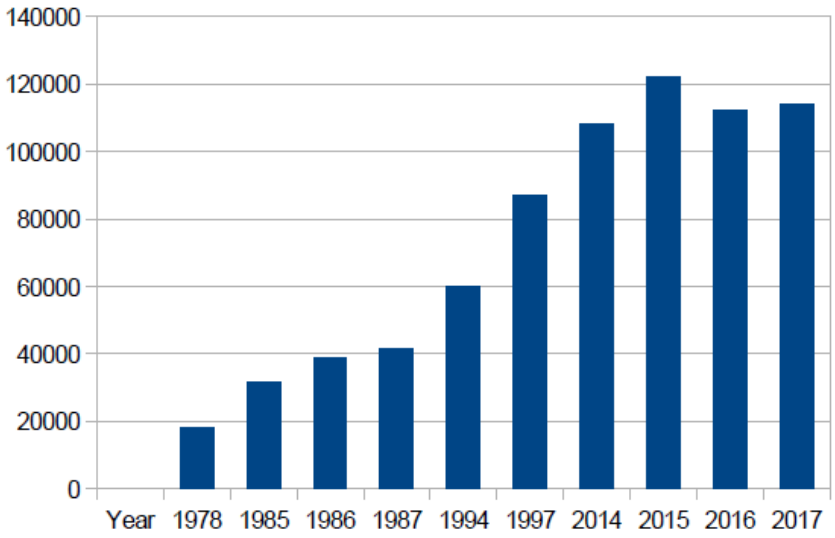
Several habitat management activities have provided income that supports the successful function of the site in recent years. This includes the sale of timber arising from the restoration of Heathland and management of woodland and the provision of grazing to local cattle owners on the wet meadows.

**V.2 - Tourism and leisure activities**

Minsmere is one of the most famous nature reserves in the UK. The ecological importance with over 5.700 species recorded in about 1.000 hectares (more than any other reserve in the UK) and the quality of the facilities for a pleasant visit makes this area of special interest for a wide range of visitors.

Nature tourism (particularly for birders) is frequent in the area, throughout the year, with a maximum in spring months and at the end of the summer, probably because of the bird migration. This activity has positive repercussions on the economic activity of the region in terms of incomes, as indicated in socio-economic studies performed in the area.

The total number of visitors has largely increased throughout the time. The peak observed in 2015 is likely to be a consequence of the BBC live broadcast 'Springwatch' in May and June 2014, which attracted 2,5 million viewers per night four nights a week for three weeks. This event raised tremendously the RSPB profile across the UK.




*Data obtained from the annual reports and from appraisal reports*

In 2012 the Discovery Centre, the Wild Zone and the Wild Wood Adventure opened at Minsmere to offer alternative activities of leisure and education for families, schoolchildren and special groups. As a result of that, the child visits have significantly increased.

**V.3 - Education and awareness raising**

Minsmere Reserve has specific staff to provide attention to the visitors of any kind. Volunteering programmes are also provided for these tasks and they play a key role in all the education and awareness raising activities at the Reserve. Both, staff and volunteers show a great commitment to the tasks they perform and a great professionalism, as the undersigned could see and verify during the appraisal visit.

Activities like the Red Deer rut safaris and the bird ringing demonstrations led by the Waveney Bird Club and supported by BTO, are very popular.

A specific programme usually attended by 2.300 - 2.800 schoolchildren is implemented at Minsmere Reserve. Frequent contacts with Secondary Schools have also been made to increase their involvement in nature issues, and even to encourage teenager volunteering, developing attractive activities, like practical ecological sampling and participation in monitoring activity.

The Minsmere Young Wardens programme was established in 2015 aiming to involve and train young people (13 to 18 years) in the common management tasks of the Reserve and in wildlife knowledge. During the appraisal visit there was an opportunity to receive the input from the responsible of this activity. Older members are already taking up roles within the conservation sector.

Since 2016 an activity called "Minsmere Reedlings" for children under 5 years old and their parents has been organized. They meet once per month for seasonal fun, stories, craft and adventures.

Minsmere also offers education and raising activities on request, with a range of family practices during school holidays: children's birthday parties, short guided walks, pond dipping, bird ringing displays, craft activities, owl pellet dissection, etc. The results have been very positive in terms of increasing level of participation and learning and of economic support for the conservation works.

**V.4 Car traffic and public access**

Minsmere Reserve is accessible by car. There is a Visitor Centre and a car park for 233 units (including 8 disabled spaces) and 2 coaches (these under prior arrangement). Only a few days per annum (less that 25) it is necessary to provide additional places. The parking capacity is the main indicative limit for overcrowded days.

Access to the Visitor Centre and the nature trails and hides is available all year round, except Christmas and Boxing Day.

**V. 5 - Hunting/fishing**

Hunting and fishing are not allowed at Minsmere Reserve

**V.6 - Human occupation**

There are several private residences within the boundary of the reserve, but the RSPB maintains good relations with the occupants and no adverse impacts on the integrity of the reserve have been identified in recent years.

**V.7 - Cultural heritage**

In the area of Minsmere Levels there is a ruin of the Leiston Abbey, built in the XII$^{th}$ Century. Only the remaining of the chapel can be found nowadays, but it is an important part of the landscape and the history of the area.

## VI. CONNECTIVITY OF THE AREA

**VI.1 - Ecological connectivity with other areas**

Minsmere is connected to other surrounding natural areas scattered among small villages, farmlands and forests.

### VI.2 - Other forms of recognition awarded

The Reserve is included in other **national designations** for its protection:

- Site of Special Scientific Interest (SSSI) Minsmere and Walberswick Heaths and Marshes. Category I. Surface area: 2.305 under the responsibility of Natural England.
- Area of Special Protection (previously Bird Sanctuary): This designation aims to prevent the disturbance and destruction of the birds for which the area was identified, by making it unlawful to damage or destroy either the birds or their nests.
- Area of Outstanding Natural Beauty (AONB),
- Suffolk Heritage Coast

The site has also some **international designations**:

- Wetland of International Importance of the Ramsar Convention. Surface area: 2.019 ha.
- Special Protection Area (SPA) Minsmere-Walberswick, according the Birds Directive. Surface area: 2.019 ha.
- Special Area of Conservation (SAC) Minsmere to Walberswick Heath & Marshes. Surface area: 1.238 ha

## VII. IMPLEMENTATION OF THE CONDITIONS AND RECOMMENDATIONS

The current report is aimed at the assessment of the European interest of the protected area and of the fulfillment of seven recommendations stated in the last renewal of 2009 (Resolution CM/ResDip(2009) 9). These are as follows:

**Assessment of the RECOMMENDATION 1:** *The control of the invasion of bracken using mechanical means should be continued; if necessary very selective spraying of chemical products should be carried out and careful record of this kept.*

Minsmere Reserve is carrying out since decades many efforts for the restoration of heathlands and woodlands and has a lot of experience in the use of different techniques. According to that, there are evidences that the use of mechanical means for the treatment of big areas covered by bracken is not only extremely expensive, but also quite ineffective. During the recent years a big restoration project concerning a surface area of more than 240 ha of Sandlings heathlands, has been started and it will continue for at least the two coming years. Under these conditions neither the mechanical means nor "selective spraying of chemical products" are adequate or sufficient for such a big effort. For that reason a wider use of herbicides for bracken and gorse control has been necessary.

The sprinkling of Asulox has been made by means of nebulizers attached to tractors or helicopters to get rid of big extensions of soil densely covered by bracken, in order to prepare the ground for the following stage of the recovery process: the mechanic removal of litter. Only after these previous stages the natural seedbank may start to act and germinate, allowing the heathland plants to re-colonize their original grounds, as described in the section II.2.5 of this report.

This Recommendation 1 has been fulfilled for punctual treatments in cases of bracket and gorse encroachment after the treatment, or for the restoration or recovery of small areas. To be realistic, this recommendation cannot be fulfilled for the treatment of big surface areas.

All applications of herbicides have been carefully recorded and have been subject of advice and control by Natural England.

This Recommendation 1 has, therefore, been partially fulfilled.

For the ongoing renewal **this recommendation should be reformulated**.

**Assessment of RECOMMENDATION 2:** *A contingency plan to deal with the issue of sea level rise and increased freshwater flooding of the grazing marshes should be drawn up; in the short term, the feasibility of preventing/limiting the risk of saltwater entering the reedbed and lagoon systems by building up existing internal banks should be studied; in the longer term, a strategy for sustainable management of the coast in conjunction with all key stakeholders should be developed; discussions with the Environment Agency to reduce the risk of freshwater flooding through modification of the Minsmere sluice should be continued.*

This important issue has been seriously considered by all the competent Authorities and many studies have been carried out, in order to assess the problems in a multi-disciplinary way and to propose measures to cope with them. Even more importantly, they have acted jointly, along with all the stakeholders concerned by this issue, Minsmere Reserve included. An important step forward has been the "Suffolk Coast & Heaths Area of Outstanding Natural Beauty Management Plan 2013-2018". A follow up Plan is already drafted and a consultation process has been undertaken.

The Environment Agency has repaired some infrastructures damaged by surge tides, particularly the Sluice, the clay dike and other minor devices. However, the Authorities and the stakeholders are perfectly aware that the climate change and its consequences, like the sea level rise, are unavoidable. Instead of proposing measures to maintain the current situation by means of costly and/or unsustainable infrastructures, new approaches focusing on adapting strategies for freshwater habitats towards new areas of brackish or saline habitats have been formulated. In some areas no more repairs will be done to infrastructures when damaged by storms or surge tides.

This conditions has, therefore, been satisfactorily fulfilled.

For the ongoing renewal **this recommendation should be reformulated**.

**Assessment of RECOMMENDATION 3:** *The Reserve Management Plans 2008-2013 and 2013-2018 should be implemented.*

The Management Plans quoted under this Recommendation 3 have been replaced by the existing one, covering from April 2015 to March 2020. This document also includes the Dingle Marshes RSPB Reserve, located North and very close to Minsmere.

This condition has, therefore, been satisfactorily fulfilled.

For the ongoing renewal **this recommendation should be dropped**, since the Management Plan is being renovated every 5 years and many conservation measures are included in the AONB and SSSI Management Plans.

**Assessment of RECOMMENDATION 4:** *The purchase of land should be continued.*

Land purchase has not been possible, since the only existing opportunity to buy some agricultural plots finally failed. The owner at a certain point withdrew his initial offer.

However, some agreements were achieved with this and other owners of lands, allowing RSPB to perform some conservation actions on their properties. These agreements, although are not permanent, are cheaper and allow to extending the management activity beyond the Minsmere boundaries.

This Recommendation 4 could not be fulfilled, although alternatives have been found to implement the biodiversity conservation action to areas not belonging to Minsmere Reserve.

For the ongoing renewal **this recommendation should be reformulated**.

**Assessment of RECOMMENDATION 5:** *Vigilance with regard to alien species of flora, especially controlling and managing pirri-pirri bur (Acaena anserinifolia) should be maintained, and the control of mink (Mustela vison) should be continued.*

Alien invasive species is a great problem in Minsmere and the two ones quoted under this Recommendation 5 are probably the most damaging ones. The mink is actually very rare or even eradicated, although it is being under strict monitoring. Permanent efforts are being made to detect and capture any single individual that may appear.

Pirri-pirri bur is a very invasive plant and it is very difficult to eradicate. Many attempts have been made to find efficient ways to remove this species and many methods have been applied, to test the most effective, either isolated or combined, under different conditions: grazing, cultivation, uprooting, ploughing, chemical control, etc. None of them have provided up to now satisfactory results, only minor achievements.

This Recommendation has, therefore, been fulfilled, although the desired results could not be satisfactorily achieved.

For the ongoing renewal **this recommendation should be maintained**.

**Assessment of RECOMMENDATION 6:** *The role of the Reserve as a demonstration site for a wide range of audiences, especially formal school parties, and for informal education/awareness-raising activities for children and families should be developed.*

As described in sections V.2 and V.3 of this report, the Minsmere Reserve has carried out many activities for visitors of any kind, which have been extremely successful. In particular, the Discovery Centre, opened in 2012, has been very welcome by families, schoolchildren and special groups that may enjoy alternative activities of leisure and education.

Minsmere has also a very important Volunteering Programme, whereby local people or interested persons from other areas can cooperate and learn, while providing a valuable service to the environment.

The programme "Minsmere Young Wardens" is also being very successful and some achievements are being made in terms of integration with the local society, improvement of wardening and protection and awareness raising among the teen-agers.

Other activities like "Red Deer Rut Safari", bird ringing demonstrations, "Minsmere Reedklings", etc. have also been very welcome by visitors.

This Recommendation 6 has, therefore, been largely fulfilled.

For the ongoing renewal **this recommendation should be dropped**, since this Reserve (like most RSPB Reserves) is exceptionally well prepared and makes big efforts to provide a wide range of education and awareness raising to visitors of many kinds and, in particular, to schoolchildren and young people. These activities are well established in the roadmap of all RSPB Reserves and Minsmere is one of the most highlighting regarding these aspects.

**Assessment of RECOMMENDATION 7:** *A rotational fallowing regime on the freshwater sections of the coastal lagoons to increase invertebrate biomass for breeding and passage waders should be implemented.*

At summer, coastal lagoons are periodically subject to alternative flooding with freshwater, brackish and saline water, combined with periods of fallow soils. This is aimed to increase the diversification of wetlands and promote the biodiversity, particularly of the aquatic invertebrates. These practices are being quite successful in terms of increase of waders like lapwings, etc.

At the same time, this measure may be very a useful tool to reduce the spread of the mare's tail herb (*Hyppuris vulgaris*), an invasive species.

This Recommendation 7 has, therefore, been satisfactorily fulfilled.

For the ongoing renewal **this recommendation should be dropped**, since this periodic activity has been incorporated within the Management Plan as an ordinary practice.

**FINAL APPRAISAL**

The undersigned expert recommends the renewal of the European Diploma for Protected Areas to Minsmere Reserve in September 2019, since the area is of exceptional European interest and it is managed in an exemplary way.

In previous renewals no conditions were stated. Nevertheless, the worrying insufficient information regarding the environmental effects of the project of a third reactor in the Sizewell nuclear power plant requires that **a condition should be established for the renewal in 2019**: "With regard to the project of third reactor at the Sizewell nuclear power plant (project Sizewell C), a proper Strategic Environment Assessment and an Environment Impact Assessment according to international standards must be carried out. The results of the assessments should ensure that the construction of the new reactor will not be at the detriment of the Minsmere Reserve".

As stated above, some of the recommendations formulated for the previous renewal should be dropped for the ongoing renewal, but others should be maintained or reformulated. The following recommendations to the renewal of the European Diploma are proposed:

**Recommendation 1**: The control of the invasion of bracken using mechanical means should prevail over the use of herbicides; in cases of restoration of big areas, the use of chemical products should be carried out in the minimum possible extent and a careful record of this practice should be kept in order to assess and cope with possible undesirable side effects. Specific scientific research on this issue should be carried out.

**Recommendation 2:** As regards the risk of sea level rise all along the Suffolk coast, the provisions of the different Management Plans elaborated by the different competent authorities like the Suffolk Coast, the Environment Agency, the authority of Area of Outstanding Scientific Beauty, etc., regarding the protection of the shoreline and the natural habitats, including the Minsmere Reserve, should be fulfilled. Nevertheless, efforts to mitigate the effect of sea level rise must be pursued. The possibility of restoring the lost habitats at other places of the reserve and/or envisaging compensatory measures should be explored. Indicative plant and fauna species should be carefully monitored and the occurring changes duly registered and scientifically characterised. The eventual modification of habitats towards more saline standards will encompass modifications of the biota that should be optimised in terms of the European interest of the site, in so far as the scientific knowledge and the available resources allow it.

**Recommendation 3**: Land purchase policy should be continued. In the absence of opportunities to buy new plots, long-term agreements with the owners of selected areas to improve their contribution to the biodiversity conservation and/or restoration should be established.

**Recommendation 4**: Vigilance with regard to alien species of flora, especially controlling and managing pirri-pirri bur (*Acaena novae-zelandiae*) should be maintained, and the control of mink (*Mustela vison*) should be continued.

**ACKNOWLEDGMENTS:**

The undersigned expert must, first of all, express her warmest thanks to the Director of the Minsmere Reserve, Adam Rowlands, who made so many efforts to organise and implement a fascinating appraisal visit. It was a huge pleasure to meet him and his team, so devoted and committed. In particular I would like to thank him, Graham White, the expert on reedbed and wetland management, Katie Fairhurst, specialist in plant management and Mel Kemp, expert in heathland management and restoration for sharing with me their comprehensive knowledge in their respective fields. Their explanations on heathland restoration and on wetland management programmes were extremely clarifying and I could understand the complex reality of this area.

The interaction with other members of the staff was extremely effective, allowing me to learn on key matters like the attention to visitors, education and awareness raising, volunteering, infrastructure maintenance, etc. Everything was extremely useful to have a complete overview of the current situation at Minsmere Reserve. Special thanks to Robin Harvey, Chris Ford, Jo Gilbert, Louise Gregory, John Haw and Matt Parrott, who showed me so many wonders and explained me how they deal with their tasks with so much affection and passion. Their personal commitment and love for their work and for nature was something that touched me a lot.

I also very much appreciate the contribution of Simon Amstutz, from AONB authority, and Matt Ginn, from Natural England who showed me other aspects of the high degree of protection existing at the Suffolk coast, by means of designations like Area of Outstanding Scientific Beauty (AONB) Suffolk Coast & Heaths and Site of Special Scientific Importance (SSSI) Mismere and Walberswick Heaths and Marshes.

Sue Green, operations officer, helped me a lot with all necessary arrangements prior to the visit.

To all of them many thanks for being so inspiring, so honest and transparent when sharing with me the most updated and accurate information to carry out this mission for the Council of Europe, while allowing me to enjoy their company and the wildlife around us.

It was an unexpected pleasure to meet, just by chance, the members of the Minsmere Levels Stakeholders Group, and learn about their activity and concerns in relation to the project Sizewell C. In particular, many thanks to John Rea Price, for his publication on the history of the Minsmere Levels, which helped me a lot to understand the current situation of the wetlands, and to Paul Collins

for providing important information on the threats that the area must cope with.

This has been an unforgettable visit and I hope that it can contribute to obtain the deserved recognition of this unique piece of nature and wonderful people.

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## Annex I : Programme of the visit

**28 June**

**Participants:** Katie Fairhurst, Robin Harvey, Mel Kemp, Blanca Ramos Losada, Adam Rowlands, Graham White,

**9:30 Arrival & Coffee at RSPB Minsmere Visitor Centre**

**10:00 Introduction to visit in Hosking Room**

| | | | |
|---|---|---|---|
| 40 years of Minsmere | **AR PPT** | **30 mins** | **10:30** |
| Climate change and dynamic management | **AR PPT**<br>**GW PPT** | **20 mins**<br>**20 mins** | **11:10** |
| Funding mechanisms | **AR PPT** | **10 mins** | **11:20** |
| Volunteering | **AR/KF PPT** | **15 mins** | **11:35** |

**Travel to lunch venue via Whin Hill – 20 mins – 11:55**

**12:00 Lunch – Eel's Foot - socio-economic benefits**

**13:15 Site visit by 4x4 –** joined by Simon Amstutz (AONB) & Jon Haw tbc

| | | | |
|---|---|---|---|
| Heathland restoration | **MK - Mumberry** | **45 mins** | **14:15** |
| Partnership work in Dunwich Forest & at Dingle | **MK – Area 5**<br><br>**RH/KF – Little Dingle** | **20 mins**<br><br>**60 mins** | **14:45**<br><br>**16:00** |
| Pirri pirri bur control | **KF/MK C60** | **30 mins** | **16:45** |
| Deer safari | **MK/AR – north arable** | **30 mins** | **17:30** |

**19:00 Evening meal – Theberton Lion tbc**

**29 June**

**Participants:** Chris Ford tbc, Jo Gilbert, Louise Gregory, Robin Harvey, Jon Haw, Matt Parrott, Blanca Ramos Losada, Adam Rowlands

**09:30 Site visit on foot**

| | | | |
|---|---|---|---|
| Coastal change and adaption | **AR - sluice** | **120 mins** | **11:30** |
| Sizewell C development | **AR - sluice** | | |
| Dynamic wetlands | **RH – scrape/levels** | | |
| Getting closer to nature – bees, wasps & adder trail | **MP – 'digger alley'** | **20 mins** | **12:00** |
| Visitor income | **LG - VC** | **30 mins** | **12:30** |

**12:45 Lunch at Minsmere café –** joined by Simon Amstutz (AONB) & Matt Ginn (NE)

**13:30 Discovery Centre to Hosking Room**

| | | | |
|---|---|---|---|
| Education | **CF** | **15 mins** | **13:50** |
| Suffolk Wader Strategy & Landscape-scale conservation | **AR - PPT**<br><br>**JG - PPT** | **15 mins**<br><br>**15 mins** | **14:30** |
| Suffolk Coast AONB and European Designated sites | **SA - PPT**<br><br>**MG - PPT** | **15 mins**<br><br>**15 mins** | **15:10** |
| BREXIT | **AR** | **10 mins** | **15:25** |
| Priorities for the next decade | **JH/AR** | **45 mins** | **16:20** |
| Summing up | **JH** | **10 mins** | |

**16:30 Tea, cake and farewells**