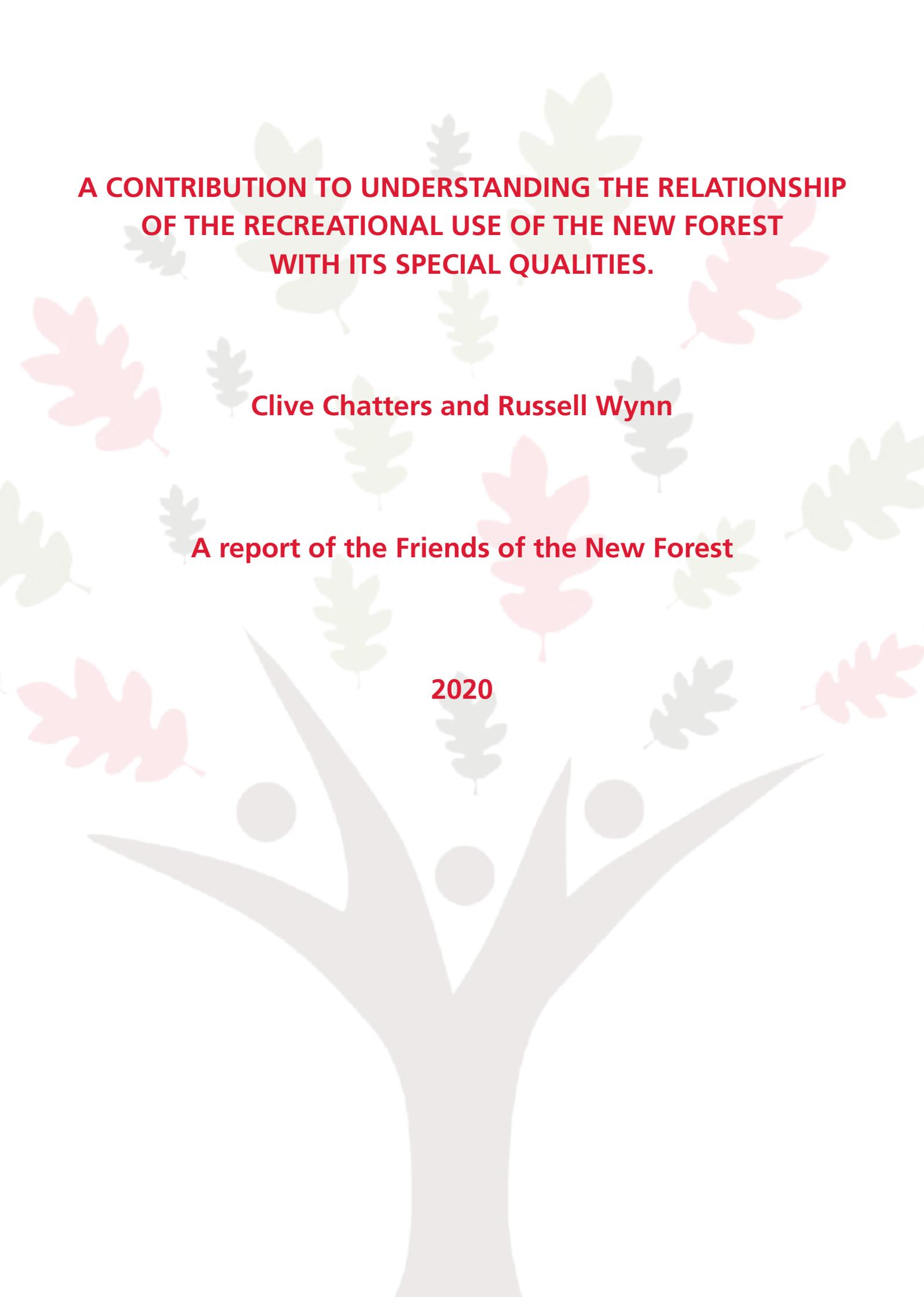


**A CONTRIBUTION TO UNDERSTANDING THE RELATIONSHIP
OF THE RECREATIONAL USE OF THE NEW FOREST
WITH ITS SPECIAL QUALITIES.**

Clive Chatters and Russell Wynn

A report of the Friends of the New Forest

2020



The Friends of the New Forest

The Friends of the New Forest was established in 1867 as the New Forest Association and is one of the oldest conservation organisations in the world. With the establishment of the New Forest National Park in 2005, the Association was recognised as the official partner of the Campaign for National Parks (itself established in 1936) for championing the interests of the New Forest. The Association is a charity registered in England and Wales No. 260328.

www.friendsofthenewforest.org

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Summary

This review presents evidence and analysis to assist discussions and decisions relating to the management of recreation in and around the New Forest National Park. The review identifies the scope of the statutory Special Qualities of the National Park, before investigating in more detail the interactions of recreation with the extraordinary diversity of plants and animals of international importance within designated wildlife sites.

The review recognises that there is sufficient information available to identify the issues to be addressed in the assessment of future strategies, plans and projects. However, there are significant data deficiencies to inform those assessments. There is a lack of base-line data and a need for long-term monitoring to measure changes and to assess the efficacy of management.

In the absence of sufficient baseline information, assessments of strategies and plans for recreation management must take a precautionary approach and will need to demonstrate they are having no adverse effects on internationally protected wildlife sites.

The Authors

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Introduction

In June 2020 the Friends of the New Forest / New Forest Association undertook to review what is known about the relationship of the Special Qualities of the New Forest with its use as a recreational resource. This review was stimulated by the long-standing debates into a strategy for recreation management in the National Park, together with witnessing the unprecedented pressures on the Forest that arose when the lock-down phase of the COVID-19 pandemic was partially lifted.

For the purposes of this review, the New Forest is taken to mean the New Forest National Park and its immediate surrounds. The special qualities are taken to be the National Park's Special Qualities as defined under Section 61 of the Environment Act 1995. We did not seek to define recreation but noted that one of the Section 61 Special Qualities are the 'opportunities for quiet recreation' together with 'opportunities for open access on foot and horseback'.

There have been many studies into recreation and the New Forest dating back over 50 years. These previous studies have taken many forms. In recent years the growth of recreational use arising from nearby urban growth has been subject to numerous assessments under the Habitats Regulations and other statutory procedures. A common factor in all of these studies is that they have taken a broad overview of the issues rather than an analysis of individual Special Qualities. The Association hopes that this contribution to the debate will assist in the future assessment of the relationship of emerging strategies, plans and projects with the individual, and collective, Special Qualities.

The scoping exercise

Our scoping exercise (Appendix A) revealed the extent required for a full review. Such a comprehensive review would take considerable time and resources and would be at risk of missing opportunities to inform the thinking of statutory agencies at this critical time.

It was therefore decided to focus on one Special Quality; that of -

An extraordinary diversity of plants and animals of international importance.

Furthermore, given the great numbers of habitats that are recognised as being of international importance, with their attendant plants and animals, we decided to focus on a single site that is subject to three international designations, namely, the New Forest Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar site. We recognise that there are additional features of importance that are not embraced within these statutory designations; however, to simplify our review we have concentrated on features identified through statutory international designations.

The New Forest SPA, SAC and Ramsar site

The New Forest SPA, SAC and Ramsar site is one of three groups of closely related international nature conservation designations within the National Park. The other groups cover the Forest's coast together with the corridor of the River Avon and its floodplain.

The citations for the Natura 2000 designations (the collective term used to cover SPAs and SACs) give precise descriptions of features of international importance. Subsequent to these citations being written there has been case law that confirms that any feature listed in the relevant Directives are material issues when any plans or projects relating to a site are considered. The designation under the Ramsar convention is more inclusive in its wording and so requires more interpretation to understand its intent. The Ramsar convention places considerable emphasis on rare and threatened species and it is in this context that we have included references to breeding waders as representatives of this wider interest.

Appendix B is a summary of the birds relating to the New Forest SPA and Ramsar site. Appendix C is a summary of habitats and non-avian species relating to the New Forest SAC.

The study site and generic relationships of the Special Qualities with recreation

The habitats of the New Forest SPA, SAC and Ramsar site are predominantly the habitats of the Open Forest and the statutory inclosures. The statutory inclosures are where Forest rights have been suspended to enable the state to establish timber plantations. The Open Forest is the area where commoners' livestock are free to roam. This is a landscape that is subject to its own primary statutes and is administered by the Court of Verderers under the New Forest Acts. The majority of the Open Forest is part of the Crown Estate, which for practical purposes is managed by Forestry England, previously known as the Forestry Commission. An important minority part of the Open Forest is owned and managed by public bodies (Parish and County Councils), a charitable body (National Trust), landed estates, commercial companies and private individuals. There are about 50 different owners of the Open Forest but there are no physical boundaries to these properties 'on the ground' that would restrict the movement of commonable livestock.

The international importance of the Open Forest to wildlife is dependent on the continuity of pastoralism which in turn is dependent upon the commoning economy.

The relationship of the commoning economy with recreational use of the Forest has been the subject of various studies. At a strategic level, commoners are in competition with recreationalists for access to enclosed fields and smallholdings. A report by the Royal Agricultural College/University of Bath of 1994 noted 'recreational horse keeping...has inflated the price [of land] way beyond the reach of commoners'. The recent report by Chatters and Kernohan (2013) quantified this economic issue and explored the effects of recreational uses of enclosed land on the fragmentation of commoners' holdings.

Over the years there have been many incidents where commonable livestock have been 'worried' and harassed when turned out on the Open Forest. Similarly, we are aware of commoners expressing concern that recreational uses can interfere with their ability to manage their livestock. This interference ranges from organised recreational events conflicting with activities such as drifts, to daily incidents with lesser 'headline' issues but of an equally corrosive nature. As far as we are aware this generic issue has yet to be quantified.

Occasionally, there are claims that the commoning economy is a beneficiary of recreational uses; notably in the provision of livery and campsites. While we are aware of this claim we are unaware of any systematic analysis or quantification.

The generic issues relating to recreational impacts on wildlife are summarised in the table on the following page.

The generic issues relating to recreational impacts on wildlife are summarised in the following table:

Recreational impacts on wildlife in the New Forest
Attrition to air quality, both generic and localised
Collection of living material (ie foraging for fungus etc)
Compaction of soils resulting in a change to vegetation and attendant species
Construction of recreation facilities resulting in attrition and localised losses of habitats and species
Disturbance of a species to a degree that it disrupts their ability to successfully fulfil their lifecycle
Enhanced risk of unmanaged fires including localised losses of deadwood and other flammable material.
Erosion of soils and vegetation resulting in the creation of permanent bare ground
Modification of habitats and individual species (i.e. veteran trees) for the convenience and safety of recreational users.
Recreational use being a vector for the introduction of compounds that have an adverse effect on habitats and species (i.e. fertility, herbicides & veterinary compounds)
Recreational use being a vector for the introduction of invasive non-native species.

Recreational use being a vector for enhancing the populations of generalist native predators.

Recreational use being a vector for the introduction of pests, parasites and diseases.

These issues are explored in greater depth in the following sections.

- H3110 Oligotrophic water contains few minerals of sandy plains

Specific relationships

Birds of the New Forest SPA and Ramsar site

The New Forest SPA and Ramsar site supports seven species of birds listed as qualifying features of which Hen Harrier and Wood Warbler are at risk of imminent extirpation. Similarly, Dartford Warbler and Hobby have experienced greater than 50% declines since the SPA and the Ramsar site were designated in 1993, although the decline of the former species is most likely a short-term response to an acute climatic event. The area hosts a further eight species of regularly occurring Annex 1 species, all of which are stable or increasing and all of which occur on heathland and wetland habitats.

For at least 25 years it has been recognised that recreational use of the New Forest is likely to be having negative impacts on SPA and Ramsar species, particularly those of heathland and wetland habitats. To our knowledge there are no studies that have specifically focussed on collecting contemporaneous data assessing interactions between recreational users and Qualifying Features of the New Forest; similar studies conducted at other SPAs in southern England have demonstrated negative impacts. Proper caution should be applied when interpreting these studies in the context of the New Forest. In the New Forest there are other important drivers of SPA/Ramsar species populations, distributions and productivity, notably; the management of vegetation (including burning and grazing regimes), predation of eggs and chicks, and acute hydro-meteorological events.

There is some evidence from New Forest bird surveys for recreational disturbance possibly negatively impacting on Nightjar and Woodlark. In addition to Annex 1 and Ramsar species there is some evidence from New Forest bird surveys for recreational disturbance negatively impacting on breeding waders, notably Curlew, Redshank and Lapwing.

The imperfect nature of the science of bird disturbance need not be a barrier to decision-making. Importantly, on Natura 2000 sites, the burden of proof falls on the proposers of activities to demonstrate that their proposals will not adversely affect the integrity of an SPA. The test that applies to such assessments requires 'complete precise and definitive findings and conclusions capable of removing all reasonable scientific doubt'. Details of these obligations are summarised in the Commission notice C(2018) 762.

Species under consideration

A full list and status update of species under consideration in this report are set out in Appendix B. These species are SPA and Ramsar qualifying features together with additional Annex 1 species which are material to any consideration of the designated sites.

For the purposes of this review, the species that predominantly utilise heathland and wetland habitats within the New Forest are considered first, and the much smaller number of species that wholly or predominantly utilise woodland habitats are considered last. Potential impacts of recreation on these species (Lake et al., 2020) include direct disturbance (e.g. avoidance of breeding habitat, physiological impacts, reduced productivity), habitat degradation (e.g. fire, pollution), and increased food availability for generalist predators (e.g. discarded food, road kill).

Heathland species

The SPA/Ramsar heathland species under consideration are Nightjar, Woodlark, Dartford Warbler, Hen Harrier and Hobby, while additional Annex 1 species include Peregrine, Merlin and Short-eared Owl. Of these, Hen Harrier, Merlin and Short-eared Owl are winter visitors only, while the remainder are breeding residents and summer visitors. Red Kite currently breeds just beyond the New Forest boundary, but is an increasingly common visitor at all seasons with a peak in spring.

A report commissioned by the National Park Authority in 2008 (Sharp et al., 2008) investigated changing patterns of visitor numbers within the New Forest National Park, with particular reference to the New Forest SPA; the authors specifically focussed on Nightjar, Woodlark and Dartford Warbler, as studies elsewhere in southern England have shown impacts to these species from housing and recreation (e.g. Mallord et al., 2007). However, they found no evidence base for the impacts of recreational disturbance on these

species in the New Forest. Studies on the Dorset and Thames Basin heaths showed some negative impacts from housing and recreation, but whether they are directly translatable to the circumstances of New Forest requires thought, given the differences in scale, housing density, grazing/management regimes and recreational use patterns compared to the other two sites.

The authors then undertook spatial analysis of existing visitor and bird data in the New Forest to assess whether recreational disturbance was impacting Nightjar, Woodlark and Dartford Warbler. They commented on the lower densities of all three species compared to the Dorset and Thames Basin heaths, but found no evidence for recreational impacts having a population level effect. They did note slightly lower densities of the featured species in areas of highest visitor pressure, but concluded that:

“Further work is needed to understand the generally low densities and the range of factors that may determine why densities are comparatively low within the New Forest. Without such an understanding it is difficult to determine the extent to which disturbance may have consequences for bird populations of interest”.

It is also notable that the authors, in 2008, recommended a coherent future monitoring strategy that included both New Forest visitor data and biological information, to assess the impact of management interventions and future changes in visitor and bird patterns; they also suggested a focus on particularly sensitive species and sites, including breeding waders and wetland sites adjacent to car parks or other heavily used areas.

Seven years later another report was commissioned by the National Park Authority (Liley and Lake, 2015), which built upon the above findings and produced a series of research recommendations for investigating the impacts of recreation on ground-nesting birds, particularly those using heathland and wetland habitats. The authors concluded that:

“There is currently little research specific to the New Forest indicating whether disturbance to ground nesting birds is an issue, as it has been shown to be for some species in other areas”.

More recently, Nightjar, Woodlark, Dartford Warbler and wintering Hen Harrier have all been comprehensively surveyed in the New Forest as part of the Higher-Level Stewardship (HLS) programme, and the respective reports are available at the address in the references.

However, it should be noted that in almost all cases, these surveys do not systematically record data on recreational users or any interactions with the species being surveyed. An overview is provided by Lake et al. (2020) and the most recent surveys summarised below:

- The most recent HLS Nightjar survey was conducted in 2018 and recorded 435 territories, which represents a short-term decrease set against a long-term increasing trend. It was suggested that cold weather in spring 2018 may have adversely affected the species, but other factors including grazing/management regimes and recreational disturbance could not be ruled out.
- The latest HLS Dartford Warbler survey saw a two-thirds decrease in the New Forest population due to the unusually cold weather experienced in early 2018 (the ‘Beast from the East’), with the management of the vegetation potentially exacerbating the species’ vulnerability to severe weather. There was no evidence presented for recreational disturbance currently impacting this species in the New Forest.
- Woodlark were surveyed as part of the HLS in 2019 and shown to have increased over the long term to a current level of ~170 pairs. In contrast to the Dartford Warbler, the current management of vegetation is evidently benefiting this species, and its’ ability to migrate short distances to evade severe weather has aided overwinter survival. The authors stated that long-term monitoring in the New Forest has provided no evidence for recreational disturbance being a significant threat at a population level, and that areas with the greatest density of Woodlarks actually occur in some of the most heavily visited parts of the Forest.
- Hen Harriers have dramatically declined as a wintering species in the New Forest in recent years, with no more than two or three recorded by the Hampshire Ornithological Society as part of regular monitoring under the HLS. Although in the past there have been concerns raised about bird-watchers disturbing Hen Harriers at communal roost sites, their appearances are now so irregular and sporadic that this is unlikely to be an issue. The reasons for the decline are unclear, but may be related to the overall decline in the English breeding population.

Overall, the evidence from recent surveys suggests that the management of vegetation and acute hydro-meteorological events are more likely to be significant drivers in population levels of Nightjar, Woodlark and Dartford Warbler in the New Forest than recreational disturbance; this is consistent with the previous summary of the status of these species in the New Forest provided by Conway et al. (2010). There is no evidence for impacts of recreational disturbance on the other heathland species being considered here.

Wetland species

New Forest wetlands comprise bogs, lakes, ponds and rivers, and are utilised by a range of SPA and Ramsar qualifying species along with Kingfishers which are an additional Annex 1 breeding species and a nationally important assemblage of breeding waders (Lapwing, Redshank, Curlew and Snipe). Additional Annex 1 species that are established as regular visitors to New Forest wetlands include Little Egret, while Marsh Harrier, Mediterranean Gull and White-tailed Eagle have recently started to utilise the New Forest more regularly due to spill-over from increased coastal breeding populations and nearby reintroduction schemes, respectively.

The evidence base collected to date around recreational impacts on wetland species is largely focussed on the assemblage of breeding waders that occupy the habitats covered by the Ramsar designation. Tubbs and Tubbs (1994) reported on two years of survey work on the breeding wader assemblage in the New Forest, but also drew upon their extensive previous data and field experience; they concluded that:

“The breeding population of waders in the New Forest may be under threat from recreational disturbance, and in particular from the large number of dogs exercised in the Forest. The 1994 survey did not specifically address this potential problem, but it was evident that some wader breeding areas suffered high levels of disturbance. There is circumstantial evidence that at least locally, disturbance and/or the loss of eggs or chicks to dogs, may be implicated in the declines of Lapwing and Redshank. During the 1994 survey we identified at least four car parks which generated high levels of disturbance to important local concentrations of breeding waders and we were aware of others outside the random sample. The problem demands more attention from the Forest’s managers than it is at present given.”

In common with many of the other conclusions in their study, this statement is as valid today as it was then, and has been reinforced in subsequent surveys (e.g. Goater et al., 2004). There is a reference in Liley and Lake (2015) to regular monitoring of waders at several study plots in the period 2007-13, in areas where parking restrictions were implemented; this work was commissioned by the Forestry Commission, but apparently did not include data on recreational users or any analysis comparing plots with different levels of public access.

Since 2016, a programme of survey and monitoring of breeding waders has been conducted by Wild New Forest, in partnership with Forestry England and others; the most significant finding of this work was the two-thirds reduction in the Curlew population over the last two decades, to just 40-45 pairs, with nest predation accounting for ~50% of breeding failures (Wynn and Page, 2020). A team of volunteer observers contributed to data collection and provided numerous anecdotal observations and images of disturbance to breeding waders, mostly related to recreational users and dogs off the lead wandering off marked paths into occupied territories, leading to Curlew and Lapwing being disturbed and/or flushed. A few examples from the survey reports are quoted below:

“At Duckhole Bog, a Curlew response was noted on 28 May when a runner in a neon top with a spaniel off the lead, crossed an area of damp heath off the path and only ~50 m from the nest, instigating an alarm call from the sitting bird.”

“At Brogenslade Bottom (in 2016), the placement of ‘Dogs under Control’ signs by the National Trust at either end of a track passing close to the Curlew nest site, at the start of incubation, was felt by the site observer to have had a positive effect in reducing disturbance, with an estimated 90% reduction in dog-walker traffic; prior to the signs being emplaced, disturbance of Curlews by dogs off the lead had been noted on two dates in late April/early May.”

“Other pressures observed in the Curlew territory at Setley Plain included a walker with two dogs off the lead flushing a Curlew at 0700 on 21 April, and a female runner off the path (with a spaniel off the lead) apparently leading to a Curlew taking flight and giving a distress call at 2030 on 10 June.”

“At Holmhill Bog a Curlew pair was noted from 23 March, when flushed by seven apparent DoE participants crossing the bog.”

“Of note, at least six Curlews (presumed to be both off-duty and incubating birds) were seen in flight over Shatterford after being flushed by a low-flying motorised paraglider on 06 May.”

Wild New Forest have worked with the National Park Authority and Forestry England to increase awareness of potential disturbance issues to Curlew in particular, including media releases and a feature on BBC Countryfile (e.g. see links in the Reference section).

Hampshire Ornithological Society then co-ordinated fieldwork in 2019 as part of the HLS programme; Lake et al. (2020) reported totals from the latter as being 40 pairs of Curlew, 48 pairs of Lapwing and just seven pairs of Redshank. In 2020, Wild New Forest were contracted by Forestry England to specifically assess the impact of reduced visitor pressure, associated with COVID-19 access restrictions, on the distribution, behaviour and productivity of breeding waders of the New Forest. Their report is currently in preparation, but the population totals derived are in line with those produced in 2016-19, with 48 Curlew territories, 61 Lapwing territories and seven Redshank territories, although encouragingly the Snipe population appears stable over the long term at 151 territories. There were several observations of breeding waders being flushed by dog-walkers and their dogs, and of relatively new pressures including commercial dog-walkers and e-bikers away from marked paths in occupied wader territories; there was also a further incident of two low-flying motorised paragliders flushing a pair of Curlews with eggs/chicks in Ogden’s Purlieu (as well as causing general panic amongst livestock and other birds). Particular hotspots for disturbance included White Moor and Longwater Lawn near Lyndhurst, Hatchet Pond, and two areas of Beaulieu Heath (East) adjacent to unofficial parking areas in lay-bys. However, the surveyors are of the opinion that 1) predation of eggs, chicks and occasionally adults, 2) grazing and management regimes, and 3) acute hydro-meteorological events, are currently the major controls on breeding wader populations, distributions and productivity in the New Forest; this is consistent with the previous summary of the status of these species in the New Forest provided by Conway et al. (2010).

Of the other wetland species, there have been reports of incidents of disturbance to breeding Kingfishers and wandering White-tailed Eagles by bird watchers and photographers, but these appear to be sporadic and localised in nature.

Woodland species

Honey Buzzard and Wood Warbler are the SPA qualifying species that occur in New Forest woodlands. Reviews of the Honey Buzzard population in the New Forest make no mention of recreational disturbance being a significant issue, although there are references to illegal egg-collecting in the past (e.g. Page, 2010). Wood Warbler is currently heading towards local extirpation in the New Forest, with the current population now likely to comprise <10 territorial males (Tony Davis, pers comm); nest predation is thought to be a significant factor in the New Forest (including two nests known to have been predated by dogs), set against a long-term nationwide decline thought to be driven primarily by issues on the wintering grounds.

Existing mitigation

The recent survey and monitoring of breeding waders by Wild New Forest and Forestry England has led to clearer and more targeted signage in some key areas, increased public awareness (e.g. see weblinks in references), and an additional seasonal car park closure (Yew Tree Heath), while in 2020 several car parks remained closed after COVID-19 access restrictions were lifted due to the presence of breeding Curlews and other ground-nesting birds, e.g. Shatterford and Ocknell Pond (for examples of media coverage of these issues, see the links in the reference section).

A ranger team, funded by developer contributions, has been established in the New Forest to help manage recreational impacts. In addition, the Local Authorities have published a Recreation Mitigation Strategy that identifies the need to provide alternative green space to offset impacts of development-derived recreation on the New Forest and to monitor the effectiveness of these measures.

Habitats and non-avian species

In this section we have identified the features for which the New Forest is recognised as having international importance, and then have grouped these features for the convenience of discussing their relationship with recreational use. The groups are arranged by major habitat types within which the qualifying species are included. The key studies are all available in unpublished literature, as set out at the end of this report.

Ponds and Lakes

The Annex 1 Habitats Directive features relating to ponds and lakes are;

- H3110 Oligotrophic water contains few minerals of sandy plains
- H3130 Oligotrophic to mesotrophic standing water with vegetation
- 3170 Mediterranean temporary ponds

Ponds 'of varying size and water chemistry including several ephemeral ponds...' are cited in the introductory overview to the Ramsar designation.

The New Forest is known for its exceptional diversity and abundance of clean water ponds and lakes. Many of the ponds are seasonal and small. . The larger waterbodies on the Forest have all been created through engineering works such as by damming streams and through mineral extraction. The key common features of all these wetlands are that they have exceptionally clean water whose character is determined by the underlying geology and traditional land uses, together with being free from excessive shade whilst being open to year-round grazing by large herbivores.

The Annex I species, Floating Water-plantain and Great Crested Newts are associated with this habitat as are a very significant range of Red Data Book and nationally protected species. There are no Ramsar cited or Annex 1 bird species that are wholly dependent on these habitats but ponds and lakes have the potential to contribute to the exceptional wader and waterbird populations of the Forest

Interactions with recreational uses.

Larger standing waterbodies have been targeted for development as recreation sites i.e. Hatchett Pond, Setley Pond, Eyeworth Pond and Cadnam's Pool. The issues arising from these uses are

- Abrasion to vegetation in the draw-down zone and within the aquatic zone through pedestrians and 'dog-dipping'.
- Loss of water quality and increased turbidity through abrasion of vegetation combined with the introduction of nutrients, i.e. run-off from car parks, 'duck-feeding', introduction of coarse fish and ground baiting.
- Introduction of persistent veterinary compounds, i.e. Anthelmintics, dermal & systemic insecticides.
- Introduction and establishment of non-native species, i.e. plants, fish.

Rivers

The Annex 1 Habitats Directive feature relating to the Forest's rivers is;

- 3260 Water courses of plain to montane levels with Ranunculion fluitantis and Callitriche-Batrachion vegetation

The numerous small rivers of the Forest are cited in the overview of the Ramsar designation as having 'no lowland equivalent in the UK'. The importance of the rivers rests in the habitats they support but also in being substantially unmodified rivers systems flowing through extensive unmodified catchments

The Annex I species, Southern damselfly, Brook Lamprey, Bullhead and Otter are associated with this habitat, as are a very significant range of Red Data Book and nationally protected species of birds, invertebrates, flowering plants and lower plants. There are no Ramsar cited or Annex 1 bird species that are wholly dependent on these habitats but rivers contribute to the breeding Kingfisher and wader populations of the Forest together with visiting Little Egrets.

Interactions with recreational uses.

Rivers are attractive features and have been subject to development as recreation facilities i.e Balmer Lawn, Puttles Bridge, Ivy Wood, Latchmoor

- Modification to geomorphology through abrasion.
- Loss of aquatic vegetation to abrasion

Loss of connectivity of riverine species with marginal species through abrasion.

- Disturbance to breeding sites of Annex 1 species

Woods

The Annex 1 Habitats Directive features relating to woodlands are;

- H9120 Atlantic acidophilous beech forests with Ilex
- H9130 Asperulo-Fagetum beech forests
- H9190 Old acidophilous oak woods with Q. robur on sandy plains
- H91D0 Bog Woodland

The Ramsar citation makes no specific reference to woodlands but its overview of the wetlands would embrace the alluvial and bog woodlands together with the drier woods as components of the catchments.

The New Forest supports the greatest extent of old growth pasture woodlands in north-west Europe. The quality of the habitats is expressed through its exceptional fungal communities along with its lichen and bryophyte 'flora'. The structural diversity of the woods, including the abundance of open habitats within woodland matrices, is dependent upon the presence of large herbivores

The Annex 1 species, Honey Buzzard, nest within the woods as do Wood Warblers; Stag Beetle along with Barbastelle and Bechstein's bats are associated with breeding and feeding in this habitat as are as are a very significant range of Red Data Book and nationally protected species of birds, invertebrates, flowering plants and lower plants.

Interactions with recreational uses.

The aesthetics of pasture woodlands have resulted in many recreation facilities being set within open canopies. This includes most of the larger campsites and many car parks.

- Absolute loss of habitat through the construction of access facilities,
- Attrition to habitat through safeguarding people who are using facilities, i.e. felling old growth trees, removing limbs and branches
- Localised eutrophication, fires, fire risk and smoke pollution) introduction of veterinary compounds
- Abrasion of vegetation and soil compaction both within, and radiating out from, facilities. This is particularly severe in riparian woods.
- Introduction and establishment of non-native species, i.e. Jo-Jo Weed .

Dwarf Shrub heaths

The Annex 1 Habitats Directive features relating to dwarf shrub heaths are;

- H4010 Northern Atlantic wet heaths with Erica tetralix
- H4030 European dry heaths
- H6410 Molinia meadows on calcareous, peat or clay-silt soil

Heaths are cited in the introductory overview to the Ramsar designation with an emphasis of the importance of this suite of habitats in their own right, as well as providing a catchment that is supportive of the Forest's wetlands.

The New Forest supports the largest single stand of European dry heath and Atlantic wet heath in Britain. This heath is found within an intimate matrix of other habitats. The structural diversity of the heaths is highly complex with the dwarf shrub communities being expressed in matrices of grasslands, bogs, woodlands and other habitats, their respective characters and distribution being dependant on the ongoing management of the heath. The qualifying habitat 'Molinia meadows' is something of a misnomer and relates to the extensive areas of pastured grasslands that are present within the dwarf shrub matrix. The biological diversity of the heaths is dependent on their structural diversity which itself is a function of the continuous presence of large herbivores together with the localised effects of seasonal burning and occasional gross disturbance.

The Annex I Birds Directive species Hobby, Nightjar, Woodlark, Dartford Warbler (breeding) and Hen Harrier, Merlin and Short-eared Owls (winter visitors) are associated with this habitat along with Annex 1 species Early Gentian (single site) together with a very significant range of Red Data Book and nationally protected species of birds, invertebrates and plants.

Interactions with recreational uses.

- Absolute loss of habitat due to the construction of facilities together with abrasion along popular routes
- Suppression of early-stage succession communities in naturally open habitats, i.e exposures of mineral sub-soils
- Compaction of soils resulting in modification to vegetation
- Localised eutrophication and the introduction of persistent veterinary compounds, i.e. Anthelmintics, dermal & systemic insecticides.
- Enhanced risk of fire
- Disturbance of nesting birds resulting in greater vulnerability to predation

Bogs

The Annex 1 Habitats Directive features relating to Bogs are;

- H7140 Transition mires and quaking bogs
- H7150 Depressions on peat substrates of the Rhynchosporion
- H7230 Alkaline fens

Valley mires and wet heaths are cited as a criterion 1 reason for selection of the New Forest as a Ramsar site with the overview confirming that this is inclusive of a range of mire types and their transition zones.

The New Forest is known as the *locus classicus* of lowland bogs in Britain. The importance of the numerous bog systems is enhanced by their being set within substantially semi-natural catchments. The bogs vary in their fertility and productivity and are dependent on the presence of large herbivores to maintain their structural diversity.

The Annex I species, Southern damselfly is associated with runnels in this habitat, as are a very significant range of Red Data Book and nationally protected species of birds, invertebrates, flowering plants and lower plants. There are no Ramsar cited or Annex 1 bird species that are wholly dependent on these habitats but bogs contribute to the breeding wader populations of the Forest

Interactions with recreational uses.

By their very nature, recreational activities tend to avoid bogs. Interactions between bogs and people are commonly concentrated on routes constructed through the bogs.

- Absolute loss of habitat through the construction of access facilities, i.e raised trackways
- Disruption of hydrology through the construction of access facilities
- Abrasion and loss of vegetation alongside access facilities including 'dog-dipping'.
- Introduction and establishment of non-native species, i.e. aquatic and carnivorous plants.

Conclusions and recommendations

An assessment of the interaction of recreational uses of the New Forest with its Special Qualities has an important part to play in setting a recreation management strategy for the New Forest as well as in informing individual plans and projects.

Our consideration of issues relating to a single Special Quality has focused on wildlife interests that have statutory designations as being of international importance. There is sufficient information available to understand the likely interactions between recreational uses and the internationally important wildlife of the New Forest. This degree of knowledge can inform the scope of assessments of changes to recreational facilities and uses. However, this review has highlighted the paucity of baseline data together with the piecemeal nature of quantitative studies.

It is recognised that recreational use is one of a number of factors that interact to affect the wildlife of the New Forest, these other factors include vegetation management, predation and extreme weather events/ climate change.

Our conclusions broadly align with those in the recent report by Lake et al. (2020) to the National Park Authority, and New Forest Association/Friends of the New Forest are looking forward to supporting the development and delivery of a long-term monitoring strategy and an evidence-base that underpins future management actions.

CC & RW August 2020

References and Bibliography

With notes on selected unpublished 'grey' literature

Anon. 1989. *NCC Internal report of a survey of 130 car parks in the New Forest measuring trampling and erosion.*

The findings emphasised the vulnerability of streamside and riverbanks, woodland ground flora and open habitats.

Aquilina R, Ewald N, Biggs J. 2015. *An outline lake management plan for Hatchet Pond.*

New Forest SSSI. Unpublished report to Natural England. Freshwater Habitats Trust, Oxford.

This report considers the impacts of recreational use on water quality, wetland habitats and associated species.

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Chatters, C., and Kernohan, R. (2013) *Avon Water Studies: Land-use and land ownership change in the New Forest National Park.* HIWWT, Curdridge.

A review of the changing nature of tenure and land prices in a study area.

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Clarke, A. (1999) *A review of recreation pressures in the New Forest.* A report to the LIFE project

This review considered physical erosion as was detectable from aerial photographs. It concluded that valley mires were particularly vulnerable at crossing points, that heaths were generally vulnerable but riparian woods were 'fairly robust' (it is assumed that this comment relates to the woodland canopy). It is probable that the archives of this project hold additional data.

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Cockett, J. (1999/2000) *Visitors, Vehicles and the Environment. An analysis of car park distribution in the New Forest, England.* Unpublished MSC thesis.

Cockett concludes that car parks need to be relocated if damage is to be avoided.

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Commission notice 2018 C(2018) 7621 *final. Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.* European Commission, Brussels.

Conway, G., Wotton, S. and Newton, A.C. (2010) Bird monitoring in the New Forest: a review of current and ongoing schemes. In: Newton, A.C. (Ed.) *Biodiversity in the New Forest.* Pisces Publications, Newbury, pp.3-10.

Cox, G., Hallett, J., Short, C. and Thorne, P. (1994) *Recreational use of horses in the New Forest Heritage Area.* University of Bath and Royal Agricultural College: Report to the New Forest Committee.

A comprehensive study looking at strategic and site-specific issues

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Cox, J. and Rose, F. (1996) *A preliminary assessment of proposed changes in camping and car parking provision in the New Forest.* Report to the New Forest Association and HIWWT

This was a quantitative assessment of change in sample sites. It found serious impacts on pasture woods, particularly in the loss of old growth trees and the herbage of the field layer. It also found the loss of 80% of field layer vegetation in the riparian woodland of Puttles Bridge.

Cox, J. and Mosaic Mapping (2010) *New Forest Camp site Baseline Survey: Final Report.* New Forest Association

This is a detailed report setting out baseline data on the vegetation and engineered structures of ten campsites within the Crown Land.

Eyre, J. (2015) *Hampshire Bird Atlas 2007-2012.* Hampshire Ornithological Society, 448 pp.

Goater, R.D., Houghton, D. and Temple, C. (2004) *New Forest Breeding Waders Survey 2004*, Unpublished report, RSPB, 28 pp.

Lake, S., Liley, D. and Saunders, P. (2020) *Recreation use of the New Forest SAC/SPA/Ramsar: Impacts of recreation and potential mitigation approaches*. Unpublished report, Footprint Ecology, 95 pp.

Liley, D., Panter, C., Calls, Z. and Saunders, P. (2019) *Recreation use of the New Forest SAC/SPA/Ramsar: New Forest visitor survey 2018/19*. Unpublished report by Footprint Ecology for TVBC and partners.

Liley, L. and Lake, S. (2015) *Research Recommendations Relating to Impacts on Recreation on Ground-nesting Birds in the New Forest National Park*. Unpublished report by Footprint Ecology for the New Forest National Park Authority.

Leppard, M. (1996) *An investigation into visitor impacts in various habitat types in the New Forest SSSI*. MSc thesis, Farnborough College.

A detailed study of all 'official' car parks and 60 'unofficial' car parks looking at impacts on the vegetation. This is a data rich study that is a useful baseline for measuring impacts

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Mallord, J.W., Dolman, P.M., Brown, A.F. and Sutherland, W.J. (2007) *Linking recreational disturbance to population size in a ground-nesting passerine*. *J Appl Ecol*, 44, 185-195.

Page, A. (2010) Bird monitoring in the New Forest: raptors. In: Newton, A.C. (Ed.) *Biodiversity in the New Forest*. Pisces Publications, Newbury, pp.11-20.

Pascoe, C. (2013) *Factors affecting the distribution of *Spiranthes spiralis* and *Gentianella campestris* on Wilverley Plan in the New Forest*. Unpublished dissertation, University of Reading.

Data rich and highly statistical account of the impacts of soil compaction and abrasion on vegetation and rare species.

Sharp, J., Lowen, J. and Liley, D. (2008) *Changing patterns of visitor numbers within the New Forest National Park, with particular reference to the New Forest SPA*. Unpublished report, Footprint Ecology, 100 pp.

Tubbs, C.R. (1987) *Survey of horse riding damage*. NCC, Lyndhurst.

A survey of 27km² of Open Forest with a particular emphasis on riding establishments. In the study are 38.3ha of vegetation had been lost to riding tracks representing 1.42% of the habitats present.

Tubbs, C.R. and Tubbs, J.M. (1994) Breeding waders in the New Forest, Hampshire, in 1993 and 1994. *Hampshire Bird Report 1994*, pp.151-157.

Whitewick, P. (1998) *An assessment of physical damage at ten sites within the New Forest*.

This is a student project from Bournemouth University that revisited a survey of 1996. The findings were that erosion was worsening on 6 sample sites, recovering on 2 sites and was neutral on 8 sites. At two sites there was a localised worsening.

Wynn, R.B. and Page, A. (2020) Nest temperature loggers shed new light on Eurasian Curlew incubation. *British Birds*, 113, 299-300.

We are aware of the following initiative but do not have access to the archives of the project

INTERREG funded PROGRESS (Promotion and Guidance for Recreation on Ecologically Sensitive Sites). It is based around two major forests, the New Forest in the UK and Fontainebleau Forest in France. c..2000-2005

The following are addresses of media accounts relating to recreation and ground-nesting birds.

<https://www.bbc.co.uk/news/uk-england-hampshire-39492990>

<https://www.bbc.co.uk/programmes/b0b3jyf2>

<https://www.bbc.co.uk/news/uk-england-hampshire-52818524>

<https://www.bbc.co.uk/news/uk-england-hampshire-53148800>

The link to the Higher Level Stewardship studies of Nightjar, Woodlark, Dartford Warbler and wintering Hen Harrier is;

<https://www.hlsnewforest.org.uk/projects/wildlife/>

Appendix A

Scoping exercise

Scoping a review of the relationship of recreation with the New Forest's special qualities.

Initial thoughts on how we review what is known about the interaction of the special qualities of the New Forest with its recreational use.

Potential scope of the review

The Association is interested in the whole of the Forest without defining an outer limit. For practical purposes we suggest that we use the boundary of the National Park for our review but to use this as a 'soft' boundary.

There is probably no need, at this stage, to define what we mean by recreation other than to recognise its diversity and that quiet recreation and extensive open access are amongst the National Park's special qualities.

The special qualities of the New Forest as a National Park are articulated in its statutory designation under Section 61 of the Environment Act 1995. These are;

- The New Forest National Park is a 'living' and working remnant of medieval England with an overwhelming sense of continuity, tradition, and history.
- Outstanding natural beauty: the sights, sounds and smells of ancient woodland with veteran trees, heathland, bog, autumn colour and an unspoilt coastline with views of the Solent and Isle of Wight.
- An extraordinary diversity of plants and animals of international importance.
- A unique historic, cultural and archaeological heritage - from royal hunting ground to ship-building to salt making and 500 years of military coastal defence.
- It is still home to an ancient commoning system that maintains so much of what people know and love as 'the New Forest' - forming the heart of a working landscape based on farming and forestry.
- You will find the iconic New Forest Pony together with donkeys, pigs and cattle roaming free in its woods.
- The National Park is a haven of amazing tranquillity in the midst of the busy, built-up south of England.
- There are wonderful opportunities for quiet recreation, learning and discovery in one of the last extensive, gentle landscapes in the south - including unmatched open access on foot and horseback.
- The park is a healthy environment - offering fresh air, clean water, local produce and a sense of 'wildness'.
- Strong and distinctive local communities have real pride in and a sense of identity with their local area.

The special qualities of the National Park that relate to wildlife and the cultural heritage as expressed through archaeology are defined through other statutory processes.

Wildlife Qualities.

Wildlife is referred to as one on the National Parks special qualities. The relative importance of species and habitats is codified through statutory designations, namely;

1. International importance

1.1 The qualifying features of Natura 2000 sites are set out in their citations. Following these designations there is case law that requires that all Annex 1 features that are present on a Natura 2000 site to be a material consideration when assessing plans and projects. As far as I am aware these additional features await formal definition.

There are six Natura 2000 sites within the New Forest. The citations setting out the qualifying feature are all

available online

- New Forest SAC <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>
- New Forest SPA <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>
- Solent Maritime SAC <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>
- Solent and Southampton Water SPA <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>
- River Avon SAC <https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?>

There are a further three Natura 2000 sites in the immediate vicinity of the New Forest

- Dorset Heathlands SPA <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>
- Dorset Heaths SAC <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>
- Avon Valley SPA <https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?>

With the notable exception of the Avon Valley all of these Natura 2000 sites have been identified in Habitats Regulation Assessments as at risk from recreational impacts (This review of HRAs dates from 2012- see separate file for references).

1.2 The features that are recognised as being of international importance under the Ramsar convention are cited in Ramsar site descriptions.

- New Forest Ramsar <https://rsis.ramsar.org/RISapp/files/RISrep/GB622RIS.pdf>
- Solent and Southampton Water Ramsar <https://rsis.ramsar.org/RISapp/files/RISrep/GB965RIS.pdf>

There are a further two Ramsar sites in the immediate vicinity of the New Forest

- Avon Valley Ramsar <https://rsis.ramsar.org/RISapp/files/RISrep/GB622RIS.pdf>
- Dorset Heaths Ramsar <https://rsis.ramsar.org/RISapp/files/RISrep/GB964RIS.pdf>

The Ramsar citations are generalised descriptions which rely on other sources to provide detail, notably Red Data Books and schedules of National Rare species. Brock (2011) contains a summary of RDB Rare/Scarce Invertebrates with Rand & Chatters (2010) setting out a summary of vascular plants. I'm not aware of similar exercises addressing other groups.

2. National Importance: Sites of Special Scientific Interest

Features for which SSSIs have been selected for designation are set out in their citations. As a matter of government policy, all SSSIs are regarded as of national importance, both individually and as a series. SSSIs were selected to be representative examples of features of interest and therefore they do not represent the complete stock of places of national importance.

There are 20 SSSIs wholly (or partially*) in the New Forest National Park

- Avon Valley (Bickton to Christchurch)* <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1006622.pdf>
- Burton Common <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1004481.pdf>
- Dibden Bay* <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000454.pdf>
- Fletchwood Meadows <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001663.pdf>
- Hurst Castle and Lymington River Estuary <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001019.pdf>
- Hythe to Calshot Marshes* <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001035.pdf>
- Landford Bog <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1003189.pdf>
- Landford Heath <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1005814.pdf>
- Langley Wood and Homan's Copse <https://designatedsites.naturalengland.org.uk/PDFsForWeb/>

Citation/1003920.pdf

- Loosehanger Copse and Meadows <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1005817.pdf>
- Lymington River <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000203.pdf>
- Lymington River Reedbeds <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001294.pdf>
- Norley Copse and Meadow <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000313.pdf>
- North Solent <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1001355.pdf>
- Poors Common <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1005509.pdf>
- River Avon System* <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/2000183.pdf>
- Roydon Woods <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1003197.pdf>
- Sowley Pond <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1003387.pdf>
- The New Forest* <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1003036.pdf>
- Whiteparish Common <https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1003134.pdf>

Species that are protected under the schedules of the Wildlife and Countryside Act 1981 (as amended) are arguably of national importance as they are the subject of national reviews and statute. As far as I am aware there are no summaries of protected species from the New Forest.

There are non-statutory sites of importance for wildlife that are subject to local designation as Sites of Importance for Nature Conservation (SINC), otherwise known as Local Wildlife Sites. These sites are designated by the local planning authority. The use of 'Local' in the title reflects the source of recognition rather than the intrinsic qualities of the sites which may contain features that meet criteria for recognition as of national and international importance. There are c. 410 locally designated SINCS in the National Park.

Archaeological Qualities

Archaeological sites of national importance are recorded as Scheduled Ancient Monuments. The full schedule has not been published but the location of SAMs is mapped on <https://magic.defra.gov.uk/MagicMap.aspx>.

In common with Wildlife Qualities, there are archaeological features recorded by the local planning authority in the Sites and Monuments Record that may be of equivalent importance to Scheduled Ancient

Monuments.

Appendix B Birds subject to this review

New Forest SPA and Ramsar qualifying features and additional Annex 1 species

Article 4.1

Nightjar
Woodlark
Dartford Warbler
Honey Buzzard
Hen Harrier

Article 4.2

Hobby
Wood Warbler

Additional Annex 1 birds

Breeding population of Kingfisher.

Frequent non-breeding sightings of Little Egret, Marsh Harrier, Mediterranean Gull, Merlin, Peregrine Falcon,

Species	1992	% UK pop	Current status and long-term trend
Nightjar	>300	>15%	435 in 2018, increase
Woodlark	51-54	24%	169 in 2019, increase
Dartford Warbler	454	75%	143 in 2018, fluctuating
Honey Buzzard	2	7%	4-5 pairs, stable
Hen Harrier	15	2%	<5, decline?
Hobby	25	3%	<5, local decline
Wood Warbler	>350	3%	<10, heading for local extinction
Kingfisher	10		15-20, increase

Appendix C Habitats and non-avian species subject to this review

New Forest SAC qualifying features +additional 'Holohan' Annex 1 features

Qualifying Features

Ponds and Lakes

- H3110 Oligotrophic water contains few minerals of sandy plains
- H3130 Oligotrophic to mesotrophic standing water with vegetation

Dwarf shrub heaths

- H4010 Northern Atlantic wet heaths with *Erica tetralix*
- H4030 European dry heaths
- H6410 *Molinia* meadows on calcareous, peat or clay-silt soil

Bogs

- H7140 Transition mires and quaking bogs
- H7150 Depressions on peat substrates of the *Rhynchosporion*
- H7230 Alkaline fens

Woods

- H9120 Atlantic acidophilous beech forests with *Ilex*
- H9130 *Asperulo-Fagetum* beech forests
- H9190 Old acidophilous oak woods with *Q. robur* on sandy plains
- H91D0 Bog woodland
- H91E0 Alluvial woods with *A. glutinosa* & *F. excelsior*

Species

- S1044 Southern damselfly, *Coenagrion mercuriale*
- S1083 Stag beetle, *Lucanus cervus*
- S1166 Great crested newt, *Triturus cristatus*

Additional Annex 1 features and Annex II species present within the New Forest SAC

Habitats

- 3170 Mediterranean temporary ponds
- 3260 Water courses of plain to montane levels with *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation
- 91J0 *Taxus baccata* woods of the British Isles (check status, NF has an undescribed form on peat)

Species

Fish

- 1096 Brook Lamprey, *Lampetra planeri*
- 1163 Bullhead, *Cottus gobio*

Mammals

- 1304 Greater horseshoe bat, *Rhinolophus ferrumequinum* (check status)
- 1308 Barbastelle, *Barbastella barbastellus*
- 1323 Bechstein's bat, *Myotis bechstein*
- 1355 Otter, *lutra lutra*

Plants

- 1393 Slender green feather-moss, *Depranocladus (Hamatocaulis) vernicosus* (Check status)
- 1654 Early Gentian, *Gentianella anglica*
- 1831 Floating Water-plantain, *Luronium natans*