

St George's Barracks – Officers' Mess

Ecological Assessment

November 2018

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CONTENTS

1 INTRODUCTION		DUCTION1	
	1.1	Background1	
2	LEGISLATION, PLANNING POLICY AND GUIDANCE		
	2.1	Legal Framework2	
	2.2	Planning Policy2	
3	METH	ODOLOGY5	
	3.1	Desk Study5	
	3.2	Habitat survey5	
	3.3	Preliminary Bat Roost Assessment5	
	3.4	Constraints6	
4	SITE D	ESCRIPTION	
	4.1	Desk Study7	
	4.2	Phase 1 Habitat Survey8	
	4.3	Fauna	
5	EVALUATION12		
	5.1	Definition of ecological value12	
	5.2	Site Evaluation	
6	CONS	TRAINTS TO RE-DEVELOPMENT14	
7	SUMMARY15		
REF	ERENC	ES16	

TABLES

Table 1.	Minimum and Maximum number of recorded waterfowl at Rutland Water SPA7
Table 2.	SSSIs within 5km of the Site7

FIGURES

Figure 1.	Phase 1 Habitat Map	 17

-



1 INTRODUCTION

1.1 Background

- 1.1.1 Derek Finnie Associates was commissioned by RegenCo on behalf of the Rutland County Council (RCC) to undertake an ecological assessment of the Officers' Mess at St George's Barracks in Rutland, herein referred to as the Site. The Site, which covers approximately 3.9ha, is centred on OS Grid Ref SK92850505.
- 1.1.2 In November 2016, the Government announced through 'A Better Defence Estate', a commitment to invest in a more efficient built military estate that will reduce in size by thirty per cent by 2040. The Ministry of Defence (MOD) is required to maximise value through the disposal of sites and has a target to provide land for 55,000 dwellings this Parliament. Within the November announcement it was confirmed that St George's Barracks would be surplus to operational requirements and programmed for disposal in 2020.
- 1.1.3 In recognition of this, RCC and the MOD (Defence Infrastructure Organisation DIO) have agreed a Memorandum of Understanding that builds upon their willingness to jointly explore the opportunities for the future of the wider St George's Barracks site post 2020/21 and an appetite to work together in a new and innovative way to maximise Government growth and efficiency objectives for the site. There are currently proposals to re-develop part of the Site. A masterplanning exercise is currently being undertaken, exploring several potential re-development proposals for the wider Barracks, with the possibility of re-developing the Officers' Mess for residential dwellings prior to the rest of the wider site. As part of this process it is essential the value of the ecological resource within the Site is assessed and used to inform the re-development process.
- 1.1.4 The following report, therefore, presents the findings of a desk based data search, previous ecological surveys undertaken across the Site in 2014 and 2015, and the results of an Extended Phase 1 Habitat survey completed in September 2018 by Derek Finnie Associates. The report continues with an evaluation of the ecological resource encountered within the Site and highlights the areas within the Site that may produce the greatest ecological constraints.



2 LEGISLATION, PLANNING POLICY AND GUIDANCE

2.1 Legal Framework

2.1.1 The applicable legislative framework is summarised below.

International Conventions and Directives

- Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (EC Habitats Directive);
- Council Directive 2009/147/EC on the Conservation of Wild Birds (Birds Directive);
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979;
- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1983; and
- Convention on Biological Diversity 1992.

National Legislation

- The Wildlife and Countryside Act 1981 (WCA);
- The Conservation of Habitats and Species Regulations 2017;
- The Countryside and Rights of Way Act 2000 (CRoW);
- Natural Environment and Rural Communities Act 2006 (NERC);
- The Protection of Badgers Act 1992; and
- The Hedgerow Regulations 1997.

2.2 Planning Policy

National Planning Policy

National Planning Policy Framework

- 2.2.1 The following objectives relating to biodiversity conservation are considered relevant to this assessment, as the National Planning Policy Framework (NPPF) seeks to
 - Protect and enhance valued landscapes, geological conservation interests and soils;
 - Recognise the wider benefits of ecosystem services;
 - Minimise impacts on biodiversity and provide net gains in biodiversity, where possible, contribute to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
 - Prevent both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability;
 - Remediate and mitigate despoiled, degraded, derelict, contaminated and unstable land, where appropriate; and
 - Prevent the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss.



Local Planning Policy

Rutland Core Strategy Development Plan Document (July 2011)

2.2.2 The following policy from Core Strategy relates to nature conservation and is considered relevant to this proposal:

Policy CS21 - The natural environment

Development should be appropriate to the landscape character type within which it is situated and contribute to its conservation, enhancement or restoration, or the creation of appropriate new features.

The quality and diversity of the natural environment of Rutland will be conserved and enhanced. Conditions for biodiversity will be maintained and improved and important geodiversity assets will be protected.

Protected sites and species will be afforded the highest level of protection with priority also given to local aims and targets for the natural environment.

All developments, projects and activities will be expected to:

a) Provide an appropriate level of protection to legally protected sites and species;

b) Maintain and where appropriate enhance conditions for priority habitats and species identified in the Leicestershire, Leicester and Rutland Biodiversity Action Plan;

c) Maintain and where appropriate enhance recognised geodiversity assets

d) Maintain and where appropriate enhance other sites, features, species or networks of ecological interest and provide for appropriate management of these;

e) Maximise opportunities for the restoration, enhancement and connection of ecological or geological assets, particularly in line with the Leicestershire, Leicester and Rutland Biodiversity Action Plan;

f) Mitigate against any necessary impacts through appropriate habitat creation, restoration or enhancement on site or elsewhere;

g) Respect and where appropriate enhance the character of the landscape identified in the Rutland Landscape Character assessment;

h) Maintain and where appropriate enhance green infrastructure.

2.2.3 Policy CS6 is also considered partially relevant:

Policy CS6 – Re-use of redundant military bases and prisons

The Council will seek to ensure that any re-use or redevelopment of former military bases or prisons is planned and developed in a comprehensive and co-ordinated manner.



Proposals will be subject to a development brief or masterplan setting out the main requirements. This will form part of a supplementary planning document or development plan document to be prepared in consultation with the prospective developers and local communities.

The key requirements for any proposals are that they should:

a) re-use existing land and buildings and where appropriate minimise any built development on undeveloped airfield land;

b) not lead to undue disturbance to nearby local communities through traffic, noise, aircraft activity or other uses;

c) protect and where possible enhance the countryside and character of the landscape, natural and cultural heritage;

d) be accessed satisfactorily and not generate unacceptable traffic on the surrounding road network

e) be accessible by public transport and include measures to encourage walking and cycling;

f) incorporate high quality design and construction including the need for energy efficiency, renewable energy and waste management.



3 METHODOLOGY

3.1 Desk Study

- 3.1.1 The Government's Multi- Agency Geographical Information for the Countryside (MAGIC) database was reviewed for the presence and extent of statutory designated sites within a 5km distance.
- 3.1.2 Leicestershire and Rutland Environmental Records Centre (LRERC) was contacted for data it may hold on non-statutory designated sites, specially protected species, or species of a raised conservation status, within 2km of the Site.
- 3.1.3 Previous survey reports produced by Mott MacDonald (2014), and WYG (2015) for the wider barracks, as well as a Wildlife Report of North Luffenham Airfield in 2016 and 2017 (Tim Collins), were also reviewed. Derek Finnie Associates has previously undertaken an Extended Phase 1 assessment across the wide barracks in March 2018.

3.2 Habitat survey

- 3.2.1 An 'extended' Phase 1 Habitat Survey was carried out across the Site on the September 2018; this followed the methodology presented by the JNCC (2010). The Phase 1 technique aims to classify each habitat into categories based on the assemblage of plant species present, with the dominant plant species for each habitat being noted. In some cases, sub-divisions or modifications of the standard categories can be made where this is useful in providing further detail.
- 3.2.2 An 'extended' form of the basic methodology was employed to determine whether any notable or protected species of fauna utilise the study area, in particular badgers, bats, amphibians, reptiles and birds. In the absence of direct evidence of these species, an assessment was made on the potential for the site to support such species.

3.3 Preliminary Bat Roost Assessment

- 3.3.1 An external inspection of the building was undertaken on the 7th September 2018 during good weather, with access being available to all aspects of the buildings. Leica 10 x 32 BGA binoculars, a CluLite 1 million candlepower torch and a 4m telescopic ladder were used to assist in the search as necessary. The external features of the building, particularly the roof and ridge lines were inspected for potential ingress/egress points.
- 3.3.2 After the external inspection, a detailed inspection of the internal void spaces of the buildings was undertaken. Evidence of droppings, scratch marks, staining, feeding remains, urine stains and bats themselves were sought throughout the void space. Particular attention was paid to the areas underneath the ridge and joists, especially where the two meet. Evidence of gaps in the roof, indicating access to the outside, was sought, as well as gaps into any cavities that may be present. Again, a CluLite 1 million candlepower torch was used to assist in the search.
- 3.3.3 The bat roost assessment was undertaken in line with BCT (2016).



3.4 Constraints

- 3.4.1 Access was available to all external areas of the Site. September is deemed a suitable time to carry out an extended Phase 1 survey, although species which flower earlier in the year may have been missed or under recorded. Due the nature of the habitats present, and the species previously identified there, an evaluation of the flora based on a September site visit is likely to present a true assessment of the Site. Hence, confidence in the results in high.
- 3.4.2 The assessment was undertaken in line with the latest sectoral guidance issued by the Chartered Institute of Ecology and Environmental Management (CIEEM), as well as BS 42020: 2013 *Biodiversity Code of Practice for Planning and Development*.

Officers' Mess Ecological Assessment



4 SITE DESCRIPTION

4.1 Desk Study

Statutory Sites

- 4.1.1 No part of the Site, or the immediate surrounding area, is subject to any statutory designation on ecological grounds.
- 4.1.2 Rutland Water, which holds the multiple designation of Special Protection Area (SPA), Ramsar Site and Site of Species Scientific Interest (SSSI), lies approximately 450m to the north of the Site at its closeted point. The 1555ha SPA is designated due the internationally important number of winter waterfowl it supports, as shown in Table 1.

Table 1. Minimum and Maximum number of recorded waterfowl at Rutland Water SPA.

Species	Population		
	Min	Max	
Shoveler	526	526	
Teal	1420	1420	
Wigeon	4236	4236	
Gadwall	1156	1156	
Tufted duck	2289	2289	
Goldeneye	399	399	
Mute swan	285	285	
Coot	3962	3962	
Goosander	48	48	
Great crested grebe	762	762	

* - data from Natura 2000 Standard Data Form, JNCC (2015).

- 4.1.3 The SPA also regularly holds more than 25000 over wintering waterfowl.
- 4.1.4 There are an additional six SSSIs within 5km of the Site as summarised in Table 2.

 Table 2. SSSIs within 5km of the Site

SSSI Name	Distance and Direction from Site	Main reason for designation
Wing water treatment works	3.7km to SW	Designated for geological reasons.
Luffenham Heath Golf Course	2.0km to SE	The site includes fine examples of calcareous grassland developed on soils derived from the Jurassic Lower Lincolnshire Limestone.
Noth Luffenham Quarry	1.4km to SE	A disused limestone quarry which contains a rich flora characteristic of calcareous grassland.
Ketton Quarry	1.5km to E	A complex mosaic of grassland, scrub and woodland vegetation has developed in disused pits and on spoil heaps.
Sacklewell Hollow	3.5km to NE	The site comprises a complex of semi-natural habitats and contains



SSSI Name	Distance and Direction from Site	Main reason for designation	
		some of the best examples of species-rich neutral marsh remaining in Leicestershire	
Empingham Marshy Meadows	3.3km to N	The site contains some of the best remaining examples of base-rich marsh and fen in Leicestershire and is representative of marsh communities in Central and Southern England	

Non-Statutory Sites

- 4.1.5 LRERC provided the description and location of several Local Wildlife Sites (LWS) within 2km of the Site which comprise four road verges to the north east of the Site which support important areas of calcareous grassland, a species rich hedge some 1.8km to the west of the site and several ancient crack willow trees 1.9km to the south west.
- 4.1.6 The airfield within the wider St George's Barracks has been highlighted as a potential LWS due to the large area of moderately species-rich calcareous/mesotrophic grassland it supports. The area is also said to be important for ground nesting birds, including curlew as well as migrating wheatear.

Species Records

- 4.1.7 LRERC did not return any records for the Site itself. There are, however, over a thousand reports of specially protected species, or species of a raised conservation status for the wider St George's Barrack and immediate surrounding habitat. The majority of these relate to relatively common bird species with multiple records. For example, over 400 of the one thousand records are for sightings of red kite, with a further one hundred relating to grey partridge.
- 4.1.8 There are also records of common pipistrelle and brown long-eared bat for the general area.

4.2 Phase 1 Habitat Survey

Habitats

- 4.2.1 St George's Barracks occupies the western section of the Site; The Officers' Mess, which is located on the western side of Edith Wilson Road and is more or less contiguous with the main St George's Barracks site. The Site is typified by several two storey buildings, predominantly supporting flat roofs, set amongst open areas of amenity grassland. There are several scattered trees throughout. The majority of the buildings, and associated tree planting, dates from the late 1940s and early 1950s.
- 4.2.2 The following Phase 1 Habitat types were encountered within the Barracks and Officers' Mess section of the Site:
 - Scattered trees;
 - Hedgerow;



- Ornamental shrub;
- Amenity grassland; and
- Buildings and hardstanding.
- 4.2.3 Each habitat is depicted on Figures 1 and described in turn below, along with the more prominent species being given.

Scattered trees

4.2.4 There are numerous scattered individual trees within the Officers' Mess, many of which appear to have been planted as landscaping features during the construction of the Site. A line of semi-mature lime *Tilia* sp runs along the northern and eastern boundary of the Site. Other species present within the remainder of the Site include cherry *Prunus* sp. oak *Quercus* sp., ash *Fraxinus excelsior*, silver birch *Betula pendula*, horse chestnut *Aesculus hippocastanum* and willow *Salix* sp.

<u>Hedgerow</u>

4.2.5 A short section of hedgerow, dominated by hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* runs part way along the southeast boundary of the Site. At is eastern end, Leyland cypress *Cupressus × leylandii* becomes the dominant species.

Ornamental shrub

4.2.6 Beds of non-native ornamental shrub are present around southern entrance to the main Mess building.

Amenity grassland

- 4.2.7 Amenity grassland, in the form of formal lawn areas, is the most abundant habitat within the Officers' Mess. The sward appears to be subject to regular intense management throughout, with the grass being approximately 30 – 50mm across the Site during the September 2018 survey.
- 4.2.8 The sward is relatively species poor, as is typical of this habitat type, with the graminoid species perennial rye grass *Lolium perenne*, creeping bent *Agrostis capillaris*, smooth stalked meadow grass *Poa pratense* and cock's-foot *Dactylis glomerata* noted; towards the west of the site, fined leaved grasses, such as red fescue *Festuca rubra* become frequent. Forbes are infrequent within the sward, but were they are present, they include daisy *Bellis perennis*, creeping buttercup *Ranunculus repens*, ribwort plantain *Plantago lanceolata*, dandelion *Taraxacum officinale* agg. and common mouse ear *Cerastium fontanum*.

Buildings and hardstanding

4.2.9 There are several buildings within the Officers' Mess which are typified by two storey structures; the majority of the buildings support flat roofs, although buildings B1, 2 and 3 (Figure 1) possess pitched, tiles roofs.





- 4.2.10 The buildings are set amongst areas of hardstanding comprising a central car park area, with several footpaths leading to the various buildings.
- 4.2.11 A row of garage (Building B6) is located to the north of the Site.
- 4.2.12 A hard-surfaced tennis court is located to the south of the Site.
- 4.3 Fauna

Preliminary Bat Roost Assessment

- 4.3.1 Building 4 and B5 (Figure 1) support flat roofs. A careful external inspection of these buildings did not reveal any potential roosting features that could be exploited by bats, hence they are not considered further in this assessment.
- 4.3.2 Buildings 1, 2 and 3 support Mansard style roofs, which are finished with flat, interlocking clay tiles. The roofs appear sound throughout, with no missing or broken tiles noted. There is the occasional small gap between tiles, especially close the ridge line on building B2, but none were deemed of sufficient size to allow bat ingress. Grilled vents are present close to the ride lines of B2 and B3.
- 4.3.3 The wooden soffit and fascia boards are also in good condition, with no gaps or cracks noted.
- 4.3.4 Accessible internal void spaces are present within Buildings B2 and B3. Within these large spaces, there was no evidence of bat presence. There are no wooden trusses within the roof void, instead there are numerous brick walls supporting the roof. There is the occasional small area of missing mortar within the internal brick walls, which is typical of this type of construction. However, none were deemed of sufficient size to support roosting bats. The roof lining is formed from asbestos (or similar) sheets and is complete throughout. No droppings or feeding remains were noted despite a thorough inspection and the distinct smell often associated with bat roosts was absent.
- 4.3.5 Garages B6 and building B7 both support gable style pitched roofs finished with flat, interlocking clay tiles which are in sound condition throughout, with no potential ingress points. Neither building possesses an accessible enclosed internal void space.

Other Fauna

- 4.3.6 There are no waterbodies within or adjacent to the Site and no know records of great crested newts within 500m of the Site. Therefore, the likelihood of terrestrial phase protected amphibians being within the confines of the Site is negligible.
- 4.3.7 Due to the short, uniform nature of the grass sward throughout the Site, the probability of reptiles utilising the Site is negligible.
- 4.3.8 No evidence of badger activity has been recorded within the Officers' Mess Site. Badger activity is known from the vicinity of the Site. However, due to the presence of the security perimeter fence and gates, it is highly unlikely that badgers are accessing the Site to forage.
- 4.3.9 Due to the paucity of semi-natural habitats within the Site, the Officers' Mess is unlikely to represent an important site for bird assemblages. It is possible that a limited number of



species associated with urban fringe environment may exploit the Site for breeding and foraging.

4.3.10 Likewise, the Site's potential for supporting significant numbers of foraging bats is extremely limited. None of the semi-mature trees within the Site displayed any potential roost features.



5 EVALUATION

5.1 Definition of ecological value

- 5.1.1 While some level of subjectivity is unavoidable when apportioning value to ecological features and resources, certain parameters and points of reference can be used to help ensure consistency. Those used in this appraisal are explained below.
- 5.1.2 Sites already possessing statutory or non-statutory nature conservation designations will have been subjected to some form of evaluation process in the past, and their importance defined at a geographical scale (e.g. international, national, local). For these, evaluation will generally reaffirm their qualifying attributes, or in some cases may identify where designation may no longer be appropriate.
- 5.1.3 Factors such as extent, naturalness, rarity, fragility and diversity are all relevant to the determination of ecological value, and for the evaluation of sites and habitat features outside designated sites, these and other criteria as described by Ratcliffe (1977), may be applied. Ratcliffe's criteria are integral to the procedure for selecting both Sites of Special Scientific Interest and many non-statutory designation systems in the UK, and therefore remain an accepted standard for site evaluation.
- 5.1.4 In applying these criteria, attention may be drawn to the relative scarcity or abundance of features within the survey area and in the wider geographical context. Some criteria are however absolute and not relative to scale. Ancient woodland, for example, is fragile irrespective of whether it is being considered in an international or local context. Similarly, the value of an otherwise poor habitat may be elevated if it is central to the survival of a rare species.
- 5.1.5 Where evaluation is important for the purposes of informing decisions related to land-use planning and development control, the above approach needs to be supplemented by consideration of whether individual species are subject to legal protection, or whether habitats or species are present which have been identified as 'priorities' for biodiversity conservation in the UK. Planning authorities have a statutory duty to further biodiversity objectives and the presence of such resources may be material to the determination of development control decisions.
- 5.1.6 Further indications of conservation status for individual species are provided by reference to the Red Data Book system, the Vascular Plant Red Data List for Great Britain (Cheffings and Farrell 2006) or for birds by reference to the Birds of Conservation Concern (Eaton et al. 2015) This divides birds into three lists; Red List (birds of high conservation concern), Amber List (birds of moderate conservation concern) and Green List (not of conservation concern).
- 5.1.7 Scales of comparison varying from the international to the context of the local area may be used to define the measure of importance attached to individual features. The definition of geographic terms can vary, but in this evaluation the geographic frame of reference contained within the CIEEM guidelines (CIEEM 2018) is used.



5.2 Site Evaluation

Designated Sites

- 5.2.1 Rutland Water, SPA, Ramsar and SSSI lies approximately 450m to the north of the Site at its closets point. Rutland Water is of international importance for the winter waterfowl populations it supports. Rutland Water also supports England's first breeding osprey population (since they went extinct in England in 1840), with eight pairs breeding in 2017; in 2014, this represented one of only three known breeding sites.
- 5.2.2 The remaining SSSIs identified within 2km of the Site are likely to be outside the Ecological Zone of Influence of any redevelopment, hence are not considered further.

Habitats

5.2.3 The habitats encountered throughout the Site are of limited ecological value. The habitats comprise mainly built structure, hardstanding and amenity grassland. All of these are intensely managed and artificial in nature, hence are of Negligible value. There are numerous semi-mature broad-leaved trees throughout the Officers' Mess which may offer some limited foraging and breeding opportunities for birds, as well as increasing the overall habitat diversity within the Site. Hence, the scattered trees would be assessed as being of Site value.

Species

- 5.2.4 No specially protected species, or species of a raised conservation status have been recorded form within the Officers' Mess. It is reasonable to assume that the Site may well support some of the commoner bat species in limited numbers, as well as common widespread bird species associated with urban environments. If this is confirmed through species specific surveys, them they would be assessed as being of Site value.
- 5.2.5 In summary, the Officers Mess and Golf Course has limited ecological value, collectively being no more than Site value at best.



6 CONSTRAINTS TO RE-DEVELOPMENT

- 6.1.1 Any re-development of the Site will have to ensure there is no negative impact upon Rutland Water SPA, Ramsar and SSSI. Measures will need to be put in place to avoid an increase in recreational disturbance in and around Rutland Water, as well as ensuring there is no disruption to flight lines used by waterfowl over the Site. Any proposal for the Site will need to be accompanied by a Habitat Regulations Assessment which will need to identify and address potential negative impacts upon the SPA.
- 6.1.2 However, within the Officers' Mess site itself there are no major ecological constraints to re-development as the Site has been shown to display an extremely limited biodiversity resourced; no evidence of specially protected species has been encountered.
- 6.1.3 It is likely that any redevelopment within the Site would result in a net biodiversity gain through habitat creation and enhancement as part of an appropriate landscape strategy.



7 SUMMARY

- 7.1.1 An Extended Phase 1 Habitat survey, in conjunction with a Desk Study data search, was undertaken across the Officers' Mess site St George's Barracks in September 2018. Previous survey data were also reviewed.
- 7.1.2 The habitats within the Officers' Mess were assessed as being of limited ecological value, although the buildings and more mature trees may provide some limited foraging and breeding opportunities for common bird species associated with urban environments. No other features of ecological vale were encountered.
- 7.1.3 The ecological features within the Officers' Mess have limited biodiversity value, collectively being no more than Site value at best.
- 7.1.4 Any re-development of the Site would need to ensure that there is no adverse impact upon the integrity of Rutland Water SPA and its qualifying features, in line with Regulation 63 of the Conservation of Habitats and Species Regulations 2017.



REFERENCES

BCT 2016. *Bat Surveys – Good Practice Guidelines, 3rd Edition.* Bat Conservation Trust, London.

Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S.H. 2000. *Bird Census Techniques. Second Edition*. Academic Press

Charter Institute of Ecology and Environmental Management (CIEEM) 2018. *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland Third Edition.* CIEEM, Winchester.

Cheffings, C.M. & Farrell, L. (eds), 2005. *The Vascular Plant Red Data List for Great Britain.* Joint Nature Conservation Committee.

Collins, T. 2017. *North Luffenham Airfield Wildlife Report 2017*. Unpublished Report for the MoD.

Eaton MA, Aebischer NJ, Brown AF, Hearn R, Lock L, Musgrove AJ, Noble DG, Stroud D, and Gregory RD. 2015. Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds.* **108**: 7080-746.

JNCC 2010. *Handbook for Phase 1 habitat survey - A technique for environmental audit.* Joint Nature Conservation Committee, Peterborough.

Ratcliffe. D.R. 1977 A Nature Conservation Review (Volumes 1 & 2). Cambridge University Press.

