Derek Finnie Associates
CONSULTANT ECOLOGISTS

St George's Barracks

Phase 2 Vegetation Survey

October 2019

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REGISTERED
PRACTICE 2019-2020

T: 0118 989 10 86
E: info@derekfinnie.com
W: www.derekfinnie.com

20 Soames Place, Mulberry Grove
Wokingham, Berkshire RG40 5AT

COMMISSIONED BY
RegenCo
Penns Place
Petersfield
GU31 4EX

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Report Ref: DFA19077

Derek Finnie Associates Ltd
20 Soames Place
Wokingham
Berkshire
RG40 5AT

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CONTENTS

TABLES

FIGURES

1 INTRODUCTION

1.1 Background

1.1.1 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.

1.1.2 In recognition of this, Rutland County Council (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 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 Site.

1.1.3 As part of any masterplanning process, it important to gain an understanding of the ecological resource within and around the site. This allows for any potential impacts to be avoided or minimised at the onset of the process, as well as allowing areas of maximum ecological enhancements to be realised. To this end, an initial ecological assessment of St George's Barracks, herein referred to as the 'Site', was undertaken in March 2018 (Derek Finnie Associates Report Ref: DFA18005V3). The initial ecological assessment highlighted the need for additional, species specific surveys to fully assess the potential levels of biodiversity within the Site; this included a Phase 2 NVC survey due to the presence of potentially good quality grassland areas within the Site.

1.1.4 The following report describes the methodology used in a Phase2 survey undertaken within the Site during 2019, assesses the result and discusses the implications for any future re-development of the Site.

2 METHODOLOGY

2.1 Field Survey

2.1.1 A Phase2 /NVC survey was undertaken across the airfield on 12 and 13th June 2019 followng the methodology outlined by Rodwell (1992). This involved using 2m x 2m quadrats randomly placed amongst what appeared to be homogenous stands of vegetation. The percentage cover of each species within then quadrat was then estimated.

2.1.2 To allow comparisons to be made across the airfield, the airfield was sub-divided into five sections using the existing runways as arbitrary delineating features. Data were then collected from two quadrats within each area (see Figure 1).

2.1.3 The data were than analysed using the Modular Analysis of Vegetation Information System (MAVIS) developed by the Centre for Ecology and Hydrology (CEH), which assigns a group of quadrat data, in this case the data from each field area, to a specific NVC community; a degree of 'fit' is also given.

2.2 Survey Constraints

2.2.1 Access was available to all areas of the Site. June is considered one of the better times of the year to undertake vegetation analysis of the nature. However, species that may flower earlier or later in the year may have been under recorded. But this is not believed to have affected the results significantly.

2.2.2 The number of quadrat data sets for each area is limited to only two, hence the degree of fit for the NVC communities is likely to be poor. However, as the aim of the assessment was to gain a broad understanding of the grassland communities within the airfield in general, it is believed the level of survey effort is sufficient.

3 RESULTS

3.1 Field Survey

3.1.1 The results for each quadrat are given in Table 1, with the approximate location of the quadrats presented on Figure 1.

Table 1. Quadrat Data results

Species		Quadrat Number (% cover)									
Scientific Name	**Common name**	**Q1**	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**
Achillea millefolium	Yarrow	10			5	5	5		10		5
Agrimonia eupatoria	Agrimony									5	
Agrostis capillaris	Creeping bent		15			10	15	10	5		
Arrhenatherum elatius	False oat grass	20	35	35	15	35	25	15	10		
Bromus commutatus	Meadow brome			15		40	35	10			
Bromus hordeaceus	Soft brome	10	15	5			5				
Centaurea nigra	Common knapweed				5	5				5	
Convolvulus arvensis	Field bindweed	10			5			5			
Cynosurus cristatus	Crested-dog's tail	2		10	5	5				25	20
Dactylis glomerata	Cock's-foot	5		40	20	5	10	20	10		
Festuca ovina	Sheep's fescue	30	40	10	15	30	35	15	20	20	25
Galium verum	Lady's bedstraw					5	10	5		10	5
Geranium dissectum	Cut leaved crane's bill	5	5		5			5		5	
Hypochaeris radicata	Cats ear	25	10	25	10		5		10		
Knautia arvensis	Field scabious		15			5				10	5
Leucanthemum vulgare	Ox-eye daisy	40	10	5	5		5	15	10		
Lotus corniculatus	Bird's foot trefoil					30	10			10	15
Ononis genus	Rest harrow									5	10
Ophrys apifera	bee orchid		1							1	
Plantago lanceolate	Ribwort plantain	20	25	15	20	15	20	10			
Ranunculus acris	Meadow buttercup	10			5		5	5			
Ranunculus repens	Creeping buttercup	5		5	10	5		5	10	5	
Rhinanthus minor	Yellow rattle									15	20
Rumex acetosella	Sorrel	5				10		5			
Sanguisorba minor	Salad burnet							5			10
Sonchus oleraceus	Smooth sow thistle		15	25	10	5		10			
Trifolium pratense	Red clover					5				10	15
Trifolium dubium	Lesser trefoil	25	15	10	15	10	5		15		
Trisetum Flavescens	Yellow oat grass		10								
Vicia cracca	Tufted vetch	5	25	10	20	15	10	10	15		
Species richness		**16**	**14**	**13**	**16**	**18**	**15**	**16**	**10**	**13**	**10**
Species Diversity (Shannon Weaver Index)		**2.5**	**2.4**	**2.3**	**2.6**	**2.5**	**2.4**	**2.7**	**2.3**	**2.3**	**2.2**

3.1.2 The quadrat data results were the analysed using MAVIS software to determine the best fit NVC community; the quadrats were combined together to represent separate areas of the airfield (Table 2).

Table 2. NVC Classification Results

Field No.	Quadrats	NVC Community	% Fit
Field 1	Q1 & Q2	MG5 *Cynosurus cristatus – Centaurea nigra*	38.4%
		MG1 *Arrhenatherum elatius*	38.1
Field 2	Q3 & Q4	OV23 *Lolium perenne – Dactylis glomerata*	39.07
		MG1 *Arrhenatherum elatius*	36.5
Field 3	Q5 & Q6	MG5 *Cynosurus cristatus – Centaurea nigra*	49.07
Field 4	Q7 & Q8	MG1 *Arrhenatherum elatius*	38.83
Field 5	Q9 & Q10	CG4 *Brachypodium pinnatum*	35.36
		CG3 *Bromus erectus*	33.05

3.1.3 The majority of the airfield returns an NVC classification of MG5 *Cynosurus cristatus – Centaurea nigra* or MG1 *Arrhenatherum elatius*, which are mesotrophic (neutral) grassland types. It should be noted that NVC is a classification system and not an evaluation tool. That being said, MG5 grasslands are often more species rich and are seen as a desirable habitat in many situations.

3.1.4 Towards the south of the airfield, the calcareous grassland community CG4 *Brachypodium pinnatum* is identified as the most likely NVC community. Although, when the characteristic species of the community are reviewed, the grassland within the airfield tends more towards CG3 *Bromus erectus.*

3.1.5 The species richness and species diversity of reach quadrat was broadly similar, which a range of species richness between 10 and 18 species, with Shannon Weaver Diversity indices of between 2.3 and 2.7 being calculated. This may a reflection of the individual placement of thee quadrats as much as difference in vegetation.

4 DISCUSSION AND IMPLICATIONS

4.1.1 From the information gathered to date, it would appear that the majority of the airfield supports neutral grassland, although it does contain some species that have a greater affinity with calcareous grassland. The southern section of the airfield does currently support calcareous grassland. It is possible that calcareous grassland was once more widespread over the airfield, but a change in the management has led to a build up of nutrients, masking the underlying soil conditions, resulting in a shift towards a more neutral floristic assemblage.

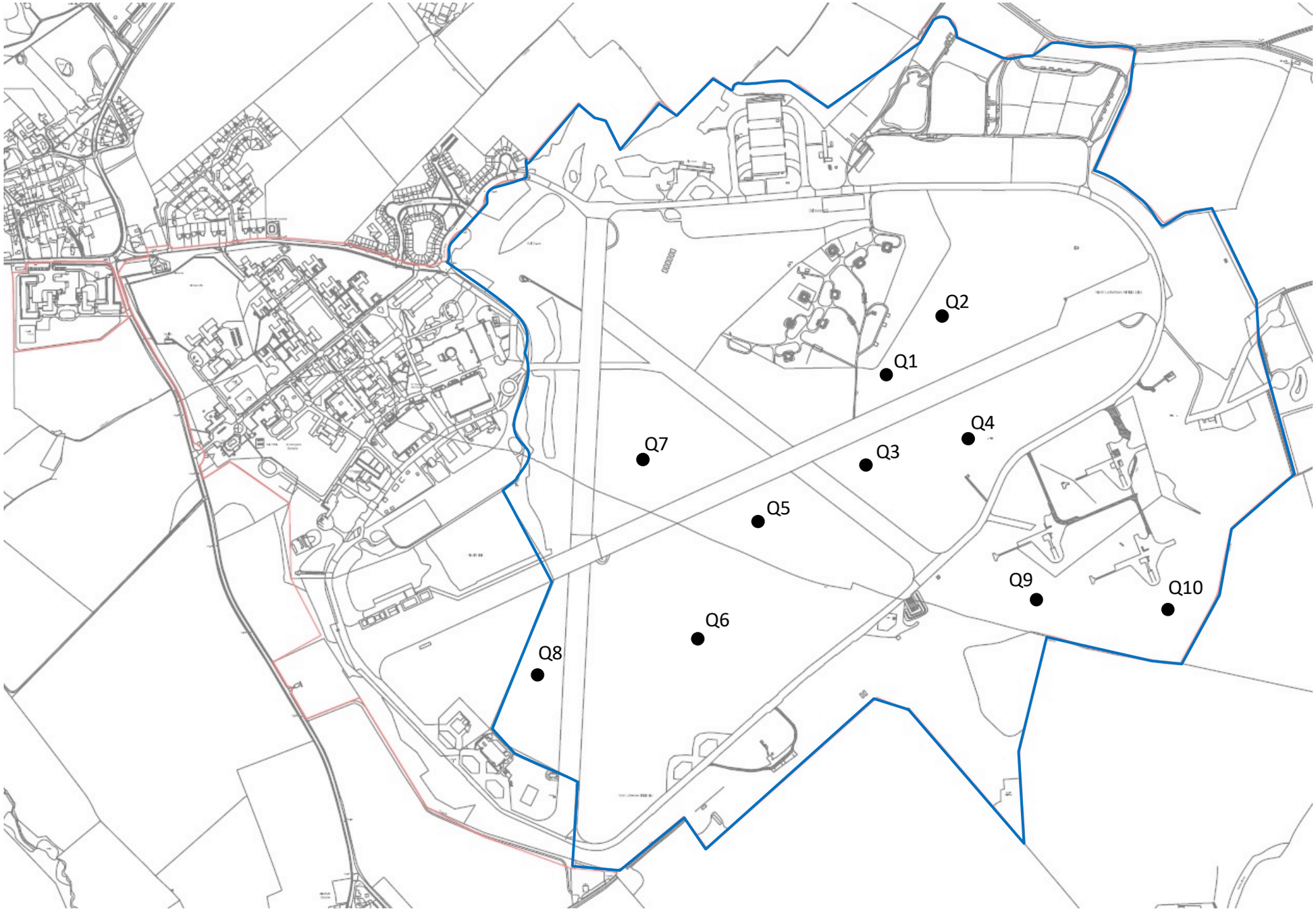
4.1.2 It is possible that the introduction of a more targeted management system would result in the improvement of the sward composition.

4.1.3 The areas that are currently classified as calcareous grassland are centred on the southern area of the Site, around the missile silos; this area would be mainly unaffected by the proposed re-development of the Barracks site. The remaining grassland areas are likely to experience temporary disturbance through the proposed mineral extraction scheme. However, this present the opportunity to introduce a more targeted management scheme within the areas of restored grassland post mineral extraction that would ultimately lead to a more diverse sward that shows greater calcareous properties.

4.1.4 Overall, it can be assumed that the proposed re-development of the Site, including the mineral extraction plans, would lead to a loss in the biodiversity value of the grassland in the short term. However, a medium to long term increase in the value of the grassland is predicted, which would be managed in a sustainable manner.

5 REFERENCES

Rodwell, J. S. (Ed) 1992. *British Plant Communities Volume 3.* Cambridge University Press.



Legend:

- Q4 Quadrate Location and Number
- Survey area

Drawing No: Figure 1

Title: Quadrat Locations

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