

**NORTH YORK MOORS NATIONAL PARK FARMLAND  
BREEDING WADER STUDY  
REPORT 2021**



**Staff Member and Position**

Report prepared by; John McLoughlin BSc, Richard Baines PGDip, MCIEEM,

Field Surveys; John McLoughlin BSc, Richard Baines PGDip, MCIEEM, Mark Pearson BSc,  
Dave Pearce BSc

Notes. This report may contain sensitive information on protected species. Caution should be taken on release to third parties.

## EXECUTIVE SUMMARY

The breeding wader population of the North York Moors is one of the highest conservation concerns of the National Park. The moorland populations of wading birds have been monitored on a five-year cycle since 1996. Waders breeding in farmland habitats have not received the same level of attention. To rectify this a survey initially carried out in 2003 was repeated in the spring/summer of 2021, carried by Wold Ecology and commissioned by the North York Moors National Park Authority (NYMNP).

The 2021 farmland wader survey took place between 15<sup>th</sup> April and 19<sup>th</sup> June. The survey area was comprised of 26 pre-selected sites each covering approximately 100 hectares. This was the first widespread survey of farmland waders to be conducted in the North York Moors National Park (NYMNP) since 2003.

Data was gathered on the following key species of wading birds, Lapwing, Curlew Oystercatcher, Snipe and Redshank. Counts of flocks of “northern” Golden Plovers were also recorded where this species was found in pre-breeding congregations.

Survey techniques devised for counting breeding wading birds were followed (O’Brien and Smith 1992). A targeted search of suitable habitat at each survey location was made during a series of three visits. Analysis of field maps combined with a field assessment, made by the individual surveyors, provided an overall total of breeding pairs for each of the target species.

Results show that the enclosed fields, in-bye land, of the NYMNP remain very important habitats for breeding waders. They also provide important foraging areas for wading birds that nest on adjacent moorland. In total some 166 pairs of Lapwings, 46 pairs of Curlews, 36 pairs of Snipe, 14 pairs of Oystercatchers and 2 pairs of Redshank were located during the survey.

Distribution of breeding waders varied greatly across the sites. Highest numbers of breeding waders were always found in the upland grouping of sites. Amongst them a handful of notable key sites, holding the highest densities of breeding waders, were identified. These were predominantly located in the northern sector of the national park.

Wader densities varied from site to site and within these sites from field to field. Fields or groupings of fields with high wader densities are clearly critical to wader conservation within the NYMNP. There is an urgent need to collect information on the breeding productivity of breeding waders at these sites.

It is recommended that the less favourable sites are managed to make them more attractive to breeding waders. Repeating the successes of projects such as the Clyde Valley initiative in Scotland could deliver much needed improvements in wader productivity.

In order to increase opportunities for integrated landscape management we recommended combining the findings of this survey with those from the ongoing upland moorland surveys as the two habitats cannot be considered in isolation.

Using the results of these surveys combined with newly established community links we recommend a locally based wader recovery project based on the Curlew Recovery Project is set up with the aim of improving fortunes for wading birds in the NYMNP.

Enhancing the fortunes of this suite of birds will have a beneficial effect on the wellbeing of local communities, the farm economy and tourism.

## TABLE OF CONTENTS

Section	Title	Page
<b>1.0</b>	<b>INTRODUCTION</b>	<b>5</b>
<b>2.0</b>	<b>BACKGROUND TO 2021 SURVEY</b>	<b>6</b>
<b>3.0</b>	<b>SURVEY METHODOLOGY</b>	<b>8</b>
<b>3.10</b>	Constraints	<b>10</b>
<b>4.0</b>	<b>RESULTS</b>	<b>10</b>
<b>4.5</b>	Northern Lapwing	<b>12</b>
<b>4.6</b>	Common Snipe	<b>12</b>
<b>4.7</b>	Eurasian Curlew	<b>13</b>
<b>4.8</b>	Common Redshank	<b>13</b>
<b>4.9</b>	Eurasian Oystercatcher	<b>13</b>
<b>4.10</b>	European Golden Plover	<b>14</b>
<b>4.11</b>	Results Site Summary	<b>14</b>
<b>4.12</b>	Comparison with 2003 Survey	<b>16</b>
<b>5.0</b>	<b>DISCUSSION</b>	<b>18</b>
<b>5.9</b>	Northern Lapwing	<b>19</b>
<b>5.10</b>	Common Snipe	<b>19</b>
<b>5.11</b>	Eurasian Curlew	<b>20</b>
<b>5.12</b>	Redshank	<b>20</b>
<b>6.0</b>	<b>LAND MANAGEMENT RECOMMENDATIONS</b>	<b>20</b>
<b>6.7</b>	Site Photos	<b>22</b>
<b>7.0</b>	<b>REFERENCES</b>	<b>32</b>

## 1.0 INTRODUCTION

- 1.1 There has been an ongoing decline in breeding wader populations across the UK over the last few decades (O'Brien & Smith 1992, Wilson et al. 2001, Bell & Calladine 2017)
- 1.2 Recent data from the BTO BBS (Bird Trends\* 2020 BTO & JNCC) has identified a 43% decline in the Lapwing and an even larger, 48%, decline in the UK Curlew population between 1995 and 2018. The latter species has undergone a range contraction of 44% in the last 20 years disappearing from large parts of Scotland and Wales in the process. Matched against these declines is the fact that the UK holds an estimated 27% of the current world breeding population of Curlews, a sobering thought.
- 1.3 The so called “big five” wader species in UK bird conservation are the northern Lapwing *Vanellus vanellus*, Eurasian Curlew *Numenius arquata*, Eurasian Oystercatcher *Haematopus ostralegus*, Common Redshank *Tringa totanus* and Common Snipe *Gallinago gallinago*. All five species require grassland for breeding and feeding. They are now reliant on farmland and farming methods to provide these open field habitats. All have suffered from population declines and there are multiple complex reasons behind these declines. They include a loss of breeding habitat, due to agricultural land improvements; changes in land use which includes agricultural intensification and afforestation, higher levels of human disturbance and an increase in predator numbers. Significantly this all leads to poor productivity which means reduced breeding success.
- 1.4 The steepest declines initially occurred in the lowland areas of intensive agriculture, so the uplands became the centres of the highest concentrations of breeding waders on farmland in England (Gibbons 1993). The best areas for breeding waders can be termed as “source” areas where the birds are doing well and producing good numbers of fledged young. As opposed to “sink” areas where the birds are doing badly and not producing young in sufficient enough numbers to maintain a stable population.
- 1.5 The findings of the BWEUF 2016 BTO/RSPB Upland Farmland Survey (Eaton et al. 2017) revealed that England’s upland Farmland, in-bye land, continued to hold highly significant populations of breeding Curlews, Lapwings and Snipe. Results from the 2016 survey indicated the following population estimates for England
  - 27,000 Lapwing
  - 15,000 Curlew
  - 6,800 Oystercatcher
  - 4,500 Snipe
  - 1,600 Redshank

- 1.6 This means that 50% of England's breeding Curlew, Lapwing and Snipe populations are found in the uplands of England, much of these within the boundaries of the National Parks of the north of England. Two species; Curlew and Lapwing, are classified as globally Near-Threatened by the IUCN.
- 1.7 Whilst the highest remaining wader concentrations are to be found in the uplands, even here the trends are also worrying. As the UK wader populations continue to decline it has become apparent that some of the former "source" areas have now become "sink" habitats for breeding waders. The identification and conservation of areas with both high population densities of waders combined with ensuring good levels of breeding productivity within these upland habitats has become a high priority for UK wader conservation

## **2.0 BACKGROUND TO 2021 SURVEY**

- 2.1 The North York Moors National Park contains the largest continuous expanse of heather moorland in England and Wales. The moorland here is fringed by a mix of arable and pastoral agricultural land. A unique characteristic is the way these agricultural lands merge into the neighbouring moorlands with little so called marginal land in between. There are far fewer areas of extensive wet and rushy allotments that characterise the moorland fringes of the North Pennines and the Yorkshire Dales SPA. In these two areas this so called "in-bye" or "intake" land has been found to provide important feeding and nesting areas for wading birds. There also large differences in the physical topography between these two upland blocks as the moorland in the NYMNP lies at a remarkably low altitude 100-400 m asl. In addition, rainfall is significantly lower on the eastern moors of the NYMNP. Within the park are some 60,000 hectares of farmland much of which lies adjacent to the moorlands which have been given SPA and SSSI designations in relation to their populations of wading birds.
- 2.2 One of the questions to answer is how important is the marginal farmland found in the NYMNP to ground nesting wading birds such as Curlew, Lapwing and Snipe? The higher ground found on the moorlands themselves have been investigated on a regular basis with repeat surveys of upland moorland being carried out in 1996, 2000, 2008, 2014 and again in 2019. What could be considered as equally as important feeding/breeding habitat for wading birds found on the adjacent farmland has been rather neglected by comparison.
- 2.3 In 2003 the NYMNP conducted a wader survey of upland in-bye and lowland Farmland in order to assess the health of the overall wader populations within the agricultural fields of the NP. The survey also aimed to identify the habitat types favoured by waders in order to help direct management advice to farmers and farm managers who wished to encourage breeding waders on their land.
- 2.4 The 2003 survey covered 50 sites across the NYMNP each covering approximately 1km in area. These included 40 "upland" and 10 "lowland" sites. The survey was conducted using standard survey methodology for breeding

waders as devised by O'Brien and Smith (1992). It is a widely utilised generic method that covers several species of wader, but there are key differences between the species in what to record and the interpretation of what is recorded. For example, although wading birds are more readily detectable than other groups of birds, some species such as Snipe limit their display activity to certain times of day and also when the weather conditions are favourable.

- 2.5 In 2003 the survey findings estimated breeding densities of 4.2 Lapwing per km, Snipe at 0.8/km and Curlew at 3.4/km on upland farmland sites. Breeding densities were found to be lower on lowland farmland sites and were recorded as to be as follows Snipe 0.2 pairs/km and Curlew at 0.8. pairs/km. (Hammond 2007)
- 2.6 The data suggested at the time that the NYMNP supported notable proportions of the national population of each species breeding on upland farmland and “in-bye”. The estimated numbers for Lapwing equated to 1.5% of the UK population, Curlew 1.2% and 0.5% of the UK Snipe population.
- 2.7 The recent 2021 survey looked to repeat the wader surveys of the original 2003 survey but due to access difficulties only half of the original sites were covered. In addition to breeding wader numbers, data was collected on the broad habitat characteristics of the fields in the survey blocks. The aim was to identify which were most used by both feeding and nesting waders. Additionally, this data would also assist in identifying any changes in land/field use that has taken place since the original survey. Waders will use a variety of habitats during the breeding season, for example adults feed in fields away from the preferred nesting areas whilst in general the chicks will feed close to the nest site or move into adjacent fields which become more suitable foraging sites as the season progresses. Lapwing chicks reared on spring barley or reseeded fields move to adjacent fields of permanent pasture to feed after hatching. A variety of habitat types are therefore required to provide optimal habitat for breeding waders (Shrubb *et al* 1991; Wilson *et al* 2005)
- 2.8 The aim is to provide the National Park Authority with accurate, up to date information about the population trends of important wading bird species found within the upland farmland habitat of the NYMNP and help inform future monitoring and habitat management approaches. Maps distinguishing areas of high and low densities of breeding waders within the NYMNP could help to improve planning for the conserving and recovery of wader populations. Areas with less potential for nesting waders can be distinguished from areas which could benefit from improved management, through Agri-Environment Schemes (AES) for example and to protect those existing high value areas for waders whereby poorly thought through development could create a negative impact. Forestry planting and even other Agri-Environment Schemes such as tree and hedgerow planting can have a negative impact on breeding waders.

### 3.0 SURVEY METHODOLOGY

- 3.1 The main focus of the 2021 survey was on the following wader species: Lapwing, Curlew, Snipe, Oystercatcher and Redshank. In addition, any European Golden Plovers *Pluvialis apricaria* found roosting/feeding in the fields surveyed were also recorded.
- 3.2 Site selection: the sites included in the original 2003 survey were initially chosen by a random selection of grid reference points within the enclosed areas of the NYMNP and then selecting the nearest 100ha of fields around each point. Moorland, coastline and woodlands were excluded from the selection, as were fields less than 0.4ha, considered likely to be gardens. Site selection was also stratified to ensure that both upland and lowland farmland were to be represented, but with at least 75% of the sites to be from upland areas. The rationale here is that upland areas would hold more breeding waders than lowland areas. Lowland and upland areas were differentiated by defining 5km x 5km blocks as 'upland' if upland dales were present within the area. In the original survey 50 sites that were surveyed, 40 were within the upland dales of the NP and a further 10 in lowland areas.
- 3.3 In the current survey, 2021, the number of sites selected was based on those where access permission had been granted to 60% or more of the original 100 ha survey area. This meant that only half of the original survey sites, 21 upland and 5 lowland sites could be revisited in 2021. Only fields within the survey area identified as suitable for nesting waders were individually surveyed.
- 3.4 The survey was conducted during 15<sup>th</sup> April to 19<sup>th</sup> June 2021 using standard wader survey methodology as described by O'Brien and Smith (1992). Over the season, three dawn or dusk visits were made to each field within the survey area, usually three weeks apart. The timings of each visit were kept to within a three-hour period either post dawn or prior to dusk. This enabled coverage at each site to be concentrated within the peak time of wader display and breeding behaviour activity rather than in the middle part of the day when birds tend to loafing/roosting or even feeding elsewhere. Four professional ornithological surveyors were employed on the project each experienced in surveying breeding waders.
- 3.5 Within constraints the surveyors walked to within 100m of every part of each field and mapped each wader registration as they walked. There was no attempt to focus on finding nests, which is time consuming, and this allowed the sites to be surveyed comfortably in the time available. All wader observations were recorded using standard BTO codes which cover the location, movement and behaviour of each individual. These registrations were collated onto individual visit maps to enable later analysis of the number of breeding pairs to be determined. Other non-wader species of conservation concern or notable for the



area were also recorded on each visit, e.g., Common Cuckoo *Cuculus canorus*, Ring Ouzel *Turdus torquatus* and Redstart *Phoenicurus phoenicurus*.

- 3.6 The numbers of breeding wader pairs in each of the survey sites was calculated using standard methods. It is straightforward for breeding Lapwings, Snipe and Redshank, Oystercatchers provide a complication as they are highly mobile across breeding areas and many non-breeding birds interact with birds on territories. They can also settle to nest quite late in the season as conditions allow.
- 3.7 For Curlews the calculations are also complicated by the fact that their display flights overlap territories on the ground. Curlews that nest on the adjacent moorland regularly feed on in-bye land particularly favouring damper grassy fields with a short sward in the early part of the season. Therefore, three different calculations were used in the analysis. The first (Smith 1983) was used to reflect Curlew densities in terms of the use of fields for foraging, while the other two are more likely to accurately reflect the numbers actually breeding in the fields themselves. Calculations are summarised for each species as:
- Lapwing pairs: 0.5 x maximum numbers of individuals seen on visits 1 and 2 (Barrett & Barrett 1984)
  - Snipe pairs: maximum “chipping” or “drumming” birds seen on any one visit (Green 1985)
  - Curlew pairs (Smith calculation): maximum pairs seen on any one visit where pairs are identified by paired birds, or the agitated behaviour of an adult bird or single birds not in flocks.
  - Curlew pairs (Grant calculation): 0.71 (mean no. of individuals recorded on all 3 visits) (Grant et al. 2000)
  - Curlew pairs (map assessment): Compare original survey maps for a field activity assessment whereby pairs are identified by paired birds, agitated behaviour and birds using the same or nearby fields on more than one visit. This discounts birds that are just feeding in the fields and not nesting.
  - Redshank pairs (map assessment as described above for Curlew): the number of breeding pairs was assessed by the behaviour of birds over the three survey visits.
- 3.8 All fields were numbered, and the habitat characteristics of individual fields were recorded during the wader surveys. The habitat assessment was primarily to identify areas that were deemed unsuitable for breeding waders such as slopes too steep, scrub cover or tree planting that may have occurred in the intervening years. Field use was documented for those fields where breeding waders occurred these included livestock grazing, hay meadows, silage fields or crops such as spring barley.

3.9 In total 825 individual fields were identified and numbered during the 2021 survey. The split between lowland/upland included 88 lowland farmland fields and 737 upland farmland fields. The latter fields are also referred as “in-bye”, or intake land the definition of which covers enclosed fields with 1km of the moorland edge. These fields are used for cultivation, production of forage i.e., hay or silage, or are grazed by livestock, which in the NYMNP is largely a mix of sheep and cattle.

### 3.10 Constraints

3.10.1 Whilst every effort was made to cover each field and/or survey area, some fields/areas were recorded on field maps as difficult and/or dangerous terrain such as steep slope, dense vegetation and/or deep mud/water. Any areas noted as potentially unsafe to surveyors, birds were recorded to the nearest safe point. In practice, there were few areas of this nature on the farmland wader surveys.

3.10.2 Every effort was made to space visits out evenly within the methodology. However, on occasion timetabled visits had to be amended due to adverse weather conditions.

## 4.0 RESULTS

4.1 In 2021 the numbers of breeding pairs of waders recorded on the survey were as follows; 166 pairs of Lapwings, 36 pairs of Snipe, 46 pairs of Curlew, 14 pairs of Oystercatcher and two pairs of Redshank.

4.2 This is compared to the figures from the 2003 survey which covered 50, twice as many, survey sites. In the 2003 survey 195 pairs of Lapwing, 69 pairs of Curlews, 34 pairs of Snipe were recorded. This which would suggest a positive comparison between the surveys, given the widespread declines in wader species witnessed nationally over the intervening 18 years. The number of pairs of breeding waders; Lapwing, Snipe and Curlew, recorded within the 26 survey sites visited in both of the years, 2003 and 2021, are shown in Table 1 below.

**Table 1 – Breeding Waders; L, SN, CU. Results 2003 and 2021**

Sites		Lapwing	Pairs	Snipe	Pairs	Curlew	Pairs Field	Curlew	Pairs Max
Lowlands		2003	2021	2003	2021	2003	2021	2003	2021
L7	Broxa	2	0	0	0	0	0	0	0
L9	Blansby	0	0	0	0	0	0	0	0
L11	Byland	3	2	0	0	0	3	0	3
L12	Scawton	7.5	0	0	0	2	0	2	0
L15	Ingleby	3	4	0	0	3	5	3	5
<b>Sites</b>	<b>Totals</b>	<b>15.5</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>8</b>	<b>5</b>	<b>8</b>
Uplands									
U3	Hagg House	2.5	2	5	6	6	0	7	7
U4	Raisdale	7	8	0	1	1	7	7	7

U5	Urda Moor	2	0	0	0	1	0	2	0
U7	Bilsdale	0	0	0	1	3	2	6	3
U8	Gt Ayton	1	2	0	0	0	1	0	2
U9	Kildale	1	3	0	0	3	2	4	4
U10	Sleddale	35	42	1	8	1	6	4	10
U11	Bransdale	2	6	4	8	4	1	9	2
U13	Baysdale	1.5	6	4	2	3	4	4	4
U14	Farndale	9.5	6	0	0	3	3	7	4
U20	Gillamoor	1.5	1	0	0	0	1	0	2
U21	Birch Hagg	0.5	2	0	0	0	1	3	2
U25	Danby	1	3	0	0	1	1	2	2
U26	Danby	2	8	0	1	1	1	2	1
U27	Rosedale	2	3	0	0	1	1	1	1
U28	Fryup Dale	2	5	0	0	2	0	2	4
U29	Rosedale Abbey Village	9	2	1	0	0	1	0	1.5
U30	Rosedale	1	5	0	1	5	1	7	1
U32	Lealholm	2	12	0	4	0	0	2	0
U33	Low Tranmire	28.5	21	2	2	1	3	2	6
U34	Tranmire	17	23	0	2	3	2	4	4
<b>Sites</b>	<b>Totals</b>	<b>128</b>	<b>160</b>	<b>17</b>	<b>36</b>	<b>39</b>	<b>38</b>	<b>75</b>	<b>67.5</b>
<b>TOTAL</b>		<b>143.5</b>	<b>166</b>	<b>17</b>	<b>36</b>	<b>43</b>	<b>46</b>	<b>80</b>	<b>75.5</b>

Note: Green rows mark sites where feeding within the site was recorded by birds likely to breeding outside the study area e.g., on adjacent moorland.

Pink rows mark sites where juvenile waders were found within the site and therefore confirm successful breeding within the study area

4.4 The number of pairs of breeding waders; Oystercatcher and Redshank recorded within the 26 survey sites in 2021 are shown in Table 2 below. There were no records of either Redshank or Oystercatcher during the 2003 surveys.

**Table 2 – Breeding Waders; OC, RK. Results 2021**

Sites		Oystercatcher Pairs 2021	Redshank Pairs 2021
<b>Lowlands</b>			
L7	Broxa	0	0
L9	Blansby	0	0
L11	Byland	0	0
L12	Scawton	0	0
L15	Ingleby	1	0
<b>Site Totals</b>		<b>1</b>	<b>0</b>
<b>Uplands</b>			
U3	Hagg House	0	0
U4	Raisdale	1	0

U5	Urra Moor	0	0
U7	Bilsdale	0	0
U8	Gt Ayton	0	0
U9	Kildale	1	0
U10	Sleddale	4	0
U11	Bransdale	0	0
U13	Baysdale	0	0
U14	Farndale	0	0
U20	Gillamoor	0	0
U21	Birch Hagg	0	0
U25	Danby	1	0
U26	Danby	1	0
U27	Rosedale	1	0
U28	Fryup Dale	0	0
U29	Rosedale Abbey Village	0	0
U30	Rosedale	0	0
U32	Lealholm	0	0
U33	Low Tranmire	2	2
U34	Tranmire	2	0
<b>Site Totals</b>		<b>14</b>	<b>2</b>

## 4.5 Lapwing

4.5.1 Lapwing breeding distribution is strongly related to vegetation height with Lapwings preferring fields with bare ground or short grass or crop swards. In the 2003 survey some of the highest densities were found on highly stocked pastures on the moorland edge and in spring sown cereal fields or reseeded grass/ fields. Lapwings are also strongly associated with the presence of wet fields or areas of damp pasture/partially flooded fields close to the nest site.

4.5.2 In the 2021 survey Lapwings were proved breeding in small numbers at 22 of the 26 sites with by far the highest densities found on the higher northern sectors of the park. Here 98 (59%) of the 166 pairs located were to be found at just four survey sites, U10, U32, U33 & U34. Top site was U10, located in upper Sleddale near Guisborough which held 42 pairs alone, that's 25% of the surveyed population at just one location. This site is also unique in that it comprises of enclosed upland pastures almost entirely surrounded by moorland.

## 4.6 Snipe

4.6.1 Snipe are strongly associated with rushy meadows and fields containing wet areas such as ponds, marshy areas and flooded ditches. Agricultural land that is heavily drained is therefore not suitable for breeding Snipe and the distribution of birds on this survey shows a strong association with the upland allotments.

4.6.2 During the 2021 survey this species was only found breeding at the upland sites, eleven out of the 21 surveyed. As with Lapwing just four of the sites, U3, U10, U11, U32, accounted for the majority of breeding pairs. Some 32 (70%) of recorded pairs occurred at these sites with 8 pairs at just one site, U10, in Upper Sleddale. Some of the pairs at U10 and all at U32 were considered to be nesting on adjacent moorland but birds were recorded displaying within the survey area, so these records were included to highlight the importance of all these sites for Snipe in the NYM NP.

## **4.7 Curlew**

4.7.1 Curlews also like wet areas for nesting and in the NYMNP are found to be more abundant on the moorland sites rather than the agricultural fields. This is well illustrated by the 2021 survey results which suggest a higher presence of foraging Curlews in the fields than actually use these farmland sites for nesting. Many of the moorland nesters come down to the in- by land to feed during the egg stage and then spend more time on the moorland as they care for the chicks. At this time, mid -June, many of the lowland pastures become unsuitable as the sward height of the favoured hay and silage fields becomes too long for foraging Curlews. After the hay and silage is cut the Curlews then return with fledged young to feed in these same fields.

4.7.2 In the 2021 survey Curlew were scattered widely across the sites with breeding occurring at 20 of the 26 sites surveyed. There was a more even distribution of numbers across the sites compared to the previous two species with 14 sites carrying at least three pairs (Smith Calculation). Lowland as well as upland sites were favoured however when it came to the map assessment method the numbers dropped to 8 sites. The reason for this was clear on the ground as many birds were found to be present and only feeding on the farmland sites but were nesting on the adjacent moorland.

## **4.8 Redshank**

4.8.1 These were not recorded on the original 2003 survey but found at two sites in the current 2021 farmland survey. The first individual was recorded at Danby in April and most probably related to a passage bird. At a second site, U33 Low Tranmire, three territories were located in areas of wet grassland. The birds continued agitated behaviour suggested that successful breeding had occurred.

4.8.2 A species that is more associated with coastal marshland and coastal wetlands. It has bred over the years in small numbers in the park. Two pairs were recorded at one site in the 2019 Upland Wader Survey (Baines et al 2019).

## **4.9 Oystercatcher**

4.9.1 Oystercatcher is a species with a predominantly coastal distribution in the UK but increasingly birds are spreading inland to breed. Territorial and or feeding

behaviour was recorded at ten sites during the survey with confirmed breeding at four sites U10, U 27, U33, U34. The sightings were spread across the survey sites in the northern part of the National Park. These birds are more likely to be breeding along the river valleys and coming into the higher agricultural fields primarily to feed. They like to nest in bare arable or recently ploughed and tilled fields and also will utilise stone walls and even gateposts as nest sites.

## 4.10 Golden Plover

4.10.1 Golden plover is a widespread breeding species across the moorland sites in the NYMNP in fact the park was designated as an SPA thanks to its Golden Plover population which is currently estimated at 2.1% of the UK population (Wold Ecology report 2019).

4.10.2 In the initial part of the survey flocks were found at two survey sites. Site U10 in Upper Sleddale held 91 birds in April and a further 39 in May. Site U34 near Lealholm held a flock of 67 birds during April. These birds are often referred to as “northern” Golden Plovers and do not make a up a part of the NYMNP population. The birds stage here prior to onward migration to breeding grounds in Iceland and northern Europe. Two Golden Plovers were found at site U34 during the May visit. These were considered to be local birds nesting on adjacent moorland and foraging in the pasture fields at this site.

## 4.11 Results – Site Summary

4.11.1 The following summary table highlights the number of waders found, the importance of each site for wading birds and/or the reasons for unsuitability.

**Table 3 – 2021 Results Site Summary**

Sites		Summary Importance or Unsuitability
<b>Lowlands</b>		
L7	Broxa	No breeding waders within study area. Lapwings breeding adjacent to survey area and present on Broxa farm in early spring pre-breeding (J. Swires pers. comm., April 2021). Large percentage of survey area unsuitable for breeding waders due to slope and/or woodland.
L9	Blansby	No breeding waders within study area. A pair of Curlews were recorded feeding in an adjacent field on visit 3.
L11	Byland	Three pairs of Curlews represented an increase on 2003. Two pairs of Lapwings nested in sheep grazed pasture. A further 3 pairs of Lapwings and 3 pairs of Curlews were found on adjacent ungrazed pasture and moorland.
L12	Scawton	No breeding waders within the study area. Two Curlews fed on grazed pasture and a pair of Curlews displayed over adjacent fields.
L15	Ingleby	An improved site holding four pairs of Lapwings and five pairs of Curlews. Lapwing nested in an autumn sown cereal crop and both species fed in grazed pasture within the survey area and on adjacent pastureland
<b>Uplands</b>		

U3	Hagg House	A good site for Snipe with six pairs amongst the “in-bye” fields at the northern end. Although 7 pairs of Curlews were recorded on visit 1 none bred within the survey area. Several pairs of Curlews and a Golden Plover displayed over adjacent moorland. Two pairs of Lapwings bred
U4	Raisdale	A productive site for breeding Lapwing and Curlew in a mix of grazed and rough pasture adjacent to moorland. Totals included 8 pairs of Lapwings, 7 pairs of Curlews and 1 pair of Snipe. Young Curlew and Lapwing recorded.
U5	Urra Moor	No breeding waders within the survey area and regarded as unsuitable.
U7	Bilsdale	A single pair of Snipe and two pairs of Curlews recorded but no Lapwing.
U8	Gt Ayton	Two pairs each of Curlew and Lapwing within the survey area with an extra pair of Lapwing in an adjacent field. Predominantly grazed sheep pasture.
U9	Kildale	A good site for Lapwing with 3 pairs within the survey area and a further 3 pairs located on adjacent moorland fringe. A mix of both grazed and rough pasture which also held 2 pairs of Curlews and a pair of Oystercatchers. Three fledged Lapwings also recorded in an adjacent pasture field.
U10	Sleddale	Top site for Lapwing with 42 pairs located and a total of 32 fledged juveniles recorded. The sheep grazed pastures surrounded by moorland are also an important spring “stop-over” site for Golden Plover with 91 birds present on visit 1 and 64 birds on visit 2. The top site for both Snipe and Curlew, with totals of 8 pairs and 6 pairs recorded respectively.
U11	Bransdale	Another top site for Snipe with 8 pairs recorded in the “unimproved” pastures amongst the perimeter fields of the survey site with a further 2 pairs on adjacent moorland. The improved pasture at the core of the site attracted feeding Curlew and Lapwing. Six pairs of Lapwings and a pair of Curlews recorded with a further 2 pairs of Curlews on adjacent moorland.
U13	Baysdale	A mix of improved and unimproved pasture on the moorland edge. The totals of six pairs of Lapwings, 4 pairs of Curlews and 2 pairs of Snipe shows that the site is well used by breeding waders.
U14	Farndale	A similar site to U13 which held six pairs of Lapwing and 3 pairs of Curlews. Lapwing concentrated amongst the unimproved pasture on the edges of the site and also in adjacent fields. Curlews fed on improved pastures.
U20	Gillamoor	Poor overall and a marginal site for waders, mainly arable with large fields. Grazed pastures attracted feeding Curlew with one breeding pair on adjacent land. One pair of Lapwing found in the arable fields
U21	Birch Hagg	A mixed site with areas too steep and or enclosed to attract breeding waders. Three pasture fields were identified as being good for waders and these held 2 pairs of Lapwings and a single pair of Curlew.
U25	Danby	Most of the fields were too steep, over grazed and close to habitation to attract breeding waders. Single pairs of Lapwing and Curlew were recorded. A single Redshank seen on visit 1 thought to be a passage bird
U26	Danby	A good site for Lapwing with five pairs nesting in a spring cereal field and a further 3 pairs in unimproved pasture. A further 8 pairs nested in adjacent fields with reseeded/spring cereals also proving attractive to nesting birds.
U27	Rosedale	Improved grazing pasture around Rosedale village many steep fields so marginal interest for breeding waders. Three pairs of Lapwings in the wetter fields and a pair of Curlew in three fields with better potential.

U28	Fryup Dale	The majority of fields unsuitable as to steep and managed for silage and grazing dairy cattle. There are some fields of interest in the valley bottom which held five pairs of Lapwings. Curlews using the site for feeding.
U29	Rosedale Village	Improved grazing pasture with several fields unsuitable due to steep gradient and managed for silage. Displaying and feeding Lapwings found on territory in two fields but breeding not proven. Curlew recorded in one field feeding on the final visit with no sign of breeding. Field used for feeding Curlew nesting elsewhere.
U30	Rosedale	A mixed site with many areas too steep and other fields managed for silage. Five pairs of Lapwings concentrated in five fields of grazed pasture. Also, single pairs of Snipe and Curlew found in a couple of wetter fields.
U32	Lealholm	The core of the survey area enclosed and too steep for waders. Birds concentrated around the edges in particular two meadows east of the village which held most of the 12 pairs of Lapwings. Curlew used several hay meadows as regular feeding sites with 4 pairs breeding on surrounding moorland. Four pairs of Snipe with 4 pairs found on adjacent moorland edge which also supported another 10 pairs of Lapwings.
U33	Low Tranmire	The only site that held all five species of interest and totals included 21 pairs of Lapwings, 2 pairs of Snipe, 3 pairs of Curlews, 2 pairs of Redshanks and 2 pairs of Oystercatchers. In addition, good numbers of waders in adjacent fields included 5 pairs of Lapwings 3 pairs of Curlews and a pair of Redshanks. Essentially a heavily grazed site with some nice wet areas and rough grassland around the margins and adjacent moorland.
U34	Tranmire	An extensive site with a mix of cattle pastures, silage fields and spring cereals. Plenty of Lapwing nesting in the latter and moving young into surrounding grassland. At least 23 pairs of breeding Lapwing with 30 juveniles recorded on visit 3. Two pairs of Curlews on site with others on surrounding moorland. Two pairs of breeding Snipe with another 2 pairs on the adjacent moorland edge, on visit 1, 67 Golden Plovers frequented an adjacent bean field where Lapwings and Oystercatcher also nested.

## 4.12 Comparison with 2003 Survey

- 4.12.1 It is always a fine balance when comparing single years to others when analysing survey results. To allow comparisons to be drawn we must consider variable factors such as detection rates and interpretation of behaviour between observers and of course the prevalent spring weather. Wet springs and conversely dry springs will have an effect on the results produced when surveying breeding birds.
- 4.12.2 Across the board results were encouraging with most sites producing similar results between the survey years. For one species, the Curlew, numbers are very similar when comparing the maximum numbers of Curlews present, 80 pairs in 2003 and 76 pairs in 2021. It was found that Snipe numbers more than doubled from 17 breeding pairs recorded in 2003 up to 36 pairs in 2021. It was noted in the original survey that spring 2003 was a very dry one and this must be taken into account when comparing the figures. The dry spring may have adversely affected Snipe numbers that year. Lapwing however show an even stronger rise in numbers between the survey years. Numbers of breeding pairs increasing from a



base of 143 pairs in 2003 rising to 166 pairs in 2021. This is welcome news as the Lapwing is another species that has suffered national declines in recent years.

- 4.12.3 Lowland sites; five of the original ten sites selected in 2003 were revisited in spring 2021. All told the lowland sites proved to be rather poor for waders in terms of both numbers and diversity. The in between years results were rather mixed with a total of 15.5 pairs of Lapwing at five of the survey sites in 2003 reducing to 6 pairs in 2021. Conversely numbers of Curlews at these same sites increased from 5 pairs in 2003 up to 8 pairs in 2021. The sites which witnessed a significant improvement were as follows, L15 Ingleby and L11 Old Byland. At L12 Scawton there was a decline in numbers whilst things remained very much the same at L7 Broxa and L9 Blansby Park, unfortunately no breeding waders were recorded at either of these sites in 2021.
- 4.12.4 Upland Sites; of the original forty sites from 2003 some 21 were revisited in the 2021 spring survey. There was much variation in the wader numbers encountered across these sites but significantly the same sites which came out top in 2003 were still amongst the best sites surveyed in 2021. For the purpose of this analysis, the twenty survey sites have been divided into three groups. The first group comprises four sites which between them held by the far the highest numbers of breeding pairs. In the second group fortunes were mixed but significantly four of the five sites held breeding Snipe and between them above average numbers of Curlew. The third group was the largest, 12 sites, these held the lowest numbers of breeding waders in the original survey. In 2021 some small increases in Lapwing numbers were recorded amongst this group. The majority held no Snipe in 2003 or 2021 and very few pairs of Curlew.
- 4.12.5 The top four survey sites included U 10 Sleddale, U 32 Lealholm, U 33 Low Tranmire and U 34 Tranmire. All four of these sites showed an overall increase in numbers of breeding waders in 2021 compared to the original survey in 2003. The combined figures for 2003 were as follows Lapwing 82.5 prs, Snipe 3 prs and Curlew 5 prs. In 2021 the totals included 98 prs of Lapwing, 16 prs of Snipe and 11 prs of Curlew. In 2021 these four sites held 59% of all Lapwings recorded in 2021, with one site, U 10 Sleddale, holding 25% of Lapwing pairs from the whole survey area. At U32 Lealholm Lapwing pairs increased from 2 pairs in 2003 up to 12 pairs in 2021. The 2021 count was obtained largely from a couple of favourable fields located on the eastern perimeter of the site which may not have been suitable in the last survey. Lapwing numbers fell at Low Tranmire from 28.5 pairs in 2003 down to 21 pairs in 2021. However, in 2021 an additional six pairs were located in fields adjacent to the survey boundary so in practice the site still holds similar numbers of breeding Lapwing.
- 4.12.6 A feature of the second group was the fact that between them they held 52% of the pairs of breeding Snipe in 2021. Bransdale, U 11, saw a doubling of breeding Snipe, from 4 pairs up to 8 pairs. Snipe numbers also increased from 5 to 6 pairs at Hagg House, U 3, an extra pair was recorded at Raisdale, U 4, but numbers of

Snipe declined at Baysdale, U 13, from four pairs to 2 in 2021. Curlew numbers varied from site to site with a decline from 6 pairs to zero at Hagg House, although similar numbers of Curlew were present in 2021 most birds were determined to be moorland breeders. The Curlew is interesting as overall numbers were similar when comparing the two survey seasons. It appears that the species is nesting more successfully on adjacent moorland habitats. They are still using the farmland meadows to feed, particularly when the swards are short. However, it maybe that an increased switch to silage regimes has discouraged Curlews from nesting within these fields.

4.12.7 The third group held the following numbers of breeding pairs in 2003: Lapwing 20 pairs; Curlew 10 pairs but no Snipe. In comparison these same sites in 2021 held a combined total of 23 pairs of Lapwing, 2 pairs of Snipe and 11 pairs of Curlew.

## **5.0 DISCUSSION**

- 5.1 Breeding wader populations in the UK have been a major conservation priority for some years. Declines continue despite the implementation of conservation measures that are designed to protect or enhance breeding and nesting areas for these birds. These Agri-Environment schemes or AES for short have been rolled out to support farmers and landowners in this vital work.
- 5.2 Over 30% of the NYMNP is designated under the North York Moors SPA and North York Moors SSSI designations, for which wading bird species are notified features: Golden Plover for the SPA and Golden Plover, Curlew, Lapwing Snipe and Redshank for the SSSI. At the time of designation, the North York Moors was known to support nationally significant breeding populations of Golden Plover, Curlew Lapwing and Snipe.
- 5.3 Whilst the designation covers the moorland habitats only, it is widely understood that many wading birds move frequently between the moorland and in-between areas to feed during the breeding season, also many wading birds are found nesting within the in-between and lowland farming areas of the National Park particularly Lapwing, but also Curlew and Snipe where the habitat is suitable. Breeding waders are interdependent on both moorland and farmland habitats found within the NYM NP. Therefore, it is suggested that a whole landscape approach to wader conservation be adopted.
- 5.4 The aforementioned wader species were all included in the NYMNP Local Biodiversity Action Plan which aimed to maintain and enhance the populations of waders within the National Park.
- 5.5 The results of the 2003 upland farmland survey identified that the enclosed fields of the NYMNP were very important breeding, and foraging, habitats for wading birds. Breeding densities were found to be highest at the upland sites adjacent to the moorland edge and densities of Lapwing and Snipe in these areas were in fact higher than on the moorland itself.

- 5.6 Secondly, the results also indicated that wader distribution varied greatly across the sites, with some sites containing very high densities of waders while others, even in the same valley, contained very few or none. A similar situation was still to be found in the 2021 survey, in fact perhaps more so with numbers of breeding birds concentrated at a handful of the surveyed sites.
- 5.7 This means that these populations of breeding waders found within the NYMNP may be more under threat of decline than is immediately apparent by just looking at the overall figures alone.
- 5.8 In the 2021 survey several sites returned poor results and in many cases a combination of factors was responsible including proximity to forestry and human settlements. Around half of the original plots were resurveyed in 2021 making it impossible to make a full comparison between the surveys.

## **5.9 Northern Lapwing**

- 5.9.1 The latest Upland Bird Survey carried out in 2019 identified a continuous trend of decline in the Lapwing population in the NYMNP since a peak in numbers in 2000. The 2019 survey produced the lowest mean density of Lapwings since the survey commenced in 1996. A breeding density of 1.23/km in 2019 was extrapolated to produce an estimated moorland population of 566 pairs. The densities found in the farmland surveys in Spring 2021 are significantly higher and illustrate that larger numbers are breeding away from the moorland areas of the park. Lapwings are to be found nesting on the adjacent in-by-land and even along roadside verges. The results of the 2021 survey also shows that the Lapwing population is concentrated at too few sites and is therefore extremely vulnerable to changes in farmland and land use management practices.

## **5.10 Common Snipe**

- 5.10.1 The Snipe population has always been under-recorded on these wide landscape wader surveys and population estimates as such should take this factor into consideration. In the 2019 Upland Moorland Survey some 49 pairs of Snipe were recorded at a density of 0.51 pairs/km and the population of the National Park's moorlands put at 245 pairs.
- 5.10.2 The 2021 farmland survey covering a quarter of the land area produced a similar number of pairs. This suggests that the Snipe is just as, if not more, dependent on the upland allotments as the moorland expanses.
- 5.10.3 The 2021 survey found that Snipe is concentrated in a few favoured upland farmland areas adjacent to the moorland where there is a predominance of wet and rushy fields. This rush cover is important to breeding Snipe and they were not recorded at any of the lowland sites surveyed in 2021.

## 5.11 Eurasian Curlew

- 5.11.1 During the 2019 Moorland survey some 271 pairs of Curlews were recorded which was extrapolated to produce a NYMNP population of 1357 pairs found at an average density of 2.95/km pairs across the moorland habitat. This represents over 2% of the declining UK population which is significant.
- 5.11.2 The 2021 farmland sites recorded a breeding population of 46 pairs (map and field assessment method) from a much a smaller selection of the survey plots covered in 2003. The survey also revealed a high usage of pastoral land by feeding Curlews. Compared to the 2019 moorland survey sites Curlews occurred at a significantly lower density of around 2 prs/km across the farmland areas. Slightly higher densities were recorded from lowland sites but from a small sample.

## 5.12 Redshank

- 5.12.1 This species is primarily a breeding bird of lowland and coastal wetlands. It occurs in the small numbers in the uplands where conditions are favourable. As the species requires level ground and wet pastures this means that suitable habitat is in short supply. The Redshank has been recorded on Upland Bird Surveys in the National Park since the 1980's. In the last moorland survey in 2019 two pairs of Redshank were documented.
- 5.12.2 Given the lack of suitable breeding habitat in the surveyed areas it is not surprising that this species was only recorded at only two sites in the current 2021 farmland survey. The first record, at Danby in April, probably related to a passage bird. At a second site, U33 Low Tranmire, a combination of factors resulted in successful breeding. These included management, topography and close proximity to nearby Scaling Dam Reservoir which provides additional habitat for feeding birds throughout the breeding season.

## 6.0 LAND MANAGEMENT RECOMMENDATIONS

- 6.1 The 2021 surveys found wader populations were concentrated in too few sites in the NYMNP. Therefore, to ensure wader populations become more sustainable in future years, more areas of upland farmed in-bye land should be managed sympathetically for feeding and nesting waders. Studies have shown a positive correlation between conservation action for wading birds directed by Agri-environment Scheme, AES, (O'Brien and Wilson 2011).
- 6.2 The following recommendations should be considered:
- Adult wading birds will forage well away from the nesting sites so provision or importantly the protection of feeding areas identified by the survey should be maintained under a similar field management regime.

- Wet areas are not only important for breeding waders but also for other bird and wildlife species found nesting/breeding on the adjacent moorland.
- Provision of so-called wader scrapes across fields and moorland edge can improve the water retention of these areas vital to all wildlife.
- Stocking control and provision of wet wader scrapes will also be beneficial to waders and other species of birds and wildlife that breed around the moorland fringe.
- Short swards are important for nesting Lapwing and feeding Curlew and can be maintained by sympathetic grazing regimes.
- It is preferable though to have short sward determined by factors including low nutrient quality and high soil moisture content.
- Herb rich swards with a high diversity of flowering plants should be promoted where appropriate by for example reducing livestock grazing rates.
- Bare earth and short swards are important for Lapwings which can nest in high densities on arable fields such as spring barley and reseeded grass fields. Particularly when these are situated within a mosaic of field types which allows the juveniles to forage in adjacent fields as the crop sward becomes too dense.
- Key fields identified as good for nesting waders can be crop managed to explore options for mitigating losses of nests and young birds during activities such as rolling and harvesting. The problem of predation of the eggs and chicks should also be addressed through methods of predator exclusion

6.3 The measures above could be achieved in conjunction with the peatland restoration schemes to help increase resilience to factors such as climate change. The future challenge of an unpredictable climate may lead to longer periods of drought at precisely the times of year when these birds need wet grassland. Action and forward planning are needed to ensure water is retained wherever possible and not lost from any habitats where these wading birds may be either feeding or breeding.

6.4 The NYMNP has a unique mix of pastoral and arable land in close proximity to heather moorland and many unimproved fields remain here. All waders prefer fields close to the moorland edge, for the benefit of these wading birds they should be considered as an essential part of this mixture. These 'unimproved' fields are currently under threat from continued improvement for forage crops such as hay and forage silage.

6.5 Farming in protected landscapes is a new Government venture to support nature recovery and nature-friendly and sustainable farm businesses. These could include increasing wader habitat to improve biodiversity and connectivity

between habitats in the landscape mosaic and at the same time mitigate the impacts of climate change by helping to reduce flooding risk and increase carbon storage or capture.

- 6.6 It is important to forge strong links between farms and the estates within the NYMNP. One way forward would be to follow the RSPB Clyde Valley initiative which has resulted in a 10% increase in breeding waders over a 5-year period. The project involves monitoring breeding success at wader nests using trail cameras and temperature data loggers which are placed in the ground under then nest.
- 6.7 The involvement of volunteer surveyors and or stakeholders, such as farmers and gamekeepers on the Bolton Estate in the Yorkshire Dales National Park has contributed to a better understanding of the monitoring of wader productivity. These projects also contribute to funding remits for conservation, recreation and health. Existing wader hotspots could be monitored, and success measured against targeted environmental schemes. In short farmers could receive payments for increasing the productivity of breeding waders on their land.
- 6.8 As a response to the climate crisis there is an increasing drive to plant trees. Although this is a positive step and would involve native species there are some concerns. We recommend avoiding planting in areas that are currently good for nesting waders; the productive “hotspots” identified by continued monitoring can be protected from such schemes which would have a negative impact on their populations of breeding waders.
- 6.9 It is recommended that the less favourable sites are managed favourably to make them more attractive to breeding waders. Are these areas currently under AES? are current measures working? If not, how can they be improved on? If these sites are not within any current scheme landowners could be directed towards making improvements for conservation gain.

## **6.7 Site Photos**

- 6.7.1 The following photos, taken by surveyors during and/or immediately after the surveys are used here to represent visually discussion points and/or recommendations made in the report.

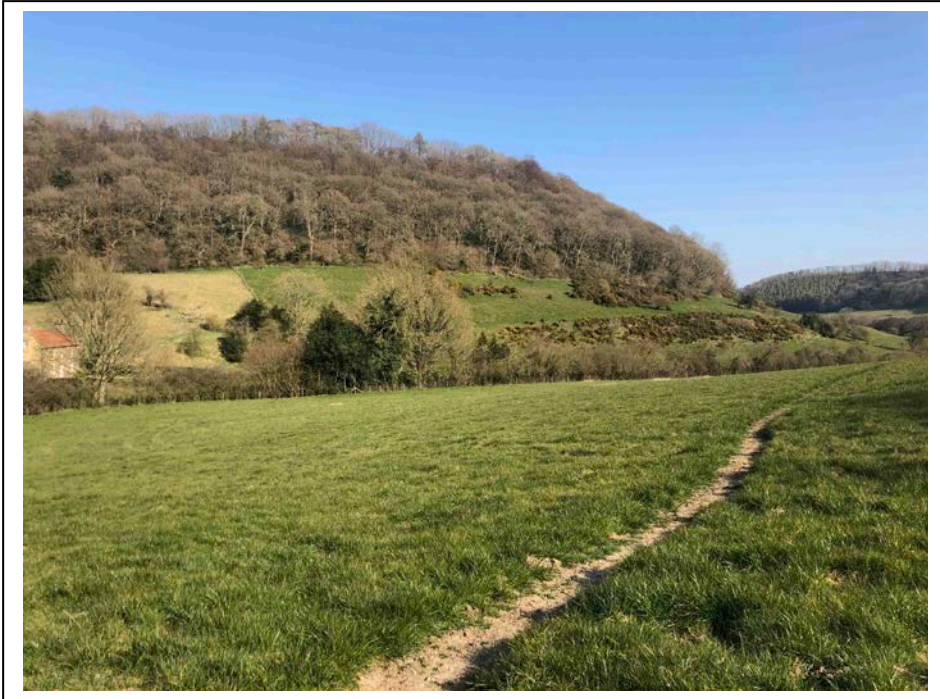


Photo 1 – Site L7 Majority of fields unsuitable for waders due to enclosed woodland landscapes.



Photo 2 – Site L11 Old Byland. Curlew nesting in the meadows near the village. Photo taken on survey Visit 3.



Photo 3 – Site U33. Lapwings like to nest in short swards. But do need some cover! A Lapwing chick hides behind a young thistle.



Photo 4 – Site U 26 Danby reseeded field held 5 pairs of Lapwings, all produced chicks.





Photo 5 – Site U 32. Lealholm road divides moor from pasture. Snipe to the left  
Lapwing to the right.



Photo 6 – Site U 34. Lapwing nested in adjacent spring barley but moved chicks  
into cattle pasture for invertebrate food.



Photo 7 – Site U32 Lealholm meadows adjacent to moor with 6 pairs of nesting Lapwing.



Photo 8 – Site U32 Lealholm roadside pasture with breeding Lapwings.



Photo 9 – Site U33 overgrown ditch with small areas of open water and lightly grazed adjacent pasture. Breeding Redshank were found here.



Photo 10 – Site U33 Oystercatchers nest with two eggs. Oystercatchers prefer to nest on bare earth or stony ground.



Photo 11 – Site U33. Rush pasture fields lightly grazed. High value habitat used by Redshank Curlew and Lapwings.

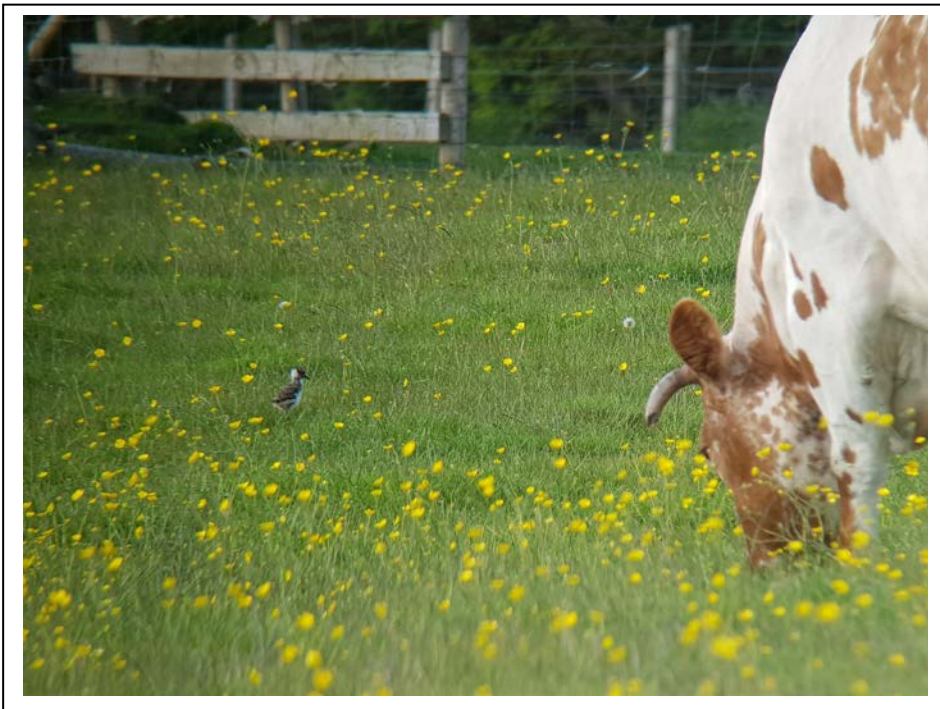


Photo 12 – Site U34 Lapwing chick in cattle pasture.



Photo 13 – U4 Visit II. The majority of Lapwings in Raisdale nest in these two large open fields of temporary grassland and arable.



Photo 14 – U11 fields above Smout House. Snipe & Curlew were found feeding in these gently sloping fields, but the majority were likely to be breeding on the edge of the adjacent moor.

## 7.0 SURVEY RECOMMENDATIONS

- 7.1 A rolling five-year plan should be put in place to enable the survey sites to be monitored every year, and then for all sites to be re-surveyed by a team of professional ecologists in 2026.
- 7.2 To achieve this we recommend establishing a team of volunteers, a mix of stakeholders including landowners, farmers, gamekeepers, national park volunteers, local bird watchers etc. to monitor individual sites on an annual basis. To follow the guidelines and methodologies established by projects such as the breeding waders of Wensleydale on the Bolton Castle Estate in the Yorkshire Dales (Jarrett et al 2017) and the RSPB Clyde Valley initiative in the Southern Uplands of Scotland. To see their project video, [click here](#)
- 7.3 The aim would be to focus on a subset of sites from the 2021 survey. They should include all of the most important sites alongside a selection of those with fewer birds but with recognised development potential. The target would be to at least maintain and preferably to increase the numbers of breeding waders over the intervening five years.
- 7.4 After a period of five years in 2026, conduct a repeat survey of all the sites surveyed in 2021. This could follow the pattern of the Moorland Bird Surveys in the NYMNP. For the full breeding wader survey utilise the services of a professional team of bird surveyors
- 7.5 It is suggested that the NYMNPA makes contact with the recently created Curlew Recovery Partnership. To see their project website [click here](#). The species faces stark challenges across the UK and the NYMNP is a key breeding area for this species. There is the potential to become involved in a Curlew “head starting” project as well as other exciting schemes.
- 7.6 Using the data from all recent survey we recommend maps are produced distinguishing between the areas of the NYMNP that are of high or low value to breeding waders. Combine the data collected from both moorland and farmland wader surveys in order to create so called wader “hotspots” to account for any overlap. Within the areas that are identified further analysis can be undertaken.
- 7.7 Within this data set sites should be identified which come under current or recent AES schemes in order to assess the benefits of such schemes in protecting wader habitats in the NYMNP.
- 7.8 Increasing the wading bird populations of the NYMNP can have huge benefits for community wellbeing and tourism. The spectacle of “bubbling” Curlews and “drumming” Snipe would encourage and inspire residents and visitors alike. Initiatives such as monitoring the breeding success of these readily identifiable birds helps increase the time volunteers can spend outdoors with all its attendant physical and mental health gains. A project that brings together such diverse

stakeholders could help bring about a shared understanding of the fortunes of these birds and ultimately the long-term futures of both the birds and the national park in which they breed.

## 8.0 REFERENCES

- Baines R, Cowie A, Pearson M. 2019. North York Moors National Park Breeding Wader Study 2019. Unpublished report to the National Park.
- Barrett, J. & Barrett, C. 1984. Aspects of censusing breeding Lapwings. Wader Study Group Bulletin, **42**, pp 45-47.
- Bell, M.V. & Calladine, J. 2017 The decline of a population of farmland breeding waders: a twenty-five-year case study Bird Study: Volume **64**
- Colwell, M. 2018. Curlew Moon. Harper Collins UK.
- Eaton, M. Conway, G.J., Siriwardena, G. & Stanbury, A. 2017. Breeding Waders of English Upland Farmland (BWEUF): survey and data analysis for breeding waders on in-bye land. Report to Natural England.
- Grant, M.C. Lodge, C., Moore, N., Easton, J., Orsman, C. & Smith, M. 2000. Estimating the abundance and hatching success of breeding Curlew *Numenius arquata* using survey data. Bird Study **47**, pp 41-51.
- Green, R.E. 1986. The management of lowland wet grassland for breeding waders. RSPB, Sandy, unpublished report.
- Hammond, M. 2007. North York Moors National Park Authority Moorland Research Review 2000-2005. Breeding waders on in-bye land in the North York Moors, Small, C. pp 104-119.
- Jarrett D., Calladine J., Wernham C., & Wilson M. 2017 Monitoring Breeding Waders in Wensleydale: trialling surveys carried out by farmers and gamekeepers. BTO Report.
- O'Brien M. & Smith K.W. (1992) Changes in the status of waders breeding on wet lowland grasslands in England and Wales between 1982 and 1989.
- O'Brien, M. & Wilson, J.D. (2011). Population changes of breeding waders on farmland in relation to agri-environment management. Bird Study, 58(4), 399-408.
- Shrubbs M. and Lack P.C. 1991. The numbers and distribution of Lapwings *V. vanellus* in England and Wales in 1987. Bird Study. 38, pp 20-37 in Gibbons D.W, Reid J.B and Chapman R.A. The New Atlas of Breeding Birds in Britain and Ireland: 1988-1991. T and A.D Poyser LTD. London, pp 170-171.
- Smith, K.W. (1983). The status and distribution of waders breeding on wet lowland grassland in England and Wales. Bird Study, **30**, pp 177-192.



Wilson, M, Jarrett, D. & Calladine, J. 2018 Review of data and monitoring options for assessing the status of breeding wader populations in the Yorkshire Dales National Park. A report to the Yorkshire Dales National Park Authority. BTO Research Report 173

Wilson, A.M., Vickery, J.A., Brown, A., Langston, R.H.W., Smallshire, D., Wotton, S. & Vanhinsbergh, D. 2005. Changes in the numbers of breeding waders on lowland wet grasslands in England and Wales between 1982 and 2002. *Bird Study*, 55, 55-69.

Woodward, I.D., Massimo, D. Hammond, M.J., Barber, L., Barimore, C., Harris, S.J., Leech, D.I., Noble, D.G, Walker, R.H., Baillie, S.R., & Robinson, R.A. (2020) *Bird Trends 2020: trends in numbers, breeding success and survival for UK breeding birds*, BTO Research Report 732. BTO Thetford

Website sources:

Bird Trends 2020 published by the BTO and JNCC [www.bto.org/birdtrends](http://www.bto.org/birdtrends).

# APPENDICIES

## Appendix 1 – Site Maps

### Species Distribution and Habitat Suitability

Map Legend

Colour Codes

Pink	Proven breeding/juveniles seen
Orange	Displaying birds on territory
Green	Sites which contain fields apparently for feeding only
Yellow	Apparently unsuitable due to one or more: <ul style="list-style-type: none"><li>• Steep slope</li><li>• arable-winter cereals-vegetation too high in spring</li><li>• planted with scrub and/or trees</li></ul>

BTO species codes are used to indicate the species with activity in each field area:

CU; Curlew

SN; Snipe

L; Lapwing

OC; Oystercatcher

RK; Redshank

GP; Golden Plover

Survey visits when birds were seen are recorded in circles as: Visit A, B, C.