

## Comment

# Lapwings, farming and Environmental Stewardship



Lapwing in north Kent.

Chris Gomershall/rspb-images.com

### Philip Merricks

**T**he Lapwing *Vanellus vanellus* is to many people the most evocative of farmland birds. Known as the farmer's friend, its fortunes in Britain have been inextricably bound up with farming practices, and as agriculture greatly intensified from the 1950s to the 1980s Lapwing numbers, sadly, declined. From the mid-1980s to the present day, increasingly large areas of farmed land have come under agri-environment management schemes, now known as Entry and Higher Level Stewardship (ELS/HLS), but figures show that the Lapwing population has continued to decline at an increasingly alarming rate.

Dr Mark Avery, the RSPB Director of Conservation, writing on his RSPB blog after the release of figures showing a dramatic annual fall in farmland bird numbers, stated: 'It would be interest-

ing to understand better the causes of the big drop in the farmland bird index between 2008 & 2009 but we don't need more research to reverse the decline – we need more farmers and landowners to be doing the right thing' (Avery 2010). Hear, hear! But at the same time, there needs to be a pragmatic examination of what the 'right thing' for some species might really be.

Many are concerned that the dramatic fall in Lapwing numbers has not been translated into a more rigorous analysis of the factors behind the decline. Crucial clues for this decline are to be found in several published papers. One by Peach *et al.* (1994) makes a vital point: 'These results [productivity failure] imply that poor breeding success up to or just after the time of fledging has been the most likely contributory factor

in the decline in the British breeding population of Lapwings.’ This accords closely with our own thinking at Elmley NNR, as during 1995-1998, which was at a time when our management closely (but naively) followed what this article concludes to be Defra’s biologically incomplete agri-environment prescriptions, we encouraged a Lapwing chick-ringing scheme (Rumsey & Jones pers. comm.). From the 695 Lapwing chicks ringed during these four years, there has been only one recovery. Normal recovery rates for Lapwing are around 0.85%, which would indicate that we should have expected perhaps six recoveries. This suggests, with hindsight maybe, that during those years there was very large chick mortality at the pre-fledged stage.

The wider picture is set out by the doyen of ornithological science, the recently retired RSPB Chairman, Professor Ian Newton, who wrote to me recently: ‘The finding that makes me think that the British population as a whole has suffered a net reduction in breeding success is that an analysis of BTO ringing data in the 1990s showed no change in adult mortality over several decades, so declining numbers could only have been due to reduced reproduction. From this, it follows that much of the present habitat in lowland Britain must be acting as a “sink” in which reproduction is insufficient to offset the normal adult mortality.’

I believe that herein lies one answer, and something that so far has been overlooked by policy-makers and by far too many conservationists, both in theory and in practice. How many times has one visited a flagship reserve to find good numbers of breeding Lapwings attracted to the site, but negligible numbers of chicks fledged.

Another clue to the Lapwing population crash lies in a paper published by Kleijn *et al.* (2001) which focused on the rather more determined and committed Dutch approach to breeding-wader management: ‘management agreements for breeding waders ... might have led to an ecological trap; that is, it might have decoupled the cues that individuals use to select their nesting habitat from the main factors that determine their reproductive success’. Such ecological traps are created by breeding birds being strongly attracted, both through philopatry and by artificial flooding, to traditional breeding sites where unsuitable management after the egg-laying period results in too few chicks being fledged.

### Conservation management

As we have had responsibility for managing the Elmley NNR for over 20 years, experience has led us to the conclusion that there are five components of management, each of which has to be in place before and during the breeding season to ensure that a viable number of Lapwing chicks are fledged each season. Scientists consider that each breeding pair of Lapwings needs to fledge approximately 0.7 chicks each breeding season to maintain a stable population. This 0.7 figure is crucial: lower than this and the site is operating as an ecological trap and hence a population sink.

These five components of management are:

- 1 The tightly controlled livestock-grazing management necessary to create and maintain the optimum heterogeneous grassland sward required by the breeding waders from March into June, coupled with the essential ability to add or remove livestock at will from wader breeding areas during this period.
- 2 The availability and control of water in order to produce shallow pools and extensive drying muddy rill margins, necessary as feeding areas for the wader chicks.
- 3 The rills and/or foot drains, either natural or artificially created, that provide the ideal micro-topography. This variation in soil surface height across each field is vital for increasing and maintaining a heterogeneous mosaic of wet and dry areas and ensuring that waterbodies remain damp through the wader breeding season. This ensures that, throughout the drying period of late spring, there are always areas which are in optimum condition for invertebrates and invertebrate diversity, the staple food source for wader chicks (see, for example, Eglington *et al.* 2009).
- 4 The slow grass growth in spring resulting from the artificial winter waterlogging caused by creating the habitat for wintering birds, coupled with the absence of fertiliser application.
- 5 A greatly reduced predator impact through effective legal control measures, habitat manipulation and physical barriers.

Most important of all is the understanding that each one of these components has to be managed with real determination. Experience has shown that, like links in a chain, each and every one of these factors has to be taken into account to ensure

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	Elmley NNR	Swale NNR	Elmley RSPB reserve	Wall End Marsh
Approximate area of available wet grassland	770ha	115ha	245ha	65ha
1a Grassland/Grazing before nesting	ok	ok	ok	fair
1b Grassland/Grazing in breeding season	ok	ok	fair	poor
2a Water availability before nesting	ok	ok	ok	ok
2b Water availability in breeding season	ok	fair	ok	ok
3a Micro-topography before nesting	ok	fair	ok	ok
3b Micro-topography in breeding season	ok	fair	ok	ok
4a No fertiliser before nesting	ok	ok	ok	ok
4b No fertiliser in breeding season	ok	ok	ok	ok
5a Predator control before nesting	ok	fair	fair	poor
5b Predator control in breeding season	ok	fair	poor	poor
Pairs of breeding Lapwings	263	81	66	5
Pairs of breeding Lapwings per ha	0.34	0.70	0.27	0.08
Fledged Lapwing chicks	349	23	7	0
<b>Fledged Lapwing chicks per ha</b>	<b>0.45</b>	<b>0.20</b>	<b>0.03</b>	<b>0</b>
<b>Fledged Lapwing chicks per breeding pair</b>	<b>1.33</b>	<b>0.28</b>	<b>0.11</b>	<b>0</b>

**Table 1 Breeding success and management components of four Lapwing populations on the South Sheppey Marshes, North Kent, in 2010**

that a success of at least 0.7 fledged chicks per adult pair is achieved. For those who would like to know more about our management of Elmley NNR, see Merricks (2003, 2008).

### Agri-environment

Breeding waders feature highly in Defra's Higher Level Stewardship (HLS). However, a close reading of the relevant HK9, HK11 and HK13 options reveals that these HLS options completely ignore the crucial need to ensure breeding (chick-fledging) success. The current management requirements of these HLS options are no more than the creation, restoration and maintenance of wet grassland for breeding waders. And coupled to that, Defra's highly prescriptive habitat indicators of success currently do no more than state 'that the target species should be present and their behaviour should indicate that they are breeding'.

This is really unwise. The omission of a reference to productivity fails both the Lapwing and the credibility of HLS. If sheep-farmers were told by a Defra vet that the indicator of success of their sheep flocks was that 'their behaviour should indicate that they were breeding', it would invite ridicule. What is crucial is the number of lambs reared to weaning age. And so it should be for breed-

ing waders. Numbers of chicks fledged are what matters. Environmental outcomes should equate to real biological outcomes, not a list of tick-box habitat prescriptions on Defra's forms.

### Chick productivity

An article in *British Wildlife* entitled 'Predation of breeding waders on lowland wet grassland – is it a problem?', written by six RSPB senior staff (Ausden *et al.* 2009), put down a vital marker for the success of breeding waders: 'A major gap in our understanding of predation is its effects on chick survival, which has an overwhelming effect on the numbers of chicks fledged and the breeding success of a population.'

At Elmley NNR, mindful of our statutory function for research, we sponsored, along with Natural England's support, research of this 'major gap' flagged up in *British Wildlife*. Independent fieldworkers were contracted this season (2010) to monitor the breeding success of four Lapwing populations on the South Sheppey Marshes, in north Kent.

It seems that, when breeding-wader sites are examined, it is usually only the breeding pairs that are counted whilst fledged chicks, which are the biologically crucial product, are seldom recorded.

Hence, it was thought vital for this survey work that the chicks were closely monitored.

This year's Lapwing monitoring followed the standard RSPB/NE methodology of five counts of adults and chicks at exactly three-week intervals through the wader breeding season. There was the same intensity of monitoring on each of the four sites, with the exception that on the Elmley RSPB reserve the fieldworker was accompanied by the RSPB warden, so that in effect there was extra monitoring manpower and effort on this area. All monitoring was carried out from 4WD vehicles, as this is considered much more effective and time-efficient than undertaking monitoring on foot. The results are set out in Table 1.

These results appear to be extraordinarily revealing in that they clearly demonstrate that each and every component of management has to be in place to ensure viable chick productivity. The bottom line of the table is of vital significance to those who care about the future of the Lapwing, whilst the penultimate line will be sobering to those in the Treasury and elsewhere in Defra with responsibility for agri-environment funding.

These results do not stand alone. Recently it has emerged that research work carried out by trained fieldworkers on 25 breeding-Lapwing sites in 2003/4/5 that has been analysed and written up by eight RSPB and UEA scientists (Bolton *et al.* in prep.), but which, very disappointingly, has yet to be published, reveals that, of the 25 sites monitored, only two produced more than the biologically viable 0.7 Lapwing chicks per adult pair. This means that 23 of the 25 sites were operating as population sinks. Very depressingly, ten of these 25 sites raised no Lapwing chicks at all. A recent lengthy telephone conversation with the excellent site manager of the most productive site in 2005 (0.9 chicks/adult pair) reveals that his management was spot on and that all of the five components of management were in place during that year (Smart pers. comm.). Sadly, the same site manager reports that, on the same site this year (2010), chick productivity was very low because just one of the management factors (predator control) was not in place.

## Conclusions

As might be expected, there have been many visits from conservationists and agri-environment policy-makers to Elmley NNR in recent years. The

feedback to us from these visits appears to be that what the policy-makers saw working in practice at Elmley would not work in theory, and has therefore been ignored. This led to Michael Shrubbs, author of the pre-eminent and most comprehensive book on the Lapwing (Shrubbs 2007), to write devastatingly that 'Defra's approach to HLS agri-environment for breeding waders is politics not conservation' (Shrubbs pers. comm.).

With a new Defra 'top table' now in place, a change in the focus of agri-environment to deliver real environmental outcomes would be timely. Now is the time for policy-makers to acknowledge that all components of management need to be in place to allow Lapwings to fledge a biologically sustainable number of chicks. A time for a better future for Lapwings.

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