



FOCUS ON
OWLS
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15-17

SPRING 2014 ALSO INSIDE

- 02 UK WEATHER: A BREEDING SEASON OF CONTRASTS
- 03 BACK TO THE FUTURE: A 60S SPRING
- 08 EVOLVING A CES – THE STORY OF MUCH MARCLE
- 10 CESING DOUBLE
- 12 ALL CES'S GREAT AND SMALL
- 14 CES: YOUR FLEXIBLE FRIEND
- 15 RETRAPPING ATHENE FOR SURVIVAL
- 16 ADULT EDUCATION
- 18 WHY WOODIES?
- 19 GARDEN RASING – OTHER OPTIONS
- 20 WHAT IS DEMOGRAPHIC TARGETING?
- 20 CES AND RAS METHODOLOGY
- 20 DATES AND ADDRESSES FOR YOUR CES AND RAS DIARY



Barn Owl and Little Owl RAS projects are currently producing great results – we'd be very interested to hear from anyone who rings good numbers of breeding Tawny Owls.

Putting the 'ring' into monitoring

We know what you're thinking: CES and RAS participants will be asking themselves why we've combined the two scheme newsletters, while non-participants will be wondering why they've received it!

You can't fail to have noticed the shift towards a more project-based approach to ringing in recent years. Both CES and RAS focus on breeding populations, with the aim of producing accurate measures of abundance, productivity and survival. 'Focused' does not mean 'restrictive', however, and we hope that the articles in this newsletter highlight the vast range of projects carried out under the CES/RAS umbrella, which is why we condensed the information into a single publication and sent it to all ringers.

If you're not yet involved, how could you be? Those of you with access to scrub, woodland or wetland sites might be inspired to try your hand at CES, scaling the size of the project to fit the team. If you're more of a garden ringer, can you target priority species such as Starling or House Sparrow? If you've already begun working on a species-specific project, could you turn it into a RAS?

The intellectual satisfaction will be matched by a financial one, with free rings provided for CES, permit discounts for RAS and project support payments available to help with costs of both. If your interest is sparked by any of the articles contained within, please don't hesitate to contact us at ces@bto.org or ras@bto.org.



Starling is a high priority garden RAS species.

Welcome...

... to this combined edition of *CES&RAS News* which is going out to all ringers. For me it is an exciting development as it recognises that RAS and CES are part of the continuum of project ringing, but it is also bittersweet as this is my first and last time as editor. I am taking on a new role, though will continue some involvement, not least because the new coordinator will sit opposite me. Here's hoping for a good breeding season; we certainly seem to have had a good (if early) start.

Allison Kew

UK weather: a breeding season of contrasts

The spring of 2013 was the coldest in the UK since 1962, at 1.7°C below the long-term average of 6°C (Fig 1a), with late-season snowfall in certain areas during late March and early April. Though early spring was generally dry the UK overall experienced 132% of average rainfall in May with parts of northeast England and northwest Scotland particularly badly affected. Gusty northerly winds

accompanied the cold and rain – of 74 mph were recorded on the Isle of Wight on 14 and 24 May.

Summer, by contrast, was the warmest in the UK since 2006, though the mean temperature of 15.2°C was only 0.8°C above the long-term average. It was also drier than the long-term average, with rainfall only 78% of the mean value.

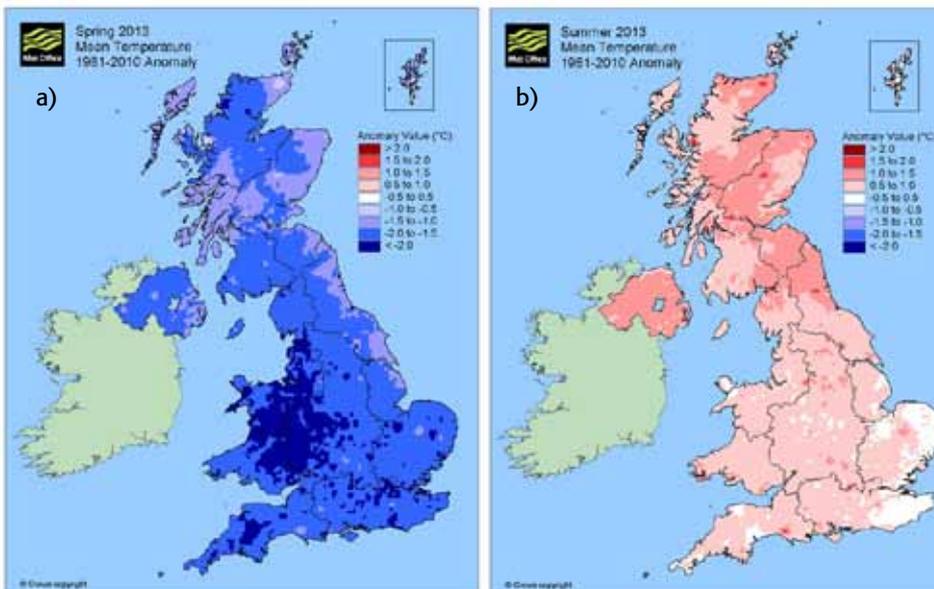


Figure 1. Met Office mean temperature anomaly maps for the UK for a) spring 2013 (March – May) and b) summer 2013 (June – August).

The Constant Effort Sites and Retrapping Adults for Survival schemes are supported by a partnership of the British Trust for Ornithology and the Joint Nature Conservation Committee (on behalf of: Natural England, Natural Resources Wales, Scottish Natural Heritage and the Department of the Environment Northern Ireland). It is also part of the BTO Ringing Scheme which is funded by the BTO/JNCC Partnership, The National Parks and Wildlife Service (Ireland) and the ringers themselves.

CES&RAS News Number 1, Spring 2014

CES&RAS News is the annual newsletter of the CES and RAS Schemes. This newsletter is freely available on the BTO website. *CES&RAS News* is written by CES and RAS ringers, so please send your ideas and contributions to:

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Editing: Allison Kew and Dave Leech

Desk-top publishing: Jane Waters
Printers: Swallowtail Print, Norwich
Copy date: 31 December

Thanks to our proof reader John Marchant for all his help.

Cover photos: Tawny Owl, Jill Pakenham; Starling, John Harding.

The views expressed by the contributors to this newsletter are not necessarily those of the Editors, the Council of the BTO or its Committees.

The British Trust for Ornithology is a charity dedicated to researching birds. For membership details please contact Chris Morley at membership@bto.org



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Registered Charity
No 216652 (England & Wales)
No SC039193 (Scotland)



Back to the future: a 60s spring

When you think of the 2013 breeding season, do you remember the cold late start or the warm, sunny end? Dave Leech and Allison Kew explore the impacts on our bird populations as monitored by CES and RAS.

On the 27 February 2014, Lee Barber photographed a pair of recently fledged Blackbird chicks being fed by their parents on a pavement opposite Thetford's star recreational attraction, the bingo hall. The small group of exceptionally spiky shrubs that housed the nest is a regular breeding spot and we usually monitor at least one breeding attempt there each year; the 2013 season was no exception, and three nestlings were ringed on 4 April. This was the earliest ringing date of that year, with the next brood not ready until 20 April; by the end of March 2014, we'll have ringed at least two more broods and possibly some Song Thrush too.

So, Breckland thrushes appear to be nesting 3–4 weeks earlier than they did in 2013. In fact, data collected by Nest Record Scheme (NRS) participants indicate that last year's breeding season was the latest on record for both Blackbird and Song Thrush (www.bto.org/nrs-prelim-2013), the average laying date falling 10–12 days behind the recent mean. The Met Office Central England Temperature (CET) index provides an explanation, indicating that persistent easterly and northeasterly winds brought temperatures between March and June 2013 down to four degrees below the five-year average. The coldest spring since 1962 saw resident birds such as Blue Tit turning the clock back, the timing of breeding reflecting that of their ancestors fifty generations previously; this observation serves to highlight the way in which birds can adjust laying date in response to temperature, an aspect of breeding biology currently being explored in a collaborative study with researchers at the Edinburgh University.

Migrant species exhibited delays in egg production of similar magnitude. In the case of Blackcap and Chiffchaff, species that winter in the Mediterranean Basin, this may have reflected the fact that mean arrival dates, as recorded by BirdTrack participants, were a fortnight behind schedule. In contrast, sub-Saharan winterers such as Reed Warbler arrived promptly, suggesting that equivalent laying date lags recorded for these species were the result of delayed vegetation growth, a poorly developed herb layer initially offering few nesting sites.



JEFF KEW

Numbers of returning adult Willow Warblers were the lowest recorded since CES began in 1983 and breeding success in 2013 was significantly lower than average.

Migrant numbers heading south?

One of the great things about CES ringing is the standardised effort, which ensures that changes in the number of birds handled reflect real fluctuations in population size. The results from 2013, based on a fantastic sample of 127 sites located across the Britain & Ireland (Fig 1), indicate that adult abundance was well below average for many species, with migrants particularly badly affected (Table 1). *Sylvia* and *Phylloscopus* warblers all registered declines of at least 20% relative to the five-year mean, with numbers of Garden Warbler, Lesser Whitethroat and Willow Warbler at their lowest ebb since the scheme began in 1983 (Table 2). While *Acrocephalus* warblers fared slightly better, population sizes were still significantly down on recent years (Table 1).

It's tempting to blame these figures on poor breeding success in 2012, which saw migrant productivity drop by between 28% (Sedge Warbler) and 62% (Blackcap) relative to the five-year average. While this may have been a contributing factor, we should remember that the conditions faced by these species on arrival in Britain & Ireland were far from ideal. Having coped with strong headwinds across Europe, they met with unseasonably cold temperatures which not only placed increased energetic demands on birds desperate to recoup the energy used on passage, but are also likely to have reduced invertebrate availability by delaying vegetation growth. The media reported accounts of migrants such as Stone Curlew and Chiffchaff being found dead in numbers on the south coast and, with the exception of Whitethroat, survival rates measured by CES were also suggestive of a challenging pre-breeding period. Garden Warbler appeared to be worst affected, with mortality the second highest recorded over the last 30 years. RAS results for migrant species painted a similar picture (Fig 2); hirundine survival rates were all in the bottom five recorded across the various data runs, with those of House Martin the lowest since 1994. Pied Flycatcher mortality was higher than

that observed in all but two years since 1980, and Common Sandpiper and Wheatear (Fig 2) also fared poorly. While growing season droughts in the Sahel region of Africa may also impact negatively on survival, figures from the Sahel Precipitation Index show that the June–October period in 2012 was relatively wet.

Declines in numbers of pairs are often associated with a density dependent increase in productivity as competition for food is reduced. This certainly looked to be the case for many migrants in 2013, with Chiffchaff, Willow Warbler and Whitethroat all exhibiting a significant increase in numbers of young ringed per adult caught (Table 2). The exception was Sedge Warbler, which experienced its second poor season in a row, having also struggled in 2012; it will be interesting to see how many return in 2014.

Poor year for caterpillar specialists

Tit numbers were also significantly reduced at the start of the 2013 breeding season (Table 1), with Long-tailed Tit caught in the lowest numbers since 1987 (Table 2). Declines in resident species are often linked to cold winter conditions, which place more stress on the birds and also make it more difficult to find food, particularly when accompanied by heavy snowfall. However, temperatures during the preceding winter, December–February were very similar to the average,



In 2013, Dunnock exhibited the highest survival ever recorded on CES sites, this late breeder possibly taking advantage of the clement summer conditions.

suggesting that spring weather may have played a greater role in determining abundance. CES survival rate data support this (Table 1), as survival rates were, if anything, slightly higher than average, although differences were not statistically significant. Like migrants, Great Tit and Blue Tit had produced significantly fewer offspring in the previous year, which may also have negatively influenced adult numbers in 2013, but this was not the case for Long-tailed Tit.

NRS data from 2013 identified small but significant declines in the number of young fledged per nest, down by

Table 1. CES results in 2013. For long-term trends, '↑' indicates an increase of 1–25%, '↑↑' of 25–50% and '↑↑↑' of >50%, while '↓' indicates a decrease of 1–25%, '↓↓' of 25–50% and '↓↓↓' of >50%. Values for 2013 are also compared to five-year averages (2008–12), with significant decreases shown in red and significant increases in blue. '*' denotes a small sample size.

	ADULT ABUNDANCE		ADULT SURVIVAL		PRODUCTIVITY	
	1983–2013	2013 vs 2008–12	1983–2013	2013 vs 2008–12	1983–2013	2013 vs 2008–12
Migrants						
Chiffchaff	↑↑↑	-20	↑	-21	↓	14
Willow Warbler	↓	-23	↑	-10	↓↓	12
Blackcap	↑↑↑	-20	↑↑	-16	↓	0
Garden Warbler	↓	-26	↓	-43	↓↓	20
Lesser Whitethroat*	↓↓↓	-34	↓↓	-28	↓	18
Whitethroat	↓↓	-20	↓	23	↓↓	36
Sedge Warbler	↓↓↓	-9	↑	-6	↓↓↓	-10
Reed Warbler	↓↓	-8	↑	-8	↑	1
Tits						
Blue Tit	↑	-11	↑	10	↓↓↓	-10
Great Tit	↑↑↑	-21	↑	19	↓↓	-7
Willow Tit*	↓↓↓	-57			↓↓↓	-54
Long-tailed Tit	↑↑	-25	↑	12	↓	-22
Other Residents						
Cetti's Warbler*	↑↑↑	-11			↓	-3
Treecreeper*	↑↑	-19			↓	-9
Wren	↑	6	↑	16	↓	-4
Blackbird	↓	-1	↑	10	↓	-13
Song Thrush	↓↓	5	↑↑	-30	↓	-31
Robin	↑↑	-9	↓	54	↓	-4
Dunnock	↓	-11	↑	25	↓	7
Chaffinch	↓	-14	↑	-1	↑↑	5
Greenfinch	↑	-17			↓↓↓	5
Goldfinch	↑↑	1			↓↓	14
Bullfinch	↓	-21	↓	-22	↑↑	29
Reed Bunting	↓↓↓	-18	↓	-19	↓↓↓	14

7% for Blue Tit and 12% for Great Tit, apparently due to a reduction in clutch sizes which may have been linked to poor female condition resulting from the cold spring. Declines in productivity detected by CES were of similar magnitude but not statistically significant (Table 1). Long-tailed Tit breeding success did exhibit a significant drop of 22%, however; as the species is a very early breeder and its small size makes it vulnerable to chilling, the low temperatures experienced post fledging may have impacted on juvenile survival.

The late bird catches the worm?

Early-breeding and late-breeding residents experienced very different seasons in 2013. Numbers of the early breeders, which includes thrushes and Robin, were close to the average at the start of the season. These were the comparative

‘winners’ in 2012, avoiding the collapse in breeding success seen in many other species, possibly because the soil invertebrates which constitute their diet were less influenced by the torrential spring and summer rainfall of that year than insects feeding on foliage. Dunnock was an exception, with a 30% drop in breeding success during 2012, but the highest survival rates on record (Table 2) may have



Figure 1. Map of active CES sites in 2013. More data from Wales and Scotland would allow production of national trends.

lessened the impact on adult numbers in 2013; Robin also exhibited significantly higher than average survival rates over the 2012/13 winter. In contrast, the abundance of the later-breeding finches and buntings fell significantly below the mean, with Reed Bunting numbers the lowest recorded since the start of the scheme (Table 2); this ground-nesting species had to contend with flooding in many areas as well as impacts of rainfall on food availability.

Breeding success demonstrated the opposite pattern, however, with Blackbird and Song Thrush faring poorly (Table 1) and Bullfinch experiencing the most productive year on record (Table 2). While density dependence may have played some part in this, NRS data indicate that per-nest success of thrushes was not reduced, suggesting that their season was truncated by the cold spring while Bullfinch, which starts late and often breeds into August, was able to take advantage of the warm, dry summer weather.

A tough year for Dipper and Barn Owl

Results of resident passerine RAS projects, including studies of Stonechat, House Sparrow, Starling, Linnet and Twite suggested that survival rates were generally close to average over the 2012/13 winter, although those of Dipper were the lowest on record (Fig 3); the cold start to spring may have been particularly problematic for this early, upland breeder. Barn Owl mortality was the second highest recorded (Fig 2), weather

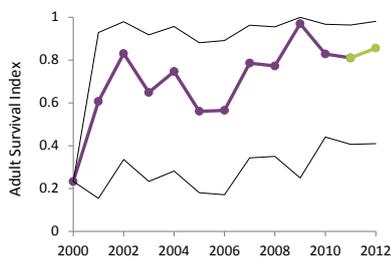
ADULT ABUNDANCE	SURVIVAL		PRODUCTIVITY	
	Lowest	Highest	Highest	Lowest
Chiffchaff (2009, 25th)	Robin (1984, 2nd)	Garden Warbler (1991, 2nd)	Chiffchaff (2011, 7th)	Sedge Warbler (2012, 2nd)
Willow Warbler (ever)	Dunnock (ever)		Willow Warbler (2010, 17th)	Long-tailed Tit (2012, 4th)
Blackcap (2009, 26th)			Whitethroat (2011, 21st)	Blackbird (2008, 6th)
Garden Warbler (ever)			Bullfinch (ever)	Song Thrush (1990, 2nd)
Lesser Whitethroat (ever)				
Whitethroat (2008, 7th)				
Sedge Warbler (2012, 3rd)				
Reed Warbler (2009, 4th)				
Blue Tit (2009, 10th)				
Great Tit (2002, 16th)				
Long-tailed Tit (1987, 4th)				
Dunnock (2011, 2nd)				
Chaffinch (1983, 2nd)				
Greenfinch (1984, 3rd)				
Bullfinch (2001, 2nd)				
Reed Bunting (ever)				

Table 2. Significant changes in abundance, productivity and survival in 2013. Previous highest/lowest year since 1983 given in brackets, together with the ranking of the current year within the entire data run. For example, the previous lowest Long-tailed Tit abundance was recorded in 1987, and the abundance in 2013 was the fourth lowest on record. Red = migrants, black = residents.

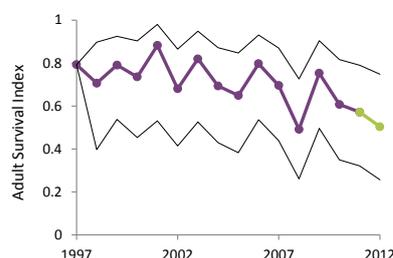
Table 3. Summary of active and historic RAS projects. Target species are shown in red; species marked (r) are those for which regional trends could be produced with the addition of a few more studies. The number of projects contributing to the annual trends include both historical and active studies; a '+' sign indicates an increase in the number of studies used to generate trends in 2013.

Species	Projects contributing to survival trend	Active in 2013	New in 2013	Survival-trend quality	Species	Projects contributing to survival trend	Active in 2013	New in 2013	Survival-trend quality
Eider	4	1		Moderate	Sand Martin (r)	+20	14	2	Good
Manx Shearwater	2	2		Good	Swallow (r)	7	5		Good
Storm Petrel	5	5		Good	House Martin	5	2		Good
Shag	3	1		Moderate	Wood Warbler	0	2		
Sparrowhawk	0	0			Willow Warbler	2	2	1	Good
Kestrel	0	0			Whitethroat	3	1		Moderate
Moorhen	0	1			Sedge Warbler	2	4	1	Moderate
Little Ringed Plover	0	1			Reed Warbler	7	8	1	Moderate
Ringed Plover	1	0		Good	Starling (r)	2	2		Moderate
Dunlin	1	0		Uncertain	Dipper	3	6		Good
Common Sandpiper	2	1		Good	Blackbird	2	2		Good
Kittiwake	2	2	1	Moderate	Song Thrush	1	0		Uncertain
Black-headed Gull	0	2			Robin	2	2		Uncertain
Lesser Black-backed Gull	2	2		Good	Nightingale	0	1		
Woodpigeon	0	1	1		Pied Flycatcher (r)	26	20	1	Good
Collared Dove	0	1	1		Redstart	0	1		
Guillemot	1	2	1	Moderate	Whinchat	1	1	1	Moderate
Razorbill	2	3		Good	Stonechat	2	2		Good
Puffin	1	1		Moderate	Wheatear	2	*2	1	Good
Barn Owl (r)	2	2		Uncertain	Dunnock	+2	2		Uncertain
Little Owl	1	1		Moderate	House Sparrow (r)	+7	12	3	Good
Tawny Owl	0	0			Tree Sparrow	+1	1		
Swift	1	0		Uncertain	Tree Pipit	0	3		
Chough	0	1			Chaffinch	+5	4	1	Moderate
Jackdaw	2	3	1	Uncertain	Greenfinch	1	1		Moderate
Firecrest	0	2			Siskin	4	6		Uncertain
Blue Tit	1	1		Moderate	Linnet	0	1		
Great Tit	4	4	1	Good	Twite	1	1		Good
Willow Tit	0	0			Bullfinch	+4	5		Moderate
Marsh Tit	1	2		Uncertain	Hawfinch	0	3	1	
Bearded Tit	2	3	1	Moderate	Yellowhammer	0	2		

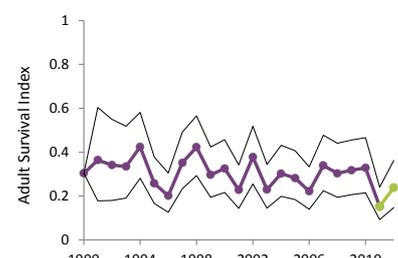
a) Kittiwake



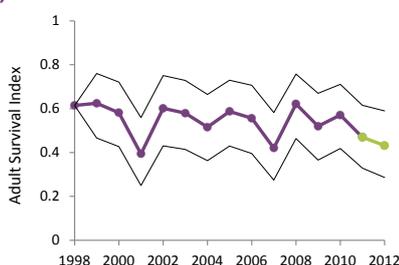
b) Barn Owl



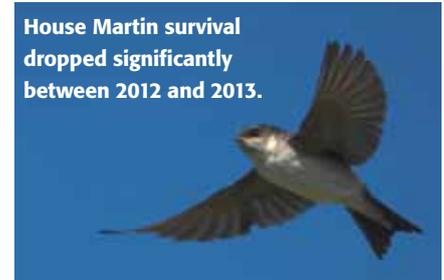
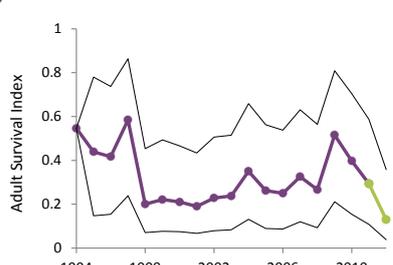
c) Sand Martin



d) Swallow



e) House Martin



House Martin survival dropped significantly between 2012 and 2013.

conditions combining with a poor vole year to create another challenging season; a 60% reduction in nest records received for the species in 2013 suggests that many females suspended breeding. Results for seabird RASs were mixed, with survival dropping for some (Storm Petrel, Lesser Black-backed Gull, Razorbill) and average for others (Manx Shearwater, Shag, Guillemot), with only Kittiwake exhibiting above average survival (Fig 2). Advances in the analytical models mean that we are now able to produce seabird trends of much higher quality, but care should be taken with interpretation as many are generated from single colonies and species differences may be confounded by site effects.

Looking long-term

This article demonstrates the vital role of CES and RAS in developing a detailed understanding of population processes such as survival and breeding success and their influence on annual fluctuations in abundance. This information is then used to determine the drivers of long-term trends in population sizes, with data presented and discussed in the annual *BirdTrends* report (www.bto.org/birdtrends).

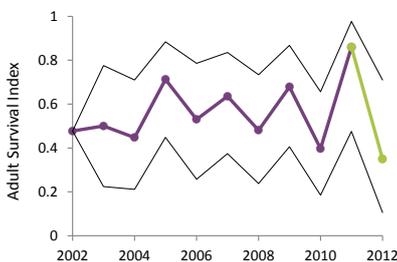
Table 1 shows that there is, unsurprisingly, very strong agreement between CES and Breeding Bird Survey (BBS) abundance data in terms of species' trajectory, with Chiffchaff, Blackcap, Great Tit and Cetti's Warbler all showing very significant increases, while numbers of Willow Tit, Song Thrush and Reed Bunting continue to fall. Three interesting exceptions are Whitethroat, Sedge Warbler and Reed Warbler, all declining according to CES but stable or increasing on BBS squares. This may reflect a decline in suitability of habitat at the local scale which is compensated for by colonisation of new areas at a national scale, but differences in survey coverage may also play a part – Wales and Scotland are still relatively under-represented in the CES dataset, so we'd be delighted to hear from ringers in these areas with suitable sites.



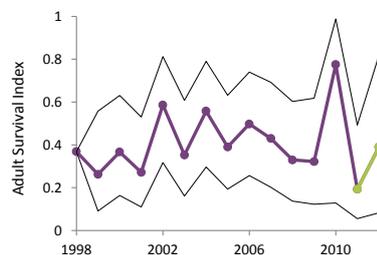
Dipper survival recorded by RAS between 2012 and 2013 was lower than average; upland species that breed early may be particularly susceptible to cold spring weather.

JOHN HARDING

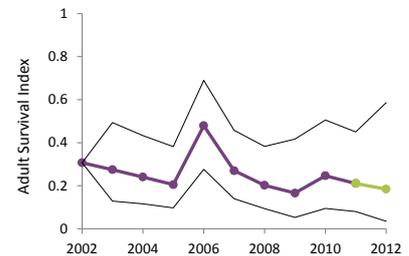
f) Dipper



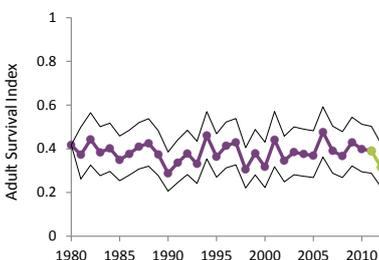
g) Wheatear



h) Stonechat



i) Pied Flycatcher



j) House Sparrow

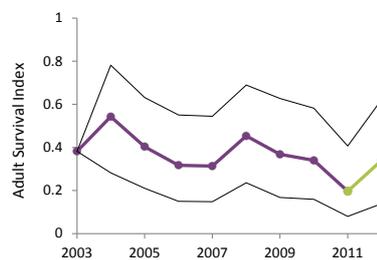


Fig 3. RAS survival trends for a) Kittiwake, b) Barn Owl, c) Sand Martin, d) Swallow, e) House Martin, f) Dipper, g) Wheatear, h) Stonechat, i) Pied Flycatcher, j) House Sparrow.

Evolving a CES – the story of Much Marcle

How can a CES survive changes to habitat and personnel. Rachel Taylor and Dave Coker explain.

Much Marcle CES was conceived in 1995, when Steve Dodd and a trainee ringer began looking for a suitable site in response to BTO's encouragement of the scheme. An article spotted in the *Sunday Telegraph* alerted them to a new wetland project created by Westons Cider and a quick recce of the site suggested that the complex of willow and reedbed planting made it very suitable for mist-netting. Serendipity was clearly on their side because their strategic discussions over a pint in the local pub were overheard by one of the site's owners, who facilitated their permission to set up the CES and has remained interested and supportive ever since. In August 1995, the first few ringing sessions were used to assess ride placement and consider how vegetation might change through the summer, and the location of the nets was finalised for the start of the CES season in 1996.

CES 1996–2000

Eight nets were set in seven rides on a circuit. Some of the rides were placed in very young willow which in future would bisect busy flyways. Two more were in flooded reedmace beds, although these turned out rather unproductive; most of the remaining rides intercepted lines of somewhat older willow planted throughout the site. Since the pre-season catches demonstrated that birds were relatively slow to start moving, nets would be set (and opened) starting at sunrise and kept in operation for five hours. The first two or three sessions of the year tended to be very quiet, often catching only a dozen or so birds, but later sessions had some very good mixed catches. The diverse suite of species encountered made this a very good training site as well as an interesting and busy CES.

'Several people have swum (accidentally!) in the site over the years, including my four-year-old son, who had been warned it was deep! I ran the majority of CES visits but still missed the first two Lesser Spotted Woodpeckers caught, and didn't ring this species until six years into the CES. Sara and Phil Bone caught the first Nightingale after I had left for work one day.' Steve Dodd



DAVE COKER

A typical Much Marcle net ride – don't venture left or right!

The Westons brewery continued from strength to strength, increasing water throughput to the wetland. For two net rides ('willow' and 'deep') wellies became waders and eventually chest-waders.

The site manager planned a range of activities to handle this increase, primarily raising the perimeter bund by about two metres using earth dug from the reedmace lagoon. He discussed these changes with Steve, who chose new locations in similar vegetation for the deepest net rides. For one season, both the 'old' and the 'new' rides were operated and net ID recorded for all captures, with the intention of making this single year work as both the last year of the first design and the first year of the new design.

The cider lake

The site is an artificial wetland system constructed in 1993 by Biologic Designs to treat waste water from the nearby Westons Cider brewery. Water with a high Biological Oxygen Demand enters the site and is led through a carefully arranged series of earth-banked channels and lagoons to remove contaminants. By 2009 the site was treating ten times the water volumes it had in 1996.



© Google Maps

CES 2001–09

The re-registered CES continued to run on eight nets. Four rides were unchanged from the original 1996 plan and four were new. Net length and surrounding vegetation type were kept consistent with 1996.

Westons continued to make popular cider and increase wetland system throughout, so the site designer continued to respond by building up the retaining banks. Waders were essential and wet weather provided 'interesting' challenges. By this stage all the reed-mace had been flooded out but extensive *Phragmites* beds remained at the upper end of the site. Site management maintained some areas of willow by coppicing, shredding and piling the chippings on bunds and swales to encourage bacterial breakdown. Net ride vegetation was maintained by Steve (with permission). However, the steady rise in water levels meant the site was increasingly challenging to run – even for someone as tall as Steve – although all nets could still be operated if you didn't mind getting wet. By this time some of the original net rides (reed-mace) were under 12 feet of water.

In 2009, Steve moved away from the Midlands. The site is such a rewarding CES despite its challenging nature that we tried to keep ringing going and seven visits were made by commuting from North Wales. At the end of the summer, rather than close ringing down altogether, Mark Grantham, the BTO's CES coordinator at the time, helped to find a local ringer interested in taking the CES on.

CES 2010–13

Dave Coker had occasionally helped at Much Marcle, as had Mervyn Greening, and they agreed to collaborate in keeping the CES going. As both are rather shorter than Steve, they relocated all the nets onto the banks and chipped wood bunds, so each round only needed wellies at worst. Even so, one site did become waterlogged as the wood decomposed and the trees grew up high above a second net, so slight adjustment has been required to compensate and the CES has been re-registered for a second time. One advantage of the site is that it is designed to be very wet at all times, so even sustained rain (eg in 2012) doesn't significantly affect operations; the handful of missed visits have been attributable to excess wind rather than precipitation.

There is little foliage (and therefore food) until late May, so early catches remain low, though interestingly over half of birds encountered may comprise retraps from prior years. The catch size picks up during June and July as migrants arrive and then young birds fledge and generally reaches three figures for some August visits. Ringing generally continues into October, until the foliage dies away again and totals fall. There is a thriving population of Reed Warblers in the reed bed that has developed near the brewery water inlet. In 2012 we controlled a young Redstart which Dave had ringed as a nestling three months previously at one of his Pied Flycatcher sites 30 km to the west.

Much Marcle is a great example of a site that has evolved in response to changes to habitat and turnover of the ringers running it. Next time you head down the pub, you may well be supporting CES.

'By the 2009 season, chest-waders, lovely things in hot weather, would keep out the cider-mud but soak you in sweat: Steve worked in standard wellies and sacrificial jeans with a tideline generally at crotch height...' – Rachel Taylor

What is being sampled?

Rachel has used a technique called Rényi's Diversity Ordering to assess how alike the three CES registration periods have been. Figure 1 shows that most years are very similar to each other in terms of community structure (the curves are broadly parallel) but there is a trend towards declining species richness and diversity (later years at bottom of graph, early years at top).

There is no evidence that restructuring the CES has changed the sampled community but the first year (1996) was different from the others (the curve crosses many of the others). House Sparrows and Pied Wagtails may have favoured the bare ground present at the start while Blackcap, Chiffchaff and Long-tailed Tit avoided the newly planted willows.

The 2008 season also differed notably from the other years, with much lower species diversity; this was a very poor year nationally.

Rényi, A. (1961) On measures of entropy and information. In *Proceedings of the 4th Berkeley Symposium on Mathematical Statistics and Probability*. Vol. 1 (ed. J. Neyman), pp 547–561. University of California Press, Berkeley.

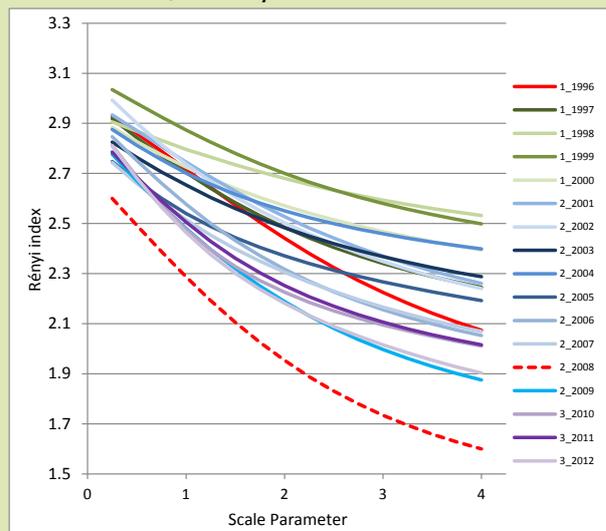


Figure 1. Rényi curves for each of the 17 years. 1996 and 2008 (highlighted in the text) are shown as a solid and dotted red line respectively. The key shows the registration period and the year (eg 2_2001 = year 2001, when the site was on its second registration).

CESing double

Running a CES can be extremely addictive, as Andrew Harris explains.

I started ringing at the age of 14 when I was inspired by my biology master at school. Having attended a Spurn Point ringing course, I obtained my 'A' permit in 1972. Following this I had ringed mainly in Oxfordshire and Kent. In the late 1990s, through a mixture of health and work issues, ringing took a bit of a backseat and I gave up being a trainer, but kept my licence via a bit of garden and Swallow pullus ringing.

In March 2012 I received a phone call that was to change my life! Roger Kiddie is another local ringer who I had occasionally ringed and swapped birds with over the years. He explained he had been offered the opportunity to carry out a CES. Roger was keen to take it on, but felt it might be too challenging on his own, so he wondered if I would be interested in joining him.

I had worked as a GP in Gravesend for the past 30 years, and was contemplating retirement in 2013, so it seemed an ideal opportunity, it took about a microsecond for me to make up my mind and say yes! We visited the site, talked to the reserve warden and the previous ringer and identified two dry scrub areas that would be suitable for a CES; we thought one looked more promising, but decided to



'X' marks the spot – one of the Northward Hill net rides.



ANDREW HARRIS

A third CES will be started in 2014, at the site where this Paddyfield Warbler was caught.

investigate both areas. We identified potential net rides and agreed a clearing programme with the RSPB warden. Never having worked a CES before, we thought we would try to do a full trial year, mimicking a CES as much as possible, although at the same time varying the net sites to see what combination worked best. We completed 12 shadow six-hour sessions at the main site and seven at the other. By the end of the year we had a pretty fair idea of which net positions worked and which didn't. However, it was only halfway through the season that we realised the year was somewhat unrepresentative, due to the appalling breeding success.

Roger had a helper who was keen to start training, so I agreed to try to get my trainer's endorsement back. With the help of another local ringer, I obtained this late in the year and within a month had four trainees!

Having completed our trial CES sessions, we had to decide what combination of nets to work with in future. We had used 320–400 ft of netting on the 12 sessions, catching 32–65 birds of 25 species per net (226 adults and 209 juveniles in total). After some debate, we eventually chose seven nets totalling 360 ft. We worked on the basis that there might be occasions when we were working singly and didn't want to over-commit as in a good year we could catch a significantly higher numbers of juveniles. We sought advice from Allison Kew and other ringers on the CES forum as to what numbers of juveniles we could expect in an average year, given our adult totals.

We had a lively debate about whether to run with one (at Northward Hill) or both sites; the offer of free rings for CES birds proved irresistible, so we decided to run both sites also using 420 ft in eight nets at Lipwell. Crucially, we used a combination of nets that would allow us to operate sites simultaneously when appropriate. As I had decided to retire fully on my 60th birthday in May, we were confident that we would have enough time and manpower to work both.

Our initial permission had been to ring on the reserve for CES only, but we agreed to undertake monthly public ringing demonstrations from January 2013, which have been attended by up to 12 people on each session.

LOCAL C.E.S. RESULTS FOR 2012/13

	2012		2013	
	Adult	Juvenile	Adult	Juvenile
Sparrowhawk	2		1	
Green Woodpecker	3	1	3	
Gt Spotted Woodpecker		2		
Wren	7	8	3	15
Dunnock	20	11	11	26
Robin	5	7	2	15
Nightingale	6	4	3	2
Redstart	1			
Blackbird	31	42	28	12
Song Thrush	2	3	3	2
Reed Warbler		6	2	6
Lesser Whitethroat	8	3	8	9
Whitethroat	32	18	23	34
Garden Warbler	5	1	2	3
Blackcap	30	43	21	50
Chiffchaff	13	18	9	28
Willow Warbler	1	3	1	8
Long-tailed Tit	3		1	1
Blue Tit	16	18	11	30
Great Tit	5	12	4	11
Jay	3			1
Chaffinch	4		3	1
Greenfinch	27	6	4	
Goldfinch	3		3	
Linnet	2	1		
TOTAL	229	207	145	254

Adult survival down 37%

Productivity up 23%

These results, from RSPB Northward Hill, will form part of the annual, national survey co-ordinated by the British Trust for Ornithology

An example of results produced for RSPB wardens. Providing feedback to landowners is an essential part of maintaining any ringing site and is invaluable in maintaining interest and support.

Starting the 2013 CES season, it was apparent that there were fewer adults about; however, they seemed to have reasonable breeding success. At Northward Hill we had season totals of 145 adults and 254 juveniles compared to the 226/209 in our trial year, with numbers varying from 16 in session 2 to 65 in session 6. At Lipwell, session 11 was the lowest at 15 and session 6 the highest at 49, giving a total of 126 adults and 194 juveniles. We could manage the early sessions on our own, but wouldn't like to do that from session 5 onwards.

The RSPB asked if we would also like to investigate a reedbed site on another nearby reserve that Roger and I had ringed on many years ago. We carried out a few exploratory sessions there in 2013 and, based on our experiences, have decided to start a third CES this year. This is a more exposed site and we have decided to restrict the sessions to four hours for CES purposes. The fact that we caught a Paddyfield Warbler there in late May had no bearing on our decision to proceed!

We have thoroughly enjoyed the CES experience, and are happy to be taking part in a BTO priority ringing project. We feel also that it has been a good discipline for our trainees to experience. We are also indebted to the RSPB local staff, who have been incredibly supportive of us.

Celebrating milestone anniversaries

As always we celebrate a range of CES milestone anniversaries. These long running sites are particularly valuable to CES.

25 years – Chew Valley RS (Bath & Somerset, Alan Ashman)

20 years – Castlemorton Common (Herefordshire, Peter Holmes); St Abbs NNR (Borders, Alan Kerr); Newshot LNR (Strathclyde, John Conner).

15 years – Brock's Wood (Sussex, Reg Lanaway); Heysham Harbour (Lancashire, Alan Draper); Alton Water (Suffolk, John Glazebrook); Queen Mary Reservoir II (Surrey, Tony Beasley, Hersham RG); Gibraltar Point (Lincolnshire Mick Briggs, Gibraltar Point BO).

10 years – Watercombe Waterworks (Devon, Roger Short); Hempsted (Gloucestershire, David Anderson); Barry Links (Tayside, Peter Ellis)

For the first time we are also celebrating the long running RAS projects. Many of these pre-date RAS, which was first introduced in 1998. In this edition we're focusing on those studies which have been running for 15 or more years (see the start year in brackets). It is these long-running projects which give the most useful RAS data.

Barn Owl: Wigtownshire (1990, Dumfries & Galloway, Geoff Sheppard) • **Blackbird:** Thetford (1998, Norfolk, Allison Kew) • **Chaffinch:** Peebles (1998, Borders, Stuart Craig) • Thetford (1998, Norfolk, Jeff Kew) • **Common Sandpiper:** Dewar & Leithen Waters (1998, Borders, Tom Dougall) • **Dipper:** Broughton (1998, Borders, Tom Dougall) • **Great Tit:** Moorsholm Mill (1998, Cleveland, Tom Dewdney) • **House Martin:** Canford Park (1994, Dorset, Roger Peart) • **Manx Shearwater:** Hallival, Askival & Trollaval, Isle of Rum (1994, Highland, Andrew Ramsay) • **Pied Flycatcher:** Shobdon Hill Wood (1968, Herefordshire, David Boddington) • Moccas Park, Bredwardine (1972, Herefordshire, David Boddington) • Slaley (1980, Northumberland, Michael Holmes) • Rifton, near Tiverton (1983, Devon, John High) • South Lakeland (1984, Cumbria, Paul Robinson) • Golden Valley, etc (1985, Herefordshire, David Coker) • Glyn Arthur (1986, Clywd, Bob Harris) • Llewesog Hall, Prion (1986, Clywd, Peter Coffey) • Newcastle-on-Clun (1990, Shropshire, Chris Whittles) • Hawkstone Park (1993, Shropshire, Bob Harris) • Strata Florida (1994, Dyfed, Jerry Lewis) • Skyborry area, near Knighton (1994, Shropshire, Graham Austin) • Cwm Clydach (1996, Glamorgan, Heather Coats) • Sanquhar (1998, Dumfries & Galloway, Iain Livingstone) • Westwood & Strid Wood (1999, North Yorkshire, Jill Warwick) • **Reed Warbler:** Leighton Moss (1996, Lancashire, John Wilson) • Rostherne Mere (1998, Cheshire, Malcolm Calvert) • Cauldwell Hall Farm, Hollesley Marshes (1998, Suffolk, Peter Catchpole) • Hazlewood & Iken Marshes (1998, Suffolk, Mervyn Miller) • **Robin:** Treswell Wood (1973, Nottinghamshire, Chris du Feu) • **Sand Martin:** Inverness (1992, Highland, Hugh Insley) • Ripon Parks south (1998, North Yorkshire, Jill Warwick) • **Sedge Warbler:** Cauldwell Hall Farm, Hollesley Marshes (1998, Suffolk, Peter Catchpole) • Hazlewood & Iken Marshes (1998, Suffolk, Mervyn Miller) • **Siskin:** Thetford (1998, Norfolk, Jeff Kew) • Brandon/Santon Downham (1999, Suffolk, Greg Conway) • **Swallow:** Alfrick (1998, Herefordshire, Garth Lowe) • Snileworth (1998, North Yorkshire, Geoff Myers) • **Wheatear:** Clee Hill, Cleobury Mortimer (1998, Shropshire, Dave Fulton).

All CESs great and small

There are a lot of misconceptions about what is and isn't required from a CES site. In reality, sizes and catching regimes vary enormously. Here we highlight two extremes: Donald Omand describes his experiences operating our northernmost CES at Broubster, while Tony Crease celebrates the 21st birthday of Foxglove Covert, the largest CES in operation.

BROUBSTER CES

My CES site is located at the Broubster Leans wetland in Caithness, on the northernmost tip of mainland Scotland. Caithness is a relatively remote area with a county population of around 24,000 and there are very few resident ringers up here. I've been familiar with the Broubster site since childhood in the 1970s and, as one of the best birding sites in the area, it was always a place I fancied returning to after I began learning to ring in 1996.

I had intended starting a CES once the kids began to leave home and in 2009 I bit the bullet and registered for the site, newly managed by the RSPB who kindly gave me permission to ring there. Quite apart from being a good birding spot, the Leans is only a five-minute drive from my home and I looked forward both to contributing to a long-term scheme and to catching species that I normally did not encounter elsewhere in the ringing year.

As a lone worker in a site with a rough approach walk and dodgy ground underfoot, I was very aware of making sure I took sensible precautions like notifying my wife



CHRIS KNIGHTS

(but not at 0400 on the day!) and others where I was. Fortunately there is good mobile phone reception on the site.

On site I set up only 200 feet of mist nets comprising four nets. I have been quite cautious about this and do feel guilty during quiet catching times that I should

set up more, but I want to err on the safe side. Another limiting factor is the unpredictable weather in Caithness. More predictable are the squadrons of midges on site, more determined, cunning and numerous than any in Caithness, which is really saying something.

Over the five years of running this CES I have caught 1,469 birds of 25 species. I am very conscious that this is small beer compared to just about every other CES, but I think my site adds that wee bit to the bigger picture by collecting data from a remote region of the country.

I regularly catch the locally rare Grasshopper Warbler and have had recoveries of Lesser Redpolls and Sedge Warbler (one of the latter from Belgium) which always brightens up a CES year for me. So, all fairly typical species I suppose, but I have also caught a very unexpected Treecreeper there! I live in hope of catching a Reed Warbler one of these years.

Each year I send off the CES ringing return with a sense of relief that it is over again, but each January I start checking the BTO website for the CES dates schedule and pencil in the weekends for the months ahead. It's fast getting to the time of year when those borderline daft CES ringers get ready to set their alarm clocks...



PAUL DOHERTY

FOXGLOVE COVERT CES

CES ringing began at Foxglove Covert in 1993 and the 21st successive season has recently been completed without any missed sessions. A total of 252 x 10½-hour visits have taken place with only the very occasional temporary closure of nets on wet or windy days. In all, 21,699 new birds have been ringed and 18,371 have been retrapped or controlled, some over several years. The combined CES total is now 40,070 with 159 birds caught on average each CES visit.

Why we opted for 10½ hours initially I cannot remember but youth and enthusiasm were on our side then, and with 16 nets totalling 914 feet going up and down each time, we presumably wanted to maximise the return.

Ringing is synonymous with the reserve at Foxglove and visitors, many of them regulars, expect to see it and often time their visits accordingly. CES is not just a ringing term, and what the scheme delivers by way of data collection and local information is understood and of considerable interest to serious birders and novices alike.

On the face of it, 12 lengthy sessions each year may seem daunting, but in reality it is not so excessive. The down side is the early starts in midsummer and sacrificing a day during a sunny weekend when there are so many other distractions. But the benefits are tangible and far more than simply the accrual of ringing data. Many dozens of ringers have taken part over the years including those who attended the 10 ringing courses run from here.

Swaledale Ringing Group is based at the site and a broad spectrum of ringers and ringing activities are involved, particularly on the local MoD estate. Several young ringers have cut their teeth here and have gone on to other sites. Currently the team's ages span 50 years and there are



Birds waiting to be processed at Foxglove Covert – a big site needs a big team.

teenagers training, with CES the perfect medium around which to develop ringing skills. Ringing in public every week very quickly builds confidence and responsibility – bright young men and women still at secondary school brief experienced birders or groups of school children on moult and migration and they are a delight to listen to – and impressive! The ringers expect to be quizzed, know they are being watched while demonstrating extractions, and understand the need for best practice at all times while responding to the odd difficult question. CES provokes wide discussion on survival, longevity, site fidelity, migration, productivity and, of course, the Ringing Scheme, all of which create a wider focus.

IPMR is demonstrated concurrently and we are blessed with a non-ringer who inputs as the birds are processed. Inconsistencies, and there are remarkably few, are highlighted immediately to the benefit of trainer and trainee alike. This is a very satisfactory method of training for everyone, and the general public love to share the retrap data.

CES at Foxglove has honed ringing techniques for many ringers. Nets going up and down, regular systematic net rounds, a wide range of species in different plumages and stages of moult, good numbers of birds, the need for responsible – almost clinical – procedures, and the clearly defined message within the team, and to the public, that the welfare of the birds is the clear priority.

What else then has 21 years taught us? Sadly, many species have declined and I am not convinced that nationally we pay sufficient attention to this. Willow Warblers in 2013 were 25% of what they once were. We have lost Turtle Dove, Tree Pipit, Lesser Whitethroat and Willow Tit altogether although the habitat remains constant. Apart from Lesser Redpoll there would be few other increases to report.



Tony Crease explains ageing and sexing criteria for Sparrowhawk. CES presents an excellent training opportunity.



TOMMY HOLDEN

Tree Pipit is one of several species lost since the start of Foxglove Covert CES.



JOHN HARDING

Numbers of Bullfinch caught at Foxglove Covert are higher than for any other CES.

Some species are stable and many, as elsewhere, have clearly suffered from the recent mercurial weather. There are peripheral advantages and the plethora of cakes, sticky buns and refreshments provided by our supporters admirably sustain us each week. We are also extremely fortunate to have outstanding facilities from which to operate and the encouragement of the site volunteers and reserve management.

Consistency, and the duration of the project are key.

Given the availability of these two essential components those considering a CES should not be deterred. My greatest regret is our collective lack of ability or time to do more with our own data. Simple extrapolation is fine, but there is so much more on residents and returning migrants that we should be able to illustrate. That said, even year-to-year comparison makes interesting reading and I would recommend the scheme without reservation to those who have a site, a team, and the requisite enthusiasm.

CES: your flexible friend

There seem to be a number of misconceptions about what does and does not constitute the correct way to run a CES. In reality the scheme is a lot more flexible than you might think. In this edition of *CES&RAS News* we've demonstrated two extremes of CES: Tony Crease at Foxglove Covert operates 914 feet of netting with a large team, while Donald Omand operates 200 feet of mist net on his own at Broubster. Figure 1 shows the range of net lengths used on CES in 2013, clearly demonstrating that even relatively small amounts of netting can produce the minimum number of birds required for a CES.

At 10½ hours per session, Tony also has one of the longest operational periods of any CES. At the other extreme we have sites, including two operated by BTO staff around Thetford, that run for just three hours, allowing them to be fitted in before work.

Catching need not be restricted to standard nets and visits, with options to:

- Set additional nets on CES visits when conditions or personnel allow.
- Make additional visits between CES sessions, allowing sites to be operated every weekend if desired.
- Extend catching beyond the set CES visit times if you're having a productive session.

Many things are possible with careful CES design, meaning that most sites in reasonably bird-rich habitat could operate a CES. If you think you could catch at least 200 birds, and preferably 300 or more, in 12 sessions between May

and early September, talk to the CES Organiser about designing a CES site that suits your circumstances. And don't forget that rings are effectively free!

Visit www.bto.org/ces to download a CES registration form.

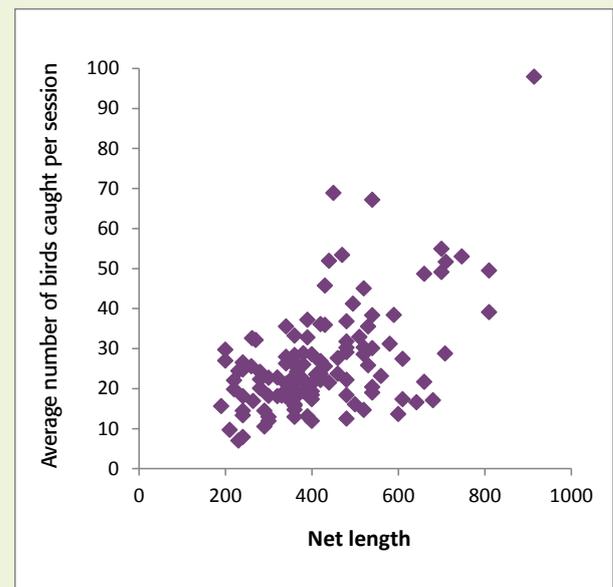


Figure 1. Relationship between length of nets erected and size of catch in 2013.

Retrapping *Athene* for Survival

Having perfected the art of Little Owl nest box design, Bob Sheppard and Alan Ball are now able to monitor productivity and survival of this declining species on an industrial scale.



ALAN BALL

Females will occasionally share a box - presumably both clutches are sired by the same male.

While the species is not native here, the UK represents something of a stronghold for the European Little Owl population, which is declining rapidly across its native range; a 64% drop in numbers indicated by recent Breeding Bird Survey data is therefore of some concern.

Little Owls are an excellent choice for a RAS study as, once they have selected a nest site, they remain faithful to it. This can make it a challenge to get them into a box initially, but once they've moved in they are likely to occupy it for some time. We have found it much easier to tempt them into boxes in old barns than those in natural tree cavities.

Sixteen years ago, Bob and his father designed a box that has since proved very successful and we now have a large population that can be monitored easily. Over the last three years we have averaged 66 pairs and in 2013 we reached a record 74. Details of Bob's box design can be found on the BTO website at www.bto.org/litow-nestbox.

Little Owls are extremely tolerant of disturbance when nesting. We trap about 90% of our incubating females just by opening the door, picking them up, processing and returning them, without any adverse effects. In an average year between half and two thirds of our females are birds that have been ringed in previous years (Fig 1). Most retrapped females are between three and five years old but we have one individual, first encountered as a breeding female in 2003, which has nested every year since, the last recapture being 10 years and 10 days after ringing.

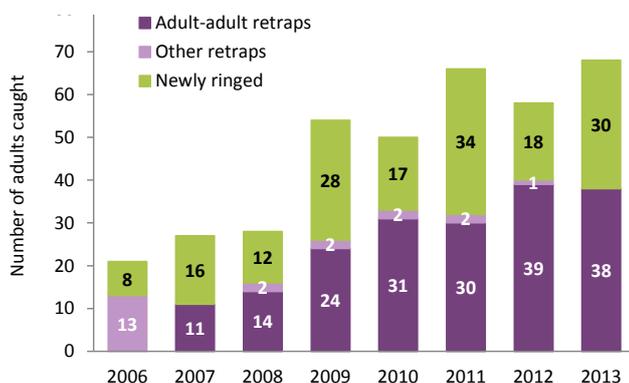


Figure 1. Number of new and retrap Little Owls ringed each year – 'adult-adult retraps' involve recaptures of known breeding birds from previous years.

We do not catch many males as incubation and brooding of small chicks is carried out solely by the female. However, prior to egg-laying or early during incubation, both adults may occasionally be together in the nest box. It is difficult to sex the owls outside the breeding season but in May and June the female has a massive brood patch and is significantly heavier than the male. Rarely in Europe have Little Owls been found to be polygamous but we have been lucky on a few occasions to find two females sharing a box, as shown in the photograph.

The main issue when monitoring Little Owls is the very short window available in which to ring the young, as they can't be ringed until nine days old but leave the nest at around 21 days. In times of prolonged rain, Little Owls switch to feeding earthworms and this has sometimes led to a problem with the chicks soiling the box. To address this, we have recently enlarged our boxes and the plans on the BTO website have been changed accordingly. When ringing Little Owl chicks, we always carry a supply of fresh wood chips to replace any soiled substrate.

In addition to monitoring survival rates (Fig 2), our study contributes more Little Owl data to the Nest Record Scheme than any other – a total of 397 records since 2004 (36% of the national total).

We're proud to have the most successful Little Owl nest box scheme in western Europe and are keen to encourage other people to set up their own studies.

Please direct any questions to bobsheppard@talk21.com

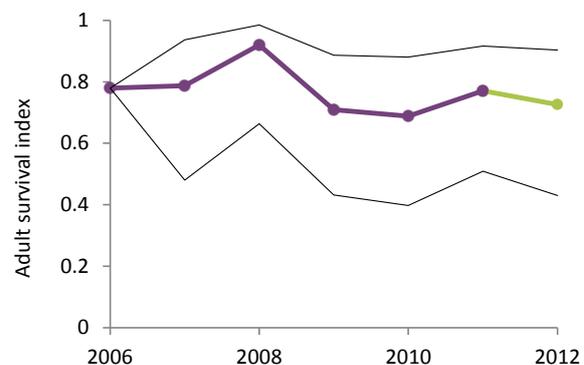


Figure 2. Survival rates of adult Little Owls in Lincolnshire; note that data originate mainly from females, as catching males is more challenging.

Adult education

A lot can be learnt from trapping breeding Barn Owls at boxes, as Geoff Sheppard explains.

In 1986, in addition to ringing pulli, I began to trap adults at my Barn Owl sites and I was encouraged to submit my data when the RAS scheme started in 1999. Over the years, we have monitored 150 sites in a range of farm buildings and derelict cottages, some natural, others with installed internal or external nest boxes. Over time, sites are lost through redevelopment or total collapse and new ones are located, often through requests from landowners. Approximately 75 sites are active at any one time.

Most landowners show considerable interest in “their” Barn Owls and are usually actively involved in siting a nest box. The box is given free of charge and the landowner is regularly updated on its occupation verbally, often over a cup of coffee or, if requested, by written report. Many landowners have become personal friends.

Comparing the numbers of ringed and unringed adults caught consistently indicates that we are monitoring about 50% of the total breeding population in our area; consultation with colleagues monitoring in adjacent areas indicate that there is little migration, making the data particularly useful. In addition to the expected low survival rate through the first winter, our data show that there is another noticeable drop between ages five and six; to date, the oldest birds reach 13. This is illustrated in Fig 1 which follows the survival of an estimated 400 pulli ringed in 1997.

In addition, the data give a fascinating insight into age structure, pairing, site fidelity and the general lives of Barn Owls. Many pairs are faithful to a site and to each other but

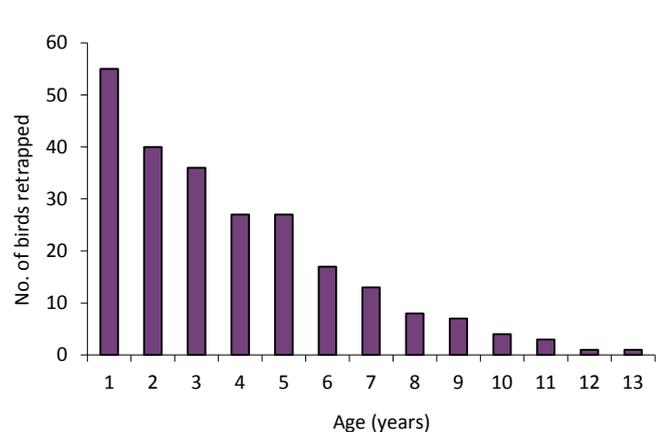


Figure 1. Number of 400 pulli ringed in 1997 that were recaptured in subsequent years. Note only 14% recruited to the population.



RON MARSHALL

Barn Owl numbers have dropped significantly since 2011 following two severe winters and cold, wet springs.

a female will move from one male to another, presumably if the first is not a good provider. Our latest 13-year-old male paired up with a new first-year female and bred successfully; sadly, we did not see him subsequently. Polygamy and polyandry occur occasionally, providing the opportunity for a second brood. Only one brother and sister pairing has occurred, producing young that rarely survived or were deformed. At one site, the male died in the nest box; the female successfully attracted a new mate and then laid her eggs on the body of the dead male! The age structure of the population identifies good and poor breeding years (see Figs 1 & 2). Long-term commitment is needed to obtain this sort of insight, but even short-term effort will provide useful data.

So what is involved in obtaining these data? Initially, a reasonable number of Barn Owl sites is required, preferably with nest boxes installed as catching adults in natural nesting sites is considerably harder. We use a net of suitable mesh with a diameter enabling it to be fitted snugly over the front of the box and with a length of approximately one metre so



GEORGE SHEPPARD

Geoff in his natural habitat, ringing an adult female owl.

that the bird will drop into it. The reaction of the adults varies considerably with some birds exiting the box the instant the net touches it, whilst others are so laid back that they have to be lifted out from the back in the same way as the pulli! Unlike Tawny Owls, we have found no evidence of desertion resulting from trapping the adults, which are comparatively placid in the hand, particularly when held like a baby! A maximum of three visits per site usually enables us to retrap the adults and ring the pulli and we have found that an early, pre-breeding visit is needed to catch the adult males. Finally, working alone is difficult. Having a second person to assist is almost essential. My wife, under 5ft and slightly built, is my ringing partner and anyone who can climb a ladder or hold the net will do!

Our involvement in this RAS project has given us many interesting insights into the lives of this iconic species. After two severe winters and a vole crash, numbers have fallen dramatically over the last two seasons, as shown by Fig 2. We look forward to seeing which birds we trap in 2014 and to monitoring the anticipated population recovery over the next few years.



GEORGE SHEPPARD

Catching an adult at a nest box with a large hand-held net.

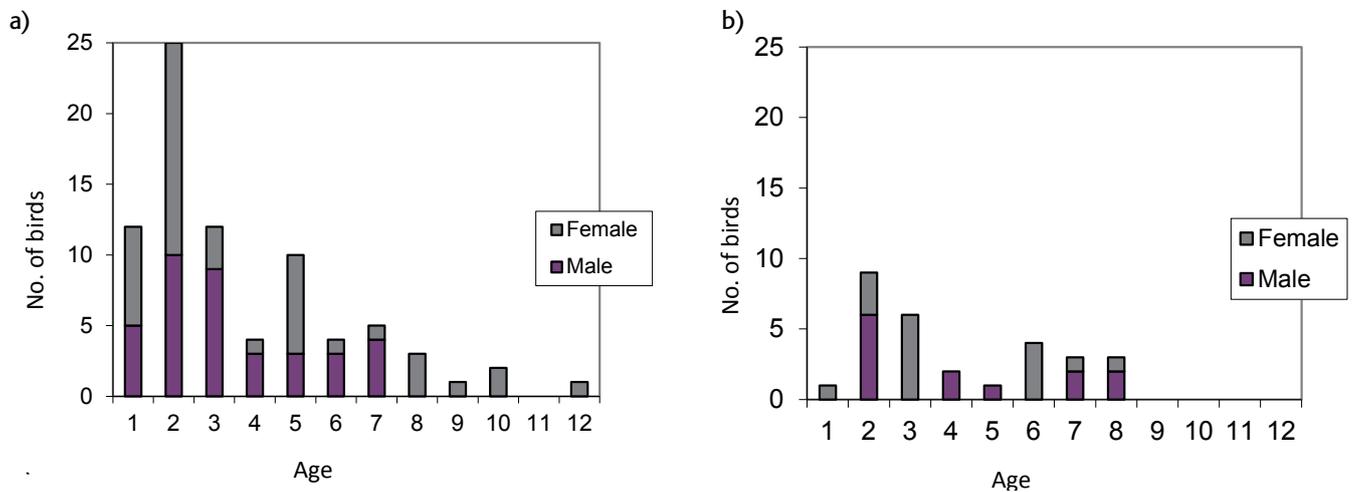


Figure 2. The age structure of Geoff's Barn Owl population in a) 2012 and b) 2013. Purple = male, grey = female.

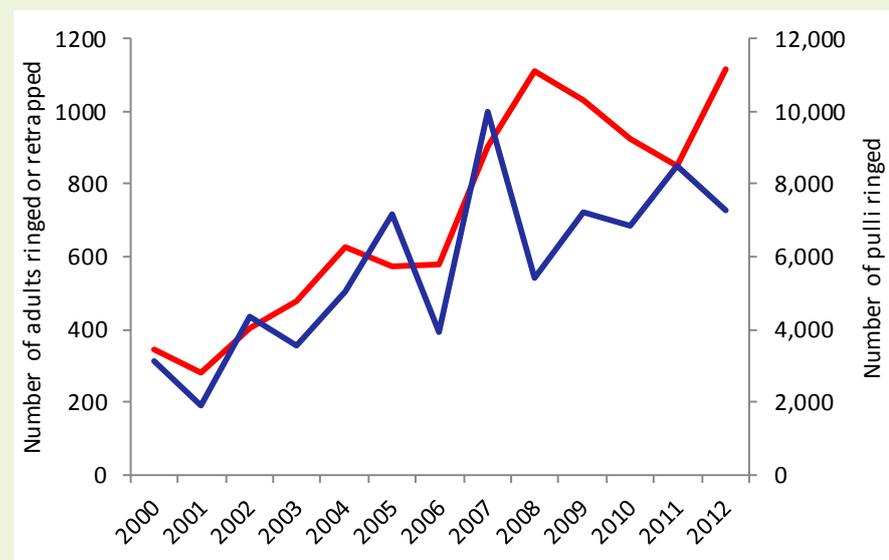


Figure 3. Number of Barn Owls ringed or retrapped as adults nationally (red line) is increasing at a similar rate to pullus ringing totals (blue line).

Increasing adult captures

For many songbird species, data concerning adult survival rates far exceed those available for juveniles. The reverse is true for Barn Owls, however, as relatively few ringers routinely catch adults at boxes. Fig 3 indicates that the situation is beginning to change; the results of Geoff's fieldwork show that adults can be ringed without impacting on breeding success and RAS registrations are increasing gradually. Contact us at ras@bto.org for more information.

Why Woodies?

We don't all have access to scrub or woodland sites in the countryside. Many of us don't have large gardens either, but that doesn't mean there isn't space in your life for a RAS, as Lee Barber explains.



Compared to surrounding gardens in Thetford, mine is not great for catching passerines. Being relatively devoid of trees and shrubs, and with little room for a mist net, I had to think of a ringing project that could produce good-value data from the birds that I can catch.

One of the most prominent species present is Woodpigeon. Maligned by many, they're actually an intriguing species, having colonised urban areas relatively recently and, apparently, extremely successfully, with numbers recorded by BTO Garden BirdWatchers increasing year on year. But are they using my garden to breed, or are these really farmland birds loafing in-between seasons? Do they return and, if so, can I measure their survival rates?

With the help of my trusty drop trap, I've been attempting to answer these questions. In 2012, I registered a colour-ringing project in the hope of starting a RAS. At the time, this was one of only four (now two) active Woodpigeon projects in the country, so it wasn't difficult to find unused combinations, and I settled on using white Interrex darvics with two engraved black letters. The rings can be read easily using binoculars, when you can get a clear view, but the leg feathering can be frustratingly obstructive at times! While I feed and ring all year round in the garden, activity peaks April–July, with very few sightings between August and December, suggesting that birds may be taking advantage of the peak in food at harvest time to move into the countryside.

By the end of the first year, I had colour-marked 45 birds, some originally metal-ringed as early as 2009, and I added a further 21 birds to the sample in 2013. As I can't rely



LEE BARBER

Darvic rings are relatively easy to read in the field, but the leg feathering on some birds can obscure codes at times.

on members of the public resighting my birds, I convinced five other ringers around Thetford to join me in targeting the species, linking up with a pre-existing project in north Norfolk. Several are now trapping good numbers but, to date, there have been no exchanges and despite scouring Thetford for pigeon flocks, the furthest sighting remains just 370 m from my house. Several of us have had recoveries involving birds shot in surrounding farmland, however, and comparison with previous years suggest that colour-marking may also increase the probability of reporting such casualties.

The real success has been the level of resighting in my garden; of the 66 birds marked, 42 have been seen subsequently. A core population of

six or seven birds visits the garden regularly and some of these have been seen over 50 times, resulting in a 1,270% increase in re-encounter rate of Woodpigeon in Norfolk, from 22 per year to 281. We're also learning a lot more (or realising we know a lot less!) about aging, with less evidence of overwinter suspension in moult of young birds than some of the literature suggests.

I'm running a concurrent project on Collared Doves, with over 40 colour-marked over the past two years. Again, this is a common species about which we know very little, showing that even the smallest, barest garden has the potential to make a big contribution to our understanding of population dynamics and seasonal dispersal.

Garden RASing – other options

Starling

Active RAS projects; 5, mean annual NRS total 269

Starling numbers have dropped by 88% in the past 44 years, possibly due to a lack of food in the wider countryside during winter. The species can be mist-netted or trapped and is a good candidate for colour-ringing as it has long tarsi. Starling is another RAS target species and is also a species for which submission of larger numbers of nest records would be very welcome.



JOHN HARDING

Fat feeders are a good way of attracting Starlings, as are suet pellets; whoosh nets may facilitate larger catches.

Collared Dove

Active RAS projects; 1, mean annual NRS total 164

Collared Dove is a relatively recent colonist and we know little about their demography, despite the species' affinity for gardens. Breeding Bird Survey and Garden Bird Watch results suggest that numbers have declined over the last decade – this could be due to the spread of trichomonosis, but competition with Woodpigeons, increasingly moving into urban areas, may also have an impact. The species tends to bounce from mist nets, so drop and walk-in traps or whoosh nets often provide better results – they are also wary and difficult to retrap, so colour-ringing is strongly advised.



JILL PAKENHAM

Collared Doves are surprisingly wary, so well-baited traps are required to catch them.

House Sparrow

Active RAS projects; 16, mean annual NRS total 379

A number of factors have been proposed as drivers of the 68% decline in House Sparrow, over the last 34 years, including a lack of insect food for the young. The species can be mist-netted or trapped, but birds are wary post-catching, so colour ringing is essential. This is a RAS target species for which we already have a good number of projects; the addition of a few more would enable us to start producing regional trends.



JOHN HARDING

House Sparrow is one of the core RAS species – can RAS explain regional variation in population trends?

Finches

RAS projects have been attempted on Greenfinch, Chaffinch, Goldfinch and Siskin in the past, but the highly transient nature of these species means that the re-encounter probability is generally very low, resulting in poor survival-rate estimates. Finches are therefore only considered for RAS if a high retrap rate between years can be demonstrated through pilot studies.



JILL PAKENHAM

It is difficult to undertake a RAS on finches due to the high mobility of adult birds and resulting low re-encounter rates.

What is Demographic Targeting?

Due to the standardised, targeted nature of the methodology, CES and RAS both play a critical role in collecting abundance, survival and breeding-success data which can be used in conjunction with Nest Record Scheme information and data from the census surveys (eg Breeding Bird Survey, Waterways Breeding Bird Survey, JNCC Seabird Monitoring Programme) to determine exactly why populations are increasing or decreasing. Ringing birds in a structured way during the nesting season also provides more traditional data on dispersal and migratory movements, the value of which is greatly increased if controlled individuals can be linked back to specific breeding locations.

Much of this work is undertaken within the BTO/JNCC Partnership. Discussions have identified a series of priority species for which more ringing and nest recording would be particularly valuable when constructing population models used to assess current impacts of environmental pressures such as climate and land-use change. These may be species for which we already have good data on some aspects of the life cycle but need to fill in the gaps (eg adult survival in raptors, breeding success of open-nesting passerines), or those that are good indicators of the general health of ecosystems (eg top predators). A complete list can be found at www.bto.org/volunteer-surveys/ringing/demographic-targeting-strategy



RON MARSHALL

More ringing and nest recording projects on Grey Wagtail would help us to understand declines.

CES and RAS methodology

The CES scheme (www.bto.org/ces) monitors the abundance, productivity and survival of 24 common breeding songbirds. Over 120 sites across Britain & Ireland are monitored through the breeding season, with 12 standard visits undertaken between May and August. On each visit a standard set of nets is erected in identical locations with the duration of the session held constant, a process repeated year-on-year. Typically 200–500 birds will be caught annually, including many adult retraps from previous years.

RAS (www.bto.org/ras) also aims to calculate survival rates through capture of breeding individuals, but is focused primarily on those species not covered by CES, either because they breed in different habitats (eg gardens) or because they can't be caught in large numbers using static mist nets (eg raptors, low-density passerines). Some species may require specialist trapping methods, possibly in conjunction with colour rings or special methods such as leg flags, wing tags and PIT tags, but others (eg Puffin, House Sparrow) can be

caught by more conventional netting. Each year, the aim is to encounter at least 30 adults that were breeding during the previous season and a minimum data run of five years is required to produce a good-quality survival rate trend.

Ringers taking part in either project are eligible for refunds – rings used on CES are effectively free and permit fee reductions are offered to RAS ringers. In addition, participants are able to apply for Project Support Grants of up to £100.

DATA SUBMISSION DEADLINES

- Preliminary CES trends are run in early November so please try to get your data to us by the end of October at the very latest.
- RAS trends are run in December so please try to get your data to us by the end of October at the very latest.
- Submissions must be with us by 28 February to qualify for a refund under either scheme – data received after this deadline will be incorporated in future years.

FORUMS AND FACEBOOK

YahooGroup email forums enable BTO surveyors to swap ideas, present results and keep track of the season's progress, with moderators ensuring that the system is free from spam. Subscribe by emailing the following addresses:

- **CES Forum** – btocesforum-subscribe@yahoogroups.com
- **NRS Forum** – nrsforum-subscribe@yahoogroups.com
- **Ringers Forum** – btoringers-subscribe@yahoogroups.com

Two Facebook groups dedicated to ringing have also been set up by volunteers. Bird Ringers (UK & Ireland) covers ringing under the BTO scheme, while Bird Ringing and Bird Banding has a global remit. These groups present a great opportunity to exchange photographs and ask for practical help, but be aware that any images posted on the web may be seen by non-ringers, so make sure that all comply with Ringing Scheme policy and are not open to misinterpretation.

2014 CES VISIT DATES

Visit no	First date	Last date	No of days
1	Thursday 1 May	Saturday 10 May	10
2	Sunday 11 May	Weds 21 May	11
3	Thursday 22 May	Saturday 31 May	10
4	Sunday 1 June	Weds 11 June	11
5	Thursday 12 June	Saturday 21 June	10
6	Sunday 22 June	Weds 2 July	11
7	Thursday 3 July	Saturday 12 July	10
8	Sunday 13 July	Weds 23 July	11
9	Thursday 24 July	Saturday 2 August	10
10	Sunday 3 August	Weds 13 August	11
11	Thursday 14 August	Saturday 23 August	10
12	Sunday 24 August	Weds 3 September	11