Barn Owl Trust

Barn Owl Re-introduction Report 1986 - 1988

RESULTS OF BARN OWL REINTRODUCTION CARRIED OUT BY THE BARN OWL TRUST IN DEVON, 1986-88

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Introduction and methods

This report covers the results from reintroduction undertaken during the period 1986-1988 inclusive. These releases were conducted by the Barn Owl Trust (formerly The Devon Barn Owl Breeding and Release Scheme) and comparisons are drawn with wild Barn Owls ringed during the same period. The results are based on 140 Barn Owls from 24 individual release sites using two methods now recommended by the Trust. The 71 wild Barn Owls used for comparison were ringed as owlets at 17 sites in Devon.

Release sites are carefully chosen to ensure that suitable habitat is available nearby and that no wild Barn Owls are present. Each site is monitored by the Trust and detailed records are kept. All release sites are operated by volunteers who are required to complete a Post Release Record Form noting details of fledging dates, daily observations and feeding habits. All of the Barn Owls in this report were fitted with BTO rings before release, and ringing recoveries form a major part of this presentation. Pellet analysis is also used to monitor the progress of released owls. Two release methods are recommended by the Trust and the results from each are compared:-

Long Term (LT) release method. A pair of captive-bred Barn Owls are confined in a suitably adapted building for a period of months and allowed to breed. When the owlets are four weeks old the adult pair is released and supplementary feeding is continued for a period of months.
Young Clutch (YC) release method. This involves the placement of a brood of owlets in a nest-box within the building at approximately five weeks old. These are fed for a period of months, no adult birds are present, and the brood are not confined. Young Barn Owls fledge at approximately eight weeks of age.
Exceptions. Because we have intended these results to be those which can be expected from the operation of the above two specific methods, we have omitted four release sites operated during this period where these methods were not followed. These exceptions are as follows:-

a) One LT release site which proved virtually impossible to owl-proof and where a single adult was released without young.

b) Two LT release sites where human error occurred on the night of release, resulting in the sudden disappearance of the adults and later gradual dispersal of young.

c) One release site was operated in 1988 where a different method of release was attempted. This involved the confinement of nine adult Barn Owls in a suitable site for over three weeks. When released, eight birds left the site within 24 hours and the last one within three days. Five have subsequently been recovered, three being found emaciated within a week and within 1.5km of the release site, one found (unknown cause of death) 16 days after release at 2.7km from the site, and the last recovery was of a road casualty after 229 days at 5km from the release site. The Barn Owl Trust does not recommend 'Short Term' release methods.

An owlet from one of the LT release sites was also excluded from Table 3. It

was one from a second brood of a released pair and was ringed at five weeks old (approximately three weeks prior to fledging). It was recovered 55 days after ringing in West Yorkshire, a distance of 390km in an approximate 27 days! Although this bird was apparently seen to fly in front of the lorry which killed it, doubts about its ability to travel 390km in 27 days have led to its exclusion from the table.

TABLE 1. Barn Owl release sites, 1986—1988 inclusive

	Long Term (LT)		Young Clutch (YC)	
	total	% of	total	% of
Total number of sites	14	—	10	—
With Barn Owls present during following winter	6	42.8	1	10
Where Barn Owls bred after release	5	35.7	0	0
Where Barn Owls bred the following year	3	21.4	0	0
Barn Owl not at site, but present within 3km the following year where none previously	5	35.7	5	50

Results

It is a well known fact that wild Barn Owls tend to show a degree of site loyalty, often using the same nest site for many years. Table 1 shows that Barn Owls released as adults using the LT release method also show a degree of release site loyalty. At three of the fourteen sites the Barn Owls are still breeding every year. However, with Barn Owls released using the YC method we find virtually no release site loyalty. Both methods have succeeded in establishing Barn Owls either at the release site itself or within 3km in 50-60% of cases.

Table 2. Released Barn Owls, 1986—1988 inclusive.

Released as	LT adults		LT owlets		YC owlets		all owls	
	total	% of	total	% of	total	% of	total	% of
Total of ringed and released Barn Owls	29	—	58	—	53	—	140	—
Disappeared suddenly	9	31.0	0	0	1	1.9	10	7.1
Dispersed gradually	8	27.6	54	93.1	44	83.0	106	75.7
Stayed at/very near (over 3 months)	10	34.5	2	3.4	8	15.1	20	14.3
Other	2	6.9	2	3.4	0	0	4	2.8

In Table 2 we have subdivided the owls released at LT sites into two groups, LT adults and LT owlets. At LT release sites where both the adults disappeared suddenly upon release the owlets have been moved from the LT owlet category and added to the YC owlet category, (if the four-week-old owlets are abandoned by the adults and are then fed by the Release Volunteer, then the release method is effectively identical to the Young Clutch method). The LT owlet category includes subsequent broods at LT release sites. In Table 3, 'Disappeared suddenly' refers to Barn Owls which disappear from the release site within five days of release (adult) or point

of fledging (owlet). 'Dispersed gradually' refers to owls which were no longer seen and appeared to have left the release site between five days and three months after release (adult) or point of fledging (owlet). 'Other' refers to two LT adults, one of which was struck on the road five days after release 100 metres from the release site (prior to this she was seen carrying wild-caught food into the nest-box). The other LT adult was a male owl found dead and emaciated at the release site 21 days after release in unusual circumstances. The two LT owlets in this category failed to fledge and are therefore discounted from all subsequent tables.

In acknowledgement of the many differences between a captive bred and a wild Barn Owl the Trust does not expect captive-bred Barn Owls which are simply 'let go' to survive. The short-term aim of every sound release method is to establish a pattern of 'return for food'. In this way the captive-bred Barn Owl is given time to adapt to life in the wild whilst having freedom from starvation. We find that a significant proportion of LT adults disappear suddenly upon release (see Table 2). We strongly suspect that these owls have simply flown too far too soon and got lost. This danger is avoided with the release of YC owlets, as their rate of release is governed by the natural pace of their development. As the aim is for released Barn Owls to disperse gradually or stay at the release site, Table 2 shows an overall success rate of 90%.

Table 3. Recoveries of released and wild Barn Owls (up to 10-9-89)

Released as	LT adults	LT owlets	YC owlets	wild owlets
Total no. ringed/ released/fledged	29	58	53	71
Total number recovered after fledging	7	7	6	13
% of total	24.1	12.1	11.3	18.3
Av. duration (days)	218.7	280.0	164.3	211.8
Av. distance (km)	1.7	26.0	32.1	18.3

In Table 3, it is interesting to note that released adults are twice as likely to be recovered as those released as owlets. Also, the average duration to recovery of adults is misleading, composed as it is of birds which either succumbed very quickly (and therefore had insufficient time to travel far) or birds which successfully established themselves at the release site and lived for many months (see Table 5). It should be noted that for adults the duration is counted from release, whereas for owlets the duration is taken from time of ringing (an average of 28 days prior to fledging).

The recovery rates of LT owlets (where adults are present) and for YC owlets (no adults present) are similar and are surprisingly low. Figure 1 compares the recovery rate of the three categories of released owls against that from wild owlets (Tallowin and Woodland personal communication). It is very obvious that there is a high initial mortality of LT adults (over 70% of recoveries occurring within 2 months), but once this is overcome we can expect a lower rate than that from either captive or wild owlets. The overall recovery rate for released adults is high (24%). The very low rate for release site owlets (both LT and YC are 11-12%., compared with 18% from wild owlets) suggests that release site owlets may actually be surviving

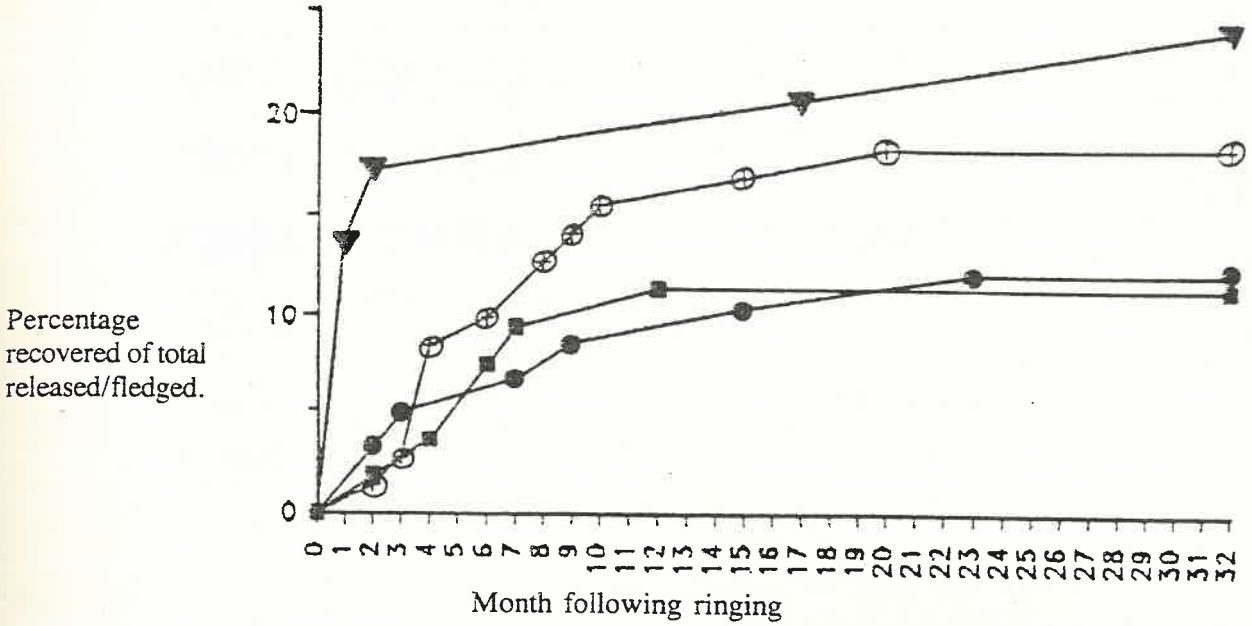

Figure 1. Numbers of Barn Owls recovered expressed as a percentage of total ringed. For key, see Figure 2.

better than wild ones. Few long duration recoveries have been accumulated because insufficient time has elapsed — the reintroductions on which these results are based were conducted during 1986 — 1988. For wild owls the analysis includes recoveries from 71 successfully fledged wild owlets ringed in Devon during 1986 — 1988 inclusive. We have been careful to omit any birds which are likely to be in any way related to captive-bred Barn Owls. Duration is again counted from the date of ringing, allowing a direct comparison with Barn Owls from release sites.

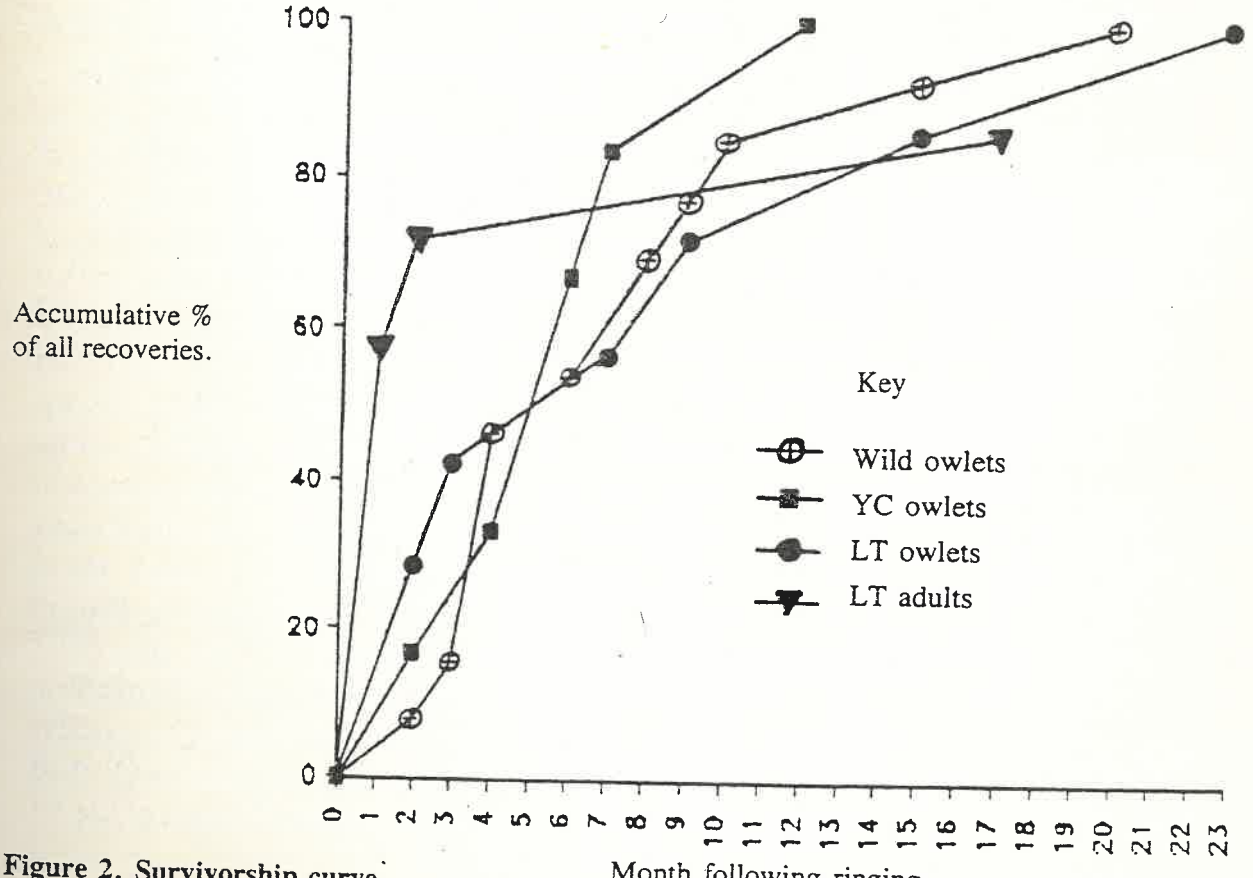

Figure 2. Survivorship curve.

Table 4. Analysis of recoveries of released and wild Barn Owls (notified by 10-9-89)

Cause	LT adults total	LT adults % of	LT owlets total	LT owlets % of	YC owlets total	YC owlets % of	wild owlets total	wild owlets % of
Unknown	1	14.2	2	29.6	—	—	3	23.0
Road	1	14.2	4	57.1	5	83.3	8	61.5
Emaciated	3	43.0	—	—	—	—	1	7.7
Shot	1	14.2	—	—	—	—	—	—
Trapped in house	1	14.2	—	—	—	—	—	—
Rail	—	—	—	—	1	16.6	—	—
Other	—	—	1	14.2	—	—	1	7.7

Table 4 analyses the causes of recovery for released and wild Barn Owls. The different causes of death and serious injury are very much as one would expect to find. Road traffic presents a grave danger, accounting for 50% of all recoveries of released Barn Owls and over 60% of wild Barn Owls. A significant proportion of captive-bred released LT adults are found emaciated (see Table 5).

Table 5. Recoveries of Barn Owls released as adults (up to 10-9-89).

Barn Owl	Duration (days)	distance (km)	cause
1	5	1.0	road death
2	9	3.0	emaciated
3	20	1.0	trapped
4	21	0	emaciated
5	42	5.5	emaciated
6	487	0	unknown
7	954	1.5	shot

Discussion

Direct comparisons can be made between owlets from Long Term and Young Clutch Releases and wild sites. LT adults are a special case since they cannot be compared with wild adults. At the point of ringing the adult wild owl is a 'survivor', having endured its first year (or more) whilst most of its contemporaries have died. In the British Isles as a whole, about 75% of Barn Owls die within 4 months of independence (Lack, 1986). A direct comparison with a captive-bred adult, which at point of ringing has yet to endure natural selection, would be of little value. From the analysis of Tables 1 — 5, and bearing in mind the small sample size of recoveries, it is apparent that captive-bred Barn Owls can be released into the wild successfully. However, at this point we must stress that these results were achieved by using two specific methods of **gradual** release. These results are unlikely to be achieved by other methods. It has been stated that attempts to establish Barn Owls by the use of single sites is a waste of time; these results show that such releases can be very successful. At one LT release site a pair of adults were released with four owlets in the nest in 1986; they reared a second brood in 1986 and there have been two broods produced at the site in each successive year, totalling 30 owlets to date. In 1988 and 1989, breeding also occurred at another site 1.2km away. Prior to 1986 no Barn Owls had been resident in the area for many years. Although the Long Term release of adult Barn Owls can result in the establishment of a new or reoccupied Barn Owl site, it must be remembered that this has occurred at only three out of 14 such sites (Table 1). Nine out of 29 adults released disappeared suddenly. The

release of adult (or fledged) captive-bred Barn Owls is fraught with difficulties and shows a high recovery rate (24.1%). However, where the LT method is successful the results are considered worthwhile.

The operation of a release site using the Young Clutch (Brood) method is not likely to result in the establishment of Barn Owls at the release site as can be seen in Table 1. The overwhelming majority of owlets placed in such sites disperse gradually, usually within six weeks of fledging. Observations at YC release sites and the very low ring return rate of 11.3% (Table 3) indicate that young Barn Owls can and do learn to hunt well with no adults present. The operation of one YC release site serves only to give a boost to the wild population. If the intention is to establish breeding sites in a study area (via the YC method) then several YC sites should be used simultaneously.

Food supply, and therefore habitat, is one of the main factors governing Barn Owl numbers and breeding success. In areas of poor habitat one or two Barn Owls may survive, but breeding success will be low and the population very vulnerable. There are already vast tracts of lowland Britain with no Barn Owls at all, mainly due to loss of habitat. Conversely, there are still a few areas which support a good number of breeding pairs where good habitat still remains. Most of Britain falls between these two extremes — where habitat is either marginal and/or where areas of good habitat are small and isolated. The 24 release sites considered in these results were the subject of a great deal of study and assessment. Each site was selected because the habitat was suitable for Barn Owls and none were shown to be present within a 3km radius when a 'local Barn Owl survey' was undertaken. Reasons for the lack of Barn Owls were also looked into in detail. Habitat conservation and improvements were recommended.

Many different criticisms have been levelled at Barn Owl reintroduction, which is not surprising since most releases, although well-intentioned, are poorly conducted. The view that most captive-bred Barn Owls die soon after release may be true in some cases. However, the Barn Owl Trust has proved that using the two methods briefly outlined in this report, released Barn Owls survive as well as, if not better than, wild ones. The view that released Barn Owls have an advantage over wild ones because they have food provided is, of course, correct but only applies to Barn Owls which stay at release sites where feeding is continued. Out of the 140 released Barn Owls, only 4 receive some supplementary feeding. The opinion that reintrodution is 'interfering with nature' is clearly absurd; it is no more interfering than poisoning, road deaths and destruction of habitat.

The major criticism of reintroduction regards natural recolonisation. Wild Barn Owls have the ability to double-brood (with large brood sizes) in areas of very good habitat — a high reproductive capacity. It is therefore often thought that reintroduction is a waste of time because if an area were suitable for Barn Owls wild ones would come along and occupy it. When considering an area of good habitat close to an established wild Barn Owl site this certainly applies. However, monitoring of the wild Barn Owl population and the results of over fifty local Barn Owl surveys show that there are many hundreds of suitable Barn Owl sites which remain unoccupied. We believe that the reason for this is because most of Britain affords only marginal habitat and therefore maximum reproductive capacity is rarely, if ever, achieved

and mortality is high. Habitat is the key to long-term Barn Owl conservation; however, conservation is not at present given sufficient consideration in land management. Should the day ever arrive when Barn Owls no longer need active encouragement, so much the better. Until then, habitat improvements, provision of nest-boxes, protection of breeding and roosting sites and reintroduction (where appropriate) can all make a contribution towards 'Saving the Barn Owl'.

These results show that Barn Owl reintroduction (using the two methods briefly outlined) can work. Breeding density has been increased in some areas. Reintroduction can be used to re-establish Barn Owls at an unoccupied site. It can give a much needed boost to the existing wild population which itself is a mixture of wild and released birds and their young. In conclusion, it must be clearly understood that these are not the results of Barn Owl reintroduction as a whole; they are the results achieved by using two very specialised methods developed by The Barn Owl Trust.

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Footnote. The Barn Owl Trust **does not encourage** the widespread or indiscriminate use of reintroduction. **We would strongly recommend** that anyone intent on undertaking this course should seek advice before obtaining live birds.

Reference

Lack P. 1986. *The Atlas of wintering birds in Britain and Ireland.* Poyser, Calton.

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