

**TRANSLOCATION OF SMALL NUMBERS OF CRESTED NEWTS
(TRITURUS CRISTATUS) TO A RELATIVELY LARGE SITE**

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ABSTRACT. – In 1985, 38 Crested Newts (*Triturus cristatus*) were moved from a doomed site in Kent to ponds at Worlick Farm in Cambridgeshire. The translocation was monitored by means of night counting. Difficulties in monitoring small translocations are discussed, as are precautions needed concerning night counting. After six years, the translocation appeared to have failed, and it was only after at least eight years that increasing counts became evident and eventually demonstrated the establishment of a colony. In any such exercise, monitoring should be of sufficient duration to enable success or failure to be confirmed.

IN this country there have been many examples of translocations of Crested Newts (*Triturus cristatus*) over the last three decades. Oldham et al. (1991) reviewed 86 translocations that occurred between 1970 and 1990, and decided there was no conclusive evidence of success. Problems identified included inadequate monitoring, releases to sites with resident unmarked newts, failure for predictable reasons and a preponderance of garden ponds as receptors. Oldham & Humphries (2000) updated this review and concluded that 37% of an overall total of 178 translocations were successful when judged by the 'minimal criterion' of the presence of at least one adult newt in the year following release. Even the most large-scale and detailed published accounts have, however, involved monitoring for only a few years (eg Horton & Branscombe, 1994; Langton et al., 1994; Oldham & Humphries, 2000). To be confident of distinguishing between success and failure in the longer term, monitoring for ten years or more may be needed (Dodd & Seigel, 1991; Cooke, 1997). This paper reports the translocation of a small number of newts to a relatively large site with monitoring over a 14 year period.

SITE AND NEWTS

The receptor site consists of six large ponds set

in about 5ha of woodland, scrub and rank grassland on the edge of the Fens at Worlick Farm in Cambridgeshire (grid reference TL 315865). The ponds are shown as site 1 on the map, and are numbered in this paper as 1/1-1/6. Total area of the six ponds is about 0.25ha with 0.5km of edge. Centuries ago, the ponds were used to rear fish for the table by the monks of Ramsey Abbey. The ponds now constitute an Historic Monument, a fact which has safeguarded them from any threat of being turned into arable farmland. The site is more or less surrounded by arable land although a house and farm buildings are within 200m. The site has no public access, being about 1.5km down a farm track from the nearest road (see Map).

No other ponds are shown closer than 1km on the 1:25000 Pathfinder map. With little recent history of livestock farming, the Fens have a low density of ponds. An old field pond (site 2 on the Map) incorporated into a farmhouse garden is 1km away in a straight line across the fields or 1.3km via the farm track. A single night visit, made in 1990, revealed one Crested Newt in this pond. Additionally there is a farm reservoir (site 3) about 1km away, which is used for fishing and has a large population of Common Toads (*Bufo bufo*).

In June 1983, I visited the site to advise the landowner on how it might be improved for



One of the ponds at the release site at Worlick Farm in 1985, just after translocation. Photograph by author.

wildlife generally. One specific suggestion was that the site could be suitable as a receptor site for Crested Newts. Clearance within the six ponds of dumped rubbish and silt, and clearance of scrub and rank vegetation, mainly from around the southern edges of the ponds, was undertaken by October 1984. Fish were believed to be absent.

The donor site was at Swanscombe in Kent. In 1985, a chalk pit was being infilled and the Crested Newt population, which bred in pools on the floor of the pit, was rescued and moved elsewhere. Thirty-eight adult Crested Newts were available for translocation to the ponds at Worlick Farm under licence from the Nature Conservancy Council. Although both sites are in eastern England, movement over such a distance (>100km) is unlikely to be permitted now. The newts were released into two of the Worlick Farm ponds on 16 June 1985.

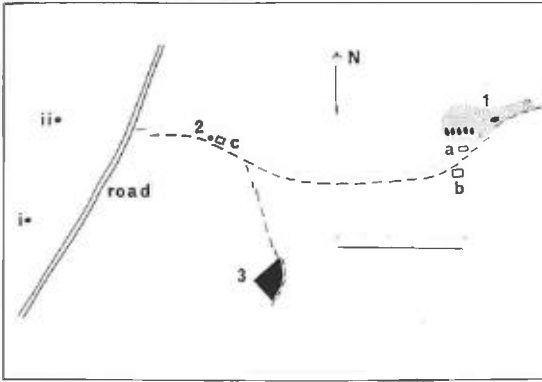
MONITORING

Night counting was the technique selected to detect newts and to monitor change (as used by Cooke, 1995 and 1997). It was decided to undertake single counts each year at peak season as routine, but not preclude additional counts as necessary. Statistical analysis would be used to test whether numbers counted increased over time. At the outset, duration of monitoring was not fixed, the aim being to continue until it was clear that the translocation had succeeded or failed. Netting the ponds for larvae and searching on land for subadults were considered impractical, but any incidental observations of egg laying or subadults in the breeding season would help to confirm success. Residents of the nearby house reported the presence of Smooth Newts (*Triturus vulgaris*) prior to the translocation of Crested Newts, and both species were monitored.

It was appreciated that conditions of the ponds and their surrounds might influence monitoring results. Accordingly, notes were kept of pond size and depth as these might affect numbers of newts present, together with quantitative or descriptive information on variables that might affect the proportion of newts recorded (extent of pond edge surveyed (largely governed by accessibility), water turbidity, and whether copious plant growth might hide many newts).

RESULTS

Results for the two newt species are depicted in Figs 1 and 2. Counts were undertaken between 12 April and 20 May each year. Only one count was performed each year except for 1989 when a second was done because the first had failed to detect any newts; the mean count for Smooth Newts in 1989 is shown in Fig. 2. Illness prevented night counting from being undertaken in 1999, so the monitoring was drawn to a close. Eventually, Crested Newts were recorded in all six ponds, but out of a total of 101 sightings, 65% were in pond number 1/6 (Fig. 1). Egg laying was noted in 1986, 1987 and 1994, with subadults in 1992 and 1995.



A sketch map of Worlick Farm showing the features discussed in the paper. The translocation in 1985 was to the east of the road (B 1096) in site 1; ponds 1/1-1/6 are indicated by solid shading and the terrestrial habitat by stippling. The nearest water bodies to site 1 are an old field pond (2) and a reservoir (3). The main farm tracks are shown as broken lines, and buildings are a house (a), farm barns (b) and a farmhouse (c). Reference is made in the Discussion to two other ponds (i and ii) to the west of the road. The scale bar is 500m with subdivisions at 100m. The whole area shown is <10m above sea level.

No newts were seen on the pre-translocation count in April 1985; while this was consistent with an absence of Crested Newts, the count also failed to detect any Smooth Newts which were known to be present. During the period 1986-1998, counts of Crested Newts increased significantly over time (Spearman rank correlation coefficient $r_s = 0.810$, $P < 0.01$). There was no such increase for Smooth Newts, neither were fluctuations in their counts related statistically (by a rank correlation test) to those of Crested Newts.

Counts for both species were low or zero during 1989 to 1991, raising the possibility that pond conditions may have been at least partially responsible. This region suffered prolonged drought from early 1990 to mid 1992 (Cooke, 1995); by May 1991 one of the ponds had little water and by the following April three ponds were dry, but the two best ponds continued to hold water. Extent of pond edge surveyed tended to decrease as the cleared banks scrubbed over.

Thus dividing input into convenient periods of 3-4 years reveals that mean coverage was not especially low during 1989-1991 (58% edge surveyed 1986-1988, 48% in 1989-1991, 44% in 1992-1994 and 34% in 1995-1998). The number of turbid ponds recorded each year was slightly higher 1989-1991 (mean numbers were 2.0, 2.5, 1.7 and 1.8 respectively for the same time periods as above). In 1989 all ponds had unusually thick growth of water plants; and in 1990 the two ponds (numbers 1/2 and 1/6) that had all the Crested Newt sightings up till then again had dense growth.

The dissimilar patterns of counts for the two species between 1992 and 1998 suggested that pond conditions may not have been of overriding importance latterly (if they had been, then both species should have shown similar trends). Crested Newt counts increased despite access to pond edges being more difficult (see above), and with up to three ponds desiccating in 1997 and 1998.

DISCUSSION

Night counting revealed small numbers of Crested Newts during the three years following translocation; counts of 2-3 newts were equivalent to 5-8% of the newts introduced to the site. At Shillow Hill, 5km to the south west of Worlick Farm, mean night count was 6% of the estimated total (Cooke, 1985). So, assuming the newts seen in the Worlick ponds were introduced animals and many still survived, a few sightings might have been expected in the year(s) following translocation. This does, however, raise a general problem over the translocation of small numbers of newts in that it may not be possible to detect their presence after release, especially with a single count per year. Fortunately, clearance work at this site made monitoring fairly easy immediately following translocation, otherwise it might have been necessary to undertake several night visits. A related issue is that as the original newts die or perhaps emigrate, fewer may be seen at night.

No Crested Newts were recorded from 1989 to 1991 despite night counts being duplicated in

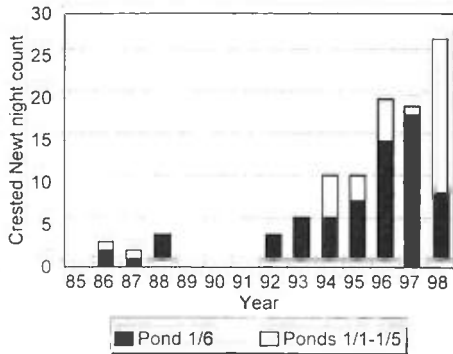


Fig. 1. Night counts of Crested Newts in ponds 1/1-1/5 (unshaded) and pond 1/6 (shaded).

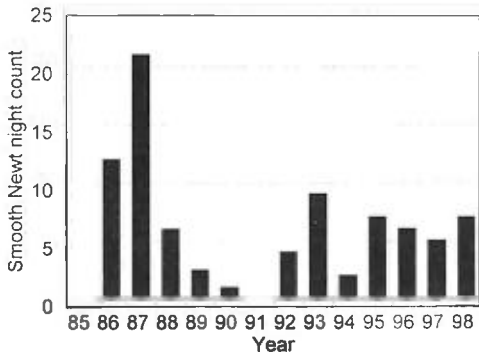


Fig. 2. Night counts of Smooth Newts in ponds 1/1-1/6.

1989. Excessive growth of water plants in 1989 and 1990 will have hindered counting, as may slightly higher levels of turbidity 1989-1991. Several ponds desiccated in the drought of 1991-1992; little water in the spring may mean fewer newts returning to breed (Cooke, 1995). Nevertheless, pond conditions during 1989-1991 alone are unlikely to explain the total absence of sightings of Crested Newts, and the conclusion must be that numbers were unusually low at this time. As the newts were all adults when translocated in 1985, they will then have been at least two years of age (Beebee & Griffiths, 2000); so by 1991, minimum possible age would have been eight years, which is the average life

span (Beebee & Griffiths, 2000). It seems that few survived till 1991, and there were few of their progeny either. When 5-6000 adult Common Toads were translocated to a new site, high mortality and/or emigration occurred in the first year (Cooke & Oldham, 1995).

After 1991, it might have been reasonable to terminate monitoring because the exercise appeared to have failed. By that time, however, this site had been incorporated in a local monitoring programme involving several sites (Cooke, 1994); so, rather fortuitously, night visits continued. Subsequent monitoring saw the night count rise steadily to 1998, by when it was an order of magnitude higher than the counts immediately after translocation. Occasional records of egg laying and subadults helped to confirm breeding. However, before concluding that the translocation was a success, other explanations for the monitoring results need to be considered.

It is possible that small numbers of Crested Newts occurred at the site before translocation, but none was seen at night in 1985 and the residents of the nearby house had seen none during the early 1980s. Also such a scenario does not explain failure to see any during 1988-1991 nor the rise recorded thereafter.

Another potential explanation is that Crested Newts colonised naturally during the observation period. The nearest site is 1km away, but only a single newt was recorded there in 1990. Also another release of Crested Newts was made in 1991 to a pond about 2km to the west (site i on the Map); although this introduction was successful (and will be reported separately), newts had failed to colonise a further pond (site ii) only 400m along a hedge-line by 1998. In a study of farm ponds in Bedfordshire, Northamptonshire and Buckinghamshire, Baker & Halliday (1999) found that Crested Newts failed to colonise new ponds 400m or more away from existing populations. It seems, therefore, that natural colonisation can be discounted at Worlick Farm.

It is conceivable that someone else introduced newts, resulting in the increase seen in the 1990s.

However, this site is almost as remote as is possible in lowland England. Contact was maintained with the landowner, residents, farm-workers, gamekeeper and scientists researching other aspects of the site without learning of any such activity. In the extremely unlikely event of a second introduction by persons unknown, then this would still be an example of a successful release.

One is left with the reasonable conclusion that, despite slow colonisation initially, the translocation of Crested Newts in 1985 eventually resulted in a self-sustaining colony, without having any detrimental effect on the Smooth Newts already there. Numbers of Crested Newts counted at night were still increasing when monitoring had to be stopped in 1998, and it is likely that adults in the population considerably outnumbered those released at the site 13 years before.

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