

REPORT OF THE CONSERVATION OFFICER

SUBJECT: REPORT ON BARN OWL NEST BOX SCHEME

1. The attached report details the results of monitoring carried out to assess the success of the Authority's Barn Owl Nestbox scheme.
2. Since 2009 the scheme has distributed 44 boxes to landowners and is the first attempt at carrying out a coordinated approach to nesting provision and monitoring on Barn Owls in the County.
3. The report highlights the success of the scheme in achieving 12% occupancy by barn owls during 2014 following several seasons of breeding depression in the Barn Owl population due to poor weather conditions. A bounce back in the breeding success during the 2014 season led to reports of an additional 3 boxes occupied during 2015 bringing total box occupancy to 21%. This is in line with similar schemes with published data.
4. The report makes recommendations for improvements to the scheme, notably a focus on indoor boxes as well as the instigation of an annual monitoring programme.

RECOMMENDATION:

Members are requested to note the Report.

(For further information contact Julie Garlick on extensions 4873)

Report on Barn Owl nest box use for Pembrokeshire Coast National Park Authority 2014

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1.0 Summary

In 2014 PCNPA commissioned a survey of barn owl boxes that had been supplied to landowners within the national park.
38 site visits to a total of 44 barn owl boxes were made between 16 th June 2014 and 17 th February 2015.
Data relating to the occupation, condition and positioning of boxes were recorded.
Of the 38 box sites visited, 33 boxes had been installed by the landowner.
Of 33 installed boxes, four (12%) had been used by barn owls including nesting in three boxes.
A total of 17 boxes (52% of the 33 installed boxes) were used by at least one species including seven by tawny owl, including four nests).
Six outdoor boxes were in a state of disrepair and it seemed that boxes had a life expectancy of up to five years.
Reasons given for the lower-than-hoped-for occupancy rate by barn owl include the depressed adult barn owl population in the year of the survey, a few poorly sited boxes, competition with tawny owls, very recent installation of some boxes and weather damage to boxes. Two additional boxes are known to have become occupied in 2015, both in boxes installed in buildings.
Recommendations given include establishing an annual monitoring program and prioritising buildings over outdoor sites for new and replacement boxes.
Overall, the box scheme can be considered a success and a solid basis for establishing the first ever coordinated attempt at nest site provision and barn owl monitoring in Pembrokeshire.

2.0 Introduction

- 2.1 Since 2009 PCNPA has supplied 44 barn owl nest boxes to landowners to be put up at scattered localities around the county and within the national park (see Figure 1). All the locations selected had nearby suitable foraging habitat for barn owls. Most boxes were supplied free to the landowners with installation guidelines to help ensure that they were placed in suitable positions within the sites. However, the legal requirement to obtain a schedule 1 disturbance license to access active barn owl nests meant that monitoring of box use had not been regularly achieved. In 2014 PJ was contracted by PCNPA to inspect the boxes, record contents and evidence of previous use and comment on the state of the boxes to recommend any improvements. This report summarises the findings.

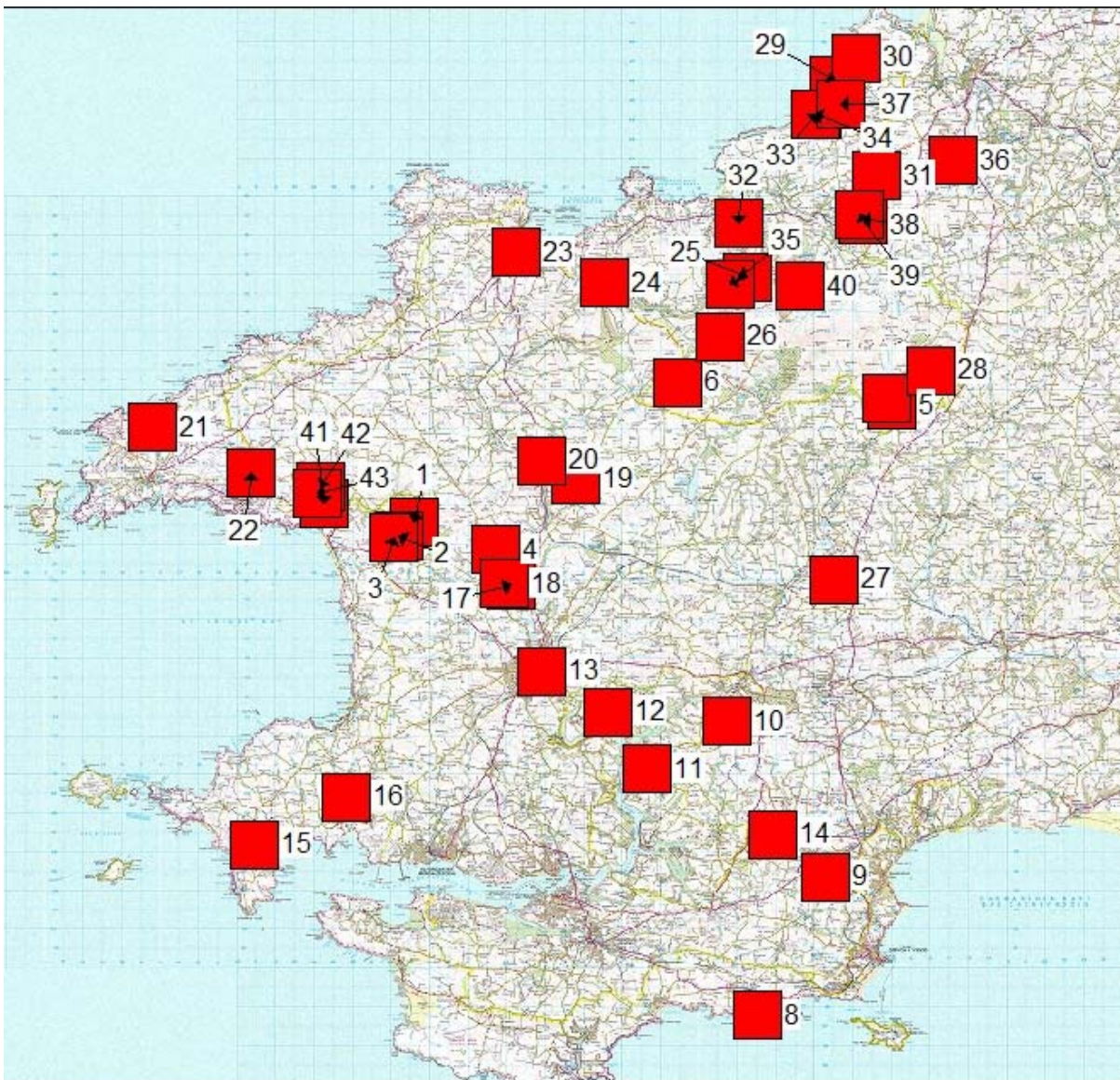


Figure 1: The distribution of barn owl boxes in 2014.

3.0 Methods

- 3.1 The boxes were located according to information supplied by PCNPA and landowners were contacted to try and gain access permission to visit the box sites. As many boxes as possible were inspected by means of a ladder to check for any signs of occupation by any species of bird or animal. The floors of buildings with indoor boxes and the ground beneath outdoor boxes was also inspected to search for further evidence such as feathers, pellets etc. to try and establish the level of use of the box. Details were also taken of the height, aspect and condition of the box and entered onto an Excel spreadsheet (Table 1). Photos were taken and where possible landowners were engaged to discuss any potential improvements that could be made to enhance the chances of occupation by barn owl. It was not possible to check every single box due to either access restrictions or unavailability of permission due to a failure to make contact with the landowner, or on occasion, due to the box not having been installed.
- 3.2 A schedule 1 license to disturb the nests of barn owls for monitoring purposes was obtained from Natural Resources Wales (NRW).

4.0 Results

4.1 Box occupancy

- 4.1.1 Attempts were made to visit 38 of the total of 44 boxes between 16th June 2014 and 17th February 2015. Of these, direct inspections were made for 31 boxes and landowners reported contents for two more. Of the remaining five, four had not been previously installed and one had recently fallen down (Kite Farm). This latter box was reinstalled during the field visit.
- 4.1.2 Figure 2 shows a summary of the survey results. Of the 33 boxes that were installed and for which data were recorded, 17 showed signs of having been used at least once. There was evidence of use by barn owls in four boxes, including two active nests, a previous year's nest and a temporary roost site. Other uses included tawny owl (nesting and roosting), jackdaw and grey squirrel. Three boxes had been used by more than one species hence the grand total of 47 implied by the column totals in Figure 2. The full details are shown in Table 2, and a

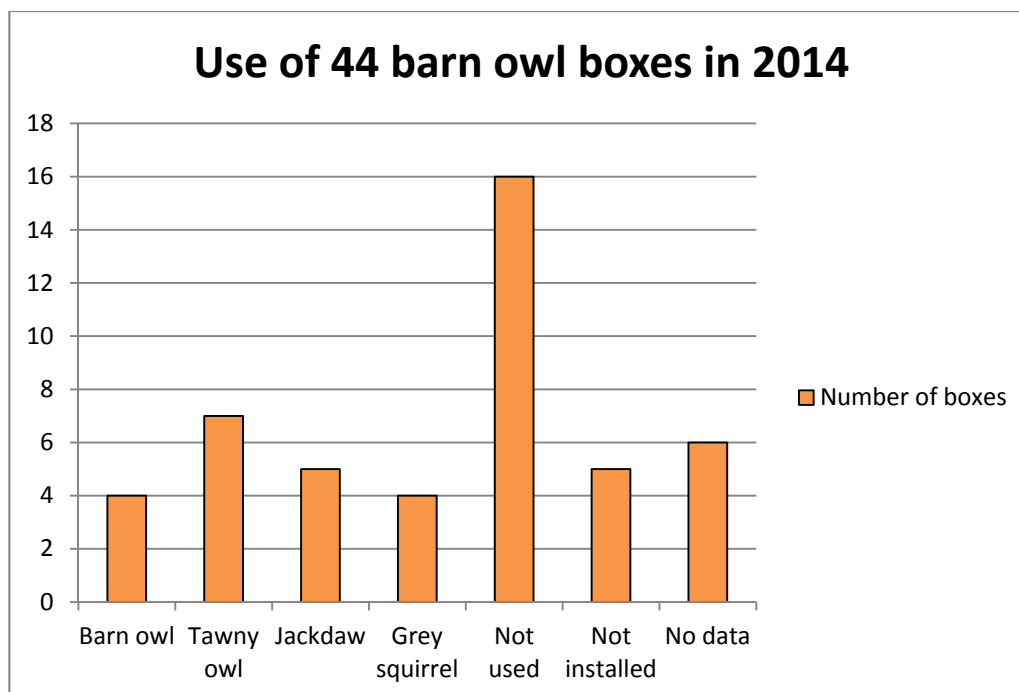


Figure 2: Summary of the results of box occupancy in 2014.

- 4.1.3 Of 33 boxes which were installed and data collated, 10 were installed indoors and 23 outdoors (Table 1). Altogether 52% of boxes were occupied at some point by at least one species, only 12% of boxes showed signs of having been occupied were by barn owl, and only 6% (2 boxes) had active barn owl nests. Outdoor boxes stood a higher chance of being occupied (61% compared to 30%) though this occupation was predominantly by non-target species. Indoor boxes stood a higher chance of being occupied by barn owl (20%) compared to outdoor boxes (9%).

	Indoor	Outdoor	Combined
No. boxes checked	10	23	33
Good condition	10	17	27
Need repair/replacement	0	6	6
No. boxes used	3 (30%)	14 (61%)	17 (52%)
No. used by barn owl	2 (20%)	2 (9%)	4 (12%)

Table 1: Summary of the barn owl box survey 2014

4.2 *Condition of the boxes*

- 4.2.1 Of 23 outdoor boxes, 6 were in a state that required repair/replacement. In addition, one other had already been replaced by the landowner due to it falling apart, and two of the indoor boxes were recent replacements of dilapidated outdoor boxes. The damage to the boxes was due to weather related factors. All other boxes were in good condition though many had only been installed for less than three years. It was noticeable that that all outside boxes more than five years old were in a state of disrepair and this seems to be the expected lifespan of boxes outdoors

Table 2: Results of box inspections 2014.

Ref	Site	Grid reference	Type of nest box	Aspect	Height/ m	Year installed	Date checked	State of box	Box use	Comments
1	Kite Farm	SM 892230	Indoor		5	2013	23/06/2014	Fallen	Not installed	Box was re-installed during the field visit; apparently the site had formerly been used by barn owl.
2	Kite Farm	SM 884223	Outdoor	N	6	2010	23/06/2014	Good	Tawny owl nest, on top of grey squirrel nest	Grey Squirrel nest, removed, dead squirrel and a Tawny Owl egg.
3	Kite Farm	SM 881222	Outdoor	N	6	2010	23/06/2014	Good	Grey squirrel	Grey Squirrel nest, removed
4	Court House Farm	SM 934216	Outdoor	N	6	2012	23/06/2014	Good	Jackdaw nest	Used Jackdaw nest. Some good habitat in the vicinity of the box but not adjacent.
5	Plas Dwbl	SN 140291	Outdoor	E	4	2012	16/06/2014	Good	Jackdaw nest	Used Jackdaw nest. Some good habitat in the vicinity of the box but access to box restricted by foliage, so a recommendation is to open it out a little to allow an easy flyway to the box
6	Slade Farm	SN 029303	Indoor		5	2013	16/06/2014	Good	Not used	Perfectly sited and this stands a good chance of being used in future. Several Kestrel pellets found in barn.
7	Plas Dwbl	SN 137294	Indoor		3	2012	16/06/2014	Good	Not used	No evidence of box use by any species - a bit too low down in tin shed, unlikely to be used by barn owl.
8	Hill Farm	SS 070974	Indoor			2003	Not checked	Good	No data	
9	Kite Hill	SN 106046	Indoor		5	2009	23/06/2014	Good	Barn owl nest	Excellent position with lots of good foraging habitat adjacent.
10	Cott Farm	SN 054126	Outdoor	N	4	2012	18/07/2014	Good	Not used	No evidence of box use by any species, though a well sited box.
11	Upper Millar's Park	SN 013102	Outdoor				18/07/2014	Not installed	Not installed	
12	Woodleys, Haverfordwest	SM 993132	Outdoor	E	5	2012	23/06/2014	Good	Tawny owl roost	Single Tawny Owl pellet, but otherwise unused. Habitat not that good nearby, meadow ploughed and sown with non-organic wheat crop.
13	Tregwen	SM 958153	Outdoor	?		2012	Not checked	Good	No data	
14	Sunnyhill	SN 078068	Outdoor	E	4	2012	23/06/2014	Good	Not used	No evidence of box use by any species. A little low in the tree and perhaps more likely to be used by tawny owl rather than barn owl.
15	Windmill Farm, dale	SM 809062	Indoor			2014	17/02/2015	Good	Not used	Landowner reports that the box is not used

Ref	Site	Grid reference	Type of nest box	Aspect	Height/ m	Year installed	Date checked	State of box	Box use	Comments
16	Sandyhill Chapel	SM 856087	Outdoor	N	6	2011	24/06/2014	Good	Barn owl nest	Box now accessible for inspection by ladders. Chicks estimated 4 weeks old, at feathers long stage
17	Lower Calf-field	SM 940197	Indoor		4	2012	17/02/2015	Good	Not used	Box in good position with good potential to be used in future.
18	Lower Calf-field	SM 942187	Outdoor	N	5	2012	17/02/2015	Good	Tawny owl nest, grey squirrel	Better suited to Tawny Owl rather than Barn Owl, though surrounding habitat also good for Barn Owl. The nearby indoor box at the buildings is more likely to be used by barn owl.
19	Martinique, Wolfscastle	SM 976253	Outdoor	E	6	2009	24/06/2014	Needs repair	Jackdaw nest	Surrounding habitat is good, and there is potential for colonisation if the box is repaired and an additional one put up in the buildings
20	Wolfscastle School	SM 958262	Outdoor	N	3	2011	24/06/2014	good	Jackdaw nest	It looks a bit too low in the tree to be used by Barn Owl
21	Trelewyd, St David's	SM 756279	Indoor			2012	Not checked	?	No data	
22	ClynYspytty	SM 808256	Outdoor	SE	6	2012	24/06/2014	Good	Tawny owl nest	Better suited to Tawny Owl rather than Barn Owl, though surrounding habitat also good for Barn Owl. Maybe add another box, but worth checking that there is a well-established site nearby, as this would mean that colonisation unlikely.
23	Glan Afon	SM 945371	Outdoor	E	4	2013	18/07/2014	Good	Not used	Recently put up – more likely to attract Tawny Owl
24	Court Farm	SM 990354	Outdoor	N	6	2009	07/07/2014	Needs replacement	Tawny owl nest in a previous season	Some suitable buildings nearby but these are earmarked for development. A church nearby reportedly had Barn Owls in but hasd now been boarded up – it looked as though some pigeons had been shut in?
25	Pwll Y Broga	SN 065357	Outdoor	N	6	2009	16/06/2014	Needs repair	Tawny owl roost	A few Tawny Owl pellets, and perhaps the surrounding habitat better suited for that species though some suitable Barn Owl habitat is present. The box is too enclosed within canopy to found by Barn Owls so some branch clearance necessary.
26	Fagwr Goch	?	Outdoor				07/07/2014	Not installed	Not installed	A new area of clearfell may make the area more attractive to Barn Owls
27	Crug Y Deri	SN 110200	Outdoor	?		2009	Not checked	?	No data	

Ref	Site	Grid reference	Type of nest box	Aspect	Height/ m	Year installed	Date checked	State of box	Box use	Comments
28	Dolaumaen	SN 161400	Outdoor	S	4	2009	16/06/2014	Needs replacement	Tawny owl nest, evidence of occasional roosting by barn owl	Original box fell down in gales and has been removed to try and repair it. A second box put up by the landowner is the one that was inspected. Barn owl feathers were present, together with a few pellets and a tawny owl egg. A third box is present some 100m away in a workshop area and this is a site that was used formerly before development of the building, so dilapidated10on here is likely in future. Abundant good habitat adjacent.
29	Pencastell	SN 111459	Outdoor	E	4	2008	17/02/2015	Good	Not used	Very exposed position but barn owls sometimes nest on coastal cliffs so still some potential.
30	Hendre	SN 122471	Indoor		?	2012	17/02/2015	Good	Not used	Not inspected, but no use reported by landowner.
31	Penrallt Y Gardde	SN 132410	Indoor		5	2009	02/07/2014	Good	Barn owl nest in previous season	The box is perfectly located within the building and there is some suitable habitat in the area. They should return here following a population increase and the site can be enhanced by placing an extra box in the same building as a roost site for the male.
32	Penrallt	SN 061386	Outdoor	S	5	2009	18/07/2014	Good	Grey squirrel	Original box now replaced. Old box never used by Barn Owl, though there were signs of use by what sounds like Grey Squirrel
33	Fferm Y Cadno, Moylegrove	SN 101442	Indoor				17/02/2015	Not installed	Not installed	Barn owl box was put up briefly and then taken down to re-roof a building – will get reinstated in due course
34	Fferm Y Cadno, Moylegrove	SN 101442	Little owl, indoor		5	2013	17/02/2015	Good	Not used	Little owl box at back of shed. A little owl is still seen but it has never used the box, possibly because the box position so far inside the barn is best suited to barn owl; little owl would prefer a more exposed site.
35	Llanerch	SN 058356	Outdoor	?	?	2009	17/02/2015	?	Not used	Not inspected, but no use reported by landowner.
36	Rhyd Y Beinw	SN 056354	Indoor		5	2006	17/02/2015	Good	Not used	Indoor box has replaced very dilapidated outdoor box. Well situated.
37	Maes Y Mor	SN 172418	Outdoor	?	4	2009	Not checked	?	No data	
38	Penpedwast	SN 124390	Outdoor	S	4	2006	02/07/2014	Needs replacement	Not used	There is a an old stone barn adjacent which is a much better position for any replacement box though this barn is used by Tawny Owls often and there may well be too much friction for both species to coexist.

Ref	Site	Grid reference	Type of nest box	Aspect	Height/m	Year installed	Date checked	State of box	Box use	Comments
39	Penpedwast	SN 125387	Outdoor	S	3	2006	02/07/2014	Needs replacement	Not used	Better place in adjacent Atcost building, rather than south-facing low down in the oak.
40	Penparcau	SN 124390	Outdoor	E	4	2013	16/06/2014	Good	Not used	No evidence of box use by any species
41	Penparcau	SN 092353	Indoor		4	2013	16/06/2014	Good	Jackdaw nest	Nicely sited within the barn but good habitat fairly close. An unfinished jackdaw nest present in box.
42	Brawdy	SM 846246	Outdoor	?	?	2014	17/02/2015	Good	Not used	Only very recently put up.
43	Brawdy	SM 846246	Outdoor	?	?	2014	17/02/2015	Good	Not used	Only very recently put up.
44	Brawdy	SM 846246	Outdoor		?		17/02/2015		Not installed	

5.0 Discussion

5.1 Box Occupation

- 5.1.1 The occupation rate of the boxes by barn owl (12%) was lower than that quoted in the Barn Owl Monitoring Program (70% to 90%, Reference 1). However that scheme targeted known sites which were already well-established. A box scheme in Wokingham 2003 to 2008 recorded an average uptake of 17% for breeding (range 0 to 30%), and 31% to 56% if roosting is also included. This is perhaps a fairer comparison though the figures for the PCNPA scheme are still perhaps lower than that hoped for. There are several reasons for this; Firstly, 2014 was a year which followed a series of poor breeding seasons for barn owl (BTO Nest Record Scheme) with a series of cold winters 2010/11, 2011/12 and 2012/13, a wet summer 2012 and a very cold spring 2013, so breeding numbers were depressed. During 2014 vole numbers increased rapidly and 2014 was, in contrast, the most productive season recorded for barn owls, so had the survey been conducted in 2015 it would have undoubtedly reported a higher occupation rate. Evidence to support this has come from landowners reporting occupancy in three more boxes in 2015. Secondly, many of the boxes had not long been installed and given the low levels of recruitment by juveniles due to the poor breeding seasons mentioned, there had been little opportunity for colonisation. Thirdly, 6 boxes (18%) had fallen into disrepair due to weather damage and could not be used. 5.1.2 Other factors may also have affected the recorded occupancy rate. Some boxes were inappropriately positioned (e.g. low down in trees or small buildings) and others may have been placed near to well established nesting pairs resulting in a lack of occupancy due to competition or lack of necessity. A lack of nearby suitable habitat is not thought to have been a significant factor any boxes.
- 5.1.2 Box occupation by all species was much higher with tawny owls using a total of seven boxes, at least four of which for breeding. It is widely considered that tawny owl is dominant over barn owl and will displace them from nest sites (Reference 3). Hence siting outdoor boxes in well wooded areas may well favour the former species at the expense of barn owl. Once grey squirrels have used a box they also apparently become less attractive to barn owl (Reference 1) unless the nest material is removed routinely.

5.2 Box condition

- 5.2.1 The outdoor boxes appear to only last about five years before falling into disrepair (table 2). This is due to our mild, damp and windy climate. Given that the outside boxes fall into disrepair so quickly and the competition with tawny owl and perhaps grey squirrel may reduce potential occupancy rates, it would make sense to target buildings where possible in preference to trees. It is probably not worth replacing unused outdoor boxes once they become weather damaged unless a nearby building can be utilised.

5.3 Monitoring

- 5.3.1 Variations in occupancy rates between years mean that only by annually monitoring boxes can a clear picture of box use by barn owls be obtained. The monitoring can probably be conducted by volunteers e.g. local ringing group (NRW license required), in conjunction with landowners. PCNPA would be ideally placed as co-ordinators for any monitoring. Well used sites could be targeted and boxes replaced as they become worn.

6.0 Recommendations

- 6.1 Annually monitor a sample of the boxes including all those that have been used.
- 6.2 Replace damaged, unused boxes in alternative sites, preferably within buildings.
- 6.3 Site new boxes within buildings as priority.

7.0 Conclusion

- 7.1 Overall, the box scheme can be considered a success and a solid basis for establishing the first ever coordinated attempt at nest site provision and barn owl monitoring in Pembrokeshire.

References

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