

SLAPTON'S BADGERS: A TIMELY UPDATE.

DAVID R. DIXON

Associate Lecturer, Slapton Field Centre

Badgers (*Meles meles*) have been present in the Slapton area since prehistoric times. This study reports on their distribution around Slapton National Nature Reserve (NNR), in South Devon, and provides an update on a 1983 survey.

INTRODUCTION

Of all the mammals currently living in South Devon, the badger *Meles meles* (Linnaeus, 1758) has lived here longer than most. Based on sub-fossil Pleistocene evidence (William Pengelly Caves, Buckfastleigh and Kent's Cavern, Torquay), Brock pre-dates *Homo sapiens* in its occupancy of the local landscape (Yalden, 1999; Lowen, 2016; Exeter City Museum Archive). But what of its current distribution and how does this compare with past times? In autumn 1983, Sophia McFarlane carried out a fairly detailed, but unpublished study, of sett distribution and home range of the Slapton badgers (McFarlane, 1983). This present small study set out to update these findings after an interlude of 33 years.

SURVEY METHOD

A series of GPS assisted (Garmin eTrex Legend HCx navigator) surveys were conducted as follows: 1 and 2 June 2016 (Leyside), 25 July 2016 (Slapton Wood), and 1 September 2016 (Causeway and France Wood). Apart from revisiting those sett sites described by McFarlane, efforts were made to locate any previously unrecorded setts in the area. As a test for occupancy, burrow entrances were assessed based on several well-established field sign criteria: smooth intact walls, absence of accumulated tree debris, lack of spiders' webs and, on mild days, evidence of fly activity. Badger occupation was then confirmed by a combination of stick displacement and peanut bait removal. For further details of the bait method see Dixon *et al.* (2006).

RESULTS AND DISCUSSION

Sett distribution

Fig. 1 shows the 2016 distribution of badger setts in the Slapton NNR. In keeping with other locations (Neal and Cheeseman, 1996), all the active setts were on well-drained, easily worked soils; this mainly represented the old shore line which forms the inland margin of Slapton Ley (Perkins, 1971)). Given the important part that earthworms (*Lumbricus* spp.) play in the badger diet (Neal, 1977), it was no surprise to discover that the largest, most active setts were located close to cattle pasture (Fig. 1; Woodroffe *et al.*, 2016). Another favoured badger feeding area was the Ireland Bay Causeway, where the damp short grass lends itself to invertebrate feeding.

Sett Usage (The sett nomenclature used in this study follows that of McFarlane (1983))

Tourist Sett, N50°17'25.3" W003°38'43.6" (approx.): site of the now discontinued 'Slapton Badger Watch'. McFarlane's description points to this location being used in the early 1980s as a large breeding sett (Table 1). When first visited by the author in 2010, it was apparent that the sett was unused and being visited by badgers from elsewhere, most probably the neighbouring 'Outlier' sett (Fig. 1). It seems likely therefore that disturbance linked to open-air badger watches may have led to this sett becoming deserted. In summer 2016, the Tourist Sett remained unused and had become heavily overgrown, with no evidence of any recent badger activity in the area. (More recently, February 8, 2017, a single, recently excavated, and still occupied, burrow was found alongside the footpath immediately above the old Tourist Sett site.)

Outlier Sett, N50°17'29.3" W003°38'42.3": In 2016 this had all the signs of being a breeding sett, including the presence of small outliers (satellite burrows), plus a network of well-used badger paths.

North Sett, N50°17'42.3" W003°38'32.3": the largest breeding sett in the area with a mixture of main and outlier sett entrances linked by a series of distinct badger paths.

Slapton Wood, N50°17'46.1" W003°38'37.5". In 1983 this housed the largest sett complex in the area (Table 1). However, despite an extensive search, no active entrances were located in July 2016. It seems likely therefore that Slapton Wood is now being used solely as a safe passage route by badgers, to and from their feeding grounds (Fig. 2).

It should be pointed out that there was a discrepancy between the GPS-determined location of the residual burrow entrances in Slapton Wood, in 2016, and the location of 'Tim's Sett' as shown in McFarlane's report (Fig. 1). Given that signs of former badger occupation can remain visible for a long period of time after the animals have vacated a site (see Tourist Sett), it seems likely that this inconsistency was the result of recording error.

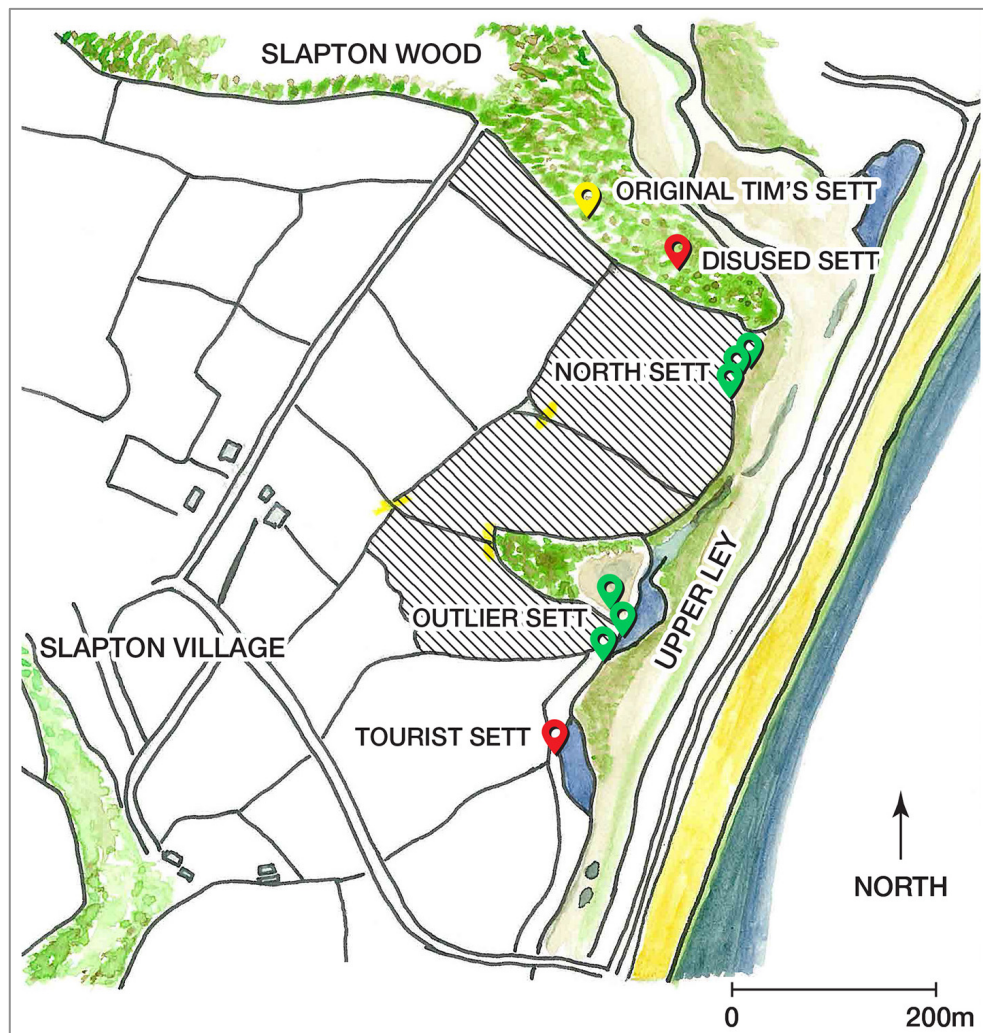


FIGURE 1. Sketch map showing the distribution of badger setts in 2016 in the region of Slapton NNR covered by McFarlane's 1983 study. Symbols: **green**, occupied setts; **red**, deserted setts, **yellow**, not located in 2016 – cross-hatched, cattle pasture.



FIGURE 2. (A) Parallel paths, **Slapton Wood**; (B) deserted burrow, **Slapton Wood**; (C) long-established breeding sett entrance, **North Sett**; (D) breeding sett entrance, **Outlier Sett**; (E) deserted entrances and terrace, **Tourist Sett**.

France Wood and Ireland Bay Causeway: This area was first visited by DRD in summer 2010, when snuffle holes and fresh dung, coupled with camera trap evidence (StealthCam STC-AD3), confirmed that several healthy-looking animals were visiting the Causeway at night to feed; similar fresh field sign was recorded at the beginning of September 2016. France Wood, which was not visited by McFarlane, currently contains evidence of low level badger occupation as indicated by the presence of a scattering of small burrows, at least one of which was occupied (Table 1),

together with a network of badger paths, and at the extreme western end, a clearly territorial latrine site: five pits containing fresh dung and located alongside a field boundary (N50°16'47.3"W003°40'04.3'). Combined with the presence of fresh dung on the Causeway (1 September 2016), this strongly suggests the presence of a separate social group, living in and around France Wood (see Kruuk, 1989).

A common feature of all the active setts examined in 2016 was an absence of conspicuous spoil heaps. In the case of the two Ley-side setts (Outlier and North), this was clearly due to frequent trampling by cattle, but in France Wood a series of previous failed attempts at excavation (shallow pits) highlighted the presence of an impenetrable tree root layer, just below the soil surface, which has the potential to act as a major barrier to badger colonisation. It was interesting to note that in September 2016, the only confirmed occupied burrow in Slapton Wood was on a steep slope immediately below a vehicular path where the ground was relatively soft and free from tree roots.

TABLE 1. Comparison of the 1983 and 2016 results relating to occupied setts (numbers refer to entrances).

	1983 McFarlane	2016 This study	Change in 33 years
Tourist Sett			Deserted
Occupied	9	0	
Unoccupied	0	2	
Outlier			Increased in size
Occupied	2	4	
Unoccupied	0	1	
North			Stable
Occupied	9	9	
Unoccupied	5	>5	
Slapton Wood			Deserted
Occupied	7	0	
Unoccupied	14	>5	
France Wood			Low frequency presence
Occupied	No data	1	
Unoccupied		>10	

CONCLUSION

Despite being deeply engrained in our social and literary culture, our relationship with this secretive, nocturnal, monochrome creature has been paradoxical and contradictory throughout history (Lovegrove, 2007; Roper, 2010). Despite this chequered past, badgers remain a prominent feature in the Slapton NNR landscape, where they can be considered to be abundant (Riley, 1996). However, balancing changes in sett number and activity over the past 33 years (Table 1) point to the Slapton badger population having remained fairly stable over this period, compared to a general increase in badger numbers nationally. With the 'badger niche' seemingly filled locally, this has the potential to act as a barrier to immigration, which could prove extremely advantageous in the coming years (Donnelly *et al.*, 2003).

REFERENCES

- Dixon, D.R., Dixon, L.R.J., Bishop, J.D. and Pettifor, R.A. (2006). Lunar-related reproductive behaviour in the badger (*Meles meles*). *Acta Ethologica*, **9**, 59 – 63.
- Donnelly, C.A., Woodroffe, R., Cox, D.R., Bourne, J., Gettinby, G., Le Fevre, A.M., McNerney, J.P. and Morrison, W.I (2003) Impact of localized badger culling on tuberculosis incidence in British cattle. *Nature*, **426**, 834 – 837.
- Kruuk, H. (1989) *The Social Badger*. Oxford University Press, 155 pp.
- Lovegrove, R (2007) *Silent Fields – The Long Decline of a Nation's Wildlife*, Oxford University Press, 404 pp.
- Lowen, J. (2016). *RSPB Spotlight Badgers*, Bloomsbury, 128 pp.
- McFarlane, S. (1983). A preliminary study of the badgers (*Meles meles*) of Slapton Ley Nature Reserve: sett descriptions and home range determination. Unpublished report, Scientific Paper Database, Resource Library, Slapton Field Centre. 12 pp.
- Neal, E.G. (1977). *Badgers*, Blandford Press, 321 pp.
- Neal, E. and Cheeseman, C. (1996). *Badgers*, T & AD Poyser, 271 pp.
- Perkins, J.W. (1971). *Geology Explained in South and East Devon*, David & Charles, 192 pp.
- Riley, C. (1996). Mammals and other animals. *Field Studies*, **8**, 665 – 676.
- Roper, T.J. (2010). *Badger*, Collins New Naturalist, HarperCollins, 386 pp.
- Woodroffe, R., Donnelly, C.A., Ham, C., Jackson, S.Y.B., Moyes, K., Chapman, K., Stratton, N.G. and Cartwright, S.J. (2016). Badgers prefer cattle pasture but avoid cattle: implications for bovine tuberculosis control. *Ecology Letters*, **19**, 1201-1208.
- Yalden, D. (1999). *The History of British Mammals*, T & AD Poyser, 305 pp.