Looking Out for Bats

Radiotracking Study of Greater Horseshoe Bats from Beer and Branscombe 2009

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East Devon
Area of Outstanding Natural Beauty

A summary of Dr Mathews survey report

Having identified the location of a maternity roost at Branscombe the project then needed to establish where this colony of Greater Horseshoe bats were feeding and which were the main corridors of travel that the bats used to navigate around the countryside.

Radio-tags were attached to a total of 12 adult greater horseshoe bats. Because of the difficult topography in the area and the need to remain in close contact with the bats in order to identify possible roost sites, a small number of bats was tracked at any one time

Each bat that was caught were sexed, measured, weighed and ringed with a 4.2mm aluminium ring bearing a unique identity number to allow identification at any subsequent recapture. Bats were selected for tagging on the basis of being of adequate weight and condition, and not having been radiotracked previously. A mixture of males and females were sought: it was anticipated that males would be more likely to use a variety of roosts; whereas the females would reveal information about the 'roost sustenance zone' around the maternity site.

Figure 1; Details of bats caught and tagged.

Location	Pregnant females		Non –Pregnant females		Males in breeding condition		Males not in breeding condition	
	Caught	Tagged	Caught	Tagged	Caught	Tagged	Caught	Tagged
Maternity roost	5	2	5	1	0	0	6	1
Nets outside maternity roost	1	1	2	2	0	0	2	1
Beer Quarry Caves	0	0	0	0	1	1	3	3

Figure 2; Details of bats radio-tagged

Date/place	Sex	Breeding status*	Weight(g)	Forearm (mm)	Tag as % of body wt	Ring No	ID Code
19/5/09 Maternity Roost	M	No visible testes	19.5	53.7	2.3	X3307	Bat 1
	F	Pregnant, fn	22.0	54.7	2.0	X3306	Bat 2
	F	Pregnant, fn	23.5	55.9	1.9	X3304	Bat 3
	F	Pregnant, fn	22.0	55.9	2.0	X3303	Bat 4
23/5/09 Nets at maternity roost	F	Not pregnant, nfn	16.5	54.5	2.7	X4339	Bat 5
	M	No visible testes	17.5	54.0	2.6	X4338	Bat 6
	F	Not pregnant, nfn	21.0	52.7	2.1	X4337	Bat 7
	F	Pregnant, fn	23.0	55.4	2.0	X4336	Bat 8
06/06/09 Beer Quarry Caves	M	No visible teste	23.0	54.0	2.0	X4334	Bat 9
	M	No visible teste	19.5	54.8	2.3	X4333	Bat 10
	M	Teste just visible	18.5	53.6	2.4	X4332	Bat 11
	M	Teste descended	18.0	53.4	2.5	X4331	Bat 12

*Fn=false nipples, indicating previous breeding; nfn =no false nipples.

The project used a considerable amount of volunteer effort: 144 person-nights. A total of 21 nights were spent tracking bats and a further 5 were spent attempting unsuccessfully to capture bats in other locations. Tracking was conducted by field workers operating in pairs. This provided opportunities for trained workers to pass on their experience to new volunteers, and so build capacity for future research in the region. Where bats were being tracked by car, fieldworkers sometimes worked alone in order to ensure that all four receivers were always in use. The fieldworkers kept in close contact by means of long-range walkie talkies and mobile telephones.

In total 565 bat locations were identified by radio tracking.

Figure1, Overview of radio tracking results, excluding Sidmouth and Offwell area

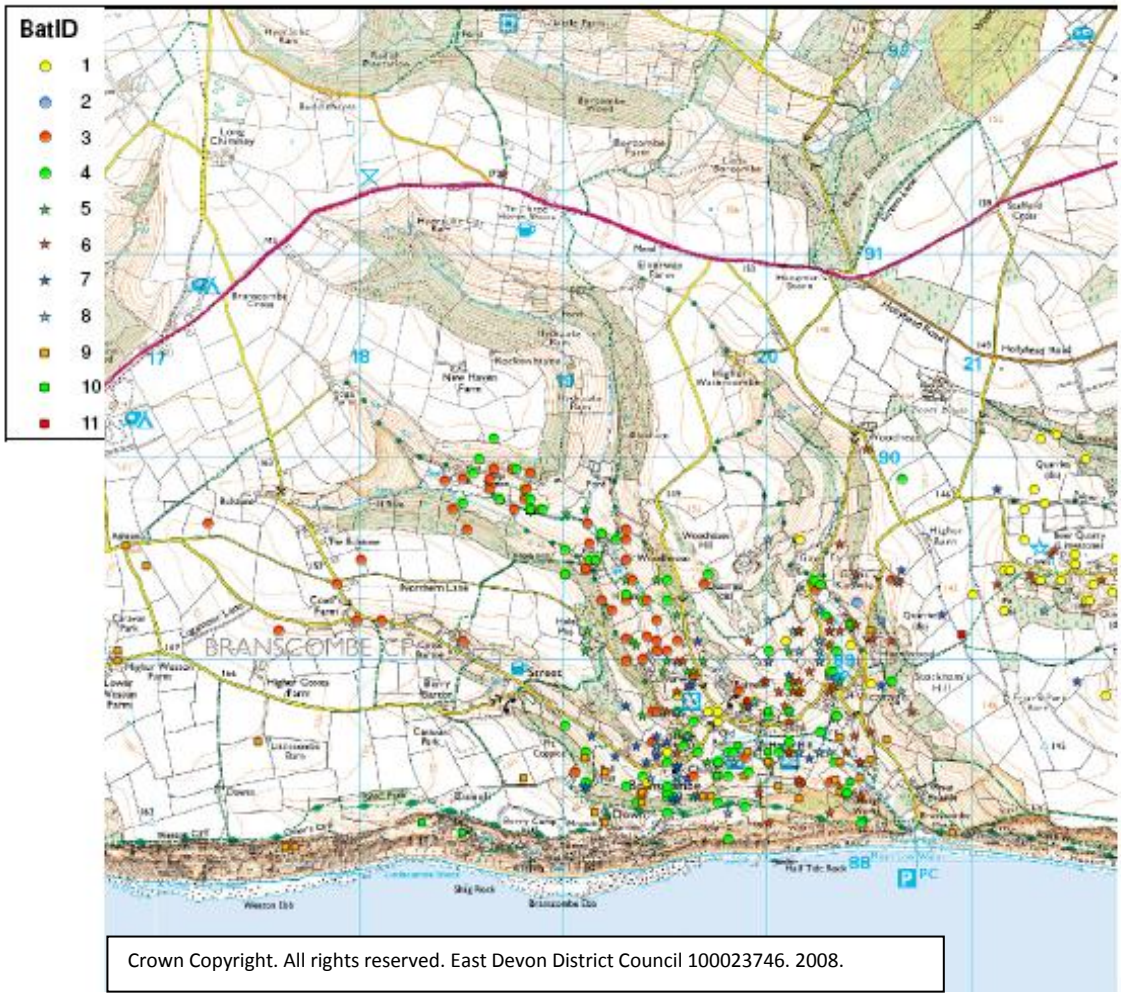

Figure 2; Example of bat movements, Bat 1 (male) each colour represents a different night

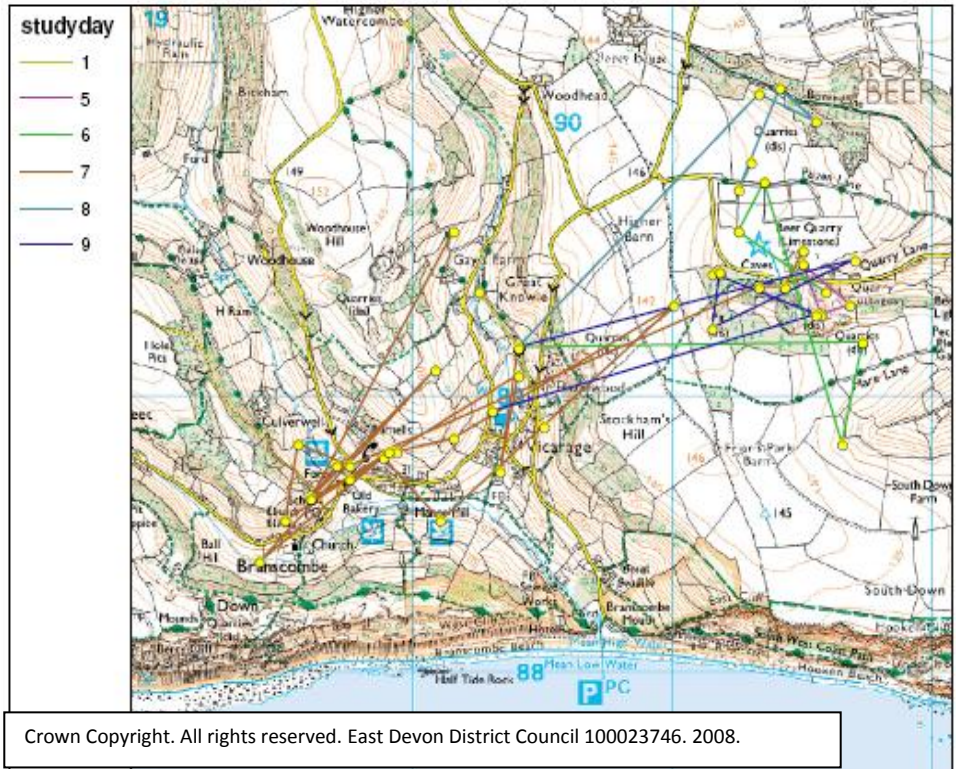

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Figure 3, Example of bat movements; Bat 3 (pregnant female) each colour represents a different night.

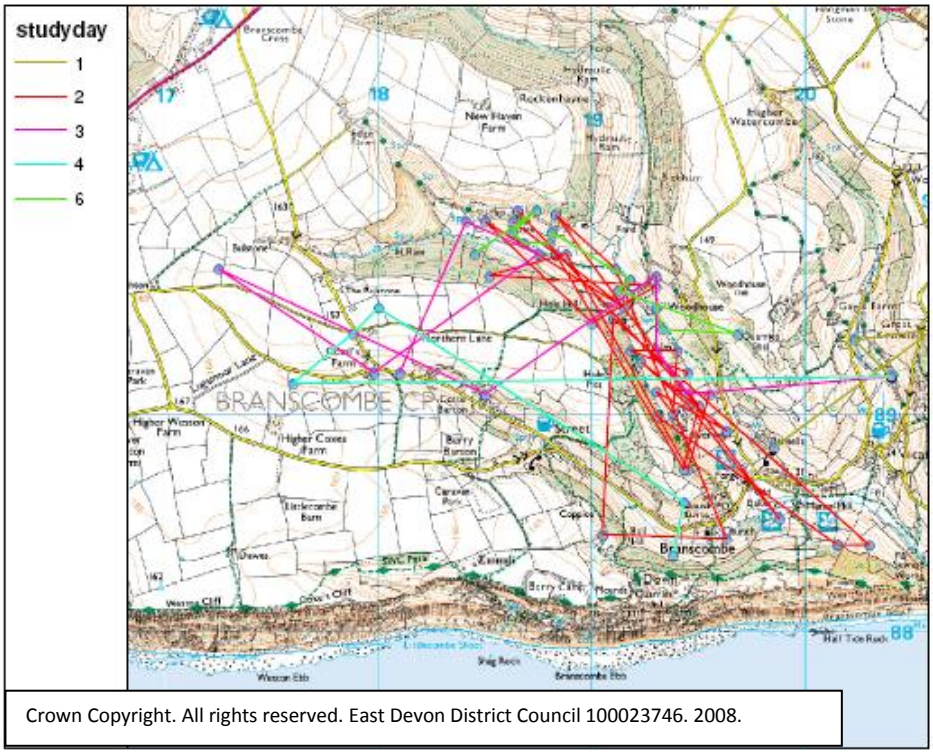

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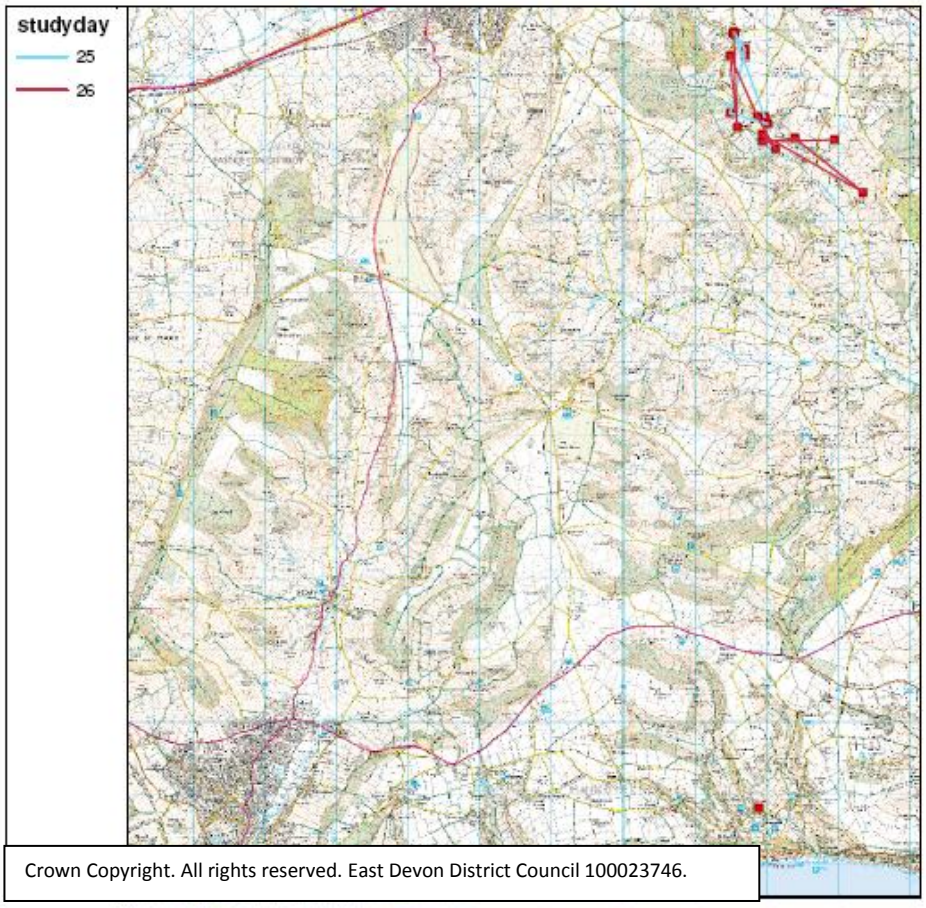
Figure 4 Detail of movements made by Bat 11(male) showing full extent. Each colour represents a different night. Bat caught at Beer, but path of movement to Offwell unknown.



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Findings and recommendations

- The project successfully identified several new night roosts.
- It also showed that bats were using the underground sites at Beer Quarry Caves outside the hibernation period.
- Both the maternity site and Beer Quarry Caves were regularly used throughoutthe night, with bats often roosting temporarily before moving on to other day roosts.
- The project demonstrated that individuals moved between the maternity site and Beer Quarry Caves. It is recommended that monitoring of ringed bats be conducted at Beer Quarry Caves during the hibernation period to determine whether the majority of bats ringed at return to the caves for hibernation, or whether there must be links with an alternative hibernation site.
- Detailed information was gathered on the route taken by bats to Beer Quarry Caves.
- The valleys of Branscombe, particularly that adjacent to the church were used extensively for foraging. As expected, males generally ranged more widely than females.
- Most bat fixes were within a 2km radius of the Tula Barn roost, suggesting that a 2km roost-sustenance zone is a useful concept.
- It must be noted that the topography of the area makes radio-tracking difficult, with lines of site for the tags being severely restricted.. It is therefore likely that activity in some areas has been under-represented. Some areas, particularly along the coast, were accessible only by foot, which made

keeping up with the bats (which may fly at 30 miles per hour) challenging. It is possible that the bats make greater use of the cliffs for foraging than reported in this project.

- It is recommended that more radiotracking work be carried out in the Offwell area, as there appears to be very favourable habitat for greater horseshoe bats here and this study provided evidence of linkage with the Branscombe roost.

Acknowledgements
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www.eastdevonaonb.org.uk/Lookingoutforbats