

# Monitoring sand lizards in Dorset under the Species Recovery Programme

Keith Corbett and Nick Moulton

Herpetological Conservation Trust, 655a Christchurch Road, Boscombe, Bournemouth, Dorset BH1 4AP

Sand lizard *Lacerta agilis* monitoring was undertaken in spring and autumn in order to compare the results obtained from a pre-assessed route taking account of features likely to be used by *L. agilis* (termed 'Sand lizard' transect) and a straight line route (termed 'Random' transect) in the same area of Town Common, Dorset. It must be stressed that the object of this exercise was not to establish the presence or absence of the species, and indeed this area of Town Common was already well known in terms of reptile distribution, but more to test the practicality for repeated monitoring of a 'Pollard Walk' (as often designated for butterfly monitoring) with the more usual straight line transect method. In this context, it was decided that for regular monitoring it was essential to visit those habitat types and features most likely to support sand lizards in contrast to the 'Random' route which would cross optimum, sub-optimum and unsuitable habitats. It should be noted from previous habitat associated work from different parts of the sand lizard's UK range, that this species tends to be localised within sites, a fact underpinning all practical survey. It does, however, indicate that for regular monitoring each site might therefore have to have its own individual monitoring route or routes defined.

This area of Town Common was selected to reduce bias in that both transect routes could be planned to traverse the same general area and aspect of heathland, essentially from the higher dry to the lower wet. Two experienced herpetologists surveyed each route alternately and at the same time which also minimised observer bias. Whilst the 'Sand lizard' route was chosen to include mature heather, topographical irregularities, sandy paths etc, the 'Random' route also touched or crossed some of these same features.

A total of 10 surveys were undertaken, ie five in both spring and autumn in favourable survey conditions. The results of these surveys are summarised in Table 1.

**Table 1. *L. agilis* transect monitoring Town Common, Dorset, spring-autumn 1995**

Spring 1995	'Sand lizard'	'Random'
L.a. ♂	3	0
L.a. ♀	4	0
L.a. ♂ Imm. (93)	1	1
L.a. ♀ Imm. (93)	1	0
L.a. Imm. (94)	8	0
<b>Total</b>	<b>17</b>	<b>1</b>

Spring 1995	'Sand lizard'	'Random'
L.a. ♂ Imm. (93)	2	0
L.a. ♀ Imm. (93)	2	0
L.a. Juv. (95)	9	0
<b>Total</b>	<b>13</b>	<b>0</b>
<b>Total L.a.</b>	<b>30</b>	<b>1</b>

These results are being analysed statistically by Dr D Tamarind together with some habitat association data with a view to publication elsewhere. However, even without statistical interpretation the results strongly suggest that the straight line 'Random' transect concept for reptile monitoring is invalid and that accordingly individual site routes now need to be considered for relevant sites or parts of sites.

From simple comparison the 'Sand lizard' route had a 30:1 ratio of positive *L. agilis* sightings compared with the 'Random' route. It is also worth noting that even those animals identified along the 'Sand lizard' route were not evenly distributed but occurred in 'hot spots' that were predominantly associated with localised topographical features covered with mature dry heath and proximate to areas with a high proportion of sand. No *L. agilis* were found anywhere on this route where such habitat conditions were absent.

The only *L. agilis* found along the 'Random' route was also associated with a dry heath dominated topographical feature although there was no evident exposed sand within c.50 m of its sighting. This could probably be related to the immature stage of the animal concerned as it is then that *L. agilis* exhibits any dispersals away from its population *foci* perhaps to colonise or subsist in sub-optimum localities.

It is equally significant that the only Juveniles found were along the 'Sand lizard' route and again associated with optimum habitat and especially with the exposed sand on paths and exposed banks etc.

We were also able to carry out some analysis using positive results for other reptile species and those lizard sightings unidentified during the survey - see Table 2 below.

**Table 2. Transect monitoring Town Common, Dorset for other reptile species and unconfirmed reptiles: spring-autumn 1995**

	'Sand Lizard'	'Random'
<b>Spring 1995</b>		
L.v. ♂	1	2
L.v. ♀	3	2
L.v. Imm.93	0	0
L.v. Imm.94	4	2
<b>L.v. Total</b>	<b>8</b>	<b>6</b>
Unidentified <i>Lacertids</i>	3	5
N.n. Imm.94	1	0
<b>Autumn 1995</b>		
L.v. ♂	2	0
L.v. ♀	3	0
L.v. Imm.	1	2
L.v. Juv.95	6	2
<b>L.v. Total</b>	<b>12</b>	<b>4</b>
Unidentified <i>Lacertids</i>	2	5
<b>L.v. Combined Totals</b>	<b>20</b>	<b>10</b>
<b>Unidentified Totals</b>	<b>5</b>	<b>10</b>
<b>N.n. Totals</b>	<b>1</b>	<b>0</b>

The 'Sand lizard' : 'Random' results of 20 : 10 positive sightings of *L. vivipara* was less contrasting. However, as *L. vivipara* are known to become scarce or absent at *L. agilis* colony locations, it might have been expected that a higher ration of *L. vivipara* would have occurred along the 'Random' transect route as a reflection of the other habitats utilised more by this species.

The ratio of 5:10 unconfirmed Lacertids in favour of the 'Random' transect has yet to be explained but may reflect problems of disturbance when transecting through deep vegetation.

## Discussion

**Keith Corbett:** I think it's actually very difficult for us to come up with a method to pass on to other organisations which don't have experience of reptile survey whereby they can assess the size and distribution of reptile populations.

**Chris Reading:** We have to be clear about deciding between a survey to establish whether animals are present on site and a survey where we try to assess how many animals are present, and here I'll come back to my previous comments. That is, if you bias your sampling effort to areas where you expect to find reptiles you will make a good job of establishing whether reptiles are present. However, it will tell you nothing about the population size. I think we also have to bear in mind that, for example, sand lizards do have certain spots that they will use for breeding but they will use many other parts of a site for other activities at various other times of the year.

**Keith Corbett:** We consider that where you have optimal habitat then you are likely to have breeding, living and hibernation areas in close proximity to each other. Where the habitat is sub-optimal then it may be that to breed the animals have to travel several hundred metres. The problem is that if you wanted to find out exactly many sand lizards were on a site, you'd have to search absolutely everywhere. So we consider that the best use of our time is to concentrate on the best features that we term *foci*.

**Chris Reading:** But again that would only tell you about presence or absence. It wouldn't tell you about population size because you have a biased sample effort.

**Keith Corbett:** So how would you get an idea of population size without biasing your sample?

**Chris Reading:** The problem is that with a biased sample you will not be able to.