

FAVOURED HAUNTS OF NATIVE REPTILES

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The previously reported observations on the preference of the Wall Lizard (*P. muralis*) for high and dry sunny habitats prompted me to consider the preferences of the Common Lizards in colonies I knew of, or know of, in N.W. Kent.

The same pattern of raised or sloping habitats continues. One is on raised hillocks in the Dartford Heath area (gravel/sand soil), 2 colonies on south facing road cutting banks (near Farningham Woods and a railway bank site (chalk) at Stone Crossing.

The coincidence continues. In the book "Hedges" in the New Naturalist Series (by E. Pollard, M. Hooper and N. Moore) I found the following information: studies show that hedgerow removal by agriculture does seem to have a deleterious effect on reptile populations as they are dependent on them for hibernation — for the most part using bank vole and woodmouse tunnels. Overall, "they seem to prefer hedges with banks". "Sandy banks, either with or without a hedge, provide suitable places for the Sand Lizard".

The work goes on "A study of these species in the Dorset heathlands, the Egdon Heath of Thomas Hardy's novels, showed that banks of all kinds whether they were old quarries, railway embankments, edges of bomb craters or field boundary embankments, were important to the species".

This book aside, consideration of the Sand Lizard and its favoured sites shows that, according to some reports, it was commoner in pre-myxomatosis times and favoured sites of rabbit warrens.

Rabbits themselves, from common observation, prefer sloping or banked sites for their excavations and, as they create sunnier "hotspots" by creating raised mounds of dug-out spoil and by removing patches of vegetation in their feeding, give the sun a greater chance to reach and warm the ground plus any underlying eggs or reptiles.

"Hedges" also makes this point in relation to the Common Lizard, "..... since the arrival of myxomatosis in 1953 the Common Lizards appear much less common than hitherto".

Another rich site for lizards, including the Sand Lizard (and Natterjack Toad) are sand dunes. These could also be seen as a mixture of banks, hillocks and ditches over a large area.

Flat, clay underlain topography supports few Common Lizards; I personally do not know any but I am told of a banked site at Hither Green, S.E. London, which I have not yet investigated.

Once again the book "Hedges" makes a similar point, "Banked hedges are relatively rare in the clay lands and the Common Lizard is relatively rare in the clay country of the Midlands".

This has apparently always been the case, for John Morton, writing in 1712, noted that the "Swift Efts", (Common Lizard) "..... are still more rare: I have never seen them but in Sandy Closes at Thorp-Malsor, upon some Banks underneath the hedges there".

That banks are a preferred haunt for hibernation is commonly shown. The slow-worms (mentioned in a previous article) were all found in the upper part of a bank facing approximately W.S.W. Another study mentions that hedge banks are, "commonly used by Grass Snakes and Vipers (using mammal burrows) often in the company of frogs and toads". An obvious advantage to reptiles would be an unshaded bank that faced south which should, as a result, be warmer and drier.

Ian Prestt, in a study of Adders on the Isle of Purbeck, Dorset, marked 166 by clipping different combinations of ventral scales. Most observations were made in fields near marshes of the River Frome. Field boundaries were hedges on sandy banks, some accompanied by ditches. Most

banks ran North to South but one 600 yard stretch ran East to West. This of course gave it a South facing aspect. In winter all Vipers could be found on a 100 yard stretch of this bank. In the summer they migrated back to the marshes and were "never seen far from the ditches". Migration to this area was via the banked hedges and ditches. To undergo such to and fro migration, the South facing bank must have been important to their ecology.

What possible conclusion can be made from these observations? Certainly they infer that raised areas, and especially unshaded, sunny areas, are a critical factor in deciding population levels in native reptiles.

In flat ill-drained clay areas even Common Lizards seem scarcer.

I would greatly welcome any details of reptile sightings (Britain or abroad) with details of numbers (even single sightings), general topography and soil (e.g. sandy slope, flat loam area, etc.) and time of year. (If you are not sure of soil types just a note of whether the area was uniformly flat or "sloping", "on a bank", etc.) I hope to give details of any response in the next "Bulletin".

It would seem crucial to discover why banked, sloped and sandy areas seem so important.

Lack of tree shading, low vegetation (to allow the sun to reach and warm the ground) and south facing aspect are obvious enough factors in the case of cold blooded animals; some of which also require warm ground temperatures to hatch their eggs.

But why slopes? Or why sand?

I can think of many suggestions. I would like to list these and would like to receive comments and criticisms on these from readers as well as other ideas on this subject.

- (i) An obvious difference between clay and sand is that the latter is faster draining. The same is true of flat ground versus a slope irrespective of soil. The latter is far faster draining.
- (ii) Sand and dry soil have far more air spaces between the grains, than has wet or finely particulate soil (e.g. clay). Air spaces in the soil could serve two functions beneficial to reptiles.
Air spaces — as any double glazing expert will tell you — have fine insulating properties against cold.
- (iii) Hibernating creatures or incubating eggs under the soil require oxygen. Air spaces would allow for sufficient diffusion of O_2 to reach underground as it was being depleted by the organism. If the air spaces were to become filled with water diffusion would be considerably slowed down and the organism could suffocate. At the extreme, if the organism was surrounded by water it would drown.

Clearly, for these reasons alone, fast drainage via a slope or by large grain size offer advantages to reptiles; suggesting that banked sand would be the overall best habitat, grading down to flat clay at the other extreme. This would seem to be borne out by the observations so far listed as to populations in practise.

Another advantage of fast drainage is that it does not allow for luxuriant plant growth (note the apparent decline of Common Lizards after rabbit grazing declined and vegetation became more luxuriant, mentioned earlier).

Vegetation at the top of a bank is normally quite stunted in relation to that at the base or in a ditch. This allows for greater penetration of the sun to basking or hibernating reptiles, or their incubating eggs. An extreme case of sparse vegetation is that of some heath or dune land. Both are rich in reptiles.

As the sun in temperate regions of the world is never vertically overhead slopes offer better absorbing surfaces for solar heat as they are nearer to the normal from the direction of radiation. Put more simply they face the sun more directly. This is especially true in the autumn, winter and spring as the sun is at a lower angle.

I think these suggestions worthy of appraisal on conservation grounds. "Mini-topography" is a factor that may have been somewhat under regarded as an important factor in the ecology of our native reptile species.

Certainly, if these implications can be accepted, many simple conservation suggestions can be given.

Man made (or in some cases, rabbit made) structures seem to offer fine habitats — often preferred to naturally occurring, undisturbed sites: e.g. the previously mentioned preference for banked hedges, bomb craters, boundary ditches and banks, railway banks, quarries and the disturbed soil and vegetation of rabbit warrens.

A practical application here is obvious: the construction of East to West running banked ditches on sites with reptiles should increase their survival and breeding success rate. If the site is without reptiles such a habitat creation may encourage them on, or, make introductions worthwhile. If the local water table is high enough the ditches as well as the banks might prove an asset by giving breeding sites for amphibia. Even a ditch and dyke of a few yards may prove a boost for herptile populations if suitably sited.

This information might usefully applied by conservation minded readers who have land of their own, work on the land or can influence decisions about work on agricultural or conservation land, especially in the siting and construction of drainage ditches and dykes. A useful configuration would be to place the spoil on the northern bank, so making the sunny slope larger.

Supplementary note

While searching for herptiles in Austria, in 1982, most reptiles were found on East, South or West facing slopes. Very few were found on flat areas even though a search was made. Perhaps the slope preference extends to Europe.

As I have already mentioned drier soils should be advantageous and waterlogged soils disadvantageous for reptiles. Perhaps Britain's rainfall, being for the most part higher than in parts of Europe is also in part a contributing or major factor to our sparse populations of reptiles (especially the Sand Lizard for instance) as well as our lower average sunshine hours. It certainly would offer a possible reason as to why the sand is of such strange importance in Britain to our scarcer herptiles as sand, *per se*, has no special importance in their ecology; the importance must lie with associated properties.