DISTRIBUTION OF AMPHIBIANS AND REPTILES IN GLAMORGAN, SOUTH WALES

P. J. WISNIEWSKI

Senior Education Officer, The Wildfowl Trust, Martin Mere, Burscough, Nr. Ormskirk, Lancashire.

INTRODUCTION

Publication of the Provisional Atlas of the Amphibians and Reptiles of the British Isles (Arnold, 1973), highlighted the inadequacies in our knowledge of the distribution of our native herptiles, particularly the commoner species. It is undoubtedly true that few county recorders make a concerted effort to record these familiar animals and valuable data is lost. Recently, interest has been shown by the Nature Conservancy Council (Cooke & Scorgie, 1983) in the changes in status of the commoner reptiles and amphibians, stimulating many herpetologists to review their own records.

The data presented here are based upon 17 months (5.5.82 to 1.10.83) of personal observation in the three counties of Glamorgan supplemented by the collected records of other naturalists (see Acknowledgements) and information extracted from Gillham (1977 & 1982) and the journals and notes of the Glamorgan Naturalists' Trust.

AMPHIBIAN AND REPTILE HABITAT

The geology of the three counties, West, Mid and South Glamorgan is complex and varied. Much of the Gower Peninsula, West Glamorgan, consists of Carboniferous Limestone interspersed with areas of exposed Old Red Sandstone and bands of Millstone Grit, these latter often covered by peatland. Coal Measures dominate the geology of north Gower, much of the rest of West Glamorgan and norther sections of Mid and South Glamorgan. To the south of a line joining Port Talbot and Cardiff, Mesozoic rocks are occasionally interrupted by outcrops of Carboniferous Limestone.

Despite the depradations of industry upon the landscape, much natural habitat remains. Maps of the three counties, reveal numerous small pools and wetlands; James (1983) estimated a total of two thousand, and although many of those marked on the O.S. maps have been lost in recent years, they have been replaced by new pools formed by mining activity. The current popularity of garden ponds has provided new habitat within urban areas.

Large water bodies are scattered; the most notable lakes and sizeable pools are Broad Pool near Cilibion in central Gower, Kenfig Pool near Porthcawl, Craig-y-Llyn (SN 905037), Pysgodlyn Mawr near Welsh St. Donats and Talygarn Lake near Llantrisant. Mineral extraction has resulted in the extensive Cosmeston Lakes near Barry whilst several large reservoirs have been created, including the huge Eglwys Nunydd near Port Talbot. Several large pools also exist within the parks of towns and cities, e.g. Roath Park Lake in Cardiff. Industrial pollution has adversely affected many major South Wales rivers such as the Taff and Ely (with some improvement in recent years) although others, e.g. the Thaw and Neath, remain relatively unchanged. Man-made canals, e.g. Whitchurch Canal in Cardiff, provide additional amphibian habitat. Other notable wetlands are Crymlyn Bog and Pant-y-Sais Fen near Swansea and Oxwich and Llanrhidian Marshes on Gower.

Abandoned spoil heaps now support good reptile populations but the intensive farming of much of Gower, the southern half of Mid Glamorgan and the Vale of Glamorgan has removed valuable habitat, particularly deciduous woodland, which remains mostly confined to the steeper slopes. In places, dry stone walls do provide additional habitat as does the extensive hedgerow network. The coastal cliffs and crags of Gower and much of the south facing coastline of Glamorgan provide a vital refuge from agriculture, which often extends to the cliff edge. Similar refuges exist in the extensive sand-dune systems, now mostly protected as nature reserves or SSSIs, e.g. Whiteford, Oxwich, Crymlyn and Kenfig Burrows and Merthyr Mawr Warren.

The more rugged, mountainous, northern parts of Glamorgan are sparsely populated but extensive afforestation with conifers has eliminated much reptile and amphibian habitat.

DISTRIBUTION OF SPECIES

The distribution of each species has been plotted on a 10 km square basis (Figs 1—9) and incorporates records from the Provisional Atlas. In addition, the number of 5 km and 10 km squares in which each species has been observed in summarised in Table 1, including the number of pre- and post- 1960 10 km square records given in the Provisional Atlas. The number of Atlas records confirmed by the current survey is also given. Some estimation of the known range for each species can be obtained by treating 10 km square records from the current survey plus all Atlas records as a theoretical maximum and all records minus unconfirmed post-1960 records as a theoretical minimum. These ranges are given in discussion of the distribution of individual species, below.

Fig. 1. Common Frog *(Rana temporaria)*
Estimated range 68% of survey area. This range is undoubtedly an under-estimate and intensive investigation of the north-western uplands would probably yield further records. Scarcity of ponds in parts of the south coast have resulted in a sparse population. Many colonies exist within town centres, particularly in garden ponds and in 1983 the earliest record for frogspawn was in early January from one such pond in the centre of Cardiff.

Fig. 2. Common Toad *(Bufo bufo)*
Estimated range 49 — 51% of survey area. Lack of deeper pools may restrict the distribution of this species although mining has created some suitable habitat. Large population at Kenfig Pool and fairly common in those squares where it occurs.

Fig. 3. Smooth Newt *(Triturus vulgaris)*
Estimated range 39 — 44% of survey area. All newts are less easy to observe than the anurans. The Smooth Newt is undoubtedly under-recorded but much commoner than generally expected for Wales. Much suitable habitat exists and mining has created many new ponds.

Fig. 4. Palmate Newt *(Triturus helveticus)*
Estimated range 27% of survey area. Very scattered and apparently less common than the Smooth Newt. Populations exist in the Bridgend area, some in newly created ponds. Otherwise, present in the uplands of the north-east.

Fig. 5. Crested Newt *(Triturus cristatus)*
Estimated range 24% of survey area. Apparently the least widespread of the newts and thought to be generally declining in Britain. Good populations still exist in certain parts of Glamorgan, particularly in the Bridgend area where several recent ponds are occupied. Also to be found within Cardiff where one breeding site comprises a fairly bare pool within a park, surrounded for some distance by nothing but closely mown grass. Further searching would probably reveal more populations, particularly in the south.

Fig. 6. Slow-worm *(Anguis fragilis)*
Estimated range 32 — 42% of survey area. Particularly common in the south and often to be seen basking upon dry spoil heaps. Good populations on Flatholm. Few records from the north but undoubtedly under-recorded.

Fig. 7. Common Lizard *(Lacerta vivipara)*
Estimated range 34 — 44% of survey area. Distribution similar to previous species. Common on Flatholm and on most maritime cliffs.

(No Fig.) Sand Lizard *(Lacerta agilis)*
Two old unsubstantiated records from two 10 km squares, one from Whiteford Burrows and the other from Margam Burrows near Port Talbot. In the latter case, suitable habitat has been largely destroyed by the construction of the B.S.C. works.

Key

Large dot:—	Record from current survey
Small dot:—	Unconfirmed post-1960 record from the Provisional Atlas.
Cross:—	Unconfirmed pre-1960 record from the Provisional Atlas.

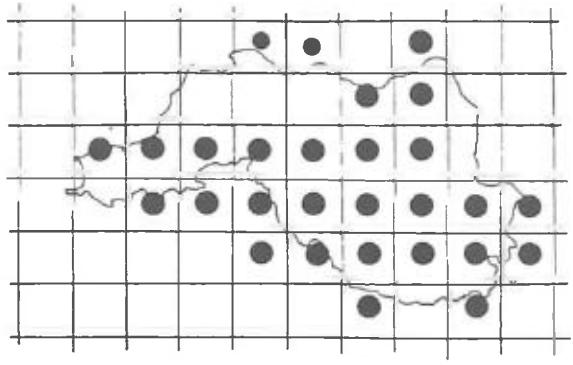

Fig. 1. Common Frog

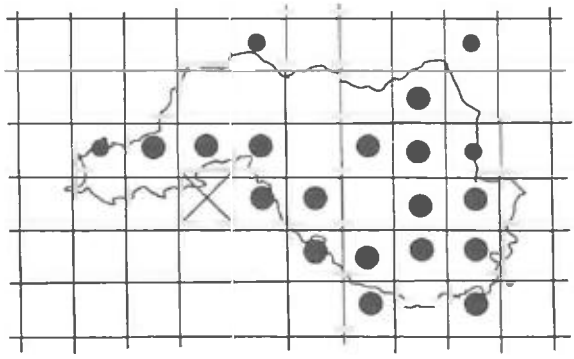

Fig. 2. Common Toad

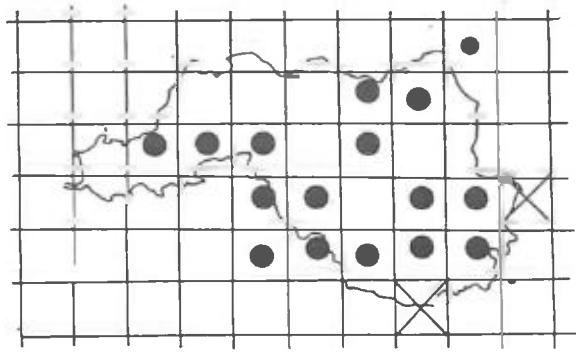

Fig. 3. Smooth Newt

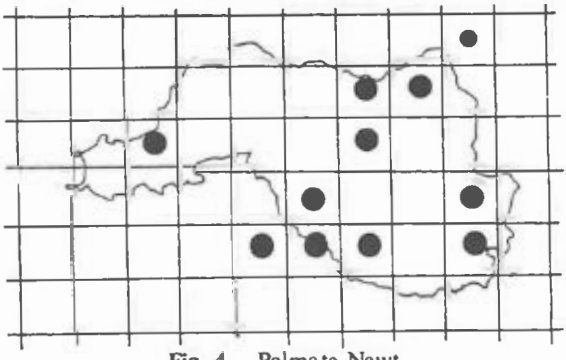

Fig. 4. Palmate Newt

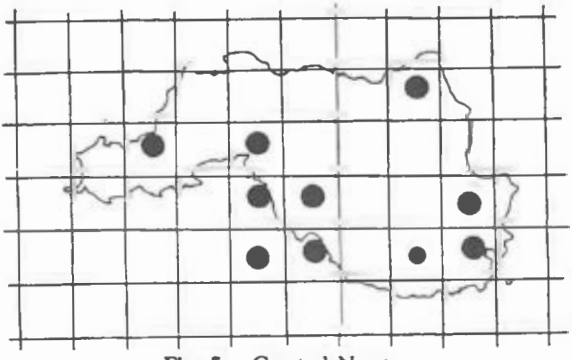

Fig. 5. Crested Newt

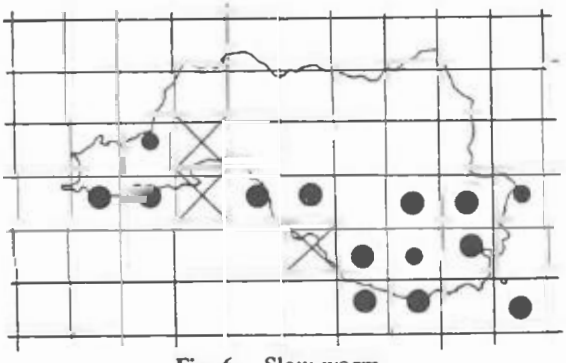

Fig. 6. Slow-worm

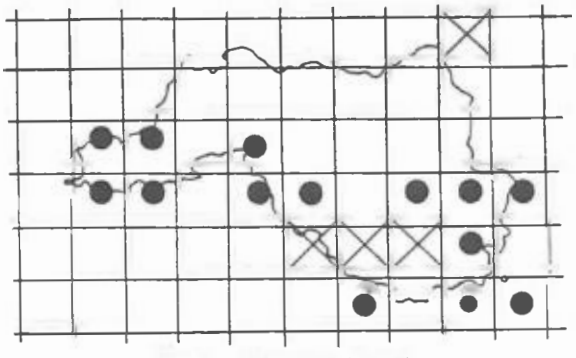

Fig. 7. Common Lizard

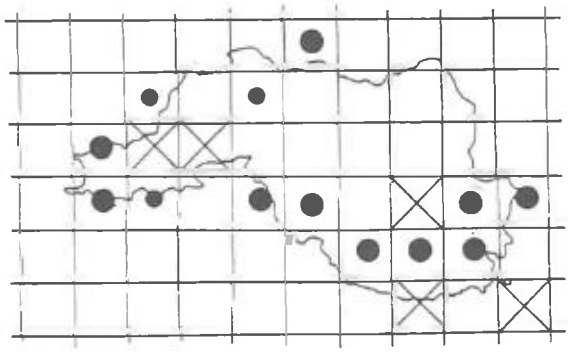

Fig. 8. Grass Snake

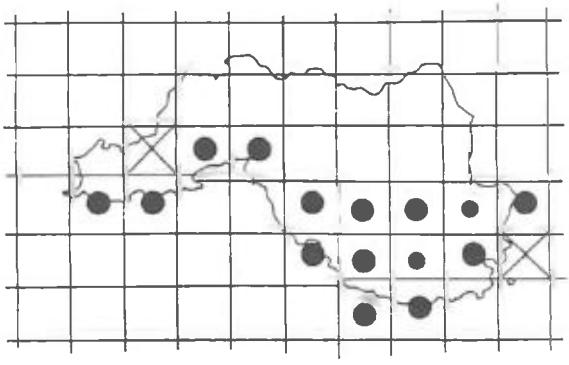

Fig. 9. Adder

Fig. 8. Grass Snake *(Natrix natrix)*
Estimated range 32 — 44% of survey area. Probably under-recorded. Some records from the north-west. Likely to be present in the damper upland areas in the rest of north Glamorgan (unlike the Adder). Its distribution in the south of Glamorgan is closely associated with the presence of larger water bodies and surrounding wetland.

Fig. 9. Adder *(Vipera berus)*
Estimated range 37 — 42% of survey area. Probably confined to the drier south (as indicated). Common on spoil heaps and in forestry clearings. Melanistic specimens frequent in south Gower.

CONCLUSIONS

Despite extensive observations, the records presented here are far from complete. In particular, the northern parts of Glamorgan (the 'Valleys') are under-recorded due to the sparse human population, the ruggedness of the terrain and widespread afforestation. Further fieldwork is required in this region but herptile populations are probably scattered and small.

Records for reptile species were disappointing since, unlike amphibians, they do not congregate for breeding and are thus more difficult to observe.

Despite the effects of industry, agriculture, forestry and urbanisation, the picture is not a gloomy one. Good populations of the comoner amphibians and reptiles persist and the declining Crested Newt is widespread, even in urban areas.

TABLE 1. SUMMARY OF HERPTILE DISTRIBUTION IN GLAMORGAN BY 5 km and 10 km SQUARES

	No. 10 km Squares	No. 5 km Squares	No. 10 km pre 1960 Atlas records	No. pre 1960 records confirmed	No. 10 km post 1960 Atlas records	Nos. post 1960 records confirmed
Common Frog	26	62	2	2	19	17
Common Toad	15	34	3	2	10	6
Smooth Newt	15	23	3	1	4	3
Palmate Newt	10	13	4	4	2	1
Crested Newt	9	11	2	2	2	1
Slow-Worm	10	15	5	2	8	5
Common Lizard	13	21	6	2	6	5
Grass Snake	10	10	6	1	9	6
Adder	13	20	6	4	4	2

Total no. Squares within Glamorgan 5 km = 124

10 km = 41

ACKNOWLEDGEMENTS

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