AN UNUSUAL NATTERJACK SITE IN SOUTH WEST CUMBRIA

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It has now become a widely accepted fact that in Britain the Natterjack Toad thrives mainly on sandy habitats such as heathland or dunes (Beebee, 1983). Because of the endangered status of this amphibian the Conservation Committee of this society has spent considerable time surveying such habitats for new colonies of this species. Particular attention has been paid to the coastline of Cumbria, which until recently was only partly surveyed, but which had suffered less from some of the recent developments that have threatened the Natterjack in other regions. The result of this is that we now know that Natterjack colonies occur at intervals over much of the west Cumbrian coastline.

One of the new sites was identified by accident during a survey for little terns, being carried out by a representative of the Nature Conservancy Council. The site, like all Cumbrian Natterjack colonies, is located on the coast, but is unusual in that the substrate is not sand, but compact slag from a disused ironworks.

Many Cumbrian Natterjack sites are to be found in very scenic areas, but the ironworks site must be one of the ugliest in Britain! To the north there is a large slagheap, brooding over a low area of compact slag, with patches of hard clay, and the remnants of demolished buildings. This low area is strewn with large steel sheets, rubber strips, piles of bricks and other rubble, and an assortment of household waste (carpets, old washing machines etc.). It is this unpleasant collection however that provides the refuges for the toads, and large numbers of animals may be found in a short time by sifting through this material.

Another important feature of the site is an extensive shallow pool, which lasts until late summer. The base of the pool is hard, but has a covering of fine silt. There is little aquatic vegetation, apart from filamentous algae, and the pool is unshaded. Consequently the pool becomes very warm during the summer, and this, coupled with the eutrophic character of the water results in excellent conditions for the tadpoles. There are other water bodies, but these are less suitable, two being very ephemeral, and a third being a small deep permanent pool. The main pool regularly produces large numbers of toadlets. Between 1981 and 1983 the site contained water until at least late August and thousands of toadlets emerged each year. The severe drought of 1984 resulted in premature desiccation, killing all the tadpoles before they had developed even hind-limbs. This was an exceptional year, however, and it should not be long before the main pool is productive once more.

Previous reproductive success at the site was obvious in 1984 by the large numbers of juvenile toads that could be found under pieces of rubbish. The adult population also seems to be large, although we lack accurate estimates. However, more than 100 spawn strings were counted in the pools during both 1982 and 1983. These figures probably yield an underestimate of the number of strings laid, (and therefore, the female population) as the site was visited on average only once every two weeks during the spawning season (which lasts from April to early July). As the sex ratios among populations of toads are usually biased in favour of males the adult population is likely to be high (at least hundreds of adults).

Common Frogs are also relatively common, although their tadpoles are mainly found in the small deep permanent pool. It is possible that spawn deposited in the shallow pool is vulnerable to desiccation, but we do not know for certain as the site is not normally monitored until late March, (frogs in this area spawn in February). Smooth Newts are also relatively common, but Common Toads are rather scarce. The appearance of the site would seem to make it an unlikely candidate for conservation. However, the iron works forms part of an important series of Natterjack sites in south west Cumbria, and several other colonies within 10 km have suffered recently from tourist developments, drainage, and, paradoxically, flooding! The iron works population is now probably the largest in the area. For this reason we were alarmed when the local council announced plans to reclaim the site. Although the pool would have been protected,

PLATE 1

View of the iron works, with the main pond in the mid-ground (half full), with the slag-bank behind, and low rubbish strewn area in foreground.
Millom iron works in mid-summer, with the main pond in the mid-ground dessicated to about half of its total flood area. Note the slag-bank in the rear, and the low rubbish strewn area in the foreground.

PLATE 2

New breeding site located in 1984. Tadpoles were found in desiccating puddles under a piece of tin, while numerous adults and juveniles were found under the rubbish also.

PLATE 3
Adult Natterjack. Note the pebble-sized pieces of slag that make up the substrate on the low area. Note also the spare vegetation cover.

the sparsely vegetated soil would have been fertilised to produce a thick turf, and trees were to have been planted in the vicinity of the pool. We feared that this would make the terrestrial habitat more favourable to Common Toads, and lead to greater competition between the tadpoles of the two toad species. Under such circumstances the Natterjack usually comes off worst (Heusser, 1971 and 1972; NCC, 1983). The rubbish was also to have been removed, depriving the Natterjacks of some of their terrestrial refuges.

Fortunately, because of financial constraints, the plan had to be abandoned, and it now looks as if the pool and surrounding flat area are to be scheduled as a site of special scientific interest by the NCC. This should allow conservationists to have a greater influence in the future management of the land, giving the Natterjack population a more secure future.
One moral of this tale is that thriving colonies of Natterjacks are not restricted to sandy terrain (and similar findings have been made by Andren and Nilson in Sweden, where the species thrives on rocky islands). It is therefore worthwhile that any coastal site, no matter how unlikely, should be carefully surveyed if this rare amphibian is known to be in the area. There are at least two other iron works on the Cumbrian coast, and small numbers of Natterjacks have been found very close to one of them. More thorough survey of these areas may yet yield other exciting finds. One problem is that the conservation committee has few representatives who are able to survey this area frequently. We would therefore welcome help from anyone who would be willing to monitor the existing populations and survey for new sites. Willing volunteers should contact the chairman of the Conservation Committee. I responded to a similar advert in 1979, and have been rewarded both by many pleasurable hours in the field, and by making many new contacts in the field of amphibian conservation.

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