

## 7. Habitat Management Methods

### 7.1. Overview

To maintain a habitat in the long term, or to retain a diversity of successional stages and characteristic species, some form of management is usually required. Natural processes that formerly performed this role have now been largely lost or severely disrupted. To maintain the diverse vegetation structure preferred by reptiles it is usually necessary, at the least, to control the growth of scrub, bracken and other dominant plants.

This section reviews widely used management techniques and considers how they can be applied to sites supporting reptiles. It is not the aim here to describe comprehensively how to undertake each technique, as the methods are well described elsewhere. Rather, the guidance here focuses on how to use these methods to achieve gains for reptiles. It also points out the potential risks to reptiles and how best to avoid them. Broadly speaking, the risks fall into two main categories: direct harm to individuals and reduction in habitat suitability. For further advice see 6. *Resolving Management Conflicts*. Note that sometimes a combination of management methods is employed (e.g. controlled burning and grazing) and this can have a greater impact on reptile habitats/populations than if done separately.



**A combination of grazing and repeated cutting have caused this area to become poor for reptiles, with very little cover available (Jim Foster)**

### 7.2. Cutting/mowing

Repeated cutting of herbaceous vegetation can control succession to woody (shading) vegetation, diversify habitat age structures and create fire-breaks. However, cutting can also have adverse effects on reptiles:

- Immediate (direct killing or injury).
- Short-term (killing by the removal of cover and hence exposure to predation).
- Long-term (removal of key elements of habitat, such as ant-hills, grass tussocks or a diverse vegetation age structure).

It is important to implement a cutting regime that does not harm key features of a reptile site and it is essential to avoid simultaneous removal of all vegetation cover across a site, or substantial areas of it. This can be achieved by strategic selection of limited areas of a site to be cut (for example targeting areas where scrub encroachment is most severe) or by programmed, phased cutting of a site divided into management plots. Many smaller plots are preferable to few larger ones to maintain habitat diversity at a fine scale. Two hectares is a suggested maximum plot size on large sites; smaller plots should be used for smaller sites. Interfaces between plots of differing vegetation heights create transitional zones which provide useful habitat.



**Mowing grassland plots at different times ensures that some cover is always available (John Baker)**

Cutting should be undertaken when reptiles are least likely to be killed, ideally during the winter period of inactivity. In general, cutting should take place from November to February. However, attention should be given to weather conditions. For example, adders bask on fine spring days as early as January (in southern England) or February (elsewhere), which precludes mowing at hibernation sites at such times. Winter cutting or mowing should avoid creating large areas of very short sward vegetation around hibernation sites, where reptiles need some cover on emergence in the spring.

To maintain a diverse tussocky structure on rough grassland and prevent succession to scrub, plots should be cut on a rotation of no shorter than three years (i.e. one third of the plots are cut each year). Heather dominated habitats should be cut on a much longer rotation of at least 25 to 30 years for reptiles, with the most sensitive areas left out of the cutting regime altogether. Gorse can be kept at an optimum state when cut on a 15-year rotation.

On sites where botanical interest requires cutting during the reptiles' active season, then survey should be carried out to identify any foci to exclude these areas from the cut. The remainder of the site should be cut at intervals staggered over several weeks, so that there is always some vegetation cover available. The cut should be made as high as possible (minimum 15 cm).

Depending on the size and sensitivity of the operation, cutting can be undertaken by tractor-mounted forage harvester, hand-operated reciprocating cutter, brush-cutter, strimmer or hand scythe. Although mechanised cutting may be desirable on larger sites, on smaller sites, or near to reptile foci, hand cutting should be implemented as individual animals can be more easily avoided and cutting moderated to accommodate reptile habitat features that may be identified during the operation.



**The habitat structure provided by this tussocky grassland should be maintained (Paul Edgar)**

If cutting is likely to harm habitat features such as ant-hills, or remove habitat structure on a larger site where hand cutting is not feasible, then light grazing should be considered as an alternative (see 7.3 *Grazing*).

Vegetation cuttings can be used to create grass snake egg-laying heaps (see 9. *Creating Reptile Habitat Features*).



**This site of grassland and scattered scrub is managed for reptiles by strimming selected areas during the winter. Local volunteers assist with raking cut vegetation into habitat piles. Patches of scrub are also cut to maintain the grassland/scrub mosaic. The grassland areas support common spotted and bee orchid, bird's foot trefoil, rest-harrow and sulphur clover. Pathways are kept open by strimming twice a year during the spring/summer months. Strimming during very hot weather seems to minimise the risk of harm to reptiles (John Baker)**

### 7.3. Grazing

Grazing, using a range of livestock species, is currently used either to mimic natural processes or to replicate traditional agricultural regimes, with the aim of sustaining particular plant and animal communities. Timing, intensity and both species and breed of livestock all influence the outcome of grazing regimes. The response may vary between different habitats and even between different areas of the same site. Some important reptile habitats, such as dry heath, may prove very sensitive to grazing management. Therefore, a clear assessment of risks versus benefits is needed when considering this management technique.

Grazing can have the following positive effects for reptiles:

- Limiting the development of scrub, thus preventing a site from becoming too shaded.
- Creating areas of short vegetation amongst denser habitat, where reptiles can bask close to cover.
- Increasing the diversity of vegetation structure.

Grazing can also be detrimental to reptile populations, through the following effects:

- Creating a very low sward, hostile to reptile occupancy.
- Creating a uniform vegetation structure, unsuitable for reptile activity.
- Selectively removing key elements of vegetation structure, such as stands of *Deschampsia* or tussocky *Molinia*.
- Reducing prey abundance (through poor habitat condition).
- Enriching through dunging (leading to increased grass cover on heathland sites).
- Damaging the physical structure of degenerate dry heath, through trampling.
- Direct mortality through trampling (e.g. sand lizard eggs, significant at only a minority of sites).

Just like other management methods, then, grazing has the potential to benefit reptiles, yet it can also be harmful. Some grazed sites support excellent reptile populations. At the opposite extreme, reptiles have been extirpated through grazing others.

Grazing intended to control or prevent scrub colonisation is likely to be at an intensity that will significantly reduce the structural complexity of vegetation and hence be detrimental to reptiles. Alternative methods of scrub control should be sought in such cases.

Special care is needed where sand lizards or smooth snakes occur. Impacts of grazing may be particularly

harmful on small, isolated sites. A balance may be difficult to achieve, but light grazing may benefit robust populations of rare reptiles on large sites, if properly planned and monitored.

The following advice is aimed at helping decide whether grazing is an appropriate method for a site supporting reptiles, and if so, how to maximise the benefits and minimise the risks to reptile populations. In some cases, grazing is not recommended at all, as the risks of serious harm to reptile populations are so great. This may be the case where:

- The site is very small (the smaller the site, the greater the risk of harm; generally, sites less than approximately 5 ha [less than 10 ha for dry heath] should not be grazed).
- Reptiles are largely restricted to small patches of vegetation types that would be reduced in suitability (e.g. stands of dense *Molinia* among dry heath may be preferentially grazed, yet these are often of great importance to viviparous lizards).
- Grazing would create a short sward, or one that is very uniform in structure over a large area.

A risk assessment for grazing heathland (Offer *et al.*, 2003) gives more detail to help predict the possible negative consequences. Where grazing is indicated as beneficial, the following precautions are recommended:

- Define objectives for what the grazing regime (along with any other methods) should achieve. This is best done in terms of vegetation structure, vegetation type and ground condition; these should be mapped across the site.
- Exclude livestock, or substantially reduce grazing pressure (reduce stock density or time on site), for any areas of especially high value for reptiles and high vulnerability to damage through grazing.
- Consider leaving some areas outside the grazing regime, both for wildlife and access.
- Consider reducing grazing period.
- Ensure there are plenty of reptile refuges, for example, brash piles, stone walls and scrub patches.
- Monitor vegetation structure at key locations to check for positive and negative effects (see photographs on following page).
- Monitor reptiles in key locations to detect changes in habitat use, breeding success or population density.

Regarding the latter points, monitoring vegetation structure is likely to provide the most effective tool for assessing the impact of grazing, and should alert a site manager to any problem much sooner than monitoring reptiles themselves. The latter is likely to yield results only in the long term. Moreover, increased visibility of reptiles soon after habitats are opened up can prove misleading (see 13.3 *Monitoring reptile populations*).



With light, extensive grazing, it is possible to retain important features such as large stands of deep *Molinia*. Monitoring should check for detrimental effects since such areas may be preferentially grazed, depending on the site character and livestock (Jim Foster)



Early signs that grazing is having a detrimental effect: the structure of the vegetation, particularly that of grasses, is beginning to change, with larger patches of very short sward vegetation (Jim Foster)



High grazing pressure creates large areas of short sward, a grassland structure with virtually no value to reptiles (Jim Foster)

**Livestock type** Experience indicates favourable results with cattle. Note, however, that the livestock type chosen will depend on a range of factors, notably the precise management objective and the site conditions.



**Different livestock are suitable for different tasks. Experience indicates that cattle may be the best choice for reptile sites (Paul Edgar)**

**Livestock density** It is impossible to recommend a precise stocking density because this depends on many factors, and should follow from the management objective. In general, stocking rates often used for conservation management seem to result in poor vegetation conditions for reptiles. As a general guide, 0.2 livestock units per ha is recommended as a maximum (equivalent to 1 cow per 5 ha), since negative effects are frequently seen above this rate. However, it is stressed that the decision on stocking rate must be determined by what the grazing aims to achieve, and that adjustments be made based on monitoring vegetation condition. Even at very low densities, negative impacts can sometimes result if livestock congregates in, or regularly passes through, key reptile areas. Good planning should, hopefully, predict this, so that the regime can be altered to avoid such effects. Otherwise, monitoring should detect it, and thereby prompt remedial action.



**Grazing can remove vegetation cover needed by reptiles, as seen here to the left of the fence (Paul Edgar)**

## 7.4. Controlled burning

Burning is commonly used to manage moorland and is gaining popularity for heathlands. Used with great care, burning can sometimes be useful in maintaining good vegetation condition for reptiles. However, burning too frequently, or at too large a scale, can be highly damaging to reptile populations. There are three main negative impacts on reptiles:

- Direct mortality of reptiles caught in the fire.
- Post-burn mortality. Reptiles suffer increased predation rates following burns because they are more obvious to predators and are less able to evade predation.
- Reduced habitat quality. A reduction in sward height and an increase in uniformity can lead to population declines over several years following a burn.



**Controlled burning on too large a scale can leave a landscape devoid of vegetation cover, which can take twenty years or more to regenerate (Paul Edgar)**



**Heathland and moorland that are burned too frequently develop a very uniform, even-aged structure that is poor for reptiles (Jim Foster)**

On heathland it may take 20 years, sometimes more, for the vegetation to recover the state of sward height and complexity preferred by reptiles. Other habitats may recover more quickly. In addition,

burning often results in colonisation by dominant stands of bracken, gorse or grasses; substantial additional management may be required to achieve a favourable vegetation composition.

The fragmented nature of many reptile sites makes burning a risky method for their management. Fire can eradicate reptiles from small, isolated sites, with little opportunity of recolonisation.

Given the negative effects of burning, it is rarely recommended as a management technique where reptiles occur. Often other management methods can achieve the same objective, but without the risks. There are, however, some exceptional cases where burning may be acceptable:

- As a highly focused technique, e.g. high intensity burns to control small but dense gorse stands.
- On highly uneven or remote terrain, where operating machinery poses particular problems.
- On larger (>50 ha) sites with robust reptile populations, where burn patch size is kept small and other precautions are taken (see below).

Where burning is considered, the following precautions are advised:

- The possible benefits and harm to reptile populations must be considered beforehand. This should assess the likely effects on medium- to long-term habitat condition, as well as immediate harm to individuals. If the harm outweighs the benefits, an alternative management method should be sought.
- Prior reptile surveys should inform the exact location of burn sites, with any particularly sensitive areas excluded (e.g. major hibernation sites or favoured basking banks).
- Burning should be done when reptiles are in hibernation, and are thus less prone to direct mortality. The safest period is generally from November to the end of January, though local reptile activity should be taken into account.
- Burning methods should encourage a quick, cool burn rather than a slow, deep one. This promotes much better re-growth and the faster recovery of a more useful vegetation structure.
- Burning should employ as small a patch size as feasible, with a maximum of 1 ha on very large sites (>50 ha) ranging to a maximum of 0.1 ha on small (<3 ha) sites.
- Some grassland and heathland vegetation types are especially vulnerable to burning and may not recover well. Mature or degenerate heather is an example that is also highly valued by reptiles. Such areas must be excluded from burns.

Further advice is given in *The Heather and Grass Burning Code* (Defra. 2007). Note again, however, that the burning season of November to March, is unsafe for reptile sites. Burning on sites where reptiles occur should not take place after they have started to emerge from hibernation (early February onwards).

## 7.5. Fire control

Fire control is essential on many sites to reduce accidental and deliberately set fires. It is highly beneficial to liaise with local fire brigades and provide them with detailed maps showing access points and routes onto sites.

Where the risk of fire is high, it is important to make sites accessible to fire-tenders. Permanent, major fire-breaks serve a dual purpose of stopping the spread of fire and providing access routes for fire-fighting vehicles. On heathland, such fire-breaks can be created by digging 2-m-wide strips of bare sand and mowing 2-m strips on either side to create breaks approximately 6 m wide.



**Major, permanent fire-break, incorporating bare sand and borders mown to 15cm to provide cover for sand lizards (Nick Moulton)**

The exposed sand elements of fire-breaks can serve an additional function as sand lizard egg-laying sites (see 9.4 *Sand lizard egg-laying sites*). Note that on sand lizard sites, the mown strips bordering a major fire-break should not be cut too short. If the vegetation is cut to less than approximately 15 cm, female sand lizards are exposed to predators as they cross the mown strips to reach bare sand.

Small, semi-permanent fire-breaks (approximately 2 m wide), created on a rotational basis can also reduce the spread of fire, and can play an important part in maintaining a range of vegetation structure within a site. Mown strips should be cut running east

to west, in a sinusoidal pattern. This maximises the diversity of microhabitats created at the interfaces between cut and uncut vegetation, increasing the habitat value for reptiles and invertebrates (e.g. silver-studded blue butterfly).

Bare sand can be incorporated into small, mown fire-breaks by scraping strips of sand along their edges with a bulldozer or back-hoe. Stripped topsoil should be piled on the northern edge of the exposed sand. These sand strips should be rotated on a three- or four-year cycle, staggered so that only a third or a quarter, respectively, is rotated in any one year. This maintains a range of successional stages on site. Low ground pressure machinery should be used to ensure that other important features are not damaged.



**A small fire-break, including bare sand scraped from a mown strip and piled on the north side to increase microhabitat diversity (Chris Dresh)**

Strips destined to become open sand should be mown in the preceding winter, to prevent birds nesting in targeted areas, and then topsoil scraped in late April to May after reptiles have emerged from hibernation.

Engagement of local communities is also vital in controlling fire on sites close to populated areas, and can ensure a rapid response from fire brigades. Notice boards informing the public of high fire risk periods and asking them to contact the fire brigade in the event of fire can also be successful. Volunteer wardening schemes have proved helpful in controlling illegally started fires and are essential in high fire risk periods.

## 7.6. Scrub and tree management

On many sites scrub and tree management is necessary to maintain mid-successional stage habitats. Nevertheless, the value of scrub and trees to reptiles should not be underestimated. Such cover can create windbreaks and pockets of warm microhabitat favoured by reptiles, and be a refuge in hot weather, overnight and sometimes during winter. It is also important in supporting prey populations, especially for snakes. The root systems of living and dead scrub and trees provide refuge and hibernation sites.



**Scrub and trees increase the structural diversity of a site and so some should be retained, even on heathland (John Baker)**



**Here the slope in the background is at risk of becoming too shaded by birch. Partial clearance or thinning would be recommended, taking precautions over methods given the ground cover remains suitable for reptiles (Jim Foster)**

Management should be phased over time, retaining vegetation of varied ages. Even on heathlands, mires and grasslands, small to moderate amounts of scrub and trees should be retained.

Generally, sunny, south-facing aspects favoured by reptiles should be managed as a priority, and most shading scrub and trees removed from such areas. The amount managed should depend upon

the habitat and the management target species. For example, sand lizards prefer mainly unshaded habitats whilst adders and slow-worms prefer more scrub and tree shelter.

The interface between tree/scrub cover and shorter, herbaceous or ericaceous vegetation is of major significance for reptiles. Site managers should maximise the amount of edge or interface habitat, and vary its character. Even 'hard' edges, as can be found for example at the bases of hedgerows, can be good microhabitats for reptiles. Of rather higher value are graded ecotones, where the height and density of the vegetation reduces gradually from the tree/scrub edge to shorter herbaceous vegetation. Importantly, edge habitat should be oriented to allow sun exposure. This means focusing on the south-facing edge of scrub/tree blocks, or creating south-facing open areas within such blocks. Creating a scalloped edge along a southern scrub/tree block will generate sheltered bays for reptiles.



**On bogs, the edges of peat cutting (as here on left) can create banks used by reptiles. Management should aim to keep them open, so the shading treeline to the south should be taken back, as here (Jim Foster)**



**The bank along the left of this track is used for hibernation by widespread reptile species. Management of trees on the right side of the track has retained its open nature. Periodic birch removal will be needed to keep the bank in good condition (Jim Foster)**

Scrub and tree cutting should take place between mid-September and February to avoid disturbance of nesting birds. The stumps of deciduous trees and gorse can be allowed to re-coppice or they should be treated with herbicide (e.g. Garlon 2, Timbrel or Roundup) to prevent re-growth. Dead tree stumps should be left in place, to provide valuable habitat, in particular creating refuges and hibernation sites for reptiles.

Cut material should generally be removed from sensitive sites, e.g. those supporting sand lizards, otherwise it will continue to smother and kill ground vegetation. It should be chipped and removed, or dragged to a sterile area of the site and burnt. On less sensitive sites, cut material can be stacked and retained to create brush piles or hibernation sites (see 9.1. *Brush and log piles*).



**Scrub and tree control can be achieved by various hand-tools (chain-saw, bow-saw etc.) used by professional or volunteer work parties (Paul Edgar)**

Whether to use hand-tools or machinery depends on the situation. Machinery is best used on large sites, where it is most effective and the risk of population-level impacts is reduced (though see precautions, below). Hand tools are appropriate for small sites or where very small-scale management refinements are indicated.

If done without sound planning, scrub and tree control risks harm to individual reptiles, and can reduce habitat quality resulting in longer-term population declines. The risk of direct mortality can be reduced by careful timing and methods (e.g. doing work in winter, and not disturbing below the ground surface). The risk of creating degraded

habitat can be reduced by ensuring the right balance between removal and retention, and planning the locations of areas targeted for such. It is generally unwise, from a reptile perspective, to remove all or virtually all scrub right across a site. Retaining scrub in key locations, for example at the top of south-facing slopes, will help. A sound survey helps to plan beneficial scrub and tree removal.

**Gorse, bramble and rhododendron** Gorse and bramble both offer important cover for reptiles. Holes in the ground at the base of both plants can be used for overnight sheltering. During the day reptiles often bask at the edges of gorse and bramble stands, where they can quickly seek cover if threatened or needing to find shade. Voids among the root systems of older gorse plants can sometimes be used for hibernation. When controlling these plants, then, care normally needs to be taken to retain some cover. Typically it is best to retain small, scattered blocks on south-facing slopes. Both species require repeated management as they are fast growing. Gorse can be a particular problem after fires, or in the early stages of heathland restoration, when it can quickly become dominant. Large, dominant stands of gorse are undesirable for reptiles and, especially if old and leggy, pose a high fire risk, particularly close to access points and footpaths.

Rhododendron is commonly the target of removal, and is certainly undesirable from a reptile conservation perspective. Occasionally, however, reptiles use the root systems for hibernation and so care may be required to retain the below-ground structure when removing rhododendron.

**Shallon *Gaultheria shallon*** Shallon is a non-native, evergreen shrub that is invasive on some heathland sites. Individual plants and small stands can be spot-treated with Roundup Biactive or a triclopyr-based herbicide such as Garlon or Timbrel. Spraying can be carried out at any time of year, but is most effective in the spring when leaves have not hardened off. Large stands should be bulldozed to bare sand and any re-growth sprayed.



**Gorse is most valuable when grasses are allowed to develop at the base, providing a gradient of vegetation heights (above). Gorse has very little value for reptiles when the area is kept heavily mown or grazed, meaning that no ground cover is available between gorse stands and the bases offer little basking potential (below) (Jim Foster)**

## 7.7. Bracken management

Bracken is frequently an invasive plant species within habitats preferred by reptiles, especially following habitat restoration. It can form extensive stands preventing light from reaching other vegetation and creating a mat of litter, which further inhibits growth of other plants, while protecting its rhizomes from frost. Bracken, however, can also be a significant microhabitat for reptiles, so its control should be undertaken with care and should not aim at complete eradication.

When planning bracken control, site managers should consider the potential value of this vegetation type on site. At many sites where it occurs in moderate amounts, it is of great value to reptiles and invertebrates. It creates warm microclimates in early spring, when it is favoured by reptiles emerging from hibernation. Reptiles disperse through, and hunt among, bracken thatch up to around June, after which shading from annual growth makes it less suitable, although it may still be used to escape extreme heat. Retaining small, scattered stands of bracken, especially close to hibernation sites, is often desirable.



**Dead bracken creates an excellent microclimate and microhabitat for reptiles on emergence. Bracken control should retain some stands, unless other vegetation performs the same function (Jim Foster)**

Bracken control methods include herbicide application, rolling, to crush the growing stems, or cutting. These measures have to be applied at a time when reptiles are active, but of the three, herbicide application is usually the best option.

A very effective means of controlling bracken on reptile sites is the application of the selective herbicide Asulox. This should be sprayed on to the upper surfaces of the fronds, using a backpack applicator, as this is less likely to damage the site than use of a vehicle-mounted device. Secondary spraying of any re-emergent fronds in the following season is usually necessary.



**Spraying the selective herbicide Asulox from backpack-mounted systems is an effective means of controlling bracken (ARC)**

Bracken spraying should be undertaken between July and mid-August, when the fronds are fully unfurled, but not hardened off. It should be carried out on dry days, as herbicide absorption is low if fronds are wet. Windy conditions should be avoided to prevent chemical drift and herbicide should not be used near to water bodies or livestock. Warning signs should be placed on site to warn of spraying in progress. Spraying controls bracken without harming either reptiles or their habitat. However, it is both cost and labour intensive. It can be carried out only by trained, certified persons and is also dependent on weather conditions.

Both rolling and cutting may harm reptiles. Within large, dense and continuous bracken stands, however, these options pose a low risk, as reptiles are unlikely to inhabit such areas. Around the edges of such stands, rolling or cutting should be avoided, or done with extreme caution, as reptiles are more likely to be present here. These methods should also not be used on small patches of bracken, or on large, fragmented stands. In both cases there is a reasonable chance of reptile presence (though a thorough survey can be done to verify this).

Rolling or cutting are most effective after the period of most rapid bracken growth, in late June or July. Although bracken re-grows, it does so with reduced vigour. Re-growth requires further control measures (repeated rolling or cutting, or herbicide application).

## 7.8. Managing introduced predators

Natural predators, such as native birds, are rarely a conservation concern. Reptile populations are resilient to losses from such predators. Problems can arise, however, with predators that have been introduced by humans. The two key species of concern are domestic cats and pheasants.

Cats can be a serious concern, especially for reptile populations on small patches of habitat, surrounded by houses. In this circumstance cats can take large numbers of reptiles and threaten population viability. Site managers can speak to householders to ask them to keep their cats in as much as possible, and to discourage them from taking reptiles. It is recognised, though, that there is little hope of restricting cats' behaviour. A more productive approach is to ensure the site has plenty of refuge habitat which could render reptiles safer, such as bramble and gorse. Feral cats can also be a problem, and in this case removal and re-homing, in conjunction with appropriate authorities, would be the best option.

Pheasants prey on (or just kill) reptiles, among other prey items. In the UK, they are even known to kill adult adders. Low levels of predation may not be a conservation problem, but a particular concern with pheasants is that releases of large numbers of birds are common. This may result in a high rate of reptile mortalities, perhaps sufficient to cause population declines. Particular problems arise when birds are released in large numbers close to key areas for reptiles, especially hibernation sites, breeding sites or favoured basking banks. Regular sightings of groups of pheasants on, or very close to, such areas should trigger concern. The Game and Wildlife Conservation Trust advises not to place release pens on, or close to, reptile breeding or hibernation areas (Game Conservancy Trust, 2006). For concern over existing pheasant releases, site managers may request that these are at least modified to pose lower risks to reptiles. This might mean moving release pens to a less harmful location, or substantially reducing the number of birds released, for example. As a last resort site managers may request the release is ceased.

## 7.9. Research

There is still much to learn about reptile habitat management. Doubtless, with increased experience, advice on reptile habitat management will become more refined in future. Meanwhile, there is scope for site managers and associated surveyors to make

a contribution to this process, through research projects of varying complexity, for example:

- Recording the responses of reptile populations to specific habitat management regimes.
- Experimenting with novel variations on the recommended approaches.
- Reporting on successful, or indeed failed, management in particular habitats (e.g. grassland, moorland).

The authors are interested in the development of reptile habitat management techniques and reptile survey methods, so please do make contact to discuss potential research projects.