



# Reptiles: guidelines for developers

English Nature is the Government agency that champions the conservation of wildlife and geology throughout England.

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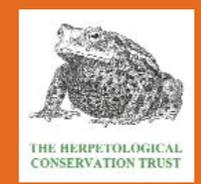
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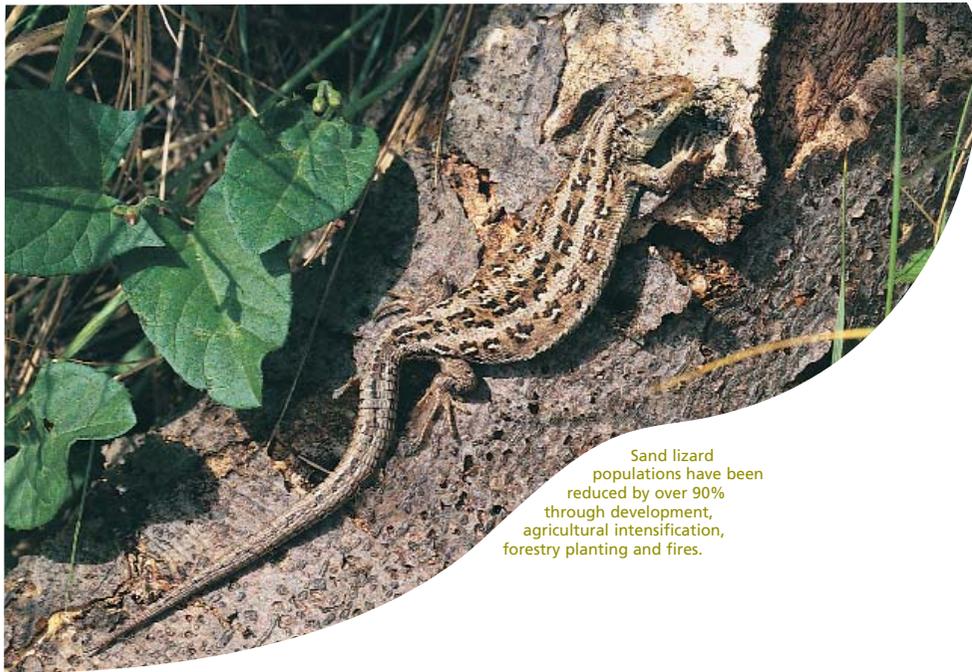


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# Reptiles: guidelines for developers



Hugh Clark/FLPA

Sand lizard populations have been reduced by over 90% through development, agricultural intensification, forestry planting and fires.

## Key messages for developers

Reptiles (snakes and lizards) may be found on land that is being considered for development. Development is a significant threat to the conservation of reptiles.

Reptiles are protected by law. Penalties for breaking the law can include large fines, imprisonment and the seizure of equipment.

An assessment of reptiles should be considered at an early stage on any sites that may support them. The presence of reptiles may affect the

programming of work and the scope for development. Early consideration can, however, resolve most potential conflicts and avoid expensive delays.

Reptiles may be found in a range of habitats, both in countryside and some urban situations. They frequently occur on brownfield sites. Reptiles are generally less abundant in intensively managed farmland, highly built-up settings and in upland areas.

Local Planning Authorities may request surveys and mitigation plans before making a decision on planning applications. Planning conditions and other agreements are sometimes imposed on consents to ensure effective reptile conservation.

Developers should consult English Nature (normally through their ecological advisors) when progressing plans that could affect reptiles. Expert advice can also be obtained from voluntary conservation organisations.

Mitigation and compensation is normally required when development is permitted on reptile habitat. The time and effort needed for a successful mitigation exercise should not be underestimated. Often there is a need to enhance habitats on site or nearby, in advance of lengthy reptile capture and exclusion activities.

Reptile activity is highly seasonal and weather dependent, meaning that there are limited windows of opportunity for survey and mitigation work. Developers must allow for this when programming development.

To assist with the above, developers are advised to employ a consultant with experience in reptile ecology, planning and mitigation.

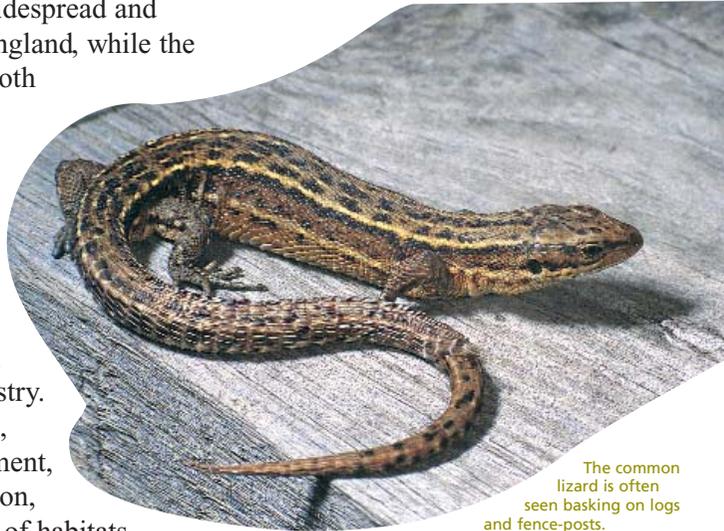
## Introduction

This booklet aims to inform developers about their legal obligations in areas where there may be reptiles. This is only a basic guide and should not be used as a substitute for site-specific professional advice.

Six species of reptile - three snakes and three lizards - are native to Britain. Four are widespread and found throughout England, while the sand lizard and smooth snake have a much more restricted distribution. Over the last 50 years, many areas that used to be home to reptiles have been lost to development, agriculture and forestry. Changes in land use, intensified management, persecution, collection, fires, fragmentation of habitats and increased public pressure have also reduced reptile populations. National and European legislation means that reptiles and (in some cases) their habitats are now protected by law in England. While some important reptile sites are legally protected, for instance as Sites of Special Scientific Interest (SSSIs), the majority of reptile populations exist outside of protected sites. As a result, reptiles remain threatened in many areas. Development is a significant

cause of habitat loss and fragmentation. Developers, landscape architects, planning authorities, ecological consultants and conservation bodies all have important roles to play in conserving these animals.

## England's snakes and lizards



The common lizard is often seen basking on logs and fence-posts.

N.A. Callow/Nature Photographers Ltd

### The lizards

Common (or viviparous) lizard *Lacerta vivipara*. Found throughout England in a range of different habitats, including grasslands, woodland edges, brownfield sites, heaths and dunes. Often seen on linear features, e.g. hedgerow bases, stone walls and railway embankments. Up to 14 cm in length (including the tail). Generally brown in colour, with spotted and striped back patterns.



Male sand lizards develop bright green sides in the spring mating season.

Derek Middleton/FLPA

Sand lizard *Lacerta agilis*. One of the two rare species of reptile, found on heathland and dunes in southern England (majority of populations in Dorset, with small numbers elsewhere) and on the Sefton Coast in Merseyside. It is larger and more robust than the common lizard, growing to 20 cm in length. Males have green flanks and a patterned back; females are grey/brown with distinctive dots along the back and sides. The only English lizard that lays eggs.

Slow-worm *Anguis fragilis*. Often mistaken for a snake, it is, in fact, a legless species of lizard. Typically



Derek Middleton/FLPA

reaches 35 cm. Males are usually uniform grey-brown; females are brown with dark sides and a black line along the back. Found throughout England on a wide variety of habitats; it is the most frequent reptile in urban areas.

### The snakes

Grass snake *Natrix natrix*. Found throughout England, and the most frequently seen species of snake in



Grass snakes have distinctive collar markings just behind the head.

Jim Foster/English Nature

urban areas. Often found close to ponds, lakes and rivers. Usually 70 cm - 100 cm in length when mature, this is the largest species of snake in Britain. Olive green, brown or grey body, with black bars down the sides. Usually has a yellow or white 'collar' behind the head. The only British snake that lays eggs.

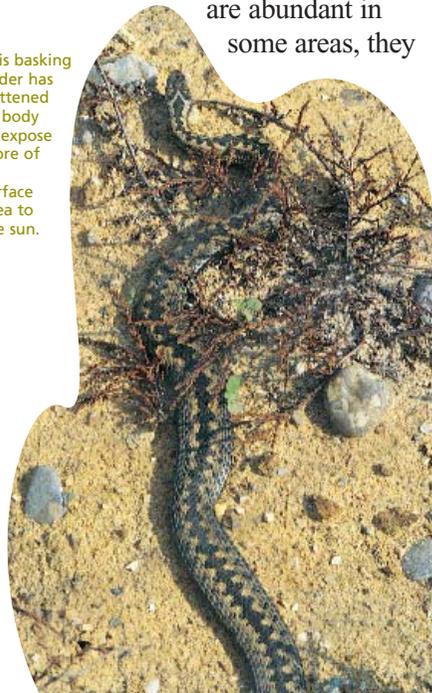
Slow-worms have shiny, cylindrical bodies. Unlike snakes, they have moveable eyelids.



Adders are one of the few snake species to have obvious differences in colouration between the sexes (female on left, males on right).

Adder *Vipera berus*. Typical adult length around 55 cm. Males are usually grey and females reddish brown; both sexes have a distinctive dark zig-zag pattern on the back. Adders are found on heaths, moors, meadows, woodland glades and urban fringe sites. Although adders are found in most counties and are abundant in some areas, they

This basking adder has flattened its body to expose more of its surface area to the sun.



are scarce over much of their range. Our only venomous species of snake.

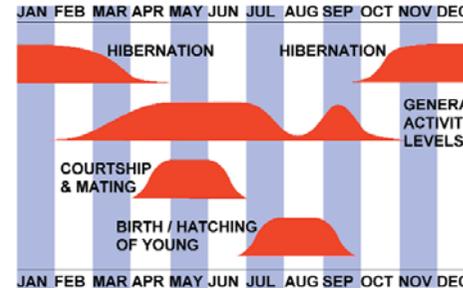
Smooth snake *Coronella austriaca*. Our rarest reptile and the one with the most restricted distribution. Found only on the heathlands of southern England, from Surrey to Dorset. Generally up to 55 cm in length, usually grey to grey-brown, with a dark top to the head and a row of dark dots, blotches or bars along the back.

The smooth snake's name derives from its scales, which lack the ridges found on other English snakes, making it silky to the touch.



### Introduced (non-native) species

Reptiles sometimes escape from, or are deliberately released from, public or private collections. They may survive in the wild, sometimes forming small colonies. Examples include the red-eared terrapin *Trachemys scripta elegans*. They rarely turn up on development plots, but your ecological adviser should be able to give further guidance on the best course of action where introduced species are present.



The reptile year (note: this is a generalised illustration – there are variations between species and according to local conditions.)

## Reptile biology

English reptiles share a number of common features. They cannot generate their own body heat and need to raise their body temperatures using external heat sources, especially by basking in the sun. This greatly influences their behaviour. Most reptiles hibernate between October and March, when weather conditions are unsuitable for activity. Even during April to September their behaviour is affected by the weather. Typically they are active in warm weather, but avoid prolonged exposure to the sun on very hot days. Reptiles normally take refuge and are inactive during the night.

Snakes may occupy fairly large ranges, sometimes covering several kilometres during the course of a year. In other circumstances, however, movements are much more limited. Often they move from drier habitats to wetter parts for the summer months. They usually return to the same hibernation areas each

winter. Adders and smooth snakes eat mostly reptiles and small mammals, while grass snakes prey largely on amphibians.

Lizards have smaller ranges than snakes, frequently staying close to small landscape features such as embankments. Common lizards and sand lizards spend much time basking, while slow-worms are often hidden in vegetation, under refuges or underground. All three lizards eat invertebrates such as insects, spiders and woodlice, but slow-worms tend to eat more soft-bodied species, such as slugs.

Reptiles are found in a wide variety of countryside habitats, such as heaths, moors, rough grassland and woodland edges. They are also found in artificial habitats such as golf courses, brownfield sites, allotments, gardens, road embankments and railway lines; some species are more adaptable than others in this respect. Reptiles require a varied habitat structure that provides shelter, a range of shady and sunny spots, food, and frost-free areas to spend the winter. Reptiles prefer areas with a well-drained geology, so sandy and chalky soils are favoured. Grass snakes lay their eggs in places like compost heaps, manure heaps or piles of cut vegetation where they are incubated by the warmth of decomposing organic matter. Sand lizards lay eggs in open sand patches warmed by the sun.

## Legal protection

All of our native reptiles are protected by law. The two rare species - sand lizard and smooth snake - have greatest protection.

Common lizard, slow-worm, adder and grass snake: it is illegal to intentionally kill or injure these animals. Legislation: Wildlife and Countryside Act 1981 (as amended).

Sand lizard and smooth snake: it is illegal to kill, injure, capture, handle or disturb these animals. Places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed. It is also illegal to obstruct these animals from using such areas. Legislation: Wildlife and Countryside Act 1981 (as amended) and the Conservation (Natural Habitats, &c.) Regulations 1994.

This is only a simplified description of the legislation. In particular, the offences mentioned here may be absolute, intentional, deliberate or reckless. Note that where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring. For a fuller understanding of how the legislation relates to a specific case, we recommend that you consult the original legislation texts or seek legal advice.

## Reptiles, development and the law

Reptiles are likely to be threatened, and the law potentially breached, by activities such as the following:

- archaeological and geotechnical investigations
- clearing land, installing site offices or digging foundations
- cutting vegetation to a low height
- laying pipelines or installing other services
- driving machinery over sensitive areas
- storing construction materials in sensitive areas
- removing rubble, wood piles and other debris.

The law recognises that it is sometimes necessary to carry out work that may affect reptiles or their habitats. It has two significant concessions:

1 For all species, normally prohibited activities may not be illegal if “the act was the incidental result of a lawful operation and could not reasonably have been avoided.” How this defence could apply will depend on the specific circumstances; you should seek legal advice for further details. However, in general English Nature would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.



A survey at this site could have prevented the killing of dozens of grass snakes during initial site clearance.

2 For sand lizards and smooth snakes, licences may be issued for some activities (such as disturbance and capture) that would otherwise be prohibited. Licensing is discussed later in this leaflet.

Under the Wildlife and Countryside Act 1981, a conviction can result in a fine of up to level 5 on the standard scale (£5,000 in 2004) and/or up to six months imprisonment for each offence. Harm to more than one animal may be taken as separate offences. The police can also confiscate any item, such as equipment, vehicles or machinery, used to commit the offence. So, large fines and considerable inconvenience can result from breaking the law or while potential offences are being investigated. Both individuals and companies may be liable for offences.

## Reptiles and planning

Planning authorities must take protected species and habitat conservation into account when considering planning applications. Local authorities also have an important role in implementing the national Biodiversity Action Plan. Planning Policy Guidance: Nature Conservation (PPG9: October 1994) explains the planners' and English Nature's role in protecting wildlife (note that in 2004 PPG9 was being revised).

Where reptiles are or may be present, we strongly recommend that you undertake surveys before considering development proposals. Sometimes formal environmental assessments are required before a planning permission will be considered; this is mainly for



Jim Foster/English Nature

Recent targeting of brownfield sites for development has meant damage to numerous reptile populations.

large-scale projects. In most situations less formal assessments may be needed to determine the impacts on reptiles. Where mitigation and compensation are needed, present these plans with the application. This will allow a full evaluation of the net effects of development and reptile protection measures, and can help speed up the decision-making process. Note that some damaging activities, such as archaeological investigations, may not require planning permission but could still be unlawful if undertaken without proper care. English Nature has produced advice on incorporating “reptile-friendly” features in the designed landscape (see Further reading), and this can be useful even when developments will not directly impact on reptile populations.

Where protected species are or may be present, the planning authority usually consults English Nature over the planning application. They may also seek advice from other wildlife groups. The planning authority may do one of the following.

- Accept the proposal.
- Attach conditions to planning permissions, for example to ensure that particular areas are enhanced for reptiles prior to construction.
- Impose a Section 106 agreement, to ensure funding and responsibility for post-development works.
- Suggest alterations to a planning proposal, often a change to the layout or to mitigation plans, before accepting it.
- Refuse or restrict development on or near important wildlife sites. In many of these areas the existing reptile populations have not yet been identified; this is especially the case with brownfield sites, which in some cases support important reptile populations.
- Refuse or strictly control development on or near Sites of Special Scientific Interest.
- Refuse or restrict planning permission because of an unacceptable impact on wildlife on sites with no designation. For example, if a proposed development threatens a locally important adder population and there is no feasible mitigation, the

local authority can refuse planning permission on the grounds of wildlife loss.

Reptiles should not normally be removed from development sites before the planning decision is made. If planning permission is granted, the law protecting reptiles still applies even if there are no conditions relating to reptiles. Because of this, developers must make every reasonable effort to safeguard reptiles. A licence from Defra (Department for Environment, Food and Rural Affairs) may be required for mitigation work for developments affecting sand lizards and smooth snakes. These licences will generally only be issued after planning permission has been granted, and considerable ‘lead-in’ time for preparing mitigation is advised.

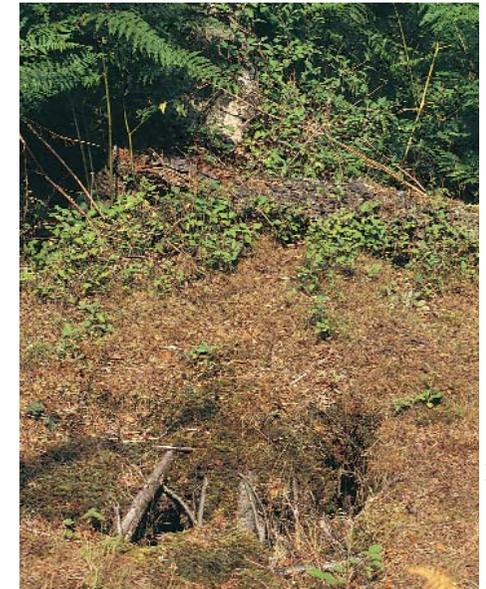
### Site survey

Rationale for site surveys

Some local records centres, or voluntary amphibian and reptile groups, can provide some background information on reptiles in the general area. This can be valuable, but such information is unlikely to be sufficient, on its own, for most planning purposes. Where reptiles are known to be present locally and the site supports potential reptile habitats such as rough grassland, heathland, mature gardens, open scrub/woodland, wetlands or

vegetated embankments, the developer should commission a survey. However, you may not need a new survey if your ecological advisers are confident that, based on existing information and a habitat assessment, the impacts of development will be minimal, and that further survey information would neither change this view nor significantly modify mitigation proposals.

Carry out a survey as early as possible. It is wise to do this even before purchasing a site, as the presence of reptiles could affect the scope for development. The field survey should confirm if reptiles are there (or likely to be there); assess how important the site is in terms of



Jim Foster/English Nature

Superficially mundane features such as this exposed tree root system can be especially important for reptiles, and should be identified in surveys.



David Woodfall/NHPA

Allotments - both in use and disused - can provide refuges for reptiles in urban areas.

reptile populations; how reptiles use the site; and whether there are connections to adjacent land that the reptiles use. This will set the site in a local and national context. A competent wildlife survey, like any other pre-purchase or pre-development checks, will show a prospective developer any possible pitfalls, constraints or obligations. It will allow proper project planning and avoid any potentially expensive last-minute delays. We recommend that you use an ecological consultant with extensive experience of reptiles and mitigation to undertake the survey.

### Practicalities

The timing of a reptile survey is crucial because reptile activity is highly dependent on the weather. The best time to look for reptiles is generally late spring (April-June) and sometimes again in September. However, they may be seen, with less

certainty, from March to October depending on local conditions.

Reptiles can be difficult to find in very hot or very cold weather, or during long periods of dry weather. The time of day of surveys is also important. Even when conditions are favourable it can take several weeks to search for reptiles.

Reptiles are difficult animals to survey, and special methods are required. An efficient way of finding most reptiles is to lay out artificial refuges (such as corrugated iron sheets) which the animals hide below or bask on top of - and hence are easily detected. This method works well for slow-worms and snakes, but is not effective for sand lizards and common lizards. Experienced reptile surveyors also search for basking animals by carefully examining likely habitat features such as banks, wood piles and woodland edges.

### Impact assessment

An impact assessment examines the development proposals and predicts the likely effects on the reptile population. It should consider all stages of the development project, from pre-construction works (including cutting sight-lines, archaeological investigations, trial pits etc), through construction and the post-development operational phase. A thorough assessment is required as reptiles are vulnerable to a range of impacts. The ecologist should recommend development options



Jim Foster/English Nature

Residential developments can increase pressures on nearby reptile populations, through litter problems, cat predation, fires, traffic mortalities and disturbance.

based on the impact assessment. This could range from proceeding with no mitigation (where no impacts are anticipated) to rejecting plans to develop the site (where considerable impacts are predicted with no effective mitigation possible). Small-scale or temporary works require little mitigation effort compared to losses of extensive areas of reptile habitat.

## Planning for development and mitigation

Planning must incorporate two aims where reptiles are present:

- 1 To protect reptiles from any harm that might arise during the development work;
- 2 To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.

Mitigation and compensation to achieve the above aims may involve the following approaches (listed in order of decreasing desirability):

- a) Keeping the reptiles on site, i.e. changing the layout so that areas used by reptiles are not developed.

- b) Moving reptiles to areas within the site which are to be retained, enhanced and managed for conservation purposes, whilst developing remaining areas.
- c) Moving (translocating) reptiles away from the development site to another specially prepared area.

### Mitigation and compensation methods

Selecting and preparing a release site

You should take into account a number of factors when selecting sites, including agreement from the landowner and local interest groups, site safeguard, assurance of long-term favourable management, and access for monitoring. Locating a suitable release site can take many weeks of survey effort, fact-finding and liaison. If no suitable site can be found, then it is possible that the development will be prevented from proceeding in its original form.

Ideally, the reptiles should be retained on site, or released adjacent to it. However, in some cases it may be better to move them to an alternative site some distance away. Generally, reptiles should only be released at suitable sites that currently do not support the species, but where habitat enhancements can be made to accommodate them (this is so that there is no net loss of reptile populations). Where only small

numbers are involved, reptiles may be added to an existing population so long as some improvements are made to the habitat. Work to prepare release sites can include managing scrub/woodland, re-profiling of land, grass/shrub planting, creating egg-laying sites, creating ponds, building hibernacula and refuges, and installing interpretation boards. The site should be made capable of supporting reptiles before they are relocated. Depending on what is needed, this may take days, months or in some cases (notably for heathland establishment) years.

### Capture and exclusion

Using artificial refuges helps to capture most species. The legged lizards are, however, less often associated with refuges and so require capture by hand or by noose. Gradually reducing the amount of suitable habitat (for example by strimming rough grass) concentrates



Heathland is home to many of England's most important reptile populations.

Jim Foster/English Nature



Ray Bird/FLIPA

Vegetated railway embankments provide ideal habitat for reptiles, allowing them to venture into otherwise unsuitable areas.

reptiles in certain areas and makes it easier to capture them. After using other methods of capture extensively, more invasive methods of location and capture may be appropriate. This may involve the mechanical excavation of the habitat - under expert supervision - in order to reveal sheltering reptiles. Rubble, rock and wood piles can be carefully dismantled by hand to capture reptiles using them as refuges.

Special fencing prevents reptiles from moving into areas subject to earthworks and other damaging activities. This fencing is usually a temporary measure, and is removed once development is complete. Typically, these temporary fences are constructed with a plastic sheet membrane, held in place with wooden

battens. It is important that reptiles cannot cross over, under or through them. Reptile fences may require regular maintenance, and in areas subject to high public pressure, putting up security fencing (chain-link, etc) may reduce vandalism.

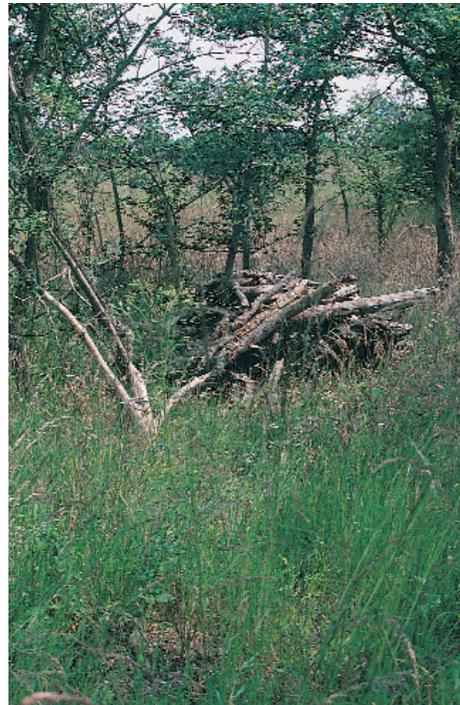
### Timing and phasing considerations

The timing of work is crucially important, because of the seasonal nature of reptile behaviour. Knowing what the animals are doing, and where they are likely to be found on a site, will help development to proceed with minimum disruption. It will also avoid harming reptiles and thereby comply with the law. You should only start removing reptiles after the

release site (whether within the planning application area, on adjacent land, or some distance away) is decided on and properly prepared.

Do not underestimate the amount of effort required to capture reptiles - allow for this when planning development. Often one full “season” (March-September) of capture, though on occasions up to three years, is needed to remove reptiles from a site supporting a large population. With smaller populations, or where the impacts of the development are temporary or minimal, the capture period may be considerably shorter. Particular effort should be directed towards spring time. In summer the reptiles are more difficult to find and catch, and as most young animals are born (or hatch out) from July to September, these can be especially time-consuming to find, as well as being more delicate. Heavily gravid (pregnant or egg-laden) female reptiles, found earlier in summer, may be adversely affected by capture. Moving reptiles in autumn can be problematic as they may find it difficult to adjust to the new site in time for the critical hibernation period. Capture should not be attempted after animals have sought refuge for hibernation, as they are difficult to find and easily harmed at this time. In some cases it will be necessary to resume capture operations the following spring.

Concentrated capture effort on relatively small areas may remove reptiles from those parts of the site more quickly. So, it is worth considering phasing development and mitigation operations. This can allow development on parts of the site before you have captured all reptiles from the whole site. If you are developing a large area in phased compartments over several years, or where it has multiple ownership so that development proceeds in a piecemeal fashion, English Nature expects there to be a coherent framework for impact assessment and mitigation across the entire area.



Constructing log piles in sunny locations can benefit reptiles.

Jim Foster/English Nature



Reptile receptor sites should be managed to incorporate a range of vegetation heights and structures.

Jim Foster/English Nature

### Post-development requirements

For many schemes, you will need to arrange habitat management and reptile monitoring for the post-development period. This should be agreed prior to planning and assured through a Section 106 agreement or similar obligation. The timing, nature and responsibilities for the work should be clearly set out. The developer is expected to fund these works. No specific works are required where the development would have a minimal impact.

### When a licence is required

Certain activities affecting sand lizards and smooth snakes require a licence. Most commonly, licences are needed when a project involves disturbing and handling them, when erecting a fence to exclude them, or destroying key habitat features. Some forms of survey also need a licence, and in this case English Nature is the appropriate licensing authority. For

mitigation projects the licensing authority is Defra. For a Defra licence, you must demonstrate that:

- the purpose is for “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment,” and
- “there is no satisfactory alternative,” and
- “the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”

Licences cannot be granted retrospectively and are only issued to people considered competent to do the work. Several months may be required for preparing and considering an application. All licensed work must be completed and reported on to a high standard.

For the adder, grass snake, slow-worm and common lizard you do not need a licence to capture or disturb them, or to damage their habitats. However, the reptiles themselves are still protected, so there is a risk you will commit offences if damaging the habitats causes harm to reptiles. English Nature expects high standards to be maintained in all mitigation,

regardless of licensing control. The adder is listed under the Dangerous Wild Animals Act 1976, so a mitigation project that involves holding them in captivity (which is rare) may require special consideration.

**Note: be vigilant for changes in legislation and planning policy - check with English Nature, planners or an ecological adviser.**

### Further advice

English Nature can provide general guidance, and we encourage developers to seek professional advice for site-specific recommendations. We recommend using ecological consultants who have experience with reptiles, planning and development. English Nature cannot recommend particular consultants, but you can find lists of consultants from professional bodies and published directories. Two such directories are: the ENDS Environmental Consultancy Directory (Environmental Data Services; [www.ends.co.uk](http://www.ends.co.uk)), and the Directory of Ecologists and Environmental Managers (produced by IEEM; [www.ieem.org.uk](http://www.ieem.org.uk)). We advise you to check that a consultant is appropriately experienced with reptiles and mitigation before issuing instructions, as substandard advice may lead to delays and extra costs. For projects involving sand lizards or smooth snakes, it is important to ensure experience with these species, given

their particular needs and legal status. Volunteer groups can often give very useful background information on local reptile distribution and conservation matters, but are generally not best placed to carry out mitigation work.

### English Nature

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[www.english-nature.org.uk](http://www.english-nature.org.uk)

English Nature is the Government agency that champions the conservation of wildlife and geology throughout England. We provide advice on reptile development casework through our Area Team offices.

### Defra

Wildlife Integration and Conservation Team  
European Wildlife Division  
Temple Quay House  
Floor 1, Zone 10/D  
2 The Square, Temple Quay  
Bristol BS1 6EB  
Tel: 0117 372 8903  
[www.defra.gov.uk](http://www.defra.gov.uk)

Defra assists in developing wildlife legislation, produces guidance for Local Planning Authorities on planning policy, and determines licence applications for mitigation in relation to developments affecting sand lizards and smooth snakes.

### The Herpetological Conservation Trust

655a Christchurch Road  
Boscombe  
Bournemouth BH1 4AP  
Tel: 01202 391319  
[www.herpconstrust.org.uk](http://www.herpconstrust.org.uk)

The HCT specialises in the conservation of the more threatened species, and the implementation of the UK Species Action Plans. It has extensive experience of habitat management for and field study of all English reptiles. The HCT maintains the national rare reptile and amphibian database, and can provide information on sand lizard and smooth snake status, as well as advice on mitigation for these species.

### Further reading

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