

Wildlife (Jersey) Law 2021
Ecological and Practical Interpretation of Definitions:
Disturbance, Breeding sites and Resting sites of Amphibians and Reptiles

Introduction

Jersey supports a rich diversity of plants, animals and birds, due in large measure to our variety of landscapes and habitats, whether terrestrial or marine. Many of these species are rare or under threat locally or internationally and are in need of protection from activities that can damage their conservation status or lead to their mistreatment.

The Wildlife (Jersey) Law 2021 ('the Wildlife Law') is the main legislation that provides for the protection and conservation of wild animals, wild birds and wild plants in Jersey including its territorial waters. The Law makes it an offence to carry out deliberate or reckless acts affecting protected species, including the killing, capture of species and the disturbance or damage of nests, dens and breeding sites. Protected species include wild birds, mammals, reptiles, amphibians, invertebrates, plants, fungi, marine mammals and fish, and different levels of protection apply according to the conservation of the species in question. In addition, defences and exceptions exist for some activities.

This guidance note has been developed to provide information on what some of the provisions of the law mean in relation to protected amphibian and reptile species, and particularly in relation to what is considered to constitute their breeding sites and resting sites and offences in terms of disturbance of these species.

Please note that this is guidance only and that ultimately it is the role of the courts to interpret and apply the law. If in doubt you may wish to seek your own legal advice.

A detailed consideration of ecological definitions and legislative interpretations of structures and disturbances as they apply to amphibians and reptiles are provided in the following sections:

- **Legal Protection of Amphibians and Reptiles (Section 2).** Information is provided in this section on how the Wildlife Law affords legal protection to amphibian and reptile species in Jersey.
- **Interpretation of Breeding Sites and Resting Sites (Section 3).** Although not all species receive full protection for their breeding sites and resting sites, an overview is provided for all amphibians and reptiles since damage to or disturbance of such sites is also likely to cause other offences (such as killing)
- **Interpretation of Disturbance (Section 4).** An interpretation of the different types of "disturbance" as they apply to amphibians and reptiles is outlined in this section to help explain and clarify the impacts that various human activities may have on these species. To improve understanding of the legislative context of disturbance, the often subtle ways that the various

meanings of this term can change and overlap depending on circumstances are also explained.

- **Activities That May Cause Harm to Protected Amphibians and Reptiles (Section 5).** This section considers a range of human activities that can potentially cause harm to or disturb protected amphibian and reptile species or have negative impacts on their breeding sites and resting sites. How the severity of these impacts can vary is explained and advice is given on how best to avoid them or, alternatively, when a licence and active mitigation measures may be needed.
- **The Amphibians and Reptiles of Jersey (Annex 1).** This annex provides further information about the three species of amphibian and four species of reptile native to Jersey (marine turtles are covered under separate marine guidance). For each species a brief summary is provided of its distribution and conservation status (both internationally and locally for Jersey), plus other key aspects of its ecology that are relevant to this guidance.

It is important to note that the advice provided here is for guidance purposes only. It would be impossible to cover every conceivable situation, so sources of further advice and information are listed in Sections 7 and 8 for those seeking more help. Furthermore, this guidance does not provide details of how to actually carry out appropriate mitigation or compensation, should these be required, since in many cases advice specific to a particular site and set of circumstances will need to be obtained from a professional ecologist to adequately plan and carry out these measures.

Ultimately, of course, only Courts of Law can make definitive decisions about the intent or meaning of legislation. Nonetheless, since the conservation of wildlife is the primary purpose of the Wildlife Law it would always be prudent to follow this guiding principle, and also to err on the side of caution, when deciding if any activity would constitute illegal disturbance to any species or damage to their habitats.

1. Legal Protection of Amphibians and Reptiles in Jersey

1.1. Summary

All species of amphibian and reptile native to Jersey are afforded some level of protection by the Wildlife Law. As a minimum, every amphibian and reptile species is listed on Schedule 1 and is therefore protected against deliberate or reckless killing/harming, selling, keeping, exporting and releasing (plus large-scale capture with nets as covered by Schedule 9) unless the act is authorised under a licence or otherwise permitted according to the Law.

The Western common toad (also known as Jersey toad or Crapaud), agile frog, wall lizard, grass snake and the marine turtles are further protected by their listing on additional schedules that make it an offence to either disturb them and/or damage their breeding and resting sites. It is frequently not obvious at all how they are being affected by disturbance or where their actual nesting and resting sites are to be found. In addition, disturbance can have different meanings

and effects on amphibians and reptiles and, depending on circumstances, the various activities that could potentially cause an offence may create more than one type of disturbance. Furthermore, some of the provisions of the law can become intermingled and overlap for amphibian and reptile species. For example, some types of disturbance may end up inadvertently killing or harming individual animals; clearly, this would mean that this disturbance would still be an offence where palmate newts, green lizards or slow-worms are concerned, even though these species are not specifically protected against disturbance. It is to clarify some of these issues and to assist with decision making that this guidance has been produced, as recommended by Article 51 of the Law.

1.2. Legal Protection of Amphibians and Reptiles. In summary, the Schedules of the Wildlife Law relevant to amphibians and reptiles are:

- **Schedule 1:** lists the species of wild animals that are protected by the Wildlife Law. Those amphibian and reptile species enjoying all the protections conferred by the law, including their specific inclusion on the additional schedules below, are the Crapaud, agile frog, wall lizard, grass snake and the marine turtles. The remaining species, the palmate newt, green lizard and slow-worm, are still protected against killing and harming (Article 7), selling (Article 14), keeping (Article 15), exporting (Article 19) and releasing (Article 20).
- **Schedule 3:** lists species whose dens and nests are additionally protected since they re-use them (agile frog and grass snake). Interestingly, while agile frogs clearly re-use the same “nests” (i.e. breeding ponds) every year, and these therefore warrant strict protection, grass snakes may abandon traditional nesting sites if they are neglected and only use those that have been deliberately disturbed and managed by turning or adding new vegetation (of course this should be done under licence and at the correct time of year). This is because it is the rapid decomposition of fresh organic material, such as plant debris, compost or manure, which produces the heat that incubates their eggs. In the absence of natural nesting sites such as flood debris along rivers or large rotting logs, avoiding the disturbance of grass snake egg-laying sites (e.g. to add fresh plant material) will often ensure that they will be abandoned
- **Schedule 4:** lists species whose breeding sites and resting sites are protected at any time (Part 1: agile frog and grass snake) or only when in use (Part 2: Crapaud, wall lizard).
- **Schedule 6:** lists species which are protected from disturbance (agile frog, wall lizard, grass snake and marine turtles). It should be reiterated that the definition of “disturbance” (like “breeding sites and resting sites”) often used in wildlife legislation is rather a narrow one that is usually more applicable to birds and bats. The types of disturbance that may affect amphibians and reptiles can also physically kill or injure them, which would mean that any activities that may cause disturbance should also be considered in the wider context of Article 7 offences against every species (see Sections 4 and 5)
- **Schedule 7:** lists species which must not be kept in captivity for longer than 48 hours (agile frog and grass snake)
- **Schedule 9:** lists prohibited devices, substances and methods of killing, injuring or taking wild animals (specifically nets for all species of native amphibians and reptiles if these are applied for large-scale or non-selective taking or killing)

Permission to carry out any of the prescribed actions above can be granted in the form of a licence issued by the Minister (Articles 36 and 37), assuming that the reasons for doing so have been adequately justified. Since the granting a licence cannot result in activities that would be detrimental to the population concerned, plans for appropriate mitigation or compensation to ensure this doesn't happen may also need to be demonstrated.

Table 1 lists the schedules and articles that are relevant to each amphibian and reptile species individually. The full text of the Wildlife Law can be downloaded at:

<https://www.jerseylaw.je/laws/unofficialconsolidated/Pages/02.950.aspx>

Table 1: Summary of the Protections Conferred on Amphibians and Reptiles by the Wildlife Law

Species	Schedules and Articles of the Wildlife (Jersey) Law 2021 Relevant to Amphibians and Reptiles					
	Schedule 1	Schedule 3	Schedule 4	Schedule 6	Schedule 7	Schedule 9
	Protected wild animals	Species which re-use dens & nests	Protected breeding & resting sites	Species protected from disturbance	Humane killing or release within 48 hours	Prohibited methods for taking or killing
	Article 5	Articles 5 & 9	Article 5 & 11	Article 5 & 13	Articles 5, 7 & 15	Articles 5, 16 & 18
Palmate Newt <i>Lissotriton helveticus</i>	Protection limited to: Article 7 (killing & harming), Article 14 (selling), Article 15 (keeping), Article 19 (exporting) & Article 20 (releasing)	Not applicable	Not applicable	Not applicable	Not applicable	Nets prohibited if used for large-scale or non-selective taking or killing
Western common toad <i>Bufo spinosus</i>	Enjoys all protections conferred by the Wildlife Law	Not applicable	Breeding and resting sites fully protected from deliberate or reckless damage or	Not applicable	Not applicable	Nets prohibited if used for large-scale or non-selective taking or killing

			disturbance when in use			
Agile Frog <i>Rana dalmatina</i>	Enjoys all protections conferred by the Wildlife Law	Dens and nests that are re-used fully protected from deliberate or reckless damage or disturbance at all times	Breeding and resting sites fully protected from deliberate or reckless damage or disturbance at any time	Species protected from deliberate disturbance at any time	Any disabled or injured individuals must be released within 48 hours (unless humane killing is required)	Nets prohibited if used for large-scale or non-selective taking or killing
Green Lizard <i>Lacerta bilineata</i>	Protection limited to: Article 7 (killing & harming), Article 14 (selling), Article 15 (keeping), Article 19 (exporting) & Article 20 (releasing)	Not applicable	Not applicable	Not applicable	Not applicable	Nets prohibited if used for large-scale or non-selective taking or killing
Wall Lizard <i>Podarcis muralis</i>	Enjoys all protections conferred by the Wildlife Law	Not applicable	Breeding and resting sites fully protected from deliberate or reckless damage or disturbance when in use	Species protected from deliberate disturbance at any time	Not applicable	Nets prohibited if used for large-scale or non-selective taking or killing
Slow-worm <i>Anguis fragilis</i>	Protection limited to: Article 7 (killing & harming), Article 14 (selling),	Not applicable	Not applicable	Not applicable	Not applicable	Nets prohibited if used for large-scale or non-selective taking or killing

	Article 15 (keeping), Article 19 (exporting) & Article 20 (releasing)					
Grass Snake <i>Natrix helvetica</i>	Enjoys all protections conferred by the Wildlife Law	Dens and nests that are re-used fully protected at all times	Breeding and resting sites fully protected from deliberate or reckless damage or disturbance at any time	Species protected from deliberate disturbance at any time	Any disabled or injured individuals must be released within 48 hours (unless humane killing is required)	Nets prohibited if used for large-scale or non-selective taking or killing
Marine turtles* (all species)	Enjoy all protections conferred by the Wildlife Law	Not applicable	Breeding and resting sites fully protected from deliberate or reckless damage or disturbance at any time	Species protected from deliberate disturbance at any time	Not applicable	Nets prohibited if used for large-scale or non-selective taking or killing

*The only truly native marine turtle species, and the one most likely to be encountered in Jersey waters, is the leatherback turtle, *Dermochelys coriacea*. However, four other turtle species may very occasionally be encountered and although all are technically vagrants, in that they have invariably become disorientated in some way and have left their normal ranges, they still appear in Jersey waters naturally. Therefore any marine turtle encountered at sea, or found stranded on shore, should be treated as having the same levels of legal protection under the Wildlife Law. No marine turtles breed or nest this far north and the relevant interpretation of “resting sites” and “disturbance” with regards to these species is covered under separate marine guidance. Consequently, marine turtles will not be considered further in this guidance, which covers the terrestrial amphibian and reptile species only.

2. Definition of Breeding Sites and Resting Sites

2.1. Summary

Section 1 provided an overview of the legal protection conferred to each species by the Wildlife Law, discussing the differences between the full protection enjoyed by four of the native terrestrial species and the partial protection afforded to the remaining species (which are listed in fewer Schedules as a result). The full protection enjoyed by four of the species includes their “breeding sites” (including any kind of nest) and “resting sites” – what these terms mean for each of these species is summarised in Table 2 below. It should be noted that these terms may not be equally applicable to all species. For example, while amphibian breeding sites will often be clearly recognisable habitat features (i.e. ponds) this definition is not always so clear if they spawn in smaller, temporary water bodies. Reptile breeding sites are always far less obvious than those of amphibians, especially when compared to those of other wildlife protected in Jersey, such as bird’s nests. Similarly, the specific “resting sites” of amphibians and reptiles can be incredibly difficult to define and pinpoint in the same way as, for example, bird or bat roosts usually are, and it is often more practical to consider whole areas of suitable habitat as the resting sites for these species.

Table 2: Summary of Breeding Sites and Resting Sites of Fully Protected Amphibians and Reptiles on Jersey

Species	Breeding Sites	Resting Sites
<p>Crapaud (Western common toad) <i>Bufo spinosus</i></p>	<p>Freshwater ponds and lakes of various sizes, including garden ponds, fish-ponds ornamental ponds and occasionally ditches. Most breeding sites will be exposed to sunlight for all or part of the day (very shaded ponds are usually avoided)</p>	<p>Mostly active by night, Crapauds often shelter during the day under logs, bark debris, rocks or large items of rubbish, also in grass tussocks, animal burrows, cracks in the soil. Can also be found hiding under plants, log-piles or equipment in gardens. Animals seek refuges deeper underground during winter.</p>
<p>Agile Frog <i>Rana dalmatina</i></p>	<p>Very limited number of warm, sunny ponds in the wooded fringes of heathland/dunes (where the agile frog breeding sites are now protected by fencing) plus a handful of private gardens.</p>	<p>Active by day and night, agile frogs tend not to shelter under objects or debris as much as Crapauds. Resting sites such as grass tussocks or leaf litter may therefore be temporary and provide only sparse cover but be very widely distributed. Agile frogs may hibernate on land in burrows and under logs or rocks, or underwater in the breeding ponds.</p>
<p>Wall Lizard <i>Podarcis muralis</i></p>	<p>Eggs are laid in loose soil in and around the forts inhabited by this species in Jersey (including in flower beds), as well as in wall crevices and under rocks and stones. The locations of breeding sites are usually</p>	<p>Primarily use crevices and cracks in the walls of old forts, also under rocks and occasionally under logs and plant debris. Hibernation is in similar shelters and is often intermittent, with wall lizards being</p>

	selected so they can be warmed by the sun	active during any winter month in mild weather
Grass Snake <i>Natrix helvetica</i>	Eggs usually laid in piles of decomposing vegetation (including compost and manure heaps) or rotting logs and stumps, occasionally in areas of deep moss or animal burrows	Grass snakes make long distance movements throughout the active season, so they simply rest under any suitable vegetation cover, logs and other debris. Grass snakes can hibernate singly in suitable holes, but may also gather in communal hibernacula, e.g. in favoured burrows, old root holes or piles of debris

It should also be noted that, while the breeding sites and resting sites of some species are not protected, even if the animals themselves are, there is some overlap in the potential offences that may be caused. For example, damage to a breeding site that also kills individual amphibians or reptiles, even if the breeding sites of the species concerned are not protected, would clearly still be an offence. To help avoid this kind of situation, further information is provided below (Sections 3.2. – 3.8) about the key habitat features that may constitute breeding sites and resting sites for all amphibian and reptile species native to Jersey.

2.2. Palmate Newt (*Lissotriton helveticus*)

Palmate newts breed in a wide range of water bodies, from small lakes and ponds (including garden ponds) to ditches, temporary pools and even wheel ruts. Although they can breed in water bodies occupied by fish, they are not as successful as they are in fish-free breeding sites. While they are largely terrestrial outside the breeding season, and immature animals spend their first two or three years on land, palmate newts will also frequently enter aquatic habitats to forage for food such as small invertebrates. It is therefore not unusual to encounter them in a variety of water bodies that they don't use for breeding at all, meaning that they can be present in aquatic habitats at almost any time of the year, not just the breeding season. Palmate newts are encountered on land much less frequently than they are while using aquatic habitats. When foraging they can appear anywhere in suitable habitats, and they often climb into low vegetation and trees. Since they are nocturnal on land, they will even forage in completely open areas, such as short mown grassland, but they always need abundant cover, both during daylight hours and for winter hibernation (although some individuals will hibernate in ponds). Suitable cover may include tree and bark debris, rocks, grass tussocks, animal burrows, cracks in the soil, garden equipment and even litter. Pinpointing palmate newt "resting sites" is therefore far from straightforward.

2.3. Crapaud (Western common toad) (*Bufo spinosus*)

Crapauds utilise a range of different water bodies for breeding and have adapted well to garden ponds in many areas of Jersey. In contrast to most other amphibians, Crapauds regularly breed in water bodies with predatory fish present since their tadpoles are so distasteful. Crapauds forage at night on land, often sitting and waiting for their invertebrate prey in quite exposed locations (garden patios being the most frequently observed by humans) but during daylight hours they require secure, humid cover for shelter. They use similar types of cover to palmate newts (tree debris, rocks, grass tussocks, etc.) but tend to prefer larger objects to hide under, including sheds and decking areas in gardens. Crapauds frequently utilise logs and bark debris for shelter and a log pile in suitable habitat will often harbour a toad or two. A common habitat of many toad species is the use of a particularly favoured shelter for long periods, sometimes years on end, although of course identifying the locations of such resting sites is far from easy. Crapauds hibernate on land, rather than in water bodies, although this may be in the immediate vicinity of their breeding ponds.

2.4. Agile Frog (*Rana dalmatina*)

Agile frogs can breed in a variety of ponds, ditches and flooded areas on the continent, but the tiny population in Jersey is much constrained to a few small ponds, which are now fenced off and well protected or are found in private gardens. Agile frogs can be active by both day and night, using cover such as tree and back debris, rocks, grass tussocks, animal burrows, cracks in the soil, equipment in gardens and even litter. Pinpointing agile frog “resting sites” is therefore far from straightforward.

2.5. Green Lizard (*Lacerta bilineata*)

Green lizards usually breed in April and the females lay between 5 and 20 or so eggs in May or June. The eggs are laid in warm, open and smallish patches of sand or loose soil within a mosaic of vegetation (and sometimes within dense vegetation itself, e.g. in the middle of a clump of dwarf gorse) and they tend to avoid large expanses of bare ground. Since the female also fills in the short egg-laying burrow she has made, green lizard nesting sites can be almost impossible to find unless egg laying activity has been observed. However, abandoned egg-laying burrows, where the female has decided the conditions are unsuitable, are not hidden so may indicate the presence of nearby breeding sites. Juvenile green lizards hatch in August or September so the eggs may be present in the ground for three months or more – since they are also only laid at a depth of around 10cm this makes them very vulnerable. Green lizards are diurnal, basking and foraging among or very close to dense vegetation cover that they can flee to if threatened. Grass tussocks and patches of heather provide suitable cover, for both escaping predators and for nocturnal shelter, and the spiny protection afforded by gorse and bramble bushes is particularly favoured. Although large grass tussocks can be used for hibernation, most green lizards probably spend the winter underground in burrows they have either dug themselves or have been made by other animals such as rabbits.

2.6. Wall Lizard (*Podarcis muralis*)

After mating between March and June, wall lizards deposit from 2 to 11 eggs from April to as late as August. The females usually dig their own burrows in loose soil, such in flower beds at the base of fort walls, but they can also lay eggs in wall crevices and under loose bricks and rocks. An important feature in all forts occupied by wall lizards on the island is this loose brickwork that creates the abundant gaps and crevices that this species also uses for shelter and hibernation. Repairs and improvements to old walls, such as the use of mortar “pointing” to fill in gaps and stabilise loose brickwork, can therefore be disastrous for this species.

2.7. Slow-worm (*Anguis fragilis*)

Female slow-worms retain the eggs in their bodies until the young are ready to hatch. This has advantages in that the females can precisely adjust incubation temperatures as required. However, it also means that slow-worms don't have breeding sites as such. In addition, their resting sites are frequently the same habitat features where they spend virtually all of their time. i.e. in dense vegetation and under stones, logs and other debris. They are particularly fond of sheltering and hibernating in compost heaps in gardens. Slow-worms may also hibernate underground in animal burrows, root holes and loose soil but groups have also been discovered in England hibernating together in large grass tussocks, particularly in wetland areas prone to winter flooding.

2.8. Grass Snake (*Natrix helvetica*)

Mating takes place in April and May, with several males sometimes gathered round one female; although this species is good at avoiding people for most of the year, these so-called “mating balls” of grass snakes are more prone to disturbance. Large females can lay up to 40 or 50 eggs (although the number is usually less than this) between late May and July, sometimes travelling several kilometres to suitable breeding sites. The eggs are usually laid in rotting vegetation (including compost and manure heaps), decomposing logs and stumps, in layers of deep moss or in burrows, with the young hatching later in the summer. Where large heaps of plant material are used their breeding sites can be fairly obvious, especially where these have been specifically created as grass snake egg-laying sites – otherwise they can be very difficult to pinpoint. Nonetheless, particularly suitable breeding sites can attract several females, with many eggs being laid together as a result, so it is important to identify and protect such key habitat features whenever possible. Since grass snakes can travel long distances over a year around their large home ranges, identifying specific resting places is difficult. When not moving or foraging, for example when digesting prey, preparing to shed their skin or resting, they simply use any dense vegetation, burrows, stumps, logs, loose soil (e.g. under bracken stands) and other debris for shelter as they encounter them. Grass snakes may hibernate singly but, in some cases, several may share particularly favourable overwintering sites; these “communal hibernacula” can be crucial to protect from damage where they occur, assuming they can be identified by appropriate surveys in the first place.

3. Definition of Disturbance

3.1. Summary

When it comes to wildlife the term “disturbance” can have several different meanings and, depending on the species, each of these disturbance types can have widely varying effects, some of which may even be positive. This section summarises what is meant by disturbance in the context of amphibians and reptiles and their protection under the Wildlife Law and should assist people in deciding if an offence is likely to be committed by any particular activity and if a licence or mitigation is required. The intent or recklessness of any potential offence also need to be determined and of course there will always be cases when the actual offence even taking place will be difficult to prove. As mentioned in Section 3, some situations may be further complicated by disturbance of one type or another adversely affecting species that are not legally protected from disturbance but causing a different offence. A useful way of dealing with this problem and defining what is meant by the disturbance of wildlife was first formalised by Liddle (1997) and was specifically adapted for amphibians and reptiles by Edgar (2002). This categorises disturbance into four distinct types:

- **Disturbance Type 1:** Direct disturbance of amphibians and reptiles with no physical contact
- **Disturbance Type 2:** Direct disturbance of amphibians and reptile with physical contact
- **Disturbance Type 3:** Direct disturbance of amphibian and reptile habitats
- **Disturbance Type 4:** Indirect effects of disturbance on amphibians and reptiles and/or their habitats

3.2. Disturbance Type 1

This involves the direct disturbance of amphibians and reptiles but with no physical contact. This category includes any situation where, although no immediate physical harm is caused to individual animals, the mere presence of humans (or their pets such as dogs) may directly alter the natural behaviour or movements of any amphibians and reptiles or adversely affect aspects of their life history in any other way. A range of physiological effects caused by human disturbance have been experimentally demonstrated for some species, especially where it is interpreted by the animals as predation. If the disturbance is intense and/or persistent enough the stress and energy expenditure involved in the frequent escape behaviour it elicits may negatively impact individual animals to the extent that their chances of survival are compromised. In addition, long term disturbance that impedes the movements of populations may be particularly detrimental if this reduces opportunities for genetic exchange (Doherty *et al* 2021).

On the other hand, some amphibians and reptiles are barely affected by type 1 disturbance and wall lizards in particular often become so accustomed to the presence of humans that they only react when attempts are made to touch them. It is also important to ensure that any perceived impacts are actually being caused by type 1 disturbance and not some other factor. The declines of some reptile populations, for example, have been blamed on too many people using their habitats for informal recreation, until it was clearly shown that the species in question was very resilient to the presence of humans, and it was actually damaging alterations to their habitat that were the cause, something that was easily rectified (see section 4.4).

3.3. Disturbance Type 2

This type of disturbance involves physical contact with amphibians and reptiles and includes any activities that result in the direct killing or wounding of amphibians and reptiles, or their removal from the population in any other way, and that would not otherwise occur in the absence of that activity. In the case of the species native to Jersey, this might involve malicious killing (especially of grass snakes and slow-worms), accidental killing (such as the trampling of juvenile amphibians as they emerge from ponds), casualties caused by vehicles using their habitats and collecting animals as pets. This is the simplest disturbance type to which legal offences can be attributed, if they can be proved that is, as the negative effects are usually obvious.

3.4. Disturbance Type 3

This category includes any human activities, deliberate or otherwise, that cause direct disturbance of amphibian and reptile habitats in general, as well as specific impacts on breeding and resting sites. These impacts may involve obvious catastrophic damage or result in much more subtle changes to amphibian and reptile habitats that subsequently affect the natural behaviour, movements, life history characteristics or survival of individual animals or even entire populations. Of course the deliberate management of habitats by humans, although this clearly causes short-term disturbance, can be highly beneficial to amphibian and reptiles in the long-term; whether or not this activity still constitutes an offence, and should therefore be licenced, is the subject of much debate in other countries.

3.5. Disturbance Type 4

This category of disturbance encompasses any additional effects that are related to human activities and that may indirectly affect amphibian and reptile populations in any way. These include the impacts of the introduction of various invasive plant and animal species, littering and illegal activities such as off-road vehicle use and arson.

3.6. Vulnerability of Amphibians and Reptiles to Disturbance

The amphibian and reptile species native to Jersey exhibit a range of behaviours and habitat preferences that mean that their vulnerability to disturbance naturally varies. Table 2 summarises the potential vulnerability of each species to all disturbance types, both on individual animals and, in particular, those population level effects that may alter conservation status. It should also be noted that in addition to different species naturally varying in their responses, the frequency, intensity and timing of each type of disturbance can greatly affect the severity of any negative effects. Finally, it is important to ensure that a recorded decline of any species, even in the presence of severe disturbance, is not due to natural population fluctuations: these can be especially pronounced in amphibians and can obscure other factors (Pechmann *et al* 1991).

Table 3: Vulnerability of Amphibians and Reptiles to Disturbance

Species	Disturbance Type 1:	Disturbance Type 2:	Disturbance Type 3:	Disturbance Type 4:
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	No Physical Contact	Physical Contact	Effects on Habitats	Indirect Effects
Palmate Newt <i>Lissotriton helveticus</i>	Low	Low	Low	Medium
Crapaud <i>Bufo spinosus</i>	Low	High	High	High
Agile Frog <i>Rana dalmatina</i>	Medium	High	High	High
Western Green Lizard <i>Lacerta bilineata</i>	Medium	High	High	High
Wall Lizard <i>Podarcis muralis</i>	Medium	Medium	Medium	Medium
Slow-worm <i>Anguis fragilis</i>	Low	Medium	Medium	Medium
Grass Snake <i>Natrix helvetica</i>	Medium	High	High	High

4. Activities That May Cause Harm to Protected Amphibians and Reptiles

4.1. Summary

A number of human activities can be predicted to cause harm or disturbance to amphibians and reptiles, or damage their habitats, and these should be considered when considering if an offence is likely to be, or already has been, committed. In some cases, these activities are fairly benign and may not even require a licence, whereas in other situations they will quite clearly have a negative impact and constitute an offence.

4.2. Types of Activity that May Cause Harm

A wide variety of activities may potentially cause harm to protected amphibians and reptiles, but these can be grouped into the following broad categories:

- **Disturbance of Amphibians and Reptiles for Negative Reasons.** While these activities can be quite obvious when it comes deciding if offences have been committed, especially when corpses are discovered, the malicious targeting of amphibians and reptiles can also be difficult to prove if the perpetrators are not caught in the act or observed by witnesses
- **Disturbance of Amphibians and Reptiles for Negative Reasons.** This is an often underrated cause of disturbance and there have been many cases elsewhere of enthusiastic people carrying out otherwise positive and useful activities, such as surveying for amphibians and reptiles, without considering potential negative impacts or even applying for a licence

- **Recreational Activities.** Relevant to many sites in Jersey, most recreational activities are harmless, or cause only mild indirect effects, but others have the potential to cause serious negative impacts on amphibian and reptile populations and their habitats
- **Commercial Activities.** In many countries, permanent land use changes through development have been the focus of wildlife protection, licencing and mitigation efforts, while the direct and indirect impacts of other commercial activities have largely been ignored (even those these impacts can often be reduced or mitigated for by quite simple measures)
- **Habitat Management.** Often overlooked, or not seen as a problem by the wildlife licencing authorities in many countries, various habitat management activities can have a range of direct and indirect effects on amphibian and reptile populations, sometimes to the point of causing local extinctions (Edgar *et al* 2010; Baker *et al* 2011). Conversely, short-term disturbance by management that effects a few individuals may actually benefit the population. Habitat management should therefore include appropriate risk assessments at the very least and, if necessary, be properly regulated
- **Other Activities with Indirect Effects.** A number of other activities that seemingly have little to do with amphibians and reptiles may also cause significant indirect harm, disturbance or damage to breeding and resting sites.

Table 4 indicates the potential for various activities to cause negative disturbance impacts on amphibians and reptiles, or to damage their breeding and resting sites. Some activities such as surveys, educational activities, or necessary habitat management will be largely positive, but it is still important to ensure that these are adequately controlled and recorded. Although the severity of impacts may vary, Table 4 clearly shows the importance of controlling habitat management just as rigorously as many commercial activities. Particular care should therefore be taken to ensure that habitat management is not carried out unchecked as certain activities can have significant negative impacts on the conservation status of amphibian and reptile species, even if they benefit other wildlife. It should also be borne in mind that some of the activities listed in Table 4 may result in multiple offences, for example by simultaneously causing more than one type of disturbance, by damaging multiple breeding sites or resting sites and/or directly killing or harming more than one species of amphibian or reptile.

Table 4: Activities that May Cause Harm to Amphibians and Reptiles

Types of Activity	Examples
Disturbance for Negative Reasons	Persecution. Deliberate and targeted persecution of amphibians or reptiles is thankfully rare (grass snakes and slow-worms are the most common victims), although a single persistent person can cause considerable damage to populations.
	Incidental Encounters. These may result in the disturbance, trampling, killing, injuring or capture of individual amphibians and reptiles. This can include the disturbance of animals, or their breeding and resting sites, by dogs.
	Collecting. This activity involves the removal (and sometimes exporting) of animals from populations, either on a small scale for pets

	<p>or on a large-scale commercial basis, which has the same effect on populations as killing them.</p>
<p>Disturbance for Positive Reasons</p>	<p>Amphibian and Reptile Surveys. Information about distribution, population trends and habitat condition is vital for determining status and the success of conservation actions for amphibians and reptiles. However, unless correct protocols are followed, and this activity is adequately regulated, the disturbance involved when using a range of survey techniques (such as traps, nets and artificial refugia, or simply searching visually) could potentially have negative impacts.</p>
	<p>Other Wildlife Surveys. There are situations where otherwise properly regulated monitoring for other species can have negative impacts on protected amphibians and reptiles. Examples include netting in ponds and the setting of traps; even small alcohol pitfall traps for sampling invertebrates can be lethal for juvenile amphibians and reptiles.</p>
	<p>Photography. Generally, most surveyors will know how to minimise disturbance to amphibians and reptiles while photographing them. However, the growing popularity of this hobby, fuelled by reasonably priced high-quality digital cameras and social media, has led to quite severe disturbance of animals in the pursuit of the perfect photograph and even, at particularly popular sites, to commercially run photo-tours being organised without any kind of regulation.</p>
	<p>Educational Activities. While this is an overwhelmingly positive activity, certain aspects can be damaging to some species if not properly controlled. Examples include the collection of animals for the classroom, which can lead to animal mortality or welfare issues, or the presence of large numbers of children in the field, which can result in the trampling of habitat features or the animals themselves (young Crapeau that can emerge from ponds <i>en masse</i> are particularly vulnerable)</p>
<p>Recreational Activities</p>	<p>Informal Recreational Activities. The most frequent causes of disturbance that this category includes are walking (especially with dogs), jogging, playing games, horse riding and cycling in particularly sensitive areas. The popularity of picnicking outdoors can also lead to problems with litter and accidental fires, especially when disposable barbeques are used.</p>
	<p>Formal Recreational Activities. Activities such as organised runs, cycle races and orienteering events tend to be less common than everyday recreational use, especially on protected sites, but have the potential to cause large-scale disturbance and habitat damage if they occur in particularly sensitive areas or at the wrong time of year.</p>
	<p>Freshwater Fishing. Most amphibian breeding ponds are not used for recreational fishing but there have been instances in the UK when this activity has had impacts on species such as common toads (especially through the trampling of juveniles as they leave the water)</p>

	<p>or where grass snakes have been viewed as a threat to fish stocks and are deliberately killed as a result.</p>
Commercial Activities	<p>Permanent Land Use Change. The development of any habitats supporting protected amphibians and reptile will obviously have a direct impact on many individuals, and, in many cases their wider populations, and should be regulated to ensure that the overall conservation status of these species is not reduced. Any licenced mitigation and compensation measures must be monitored, especially as developments of various kinds usually cause new, indirect effects on adjacent habitats, including the presence of increased traffic, gully pot drains trapping large numbers of migrating amphibians, an increase in recreational activities and pets such as cats and dogs from new housing, and so on.</p>
	<p>Temporary Developments. Work such as the installation of underground pipelines and cables or overhead power lines only causes temporary disturbance to habitats. However, if not carefully planned and regulated, such activities can have unnecessarily damaging impacts on amphibians and reptiles, killing many individual animals (particularly when they are hibernating and cannot escape) or permanently altering their habitats.</p>
	<p>Tree Planting. Since many species, especially reptiles, require open habitats, the deliberate planting of trees can be highly damaging to populations. Amphibians may benefit from some types of tree planting but not others. However, adequate surveys and mitigation plans can highlight areas and working practices to avoid and reduce overall negative impacts.</p>
	<p>Farming. Where protected species are already present on farmland the current management must be creating conditions to their liking. However, changes to farming practices or damage to specific features on a farm, such as ponds, should be considered in the context of protected species.</p>
	<p>Fish Stocking. An increasing problem on the mainland is the unauthorised stocking of water bodies, even quite small ones, with game fish. This is unlikely to be a major issue in Jersey as palmate newts often breed in water bodies that are unsuitable for fish stocking and toads tolerate fish anyway. However, this activity may require consideration as and when agile frogs (hopefully) expand their range again since the tadpoles of this species are highly vulnerable to fish predation.</p>
Habitat Management	<p>Habitat Restoration and Re-creation. While usually creating positive outcomes for wildlife, the restoration or re-creation of degraded habitats can still dramatically alter existing local conditions (ground temperature, humidity, vegetation cover, water tables, etc.). Where existing amphibian and reptile populations persist, or even depend on the habitat being removed, this type of management can</p>

	<p>produce significant negative impacts if not properly planned or carried out sensitively .</p> <p>Habitat Maintenance. In the absence of many natural processes, the periodic ongoing management of many conservation dependent habitats is usually necessary to ensure their persistence and the survival of the species that depend on them. This has sometimes caused problems for amphibians and reptiles where habitat maintenance work has been carried out too intensively or too frequently, so that most of the low vegetation cover and habitat complexity that they require is replaced by short, very exposed habitats. Some practices that are highly beneficial at the right levels (such as grazing), can be incredibly negative for amphibians and reptiles when overdone.</p> <p>Use of Chemicals. Amphibians, particularly their aquatic habitats, as well as reptiles are extremely sensitive to a wide range of chemicals so the use of herbicides and pesticides to control other undesirable plant and animal species should always be properly regulated and follow strict protocols.</p> <p>Pond Restoration and Maintenance. The restoration and maintenance of ponds is always seen as a quick and easy win for wildlife conservation, and it often is, but the existing presence of protected amphibian populations (and indeed other wildlife) must be considered first to ensure that conditions aren't changed to their detriment.</p> <p>Grass Snake Egg-Laying Sites. Where egg-laying sites are deliberately provided for grass snakes, annual maintenance may be necessary to ensure they remain suitable. Obviously, if this is carried out at the wrong time of year when grass snake eggs are actually present, far more harm than good can be done. Since most grass snake populations are known from protected sites, bringing in vegetation from outside the site to create or supplement nest sites is restricted and this activity is limited to using the vegetation already on site.</p> <p>Other Habitat Management. A range of other management activities may also have effects on the conservation status of amphibians and reptiles so, even if not mentioned in this guidance, their potential impact on any protected species known to be present should always be considered.</p>
<p>Other Activities with Indirect Effects</p>	<p>Introduction of Non-native Species. Although many introduced species cause no major effects, the more invasive plants and animals can have very serious impacts on the conservation status of amphibians and reptiles, sometimes eradicating entire populations and/or totally altering their habitats. Any non-native species introduction could also introduce exotic pathogens to Jersey, with unknown but potentially catastrophic effects on native wildlife. The</p>

	<p>introduction of non-native species is covered by Articles 20, 23 and 25 of the Wildlife Law but this practice still happens illegally (especially when large numbers of people use a site) so vigilance is always required to detect problem species early. Predation by domestic cats provides an interesting dilemma as while they can cause significant damage to amphibian and reptile populations (among others), allowing them to roam where protected species occur has only recently come under legal scrutiny in a few countries.</p>
	<p>Illegal Activities. A range of often illegal activities on protected sites, such as motorbike scrambling, arson, wild camping and so on, can have detrimental effects on amphibians and reptiles or their habitats and, if so, should be treated as offences.</p>
	<p>Pollution. Chemical pollution and poisoning incidents, whether accidental or deliberate, are always undesirable but they are particularly devastating in small amphibian breeding ponds, where relatively small amounts of chemicals or other pollutants can wipe out all aquatic life.</p>
	<p>Wall Repairs. As mentioned in Section 3.6., the simple and often necessary act of repairing and pointing the walls of Jersey’s historic forts can have highly negative consequences for wall lizards where these species are present so, if necessary, this activity should be carefully planned and regulated.</p>
	<p>Litter. The dumping of litter and rubbish in the countryside can have all sorts of negative consequences for amphibians and reptiles; the trapping of small animals in discarded bottle being just one example. Conversely, the tidying up of litter can also have unintended consequences since many types of debris are highly attractive to amphibians and reptiles as shelter (although whether or not clearing up rubbish could ever be considered an offence is open to debate).</p>
	<p>Over-tidying the Countryside. Much damage is caused to amphibian and reptile populations by the perceived need to “tidy up the countryside”; for example, the unnecessary mowing of rough grassland and road verges (i.e. where there is no safety hazard) is highly likely to kill reptiles. There are encouraging signs that this trend has started to reverse, but when it does still take place where protected species are likely to be present the potential for causing an offence should always be considered. The practice of branchage in Jersey, where trees, branches, brambles and other obstructions that encroach on public roads or footpaths must be removed by adjacent landowners and householders (subject to a fine) raises some interesting legal dilemmas where protected species may be using the same areas.</p>

4.3. Potential Impacts of Harmful Activities

The activities listed in Section 4.2. vary in their potential to actually cause harm to protected amphibians and reptiles. Table 5 indicates this potential in relation to the different types of disturbance outlined in Section 4, as well as breeding sites and resting sites, and should be considered when assessing the risks of causing disturbance or harm to these species and their habitats.

Table 5: Potential for Various Activities to Cause Disturbance or Harm to Amphibians and Reptiles

Activity	Disturbance Type 1: No Contact	Disturbance Type 2: Direct Killing or Harm	Disturbance Type 3: Effects on Habitats	Disturbance Type 4: Indirect Effects	Damage to Breeding Sites and Resting Sites
Negative disturbance	High	High	High	Low	High
Positive disturbance	Medium	Low	Low	Low	Low
Recreational Activities	High	Low	High	High	Medium
Commercial Activities	High	High	High	High	High
Habitat Management	High	High	High	High	High
Other Activities	Medium	High	Medium	High	High

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7. Further Advice

Sources of further information and advice include:

Department of the Environment, Government of Jersey:

[Species and habitats \(biodiversity\) \(gov.je\)](https://www.gov.je/species-and-habitats/biodiversity)

Amphibian & Reptile Conservation Trust (ARC): <https://www.arc-trust.org/>

Jersey Amphibian & Reptile Group (JARG): <https://groups.arguk.org/jarg>

Jersey Biodiversity Centre: <https://jerseybiodiversitycentre.org.je/index.php/>

Durrell Wildlife Conservation Trust: <https://www.durrell.org/wildlife/>

National Trust for Jersey: <https://www.nationaltrust.je/project/wildlife/>

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Annex 1. The Amphibians and Reptiles of Jersey

1. Summary

The following sections provide a brief outline of the amphibian and reptile species native to Jersey, including their distribution and general ecology (especially where and when they are most likely to be encountered). The conservation status of each species is also mentioned – all are listed as “Least Concern” on the international IUCN Red List of Threatened Species: <https://www.iucnredlist.org/>). Although no formal Red List assessment has been undertaken at a local level, so there are no objective definitions for extinction risk available for Jersey, Ward & Wilkinson (2019) provide a detailed analysis of recent survey data that indicates the distribution and abundance of all amphibian and reptile species. While there have been numerous changes to the scientific names of European amphibians and reptiles in recent years, the names used here follow the most recently accepted taxonomic lists (Speybroeck *et al* 2016; 2020). Common names can vary from region to region, and of course with different languages, so those used here are the ones that would be most widely recognised in Jersey.

Seven species of amphibian and reptile are native to Jersey in various terrestrial habitats above the high-tide mark. Some individuals of one non-native reptile, the red-eared slider or terrapin (*Trachemys scripta elegans*), have previously been recorded in Jersey, mostly in freshwater bodies along the west coast, although they now appear to have disappeared.

The native terrestrial species are all confined to Jersey itself and none are present on the smaller islands of the Bailiwick, such as Les Minquiers, Les Écréhous, Les Pierres de Lecq, Les Dirouilles or other offshore rocks. Semi-natural habitats such as heathland, sand dunes, grassland, cliffs and woodland, many of which are now protected, still cover about a quarter of the main island of Jersey and are where some of the most significant populations of amphibians and reptiles occur (Edgar 2010). Despite this, some species may be encountered in the farmland that covers over half of Jersey, breeding in reservoirs and also utilising garden ponds within some of the urban habitats that occupy another 20% or so of the island. Since the highest point of Jersey (Les Platons) is only 143m, nowhere on the island is above the altitudinal limit of any amphibian and reptile species at this latitude (which would be over 500m for the hardiest species).

The brief outline of the ecology of each species is not intended to be comprehensive (there are plenty of other references and guides that provide detailed information) but to indicate where and when animals are most likely to be encountered. The temperate climate of Jersey means that various species can be active from January to November, and wall lizards in particular can be active during any month of the year if the weather is mild enough. This means that there is no prolonged hibernation period on the island and that the potential disturbance of amphibians and reptiles should be a consideration throughout the year.

2. Palmate Newt (*Lissotriton helveticus*)

2.1. Distribution. Western Europe, including northern Portugal and Spain, most of France, Belgium, Luxemburg and Britain (including Jersey, but not Guernsey) and parts of the Netherlands, Germany, Switzerland and the extreme west of the Czech Republic. The palmate newt is widely distributed over much of Jersey in suitable habitats.

2.2. Conservation Status. The palmate newt has been assessed by the IUCN Red List as Least Concern internationally and is no danger of extinction. This species is widespread and abundant in Jersey, although noticeably less so than the Crapaud (Ward & Wilkinson 2019).

2.3. Ecology. The palmate newt is an opportunistic species that occurs in a variety of natural, semi-natural and anthropogenic habitats. In Jersey it can be found in woodland, rough grassland, farmland, gardens, heathland and sand dune sites. Breeding activity usually commences during February or March and may last until May or June. Depending on the weather, palmate newt larvae may be present in breeding sites for a further two or three months or even longer. Palmate newts are mainly nocturnal when using terrestrial habitats but can frequently be encountered during daylight hours when in water.

3. Crapaud (Western common toad, Jersey toad) (*Bufo spinosus*)

Other common names include the common toad, western toad, Jersey toad and Crapaud.

3.1. Distribution. The worldwide distribution of the Crapaud includes Jersey (but not Guernsey), western France, (bounded by a line from Normandy in the northwest to the southeast of the country), Spain, Portugal and northwest Africa. Note that this species was formerly considered to be the more widespread common toad, *Bufo bufo*, before it was recognised as *Bufo spinosus* by Arntzen *et al* (2014). This change to its taxonomic status means that the Crapaud in Jersey is now a different species to the common toad found in the UK (and also that the British Isles gained an additional amphibian species).

3.2. Conservation Status. The IUCN Red List status of *Bufo spinosus* is Least Concern. While this species has suffered significant decline locally, the Crapaud is probably the most widespread and abundant amphibian in Jersey, occurring at a variety of sites across the island (Wilkinson 2007; Wilkinson & Starnes 2016; Ward & Wilkinson 2019).

3.3. Ecology. Crapaud can be found in a range of habitats across the island, from woodland to gardens, but are more frequent in the semi-natural habitats in the west and southwest. This is

partly due to the lower density of roads in these areas since toads are very susceptible to road traffic mortality when moving to and from their breeding ponds (such migrations may occur over a kilometre or more). Crapauds usually breed in January or February in Jersey, with the adults present in the water for several weeks. They sometimes returning for a second bout of egg-laying later in the year after the frosts have ended. The tadpoles emerge from the water after two or three months and then, apart from the short breeding season each year, they spend the rest of their lives on land.

4. Agile Frog (*Rana dalmatina*)

4.1. Distribution. Widely distributed in western, central and southeast Europe, from northern Spain and western France to western Turkey, with a number of isolated populations in northern Germany, southern Scandinavia and Jersey. The agile frog is absent from Guernsey and the UK. In Jersey this species is now confined to a very small area in the southwest of the island.

4.2. Conservation Status. While listed by the IUCN Red List as Least Concern internationally, the Jersey population was once considered to be in imminent danger of extinction and only intensive conservation efforts have prevented its loss as a native species (Agile Frog Group 2000; Baker & Gibson 1995; Gibson & Freeman 1997; Racca 2002, 2005; Ward *et al* 2016). The Jersey agile frog population is now considered stable, with further increases expected due to the work of the local Species Recovery Programme for this species (Ward & Wilkinson 2019).

4.3. Ecology. Across much of their range, agile frogs are strongly associated with humid deciduous woodland, plus any open grasslands and meadows adjacent to them. In the past, agile frogs were more widely distributed in other habitats on the island, although they are now largely confined to scrubby areas and small ponds on relic dune habitat at L'Ouaisné Common, plus a few garden ponds in St. Brelades Bay and the Les Ruisseaux area. Breeding usually occurs in February and the tadpoles emerge from the water within three months. Agile frogs then spend most of their lives on land.

5. Green Lizard (*Lacerta bilineata*). Also known as the western green lizard.

5.1. Distribution. Occurs in western Europe in northern Spain, across most of France and Italy and parts of western Germany. Island populations include Jersey, Sicily and Elba. This species has also been introduced to Guernsey and to southern England. In Jersey this distribution of the green lizard has been reduced from its past extent although it is still a widespread species in coastal habitats (Ward & Wilkinson 2019). Its main stronghold is the west and south-west of the island, but populations also occur on the north and east coasts.

5.2. Conservation Status. Listed as Least Concern on the IUCN Red List. Locally the green lizard had suffered marked declines in the past, although following protection and conservation action its populations now appear to be stable and it can be abundant in suitable habitats in Jersey. The largest populations occur in the west and southwest of the island.

5.3. Ecology. As Jersey is close to the northern limits of their European range, green lizards prefer the warm open habitats on the island, with the sand dunes, heathland, rough grassland and

vegetated cliff habitats in the west and southwest being particularly favoured (Perkins & Avery 1989). Hibernating in the winter, they are usually active from February or early March through to early October.

6. Wall Lizard (*Podarcis muralis*)

Often referred to as the common wall lizard to distinguish this species from the many similar species on the continent.

6.1. Distribution. Very widely distributed in western, central and southern Europe, from northern Spain to Turkey and has also been widely introduced in the UK. The wall lizard in Jersey is confined to a few man made forts and their surrounds on the northern, eastern and southern coasts (Perkins & Avery 1989), as well as the walls of an ornamental garden in Gorey. This species is absent from Guernsey.

6.2. Conservation Status. International listed as Least Concern in the IUCN Red List. The wall lizard has small populations and a very restricted range in Jersey, although its status now appears to be stable (Ward & Wilkinson 2019).

6.3. Ecology. Although wall lizards on the continent frequent a wide range of natural rocky habitats, as well as walls and buildings, in Jersey they are confined to a handful of coastal forts, garden walls and adjacent habitats. Their absence from apparently suitable natural habitats on the island has led to speculation that wall lizards were introduced, but recent genetic work has determined that this species is indeed native (Michaelides *et al* 2015). Since brick-built forts and walls provide such a warm habitat, wall lizards are active between February and November in Jersey; if the weather is mild, they can appear to bask in December and January as well.

7. Slow-worm (*Anguis fragilis*)

7.1. Distribution. The slow-worm is found across most of Europe, from Britain and Scandinavia to southern Spain, and some Mediterranean regions. This species has been introduced to Ireland. It is widely distributed across Jersey (Ward & Wilkinson 2019) and also occurs in Guernsey, although there is some debate as to whether it is native to the latter island or was deliberately introduced there.

7.2. Conservation Status. Listed as Least Concern internationally on the IUCN Red List, the slow-worm is also abundant in many areas of Jersey.

7.3. Ecology. The slow-worm inhabits well vegetated and somewhat humid habitats across the island, particularly rough grassland, heathland, open woodland, field edges and gardens. This species is usually active from March to October, slightly longer in mild years, although it is invariably secretive and only rarely basks in the open. Males are most obvious in April and May, especially if they have to cross paths and open areas when searching for mates.

8. Grass Snake (*Natrix helvetica*). Also known as the barred grass snake.

8.1. Distribution. A western European species found in an areas north of the Pyrenees and west of the Rhine, plus Britain and Jersey (although it is absent from Guernsey). Note: *Natrix helvetica* has only recently been recognised as a full species (Kindler *et al* 2017) and it was formerly a subspecies of the much more widespread *Natrix natrix*. In Jersey it is confined to the west and southwest coast of the island (Ward 2017; Ward et al 2017).

8.2. Conservation Status. Although listed as Least Concern on the IUCN Red List, the grass snake is the least encountered reptile in Jersey, having suffered a severe population decline in recent years.

8.3. Ecology. Often associated with wetland areas of all kinds, where they seek their preferred prey of amphibians and fish, grass snakes have a large home range so can also be encountered in drier habitats such as woodland, hedgerows, rough grassland, heathland and dunes. Grass snakes are usually active between late February and late October and are primarily a diurnal species, although they frequently hunt and move at night during hot weather.