

Reptilewatch JE Level 2 widespread reptiles handbook

Thank you for your interest in volunteering to be part of this project. Reptilewatch JE is an island-wide effort to record Jersey's reptiles, with the aim of detecting changes in their conservation status. By taking part, you will also be helping us to improve our knowledge on the distribution and habitat requirements of Jersey's reptiles and other species. It's also a good opportunity for you to spend some time in nature too!

In this handbook you will find out everything you need to know to become a Reptilewatch JE surveyor.

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Level 2 widespread reptile surveys

Please note that you must have completed training to carry out Level 2 surveys.

Where to survey

Sites are assigned to 500 m squares to help ensure there is a representative distribution of sites being surveyed across the island and to allow results to be compared against previous years. You can either survey a new site, for example somewhere close to where you live that has not already been surveyed or be allocated an existing transect by the Reptilewatch coordinator. Landowner permission will be required prior to starting your survey (see below).

Arranging landowner permission

If you aren't the landowner, the coordinator will help you to identify and contact the owner to arrange permission to survey the site. A template introductory letter for requesting landowner permission is available from Natural Environment. Speaking with the landowner will also give you an opportunity to identify car parking locations, safety issues, where refugia may be laid (if allowed) and to build a relationship with them. A long-term aim of Reptilewatch JE is to gradually build the number of sites that can be accessed and repeatedly surveyed each year.

When to survey

Time of year: Jersey's reptiles can be active between March and October; relying on heat from the sun to regulate their body temperature. There is a greater chance of seeing reptiles in the spring (April to June) and autumn (mid-August to mid-October) when the cooler weather means they have to bask for longer. In comparison, they do not need to spend much time in the open during the hottest summer months to get enough heat.

Time of day: The best time of day to find reptiles depends on the weather, but peaks of activity are generally during the morning and afternoon. As the days get hotter and longer, the time that reptiles may be visible whilst basking becomes reduced and shifts further towards earlier in the mornings

and later in the afternoon. Good conditions for spotting reptiles include days with sun or partial cloud with temperatures between 10 and 20°C. Strong wind and heavy rain are generally bad conditions for looking for reptiles, but sunny periods after rain can be productive. Long periods of hot dry weather are not favourable, though you may still find green lizards and wall lizards in these conditions.

Number of surveys: You should aim to survey your site **six** times between March and October in suitable weather. If possible, conduct three survey visits in spring (April–June) and two in autumn (mid-August to mid-October). If you wish to, you can carry out more than six surveys.

Which species to record

You should record any observations of Jersey's four native reptiles (see the *reptiles of Jersey ID guide*):

- green lizard (*Lacerta bilineata*)
- wall lizard (*Podarcis muralis*)*
- slow worm (*Anguis fragilis*)
- grass snake (*Natrix helvetica*)*

*Due to their restricted distributions, wall lizards and grass snakes may be encountered infrequently and so are additionally surveyed through other efforts.

If you see any non-native reptiles (e.g. terrapins, corn snakes) you should also record these.

If you have received training and feel sufficiently competent, you can opt-in to record some supplementary species. These are most likely to be encountered under refugia, and consist of four groups:

1. Small mammals
 - a. Bank vole (*Myodes glareolus* ssp. *caesarius*)
 - b. Wood mouse (*Apodemus sylvaticus*)
 - c. Lesser white-toothed shrew (*Crocidura suaveolens*)*
 - d. Millet's, Common or French shrew (*Sorex coronatus*)*
2. Cockroaches (Family Ectobiidae)
 - a. Tawny cockroach (*Ectobius pallidus*)
 - b. Lesser cockroach (*Ectobius panzeri*)
3. Beetles (Order Coleoptera)
 - a. Glow worm (*Lampyrus noctiluca*)
 - b. Lesser stag beetle (*Dorcus parallelipedus*)
4. Butterflies and moths (Order Lepidoptera)
 - a. Family Lasiocampidae
 - i. Drinker (*Euthrix potatoria*) – larva only
 - ii. Fox moth (*Macrothylacia rubi*) – larva and cocoons
 - iii. Oak eggar (*Lasiocampa quercus*) – larva and cocoons
 - b. Subfamily Arctiinae (Tigers and ermines) – larva and cocoons
 - c. Shoulder stripe (*Earophila badiata*) – adults

*The two shrew species can be difficult to distinguish from one another in the field as they rarely stay still when disturbed. Therefore, we recommend you simply record them as 'shrew species'.

ID guides for many of these species are available on the [JARG website](#) and further information is available in the [identifying supplementary species](#) section of this handbook.

How to survey

Equipment

You will need:

- a smartphone (for Reptilewatch app and for use in the event of an emergency)
- 10–20 artificial refugia (available from Natural Environment, Howard Davis Farm, Trinity)
- A map of the survey site

Optional (recommended):

- close focus binoculars
- a camera (a smart phone camera is fine)
- species ID guides
- Global Positioning System (GPS) / GPS phone app (e.g. Google maps) that allows you to record coordinates of sightings.

The camera will allow you to take pictures of anything you are not sure about, which can help the Jersey Biodiversity Centre check the identification of what you recorded, and also so you can show others what you saw during your survey.

Preparation

Once you have chosen your site and arranged landowner permission (if required), carry out the following:

Step 1: Read, complete and return the [Volunteer Working Agreement Form](#).

Step 2: Site Visit 1- Site assessment

Visit your chosen site during the day at least four weeks prior to surveying to familiarise yourself with the site;

- Complete a [risk assessment](#) as necessary.
- **If this is a new site**, you will need to liaise with the coordinator to plan a walking survey route that encompasses the most suitable reptile habitats of the site and that will take approximately 1–2 hours to survey (small sites may require less time). A map of the site can be useful for doing this.

Suitable reptile habitats can include: long or tussocky grass, heathland, boggy or wetland areas, scrub, bramble, dense herbs, uneven or sloping areas and banks (particularly sunny south-facing areas), forest rides, woodland edges and glades, habitat edges (e.g. where dense bramble and long grass meet), field margins, piles of logs, branches, rocks, rubble, manure or compost, brownfield areas, allotments, 'wild' gardens, roadside verges, track and path edges, hedgerows, dry stone walls, rock/scree and mosaics of vegetation interspersed with small patches of open or bare ground (refer to the Reptilewatch Training presentation for photos and tips).

- Make a note of potential places you could lay artificial refugia, recording the number you need (most sites require around 10–20, but small sites may be less). A map of the site is useful for doing this.

Notes:

- It can be helpful to plan your survey route ahead of your second visit using online maps. The coordinator at Natural Environment can assist, and it is sensible to discuss the route with the landowner and/or land manager in case there are areas they would like you to avoid.
- Contact the coordinator at Natural Environment to arrange collection or delivery of the refugia you require.

Step 3: New sites only - Visit 2 with the Reptilewatch coordinator (ideally four weeks prior to first survey). During this visit you will lay your refugia and the co-ordinator will set up your transect in the Reptilewatch App.

Laying Refugia

- Place artificial refugia in areas away from public disturbance and livestock, trying to spread them evenly along the route.
- Press the refugia in to the vegetation.
- The Reptilewatch coordinator will record the location of each refugia mat using the “Reptilewatch app”.
Note: It is useful to also take a note describing the location of each mat as this may be helpful to find them in future, especially if they become obscured by vegetation.
- Make sure each refugium number correlates to the number allocated on the app ‘**refugia list**’. This helps you keep track of which ones you have checked on each survey.
- Share the locations of all refugia with the landowner or manager. This is helpful in case any areas are scheduled for management such as mowing or grazing, which may result in damage to the refugia and to equipment, or harm livestock.

Step 4: Use of Reptilewatch app

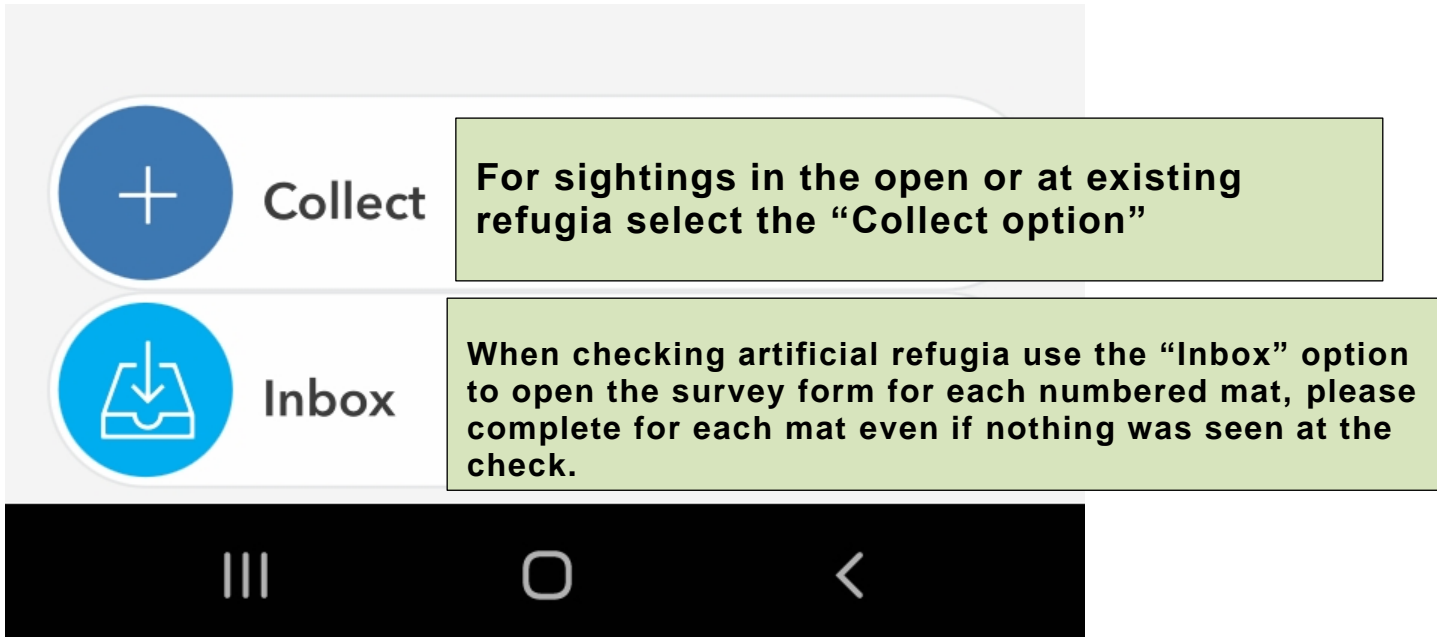
See guide to downloading and using the ESRI Survey 123, [Reptilewatch App](#)

Step 5: Surveying Visits

Please complete six surveys if possible between March and October, carrying out the following steps. If possible, conduct three visits in spring (April–June) and two in autumn (mid-August to mid-October).

Step 6: Spend 1–2 hours visually searching for reptiles along your survey route and check the artificial refugia as you encounter them. If you encounter any pre-existing refugia then you should check those also. When possible, take photos of what you see but be careful not to disturb the habitat and wildlife. It’s therefore best to take photos from a distance or to have your camera ready when you lift an artificial refugium. Do not attempt to touch or handle any animals. **Remember**, much of Jersey’s wildlife is protected by law, and should not be harmed, taken or possessed, nor should their breeding or resting sites be disturbed.

Step 7: The Reptilewatch app has a list of all the artificial refugia for your site, these can be viewed as a list or as a map to help you locate each mat. (Refer to section 15 of the app instructions). When you check a refugium or encounter an animal during your survey, use the Reptilewatch app to record what is seen or if no animals are encountered at a mat. You will need to enter your PIN number each time, If a mat is missing or has been destroyed, please make a note in the comments box.



If you need help identifying the species you saw, see the species ID guides on the [JARG website](#).

Step 8: Photos can be taken in the app or added to the record later if you use a separate camera.

Step 10: Submit your results, even **if you don't see anything**. Absence data is very useful. This can be done immediately after completing the survey by choosing the "Send now" option or the data can be saved "Save in Outbox" option for uploaded later.

If you have photographs to add later or you wish to review your data before submitting chose the "Save in Outbox" option, as this allows you to access the records and edit.

Safety

It is very important to make sure you are safe at all times during your survey. Avoid surveying areas with uneven or unstable ground. Carrying a fully charged mobile phone is also advisable in case of emergency. A [risk assessment template](#) is available at the end of this handbook which you should modify to your needs. You are under no obligation to participate or complete the survey.

It is best to do your survey with someone else, but if you are on your own then make sure you tell a responsible person where you will be and when you expect to be back. Lone working procedures are described in the [Volunteer Working Agreement](#).

Resources

The survey forms, species ID guides and all other information needed for completing reptile surveys are available on the Jersey Amphibian and Reptile Group (JARG) website: <https://groups.arguk.org/jarg>.

Useful links:

Species Identification

Beckmann, B. Identification guide to native earwigs, cockroaches and naturalised stick-insects -

<https://www.orthoptera.org.uk/sites/default/files/pdf/Earwigs%2C%20cockroaches%20and%20stick-insects.pdf>

Butterfly conservation - <https://butterfly-conservation.org/>

UK Butterflies - <https://www.ukbutterflies.co.uk/index.php>

Eggs, larvae, pupae and adult butterflies and moths - <http://www.ukleps.org/>

Insects of the Channel Islands Facebook group (Insects) -

<https://www.facebook.com/groups/518340844961982/>

Jersey Wildlife Facebook group (all wildlife) -

<https://www.facebook.com/groups/225539340841170/>

Other

Amphibian and Reptile Groups of the UK (Up to date guidance for Amphibian and Reptile Groups) - <https://www.arguk.org>

Jersey Amphibian and Reptile Group Surveyors Discussion Page (Facebook) -

<https://www.facebook.com/groups/590112634750709/>

McGowan, D. and Gurnell, J. (2014). Small mammal survey Jersey 2014. Available from

<https://www.gov.je/sitecollectiondocuments/government%20and%20administration/r%20small%20mammal%20survey%20jersey%202014%2020150729%20dm.pdf>

UK Habitat Classification (habitat classification documentation and guidance) -

<http://ecountability.co.uk/ukhabworkinggroup-ukhab/>

Google Maps (maps.google.co.uk) - useful for looking at satellite maps of your site and can also be used to record refugia locations and measure survey route sections using the 'Maps' option after clicking 'Your places' page from the menu.

Identifying supplementary species (see our [ID guides](#) and the information below):

Small mammals

(This information has been sourced from McGowan and Gurnell (2014). Learn more [here](#))

Jersey's small mammals regularly occur under reptile survey refugia. The four species of interest are:

- Jersey bank vole (*Myodes glareolus* ssp. *caesarius*)
- Wood mouse (*Apodemus sylvaticus*)
- Lesser white-toothed shrew (*Crocidura suaveolens*)*
- Millet's, Common or French shrew (*Sorex coronatus*)*

It is unlikely that the two shrew species can be identified from one another during reptile surveys.

Species information summary

	Jersey bank vole	Wood mouse	Lesser white-toothed shrew	Millet's, Common or French shrew
Coat	Reddish / chestnut brown with light cream to dark silvery grey underneath.	Brown with paler cream underneath. Can have a yellowy tinge to the flanks.	Grey but can be reddish brown. Paler underneath. Short dense fur.	Rich brown with paler cream sides and underneath. Obvious distinction on flanks where colours meet. Short dense fur.
Tail	Short; approximately half the full body length (Flowerdew, 1993).	Long. Hairs make it appear dark on upper and lighter underneath.	Body length (excluding the head).	Short; approximately body length.
Head	Blunt nose, small eyes and small ears.	Large bulging eyes and large ears.	Small slender body. Long pointed snout with long fine whiskers. Small eyes and rounded ears. White teeth.	Pointed snout with whiskers and small eyes.
Movement	Short legs cause a scurrying type of movement.	Large hind legs give it speed and a characteristic bouncing motion.	Quicker and more aggressive than the Millet's shrew.	

	Jersey bank vole	Wood mouse	Lesser white-toothed shrew	Millet's, Common or French shrew
Breeding	<p>Breeding period: throughout the year if there are good food resources, but typically March–October</p> <p>Gestation: approximately 18 days</p> <p>Litter size: 3–5</p> <p>No. litters per year: ≤ 5</p> <p>Sexual maturity: < 1-year-old</p> <p>Lifespan: approximately 18 months</p>	<p>Breeding period: March–October and throughout the year if conditions allow</p> <p>Gestation: 19–20 days, but longer if lactating due to delayed implantation.</p> <p>Litter size: 2–9</p> <p>No. litters per year: 4 (average)</p> <p>Sexual maturity: < 1-year-old</p> <p>Lifespan: 18–20 months</p>	<p>Breeding period: March–September</p> <p>Gestation: 27–30 days</p> <p>Litter size: 1–6</p> <p>No. litters per year: ≤ 4</p> <p>Weaned after 22 days</p> <p>Sexual maturity at 5 months</p>	<p>Breed period: May–September</p> <p>Gestation: approximately 20 days.</p> <p>Litter size: 3–7</p> <p>No. litters per year: ≤ 6</p> <p>Sexual maturity: year following birth (MacDonald and Barrett, 1993)</p> <p>Lifespan: ≤ 24 months</p>
Habitats	<p>Typical: mature mixed deciduous woodlands with a thick shrub layer (Southern and Lowe 1968).</p> <p>Also occur in: hedgerows, banks, heathlands, grasslands, parks and gardens.</p> <p>Burrow 2–10 cm underground. Underground nests often around tree roots, fallen logs or in tree trunks (Corbet and Harris 1991).</p>	<p>Typical: woodlands.</p> <p>Also occur in: arable land, scrub, sand dunes, heathland, hedgerows, dry stone walls, gardens and urban parks.</p> <p>Nests are built underground, occasionally in trees or nest boxes.</p> <p>Regularly seek shelter and move underground.</p>	<p>Typical: dry bracken, heathlands, sand dunes, coastal scrub, hedgerows, banks and gardens.</p> <p>Associated with coastal habitats and grassy edge habitats.</p> <p>Uses burrows of other small mammals but also makes its own.</p> <p>Nests built in thick grass or under woody debris.</p>	<p>Typical: Heathland, scrubland, hedgerows, unmown meadows, marshes and deciduous woodlands.</p> <p>Often avoid urban areas (Meinig and Aulagnier 2014).</p> <p>Uses burrows of other small mammals.</p> <p>Nests made of grass and leaves.</p> <p>Rarely found in intensively farmed areas.</p>
Diet	<p>Varied, including fleshy fruits and soft seeds, leaves and herbs, dead leaves, buds, moss, fungi, roots, grass, insects, worms and snails.</p> <p>Known to make food stores.</p>	<p>Varied and opportunistic, including seeds, seedlings, buds, fruit, nuts, snails, worms, fungi, moss, galls, larvae, arthropods and arable weeds.</p> <p>Known to make food stores.</p>	<p>Insectivorous, eating a variety of insects.</p>	<p>Insectivorous, feeding on earthworms, slugs, beetles, woodlice and spiders.</p>

Cockroaches (Family Ectobiidae)

- Tawny cockroach (*Ectobius pallidus*)
- Lesser cockroach (*Ectobius panzeri*)

(This information has been sourced from the Identification guide to native earwigs, cockroaches and naturalised insects by B. Beckmann. See

<https://www.orthoptera.org.uk/sites/default/files/pdf/Earwigs%20C%20cockroaches%20and%20stick-insects.pdf>)

Cockroach ID features

Feature	Tawny cockroach	Lesser cockroach
ADULTS		
Length	8–9.5 mm	5–8 mm
Colour	Golden-yellowish brown all over A bit of dark brown on underside of abdomen (<i>females only</i>)	Darkish brown with speckled patterning on pronotum (shield) of both sexes, and on abdomen of female
Wings	Both sexes, full	Males; full Females; short-winged, wings covering less than half the abdomen
Habitats	Woodland rides and clearings; Heathland; Dunes	Coastal scrub; Sand dunes; Vegetated shingle; Dry heathland
JUVENILES		
Wings	Wing buds visible in late instar juveniles; they are shorter and appear thicker than adult wings Left and right wing buds do not overlap (adult wings overlap left over right wing)	

Beetles (Order Coleoptera)

- Glow worm (*Lampyris noctiluca*)
- Lesser stag beetle (*Dorcus parallelipedus*)

Male glow-worms are more obvious than females as they possess wings with brown elytra, a clearer pronotum and a large brown spot in the middle. In comparison, females remain as larvae without wings, and are often twice the size of the males (up to 25 mm in length) (Source: <https://www.naturespot.org.uk/species/glow-worm>). They can be found under rocks, logs and refugia, particularly between May and August. They may be confused with the larvae of ladybirds or carrion beetles (Silphidae).

The lesser stag beetle is a large beetle (up to 30 mm) that is difficult to confuse for anything else. It is most likely to be seen during summer when they fly to disperse.

Butterflies and moths (Order Lepidoptera)

- Family Lasiocampidae
 - Drinker (*Euthrix potatoria*) – larva only
 - Fox moth (*Macrothylacia rubi*) – larva and cocoons
 - Oak eggar (*Lasiocampa quercus*) – larva and cocoons
- Subfamily Arctiinae (Tigers and ermines) – larva and cocoons
- Shoulder stripe (*Earophila badiata*) – adults

The larva of the Lasiocampidae are fairly distinctive due to their size and hair tufts. The Arctiinae are also relatively large and hairy caterpillars.

ARG UK Generic Risk Assessment (modified for Jersey)



	Hazard	Risk	Control measures	Probability	Comment
1	Assault	Physical injury, sexual assault	Try to defuse any potentially confrontational situations. If possible, walk away. Contact police if unsure or feel threatened. Apply Lone Working Procedures.	Low	
2	Stings and bites	Diseases, allergic reaction	If known allergy to stings take appropriate medication on site. If feeling unwell after a site visit seek medical attention.	Moderate	
3	Ticks	Transmission of Lyme disease	Be aware of ticks (e.g. BADA-UK www.bada-uk.org) and take precautions in the field. Wear long trousers and long sleeves, use insect repellent, avoid brushing through tall vegetation, check clothing for ticks, consult a doctor in the event of tick bite.	Low to high depending on whether ticks present locally.	
4	Pond (etc.) water	Pond water may contain bacteria that may cause disease (e.g. <i>Leptospirosis</i> /Weil's disease).	Treat all pond (etc.) water as potentially pathogenic. Do not ingest, do not expose cuts on skin to pond water. Wear gloves to protect against scratches when working near water. Wash hands after immersion in pond water and especially prior to eating. If feeling unwell after accidental ingestion of pond water or contact with open wound seek medical attention.	High	
5	Ponds /deep water	Drowning	Take care when near water bodies. Do not lone work near water bodies. Take throw-rope when working near water.	Moderate	
6	Cold	Hypothermia	Wear appropriate clothing. Inform group leader if feeling cold.	Low/Moderate in winter	
7	Concealed holes/ditches	Physical injury, ankle injuries	Take care when walking through areas of deep habitat or areas where there is poor footing visibility. Avoid areas of poor footing visibility is possible.	High	
8	Dogs	Bites, lacerations, disease	Be wary of dogs off leads. Disinfect any bites and seek medical attention.	Moderate	
9	Exposure to sun	Sun burn	Where appropriate use sunscreen. Avoid midday sun if possible.	High	
10	Hazardous waste/fly tipping	Cuts, lacerations, chemical burns, infection	Wear gloves when handling waste. If unsure of contents of containers or if known to be hazardous contact emergency services.	Moderate	

11	Heat and difficult terrain	Exhaustion, dehydration	Walking difficult terrain will cause extra fatigue in hot weather. Do not rush and drink plenty of water.	Low	
12	Old and partially buried structures (eg buried fences)	Tripping, ankle injuries	Take care when footing is not clearly visible. Look for signs nearby of structures e.g, partially collapsed fence.	Moderate	
13	Sharp grasses and thorny bushes	Eye injuries, cuts, lacerations, infection	Do not bend down or kneel in areas of Sharp sea grass or other sharp plants. Disinfect any lacerations or punctures	Moderate	
14	Sharp objects (eg tins)	Cuts, lacerations, infection	Take care when picking up any potentially sharp objects. Wear gloves if appropriate or desired.	High	
15	Shooting	Physical injury	Do not approach any person suspected of carrying a weapon. If there is shooting allowed on site establish where and when shooting will take place and avoid. In cases of unauthorised shooting contact the police.	Low	
16	Steep slopes/ unstable ground	Physical injury, trips, ankle injuries	Try to avoid climbing steep slopes. Take care with footing.	Moderate	
17	Stock	Physical injury, trampling	Be aware of stock behaviour, if in doubt leave site. Do not take dogs on site.	Moderate	
18	Tree felling	Injury from felled timber	In forestry plantations look out for indications of felling in progress (posted notices, sounds of felling activity). Avoid areas where/when felling is in progress.	Low	
19	Working with children	Harm to children or allegation of improper behaviour made against adult	Ensure that any children attending an activity do so under the responsibility of a guardian.	Low	

Activity _____ Date _____ Assessor _____

Amphibian and Reptile Groups of UK (ARG UK) is a registered charity (number 1165504) committed to the conservation of native amphibians and reptiles and their natural environment by supporting the development of a network of independent volunteer amphibian and reptile groups (ARGs)

Sources

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