

TOAD PATROL Q&A

What is an amphibian?

An amphibian is a type of animal that has both an aquatic and a terrestrial life phase. Our native amphibians are frogs, toads and newts. They all start their lives as eggs in a pond. The eggs hatch into larva. Toad and frog larva are called tadpoles. Newt larva are called efts. The larva grow in the pond until they undergo their transformation into adults (metamorphosis). After that they leave the pond in search of terrestrial habitat. Figure 1 shows toads, newts and a frog together in a bucket.



Figure 1: Two male toads, one male frog and two newts in a bucket

What is the toad migration?

The toad migration is an event that takes place annually in the early part of the year. During this time adult toads return to the pond of their birth in order to breed. They lay their eggs in the water to produce the next generation of tadpoles. This process is called “spawning”, and the eggs are sometimes referred to as “spawn”.

Not only toads but frogs and newts also migrate back to their breeding ponds.

Why do toads migrate?

Our native toads and other amphibians are terrestrial animals but they start their lives in a pond as tadpoles or efts. Therefore the adults need to go back to the pond that they were born in. In the pond the adults will mate and lay their eggs in the water. This process is called “spawning”, and the eggs are sometimes referred to as “spawn”.

After the toads have finished laying their eggs they return to their terrestrial habitats.

How do toads remember the way to the pond of their birth?

It is not fully understood. They might use smells, visual clues and the earth’s magnetic field. Not all species of amphibian have the same capability.

<https://www.froglife.org/2017/02/27/croaking-science-amphibian-orientation-migration/>

How do amphibians mate?

Toads and frogs pair up via the male climbing onto the back of the female. This often occurs halfway to the pond. Female toads walking and carrying males on their backs is a common sight during the migration. The toads or frogs are said to be in “amplexus”. Please see Figure 2.

Once the pair have reached the pond the female lays her eggs and the male fertilises them at the same time.

Newt mating is different. The male newt entices the female with tail waving and dispersing of pheromones. Subsequently the male deposits a semen packet on the ground and the female picks it up with her genitals (cloaca).



Figure 2: Female toad carrying male in amplexus, on her way to breed in the pond

What do amphibian eggs look like?

Amphibian eggs, (also called spawn), look different depending on the species.

Frogs lay their spawn in clumps. Floating clumps of frog spawn are a familiar sight on ponds in spring.

Toad spawn is laid in strings and wrapped around vegetation. That is why toad spawn is much more difficult to spot than frog spawn.

Female newts carefully wrap each individual egg in the leaf of an aquatic plant.

Is there something important I need to know about toad behaviour?

Yes.

First, toads walk slowly with frequent pauses. Crossing a road or walking down a lane takes a long time for them.

Second, male and female toads behave differently:

Female toads tend to walk with purpose towards their destinations.

Male toads on the other hand will step out onto a road and sit there motionlessly. The male toads wait for the females to walk by so they can try to catch one.

Male toads that have already been delivered to the pond will come back out to sit on the lanes adjacent to the pond and wait for females.

When the toad migration starts the males appear first and the females come out later as the weather warms up more.

When is the toad migration season?

The toad migration season starts in late January and it lasts until end of April / early May.

Is there a difference between the actual toad migration and the toad migration season?

Yes.

The **actual** toad migration is the event when the toads physically migrate.

The toad migration **season** is the overall time span within which the **actual** toad migration can take place.

How long does the actual toad migration last?

The actual toad migration usually lasts several months.

Why can't we know the exact timing and duration of the actual toad migration?

The overall time frame for the toad migration season is late January to April /May. Within that time frame the actual toad migration depends entirely on the weather. Amphibians hibernate during the cold months and they start migrating as the weather gets warmer.

The same goes for the duration. As the weather warms up toads start to migrate. If there is a cold snap the migration is interrupted. The migration resumes when the weather gets warmer again.

The more interruptions there are due to cold weather, the more drawn out the actual toad migration becomes.

As an illustration Table 1 shows how the start date of the *actual* toad migration varied from year to year since 2019.

SHAMLEY GREEN TOAD MIGRATION START 2019 - 2025		
YEAR	MIGRATION START DATE	EARLIEST / LATEST
2019	Saturday 16 February 2019	
2020	Thursday 30 January 2020	
2021	Thursday 28 January 2021	
2022	Monday 7 February 2022	
2023	Thursday 16 February 2023	
2024	Saturday 25 January 2025	Earliest
2025	Wednesday 19 February 2025	Latest

Table 1: Start time of ACTUAL toad migration varies from year to year depending on weather

What weather conditions are needed for toads to migrate?

Toads and other amphibians love wet weather. During a mild rainy night there will be large numbers of them migrating.

Amphibians need a certain minimum temperature for them to get going. Opinions differ on that, some say 5°C, others 7 or 8°C.

It also depends on whether the migration has already started or not. The threshold temperature is higher to begin with. Once the migration is underway the amphibians will continue moving at lower temperatures.

Below is an illustration showing how the combinations of wet, mild, dry and cold weather affect the toad migration. Please see Figure 3.

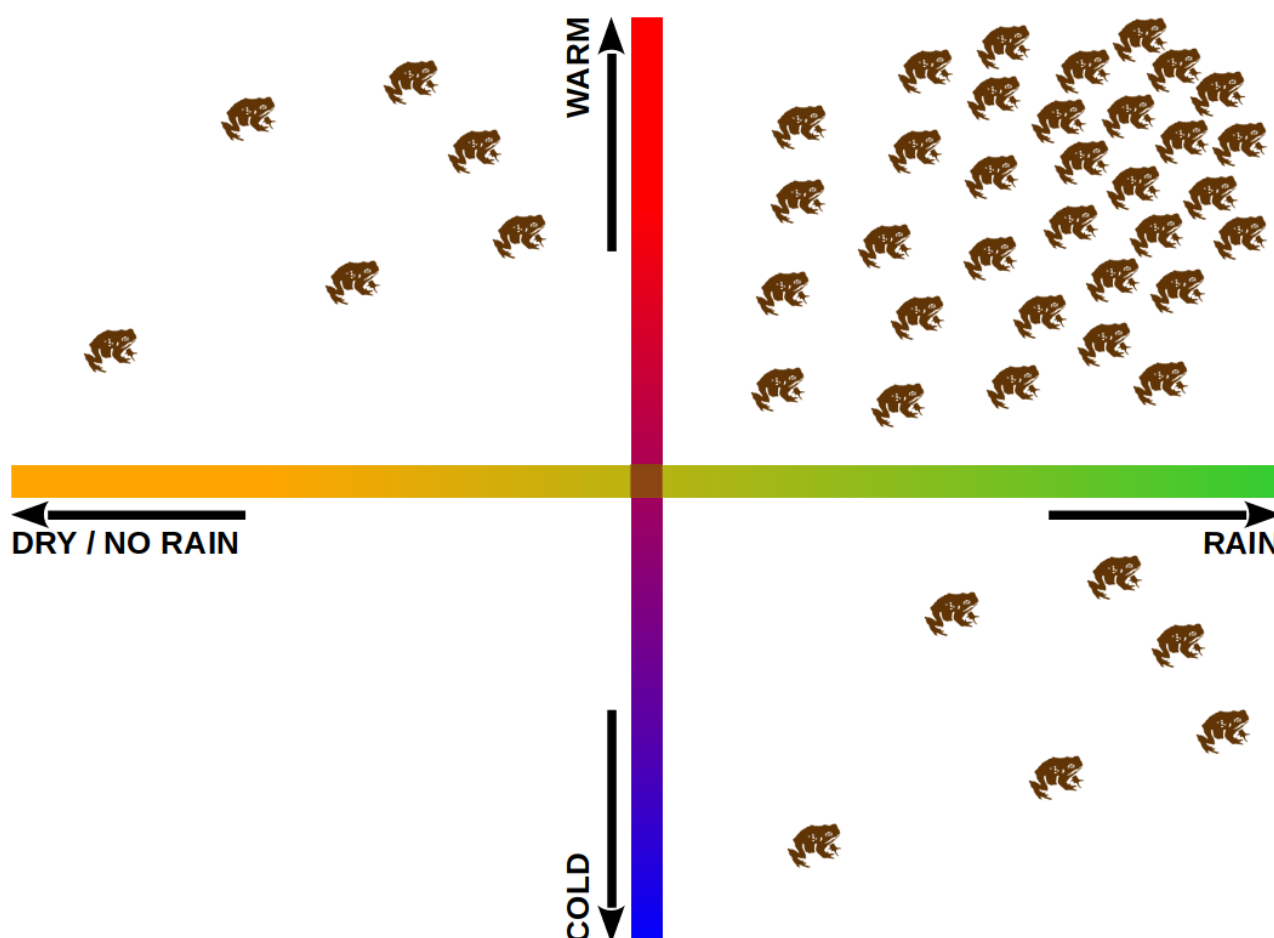


Figure 3: Effect of weather on toad migration

The next illustration shows how the starting threshold needs to be overcome first for toads to get moving. But once the migration has begun the threshold drops and toads carry on moving at colder temperatures. Please see Figure 4.

There is deliberately no number scale shown in the illustration as there is no hard and fast rule and it is impossible to pinpoint exact numbers. But the graph should give the reader an understanding of the typical behaviour of migrating amphibians and what to expect. The one thing that is certain though is that amphibians cannot move in freezing conditions.

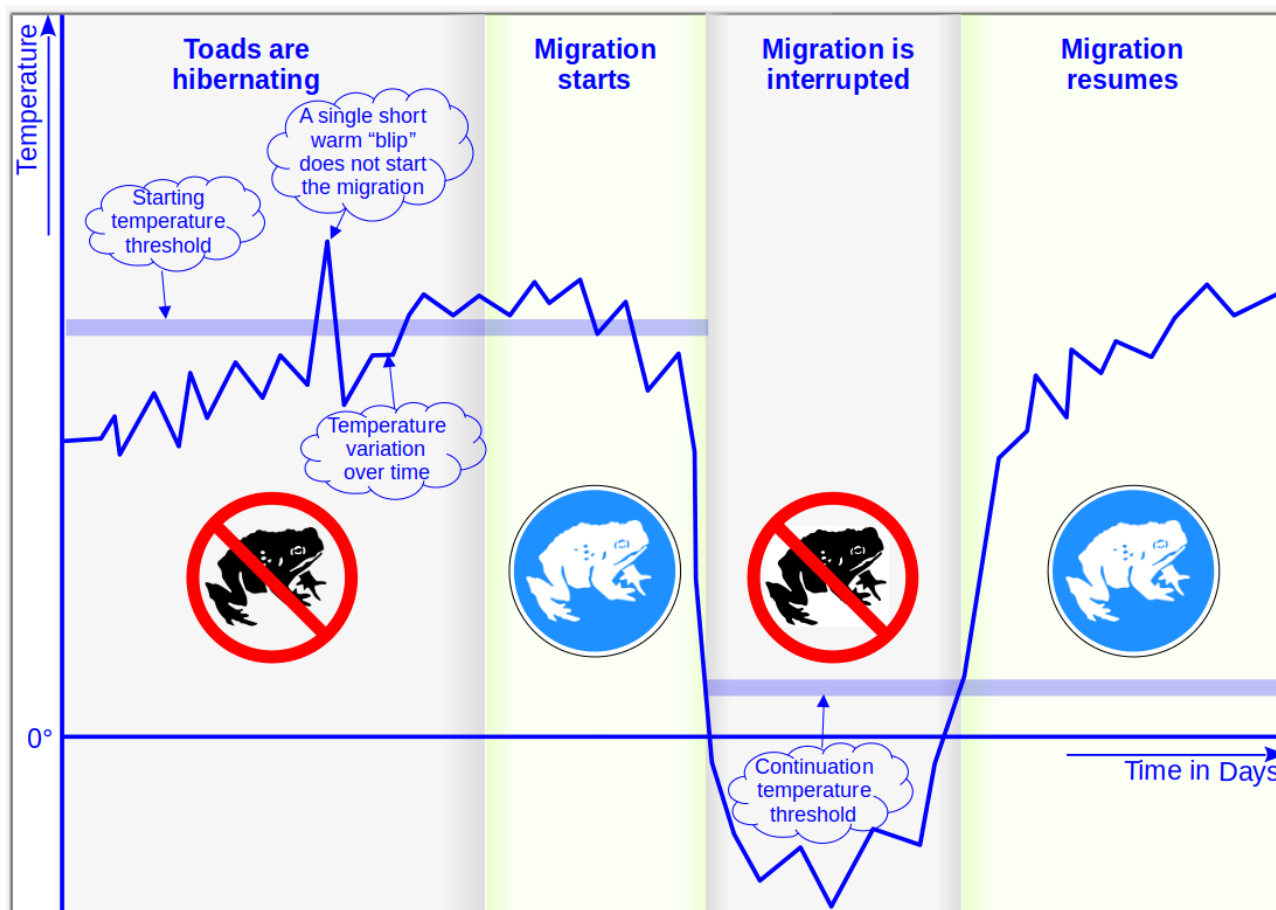


Figure 4: Graph shows typical start-stop sequence of toad migration depending on temperature fluctuations. Temperature thresholds at the beginning and during the migration are also shown.

Can amphibians migrate in freezing conditions?

No. Amphibians are cold-blooded. That means they do not regulate their body temperature like we do. Amphibians take on the temperature of their surroundings. In preparation for cold and freezing weather amphibians seek cover under the earth or under logs and sometimes in a pond. The animals go into a death-like state of torpor where their metabolism slows right down.

What time of day to toads migrate

Amphibians are nocturnal. They emerge at dusk, not long after sunset. If the weather conditions are favourable they keep going all night until dawn.

What is the “Toad Rush Hour”?

The initial time when toads start to emerge after sundown is the busiest. The toads seem to appear everywhere at once. After that the movement slows down somewhat.

Why do toads need help to migrate?

Many roads dissect the migration routes of toads.

Toads and other amphibians are very small, slow and extremely vulnerable to traffic. Toads have not evolved to understand the concept of traffic and the danger it is to them. They are also extremely difficult to spot for drivers. Tragically thousands get killed on roads every year.

How do toad patrols help toads to migrate?

Toad patrols search for toads and other amphibians, collect them in buckets and carry them safely to their breeding pond.

Whenever possible toad patrols also help the amphibians that have finished spawning to return to their terrestrial habitat.

How do toad patrols know where an amphibian is going?

During the early part of the toad migration all animals are taken to the pond.

After the migration has been in progress for some time the early arrivals will start to leave the pond while newcomers still head down to breed.

Amphibians that want to leave the pond usually quite clearly and determinedly stride away from it. Toad patrols observe which way the animals are headed. New arrivals are taken to the pond and the leavers are helped to a suitable safe place in the direction in which they are going.

How frequently do toad patrols take place?

Toad patrol volunteering patterns are determined by the amphibian migration patterns.

Toads and other amphibians will keep moving every night until the migration is completed. Therefore toad patrols go out every night, 7 days a week, for the entire duration of the toad migration. The only interruptions happen when there is a spell of cold weather.

What time of day do toad patrols go out to volunteer?

Toad patrols go out at the same time the toads do!

Amphibians are nocturnal. Therefore toad patrols go out in the evenings. Toad patrols start shortly after sundown to coincide with the “Toad Rush Hour”.

As the weeks progress and the days grow longer the starting time of the toad patrol becomes later.

How are toad patrols organised?

Each toad crossing has a toad patrol manager who organises the volunteering shifts.

Toad patrols usually last a couple of hours.

Some crossings operate split shifts where one group of volunteers does the first shift and another group the second.

Some toad crossings have a rota where each volunteer gives their availability in advance. Others operate on an ad-hoc basis.

Many toad patrol groups have a WhatsApp group to communicate with each other.

What skills are required to be a toad patrol?

No special skills are needed. All training will be given.

Can children do toad patrol?

Yes.

Many children up and down the country are involved in toad patrol and greatly enjoy it. Young persons under 18 must be accompanied by a parent or guardian. Guardians should carefully assess the risks beforehand.

What physical abilities are needed to do toad patrol?

- Toad patrols need to be able to do a lot of walking.
- Toad patrols need to be comfortable walking on uneven terrain, for instance when dropping off the amphibians at the pond.
- Toad patrols must be healthy enough to withstand outdoor weather conditions such as wind, wet and cold.
- Toad patrols need to be able to see well enough (with glasses if necessary) to spot the toads and be aware of oncoming traffic.
- Toad patrols need to be able to hear well enough (with hearing aids if necessary) so that they can be alerted to approaching traffic.

What do toad patrols need to perform their work successfully?

- A good powerful torch with long-lasting battery. The better the torch, the more animals are saved.
- One or two buckets with tall sides. Carrying the extra bucket comes in handy on a busy night.
- Hi-vis jacket or clothing - we will provide hi-vis vests if needed
- Notebook and pen or electronic device for recording numbers
- Warm comfortable clothing
- Waterproof clothing - nights of heavy rain are the busiest so this is important
- Waterproof, warm and comfortable footwear suitable for walking
- Warm drinks, snacks as required

How can toad patrols keep safe?

- A strong torch alerts drivers to the presence of patrols and it shows up potholes and trip hazards
- Wearing hi-vis jackets or clothing
- Staying in the location allocated by the toad patrol manager
- Letting the toad patrol manager know when they arrive and when they leave
- Letting a friend know where they are
- Keeping a working mobile phone to hand
- Wherever possible doing patrol in groups of at least two
- Recording the number plates of rogue drivers so they can be reported
- Wearing protective clothing and footwear suitable for rain, windy and cold conditions
- Bringing along any food and drink, medication required