Amphibian Malformations

Agent

Malformations are deformities that are caused by environmental factors (including disease agents) preventing normal anatomical development, especially during the tadpole life-stage. As a result, affected animals can develop too many, or not enough, body parts. This can affect internal organs, but amphibian malformations noticed by the public are usually those affecting external body parts, such as digits, limbs or the tail (in newts). A variety of agents are known to cause the development of malformations in amphibians, including pollutants, parasites, nutritional deficiencies and injury of the developing limb bud, but the relative importance of these as a cause of amphibian malformations in Great Britain is unknown.

Species affected

In Great Britain, amphibian malformations are reported only very infrequently, but sometimes in clusters. Species known to have been affected in Great Britain include the common toad (*Bufo bufo*) and the great crested newt (*Triturus cristatus*).

Signs of disease

Amphibian malformations usually involve missing, extra or misshapen limbs (*e.g.* see Figure 1), but any body part(s) can be affected, including the head, eyes and tail. Usually only one body part is affected in any one animal.

Figure 1. Great crested newts (*Triturus cristatus*) with malformations: (Left) This animal has developed two front left lower limbs and feet. (Right) This animal has developed three right hind lower limbs and feet. (Photo credit: Zoological Society of London.)

Disease transmission

There is no single recognised cause of amphibian malformations.

Distribution

In Great Britain, reports of amphibian malformations are sporadic and usually affect only individuals or small numbers of animals at any one time.

Risk to human health

No known risk to human health.

Risk to domestic animal health

No known risk to domestic animal health.

Diagnosis

It can be difficult to distinguish between amphibian malformations and other causes of deformity, such as predation (*e.g.* when a predator removes a leg, but the animal survives and recovers). Sometimes, additional tests, such as radiography (*i.e.* X-rays), are required to confirm the presence of a true malformation.

Diagnosing the cause of amphibian malformations can be very difficult. This is because malformations occur during the development (tadpole) stage, so by the time malformed amphibians are found the causative agent might have disappeared. Also, as a single causative agent for amphibian malformations has not been identified and many of those (*e.g.* some pollutants) can be difficult and expensive to detect, it is often not possible to find a definitive cause.

If you wish to report finding a dead amphibian, or signs of disease in amphibians, please visit www.gardenwildlifehealth.org. Alternatively, if you have further queries or have no internet access, please call the **Garden Wildlife Health** vets on **0207 449 6685**.

Control and prevention

Once they have developed, amphibian malformations cannot be treated.

Further information

Meteyer, C.U. (2000) Field guide to malformations of frogs and toads with radiographic interpretations. Biological Science Report USGS/BRD/BSR–2000–0005. http://www.nwhc.usgs.gov/publications/fact_sheets/pdfs/frog.pdf.

Acknowledgements

Current funding for the GWH comes in part from Defra, the Welsh Government and the Animal and Plant Agency (APHA) Diseases of Wildlife Scheme (DoWS) http://ahvla.defra.gov.uk/vet-gateway/surveillance/seg/wildlife.htm ; and from the Esmée Fairbairn Foundation and the Universities Federation for Animal Welfare.

Date of last update: February 2018