

A case of anisocoria in *Epidalea calamita* (Amphibia: Anura) in France

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Anisocoria, a condition characterised by an unequal size of the eyes' pupils, can occur in humans, and domestic as well as wild animals (Burns et al., 2002; Heller and Bentley, 2016; Bellamcourt, 2014). This condition can be harmless, but may also relate to a number of stressors, including disease or injury, and is thought to account for at least a quarter of non-bony defects in amphibians (Lannoo, 2009; Henle, 2017). Pesticides may cause such eye defects in amphibians (e.g., reported from South America; Sánchez Domene et al., 2018), and indeed, also in humans (Burns et al., 2002). According to Szkudlarek (2020), pupillary malformations in amphibians are hence partly of anthropogenic origin. On 20 April 2021, an adult individual of *Epidalea calamita* (Laurenti, 1768) was observed with anisocoria, during performing herpetological surveys in the Vaucluse department in the Travaillan commune (Fig. 1). The strongly dilated pupil shows mydriasis with a greyish protruding eye contour, reminiscent of a similar case recently described in *Bufo viridis* (Laurenti 1768) (Szkudlarek, 2020). It is possible that this grey fleshy growth described in *B. viridis* and here in *E. calamita* is related to pupil dysfunction.

The observation area is located in a context of intensive viticulture near an airfield (Fig. 2). This case of anisocoria appears to be the first for the genus *Epidalea*. Given the increase in morphological anomalies in amphibians in recent years (Johnson et al., 2010), any aberration should be reported promptly. While this anisocoria may be the result of several reasons: injury, disease, given the agricultural context, it may also be

due to anthropogenic pollution (Lannoo, 2009). The Vaucluse department is one of the largest consumers of pesticides in France (Génération future, 2017) and the location of this anomaly is in an area of intensive viticulture. Additional surveys and measurements of



Figure 1. An adult female *Epidalea calamita* with a malfunctioning pupil and light grey flesh around the eye. Photos by Grégory Deso on 20 April 2021, in Travaillan (Vaucluse departement-France).

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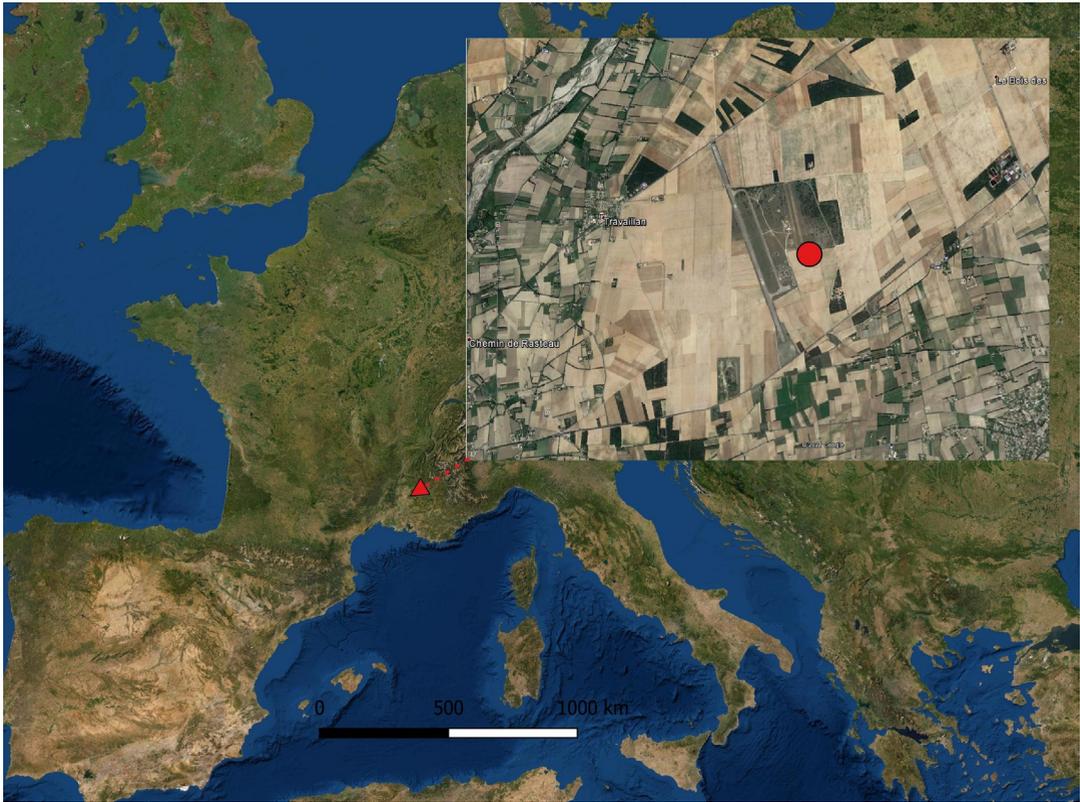


Figure 2. Location of *Epidalea calamita* in a wine-growing context in the south of France.

pollution levels in the breeding areas used by amphibians in the sector should be carried out.

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