

A new western limit for *Rana pyrenaica* Serra-Cobo 1993 in the Irati region (Pyrenees)

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The endemic Pyrenean frog *Rana pyrenaica* was originally described from the area of Bujaruelo in the Ordesa and Monte Perdido National Park (Serra-Cobo, 1993). Currently, the distribution of *R. pyrenaica* is bounded by the Ordesa and Monte Perdido National Park (Huesca) in the east, and the Irati region (Navarra) in the west (Serra-Cobo, 2002; Gosà, Pilarte and Apaolaza, 2010). This area hardly reaches 2000 km² (Gosà, Pilarte and Apaolaza, 2010). *Rana pyrenaica* is commonly found in small undisturbed mountain streams, and has been attributed great ecological and conservation value (Serra-Cobo, Lacroix and White, 1998; Serra-Cobo, Marques-Bonet, and Martínez-Rica, 2000).

The western distribution limit (Fig. 1) of *R. pyrenaica* in the Irati area is for the main part located in Navarra (Spain) and for a smaller portion in the Pyrénées-Atlantiques (France). The Spanish side is characterized by extensive beech forests, while grazing meadows prevail on the French side. Before 1998 *R. pyrenaica* was known only from the Spanish side, predominantly from the upper part of the Irati river basin (Llamas, Martínez-Gil, and Arribas, 1998). The western limit was suggested to be located in primary forest at the Murgarzaguioko Erréka (Serra-Cobo, 2002; Prud'Homme, 2005). Subsequently, the first records from the French part of the region were described by Llamas, Martínez-Gil, and Arribas (1998) who found the species in four streams comprising two tributaries of the Errekaidorra stream, the Gazterroko stream and the Kontratzarioko stream. However, all these streams are located eastward of the Spanish western distribution limit. Several additional records were added by Prud'Homme (2005) who provided detailed accounts on tadpole habitats of the French populations. All currently known occupied streams, including those on the French side, belong to the Ebro drainage basin and thus to the Iberic slope of

the Pyrenees (Llamas, Martínez-Gil, and Arribas, 1998; Gosà, Pilarte and Apaolaza, 2010). Herein we present two new localities for *R. pyrenaica* (Fig. 2) which represent the westernmost recorded observation up to date. The second locality is particularly interesting, as it is the first record outside the Ebro river catchment basin.

Throughout June 2010 and July 2011 we performed a survey of amphibian breeding sites in the Irati region with particular emphasis on the ecology of *Salamandra salamandra fastuosa*. During our surveys we found tadpoles of *R. pyrenaica* in two streams located west of the currently known distribution limit. The first locality comprises the S-N running Erlango Erreka stream, which is not particularly surprising as the stream is located in the Irati forest and is a tributary of the Irati river basin. The stream has a relatively slow current, with numerous pools. Its origin lies on the southern slopes of the Mendizar mountain, of which it flows down into the Irabia lake. Both in 2010 and in 2011 we found *R. pyrenaica* tadpoles in a side pool of the stream at 860 m a.s.l., with minor connection to the main stream. In 2011 we found 32 tadpoles, 27 of which in the pool and 5 several meters downstream. Apart from *R. pyrenaica*, also *S. salamandra*, *Calotriton asper*, *Lissotriton helveticus*, *Bufo bufo*, *Alytes obstreticans*, and *R. temporaria* use the stream for reproduction. Additionally we noted the presence of a *Leuciscus* sp. However, within the side pool we found only tadpoles of *R. pyrenaica*. A potential threat in this locality is represented by the alien crayfish *Pacifastacus leniusculus*, which we found during both survey years approximately 1 km downstream of the *R. pyrenaica* breeding site.

The second new locality comprises the upper Arpeko Oihaneko stream. This locality is of particular interest as it is the most westward recorded locality for *R. pyrenaica*, and does not belong to the Ebro hydrographic basin. This stream originates from the western slopes of the Mendizar Mountain, and is part of the Nive river basin. We found *R. pyrenaica* tadpoles both at the French side, downstream from the Arpea Cave at 950 m a.s.l., and at the Spanish side at 1000 m a.s.l.

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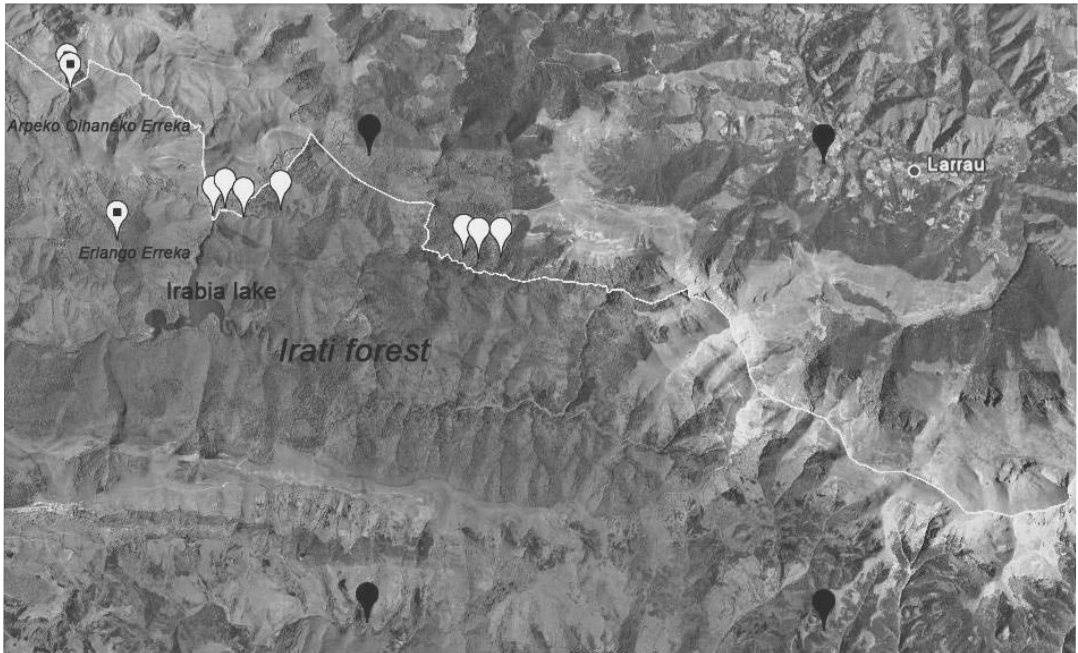


Figure 1. Distribution overview of *Rana pyrenaica* at its western range limit. Black markers represent data extracted from the GBIF Portal, white markers represent data from Llamas et al. (1998) and Prud'Homme (2005) as reported in Prud'Homme (2005). White markers with black squares show the new records described in the current paper. Due to geographic proximity the records of the Arpeko Oihaneko Erreka overlap.

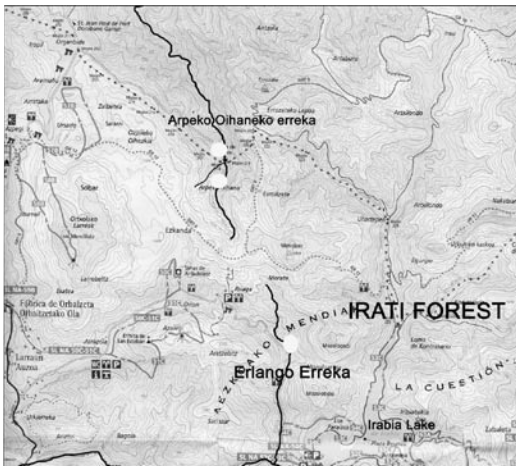


Figure 2. Map showing the new westernmost distribution records of *Rana pyrenaica*. White circles represent the locations in which tadpoles were found. Map modified from Junta General del Valle de Aezkoa.

Within the stream we additionally found *C. asper*, *L. helveticus* and *B. bufo*; the occurrence of Brown Trout is likely but was not confirmed by our observations. The surrounding landscape was mainly characterized by grazing pastures.

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