

## REFERENCIAS

- Dumont, M. 1979. Elevage et reproduction de *Natrix maura*. *Bulletin de la Société Herpétologique de France*, 12: 7-10.
- Feriche, J. & Pleguezuelos, J.M. 1999. Características de la reproducción de la culebra viperina, *Natrix maura* (Linnaeus, 1758), en la depresión de Granada (sureste ibérico). *Revista Española de Herpetología*, 13: 37-48.
- Greene, M.J., Stark, S.L. & Mason, R.T. 2001. Pheromone trailing behaviour of the brown tree snake, *Boiga irregularis*. *Journal of Chemical Ecology*, 27: 2193-2201.
- Hailey, A. & Davies, P.M.C. 1987a. Maturity, mating and age-specific reproductive effort of the snake *Natrix maura*. *Journal of Zoology, London*, 211: 573-587.
- Hailey, A. & Davies, P.M.C. 1987b. Growth, movement and population dynamics of *Natrix maura* in a drying river. *Herpetological Journal*, 1: 185-194.
- Lemaster, M.P., Moore, I.T. & Mason, R.T. 2001. Conspecific trailing behaviour of red-sided garter snakes, *Thamnophis sirtalis parietalis*, in the natural environment. *Animal Behaviour*, 61: 827-833.
- Luiselli, L. 1996. Individual success in mating balls of the grass snake, *Natrix natrix*: size is important. *Journal of Zoology*, 239: 731-740.
- Madsen, T. & Shine, R. 1993. Male mating success and body size in european grass snakes. *Copeia* 1993: 561-564.
- Santos, X. & Llorente, G.A. 2001. Seasonal Variation in Reproductive Traits of the Oviparous Water Snake, *Natrix maura*, in the Ebro Delta of Northeastern Spain. *Journal of Herpetology*, 35: 653-660.

## New observations of the Iberian Worm Lizard (*Blanus cinereus*) and the Bedriaga's Skink (*Chalcides bedriagai*) bring reliability to the historical records from Porto region (NW Portugal)

Raquel Ribeiro<sup>1,2</sup>, Joana Torres<sup>2</sup>, Miguel A. Carretero<sup>2</sup>, Nefalí Sillero<sup>3</sup> & Gustavo A. Llorente<sup>1</sup>

<sup>1</sup> Departament de Biologia Animal. Facultat Biologia. Universitat de Barcelona. Av. Diagonal, 645, 08028 Barcelona. Spain. C.e.: raquel.ribeiro@mailicav.up.pt

<sup>2</sup> CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos. Campus Agrário de Vairão. 4485-661 Vairão. Portugal.

<sup>3</sup> CICGE, Centro de Investigação em Ciências Geo-Espaciais. Universidade do Porto. Departamento de Matemática Aplicada, Rua do Campo Alegre, 687. 4169-007 Porto. Portugal.

**Fecha de aceptación:** 5 de septiembre de 2008.

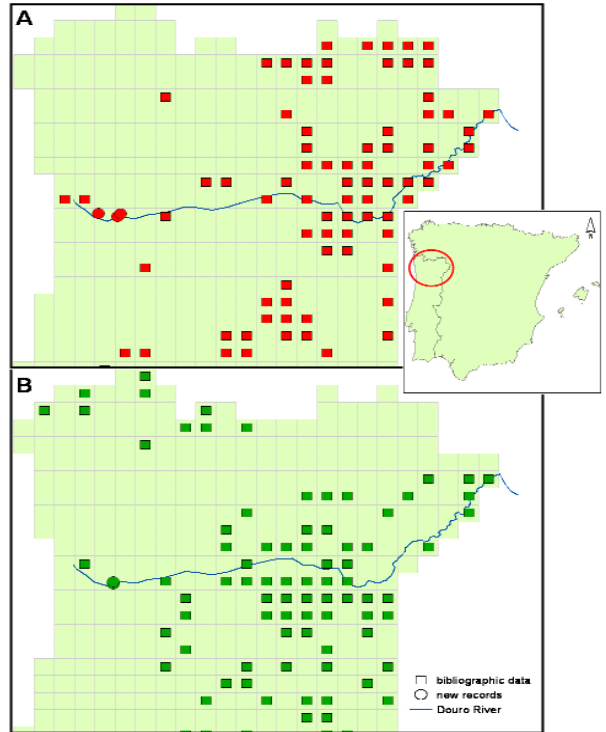
**Key words:** *Blanus cinereus*, *Chalcides bedriagai*, historical data, new records.

**RESUMEN.** En la región de Oporto (Portugal) existen registros históricos (siglo XIX) de la presencia de la culebrilla ciega (*Blanus cinereus*) y del eslizón ibérico (*Chalcides bedriagai*) cuya veracidad era cuestionada por los herpetólogos locales. En este artículo, se incluyen tres nuevos registros para *B. cinereus* y dos para *C. bedriagai* que amplían en dos y una cuadrículas UTM 10x10 Km la distribución de las dos especies. Con estos nuevos registros, se profundiza en el conocimiento de la distribución de ambas especies y los registros históricos ganan credibilidad.

The Iberian Worm lizard (*Blanus cinereus*) and the Bedriaga's Skink (*Chalcides bedriagai*) are two reptiles endemic to the Iberian Peninsula whose ranges display a geographical pattern almost coincident with the Mediterranean climatic region (Pleguezuelos *et al.*, 2002) although both species, particularly *C. bedriagai*, present isolated records in areas with Atlantic influence. In northern Portugal, both are absent from the coastal stripe with the exception of historical records in the Porto region (e.g. Bedriaga, 1890; Ferreira, 1895) compiled by the first time by Crespo & Oliveira (1989). These records (two for *B. cinereus* UTM 29T

NF25/35 and one for *C. bedriagai* UTM 29T NF35) were considered dubious due to the geographical distance to the nearest populations and especially because of the existence of other very questionable records in the same area (*Alytes cisternasii*, *Vipera seoanei*) possibly resulting from mislabelling of the specimens in the University of Porto' collection. During the first half of 2008, we recorded three new observations for *B. cinereus* and two for *C. bedriagai* in the region of Porto, resulting in two and one new 10x10 km UTM squares for each species distribution, respectively (Table 1). These discoveries bring reliability to the old

ones, which are adjacent (Figure 1), and contribute to clarify the distribution pattern of these two species. In fact, they suggest that the same geographical corridors have allowed the expansion of those species into bioclimatic regions otherwise unsuitable for both species. The Douro valley, warmer and drier than the surrounding plateaus (Direcção Geral do Ambiente, 1995) seems to provide the conditions required by *B. cinereus* and *C. bedriagai* at a micro-habitat scale permitting the intrusion of these typically Mediterranean species into the Atlantic bioclimatic region (Sillero, 2006). Nevertheless, this trend is already known for the *C. bedriagai* distribution which present its north-western limit on the Galician coast, an area clearly inserted within the Atlantic bioclimatic region. Further field work would be necessary to confirm the connection of these populations with the nearest ones known. However, this present connection, as the eventual persistence of the historical populations, might not be dependent only from bioclimatic conditions but also deriving from very recent (< 50 years) landscape disturbances, mainly due to intensive agriculture and urbanisation (Moreira *et al.*, 2001).



**Figure 1.** Location of the new (○) and bibliographic (□) data for *Blanus cinereus* (A – red) and *Chalcides bedriagai* (B – green).

**Figura 1.** Localización de los registros nuevos (○) y bibliográficos (□) de *Blanus cinereus* (A – rojo) y *Chalcides bedriagai* (B – verde).

**TABLE 1.** GPS records (X/Y coordinates and UTM 10x10 km square) of *Blanus cinereus* and *Chalcides bedriagai*. The date, the number of individuals and the locality are also indicated.

**TABLA 1.** Registros GPS (coordenadas X/Y y cuadrícula UTM de 10x10 km) de *Blanus cinereus* y *Chalcides bedriagai*. Se indican igualmente la fecha, el número de individuos y la localidad.

| Date (2008) | Species             | Nº individuals | GPS point      | UTM Sqr | Locality           | Habitat/ Landscape    |
|-------------|---------------------|----------------|----------------|---------|--------------------|-----------------------|
| January 22  | <i>B. cinereus</i>  | 1 adult (shed) | 552892;4546567 | 29TNF54 | Gondomar – Melres  | Eucalyptus Forest     |
| April 30    | <i>B. cinereus</i>  | 2 juveniles    | 541767;4546649 | 29TNF44 | Gaia – Crestuma    | Mixed Cork-oak Forest |
| June 11     | <i>B. cinereus</i>  | 1 adult        | 551149;4544946 | 29TNF54 | Gondomar – Moreira | Cork-oak Forest       |
| July 9      | <i>C. bedriagai</i> | 1 adult        | 549174;4543419 | 29TNF54 | Gondomar – Lomba   | Mixed Cork-oak Forest |
| July 9      | <i>C. bedriagai</i> | 1 juvenile     | 549015;4544539 | 29TNF54 | Gondomar – Lomba   | Mixed Cork-oak Forest |

## REFERENCES

- Bedriaga, J.V. 1890. *Amphibiens et reptiles recueillis en Portugal par M. Adolphe F. Möller*. O Instituto, Coimbra, sér 2, 37 5: 295-300, 12: 840-845.
- Crespo, E.G. & Oliveira, M.E. 1989. *Atlas da Distribuição dos Anfíbios e Répteis de Portugal Continental*. Serviço Nacional de Parques, Reservas e Conservação da Natureza. Lisboa.
- Direcção Geral do Ambiente. 1995. *Atlas do Ambiente*. Direcção Geral do Ambiente, Lisboa.
- Ferreira, J.B. 1895. Additamento ao catalogo dos Reptis e batrachios de Portugal. *Jornal de Ciencias Mathematicas, Physicas e Naturaes*, 2ª série, 3(12): 231-237.
- Moreira, F., Rego, F.C. & Ferreira, P.G. 2001. Temporal (1958–1995) pattern of change in a cultural landscape of northwestern Portugal: implications for fire occurrence. *Landscape Ecology*, 16: 557-567.
- Pleguezuelos, J.M., Márquez, R. & Lizana, M. (eds.). 2002. *Atlas y libro rojo de los anfibios y reptiles de España*. Dirección General de Conservación de la Naturaleza-Asociación Herpetológica Española (2ª impresión). Madrid.
- Sillero, N. 2006. *Aplicación de la Teledetección y los Sistemas de Información Geográfica en el análisis de la biogeografía de anfibios y reptiles ibéricos*. PhD Thesis. Universidad de León. León.