# First record of *Holocentropus stagnalis* (Albarda, 1874) (Trichoptera: Polycentropodidae) for the Iberian Peninsula

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**Abstract**: The presence of the trichopteran *Holocentopus stagnalis* in five temporary ponds of Catalonia is reported. These findings represent the first record of this species in the Iberian Peninsula.
**Key words**: Trichoptera, Polycentropodidae, *Holocentropus stagnalis*, temporary ponds, Iberian Peninsula, Spain.

**Primera cita de *Holocentropus stagnalis* (Albarda, 1874) (Trichoptera: Polycentropodidae) para la Península Ibérica**
**Resumen**: Se da a conocer la localización del tricóptero *Holocentopus stagnalis* en cinco lagunas temporales de Cataluña. Estas citaciones suponen las primeras de esta especie en la Península Ibérica.
**Palabras clave**: Trichoptera, Polycentropodidae, *Holocentropus stagnalis*, lagunas temporales, Península Ibérica, España.

Seventeen species of *Holocentropus* McLachlan, 1878 have been recorded around the world. They are mainly Holarctic species, but some of them are present in Southern Asia (Holzenthal *et al.*, 2007). In Europe five species are known (Maliky, 2005), but only three of them are widely distributed (they occur from Northern Europe to the Mediterranean countries): *Holocentropus dubius* (Rambur, 1842), *Holocentropus stagnalis* (Albarda, 1874) and *Holocentropus picicornis* (Stephens, 1836) (Macan, 1973; Moretti, 1983; Nilsson, 1996). The other two species have a more restricted distribution (de Jong, 2010): *Holocentropus insignis* Martynov, 1924, present in Scandinavia, the Baltic countries, Russia, Poland, Germany and the Netherlands, and *Holocentropus varangensis* Mey, 1987, considered an endemic species from Norway. Thus, *Holocentropus stagnalis* is distributed throughout Europe (Fischer, 1962), but in Scandinavia it has been captured only from the southernmost parts (Johanson, 1994).

Four larvae of *Holocentropus* were captured in a pond located in the Empordà region, NE of the Iberian Peninsula (Estany Gran dels Torlits) in 2009 (Table I). These individuals were in their 5$^{th}$ larval instar according to their head width (Edington & Hildrew, 1981; Table II), and were identified as *H. stagnalis* by means of the patterns of the dorsal surface of the head, the ratio between the size of tibia and tarsus of the fore leg, and the anal claw (Lepneva, 1964; Edington & Hildrew, 1981; Moretti, 1983; Fig. 1). In addition, previous collections of aquatic fauna of this area were revised and, in samples of two other ponds (Estany de la Rajoleria in 2005, and Bassa del Cim de la Mina in 2006), several more specimens were also found (Table I). Posteriorly, in a pond survey performed in 2011 and 2012, *H. stagnalis* larvae were found again in Bassa del Cim de la Mina, and in three new locations: Estany de la Cardonera dels Torlits, Estany Petit dels Torlits and Estany Petit de Canadal (Table I). It is interesting to comment that in Estany Gran dels Torlits, another species, *Agraylea sexmaculata* Curtis, 1834 (Hydroptilidae), was found during this survey. Larvae of this species have been also found in temporary ponds in southwestern Iberian Peninsula (M. Machado and J. Sala unpublished data). These six ponds are characterized by its temporality (as far as we know, Estany Gran dels Torlits is a semipermanent pond and the hydroperiod length of the other five ponds is shorter than six months) and low altitude (less than 200 m a.s.l.). *H. stagnalis* is a typical lentic water species (Edington & Hildrew, 1981; Della Bella *et al.*, 2005) and has been reported from temporary ponds in several locations in Europe (e.g. Wiberg-Larsen *et al.*, 1980; Nicolet *et al.*, 2004).

In NE Iberian Peninsula, few Trichoptera species and genera have been found in temporary ponds, and always in low abundance. Although all the caddisfly taxa captured in the temporary ponds of this area belong to the family Limnephilidae (Boix & Sala, 2002), with the exception of *H. stagnalis* and *A. sexmaculata*, in permanent ponds, also *Ecnomus deceptor* McLachlan, 1884 and *E. tenellus* (Rambur, 1842) (Ecnomidae) have been recorded (Boix *et al.*, 2008, Ruhí *et al.*, 2009). It is worth to note that the low abundances of caddisflies in temporary ponds of this area contrasts with the high Limnephilidae densities observed in other Mediterranean areas like Sardinia (authors, unpublished data), in cold temperate latitudes in Canada or England (e.g. Collinson *et al.*, 1995; Magnusson & Williams, 2009) or in the southern hemisphere, as Argentina (e.g. Díaz-Villanueva & Trochine, 2005). Larvae of Polycentropodidae are not as frequent as Limnephilidae in temporary ponds, but several species species may be found in these habitats (Wiggins, 1973). In addition to Polycentropodidae, Hydroptilidae and Limnephilidae, one more family have been found in temporary ponds in Europe, i.e. Phryganeidae (*Trichostegia minor* (Curtis, 1834); Novak & Sehnal, 1963; Wiggins, 1973; Otto, 1983; Van der Hoek & Cuppen, 1989). Also note that in temporary ponds close to running waters other families have been reported, e.g. Leptoceridae and Lepidostomatidae (Ocharan *et al.*, 2006). It is relevant to comment that caddisfly larvae in temporary water had different trophic roles than those in permanent water. For example, they showed higher levels of aggression, and more propensity to predation and even cannibalism (Wissinger *et al.*, 1996, 2004).

The trichopteran fauna of the Iberian Peninsula is quite well documented, due to the publication of catalogues (e.g. González *et al.*, 1992; Zamora-Muñoz & Bonada, 2003), and to recent regional fauna or checklist updates (e.g. Ruiz *et al.*, 2001; Bonada *et al.*, 2004, 2008; González & Martínez, 2011). However, it is not surprising the finding of a new species for the Iberian fauna, since caddisflies from lentic habitats have received less attention than those from lotic ecosystems. This report shows that inventories of temporary habitats might result in a better understanding of the biodiversity of certain groups. More intensive sampling from such habitats will possibly reveal more species than previously known.

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**Table I. Locations (all in Girona province) and dates where *Holocentropus stagnalis* has been captured.**

| Site (and code) | Municipality | Geographical coordinates | Date |
|---|---|---|---|
| Estany de la Rajoleria (RA) | Sant Climent Sescebes | 42º23'49"N, 02º58'47"E | 28.X.2005 |
| Bassa del Cim de la Mina (CM) | Torroella de Fluvià | 42º11'32"N, 03º01'16"E | 26.II.2006 30.XII.2011 |
| Estany Gran dels Torlits (GT) | Sant Climent Sescebes | 42º22'53"N, 02º57'30"E | 30.III.2009 |
| Estany Petit de Canadal (PC) | La Jonquera | 42º24'03"N, 02º54'12"E | 29.II.2012 |
| Estany de la Cardonera dels Torlits (CT) | Sant Climent Sescebes | 42º22'11"N, 02º57'00"E | 07.III.2012 |
| Estany Petit dels Torlits (PT) | Sant Climent Sescebes | 42º22'44"N, 02º 57'32"E | 07.III.2012 |

**Table II. Total length and head width of the *Holocentropus stagnalis* larvae captured in the Empordà region.** N, number of individuals sized.

| Sample | N | Total length (mm) | | | Head width (mm) | | |
|---|---|---|---|---|---|---|---|
| | | Min. | Max. | Mean | Min. | Max. | Mean |
| RA (2005) | 3 | 5.8 | 12.1 | 9.9 | 0.86 | 1.54 | 1.30 |
| CM (2006) | 5 | 8.9 | 13.3 | 10.4 | 1.28 | 1.56 | 1.40 |
| GT (2009) | 3 | 9.9 | 14.1 | 11.6 | 1.32 | 1.62 | 1.51 |
| CM (2011) | 5 | 5.6 | 11.7 | 10.0 | 1.24 | 1.56 | 1.46 |
| PC (2012) | 5 | 7.9 | 11.6 | 9.5 | 1.22 | 1.51 | 1.32 |
| CT (2012) | 2 | 12.5 | 14.4 | 13.4 | 1.30 | 1.56 | 1.43 |
| PT (2012) | 1 | — | — | 9.2 | — | — | 1.28 |

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**Fig. 1.** *Holocentropus stagnalis* larva. **A**, Habitus, lateral aspect. **B**, Dorsal surface of the head. **C**, Right fore leg. **D**, Right anal claw.