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A survey for the caddis *Limnephilus tauricus* on Cors Erddreiniog, Anglesey in 2016

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NRW Evidence Report No. 201



Wing of *Limnephilus tauricus*

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1. Crynodeb Gweithredol

Ni lwyddodd arolwg o Warchodfa Natur Genedlaethol Cors Erddreiniog o fis Gorffennaf i fis Medi 2016 i ddod o hyd i'r pryf pric *Limnephilus tauricus* (sy'n dod o dan y categori Bregus yn y DU) yn ei unig leoliad yng Nghymru. Daethpwyd o hyd iddo am y tro cyntaf yn y warchodfa yn 2006, mewn ardal fach o gorstir a fwydir gan darddell, sy'n wlyb yn barhaus ac yn llifo'n araf, ac sy'n cynnal gwely helaeth o *Iris pseudacorus* Melyn, a chanfuwyd bod niferoedd bach o rai aeddfed yn yr un man yn 2007 a 2008. Ni chanfuwyd unrhyw larfau hyd yn hyn. Bu chwiliadau ehangach ar draws cynefin y tybir ei fod yn addas ar Gors Erddreiniog yn 2008 a 2016 yn ddiffrwyth. Er bod y llystyfiant ar y safle gwreiddiol i'w weld yn debyg iawn i'r sefyllfa yn 2006–08, roedd y dŵr a oedd yn llifo drwy'r safle yn llai clir ac yn ôl pob golwg yn cynnwys mwy o ronynogrwydd haearn.

Mae angen cynnal rhagor o chwiliadau o Warchodfa Natur Genedlaethol Cors Erddreiniog er mwyn pennu statws presennol *L. tauricus*.

2. Executive Summary

A survey of Cors Erddreiniog National Nature Reserve from July to September 2016 failed to find the caddis *Limnephilus tauricus* (classified as Vulnerable in the UK) at its only Welsh locality. First found on the reserve in 2006 in a small area of permanently wet, gently-flowing, spring-fed fen supporting an extensive bed of Yellow Flag *Iris pseudacorus*, small numbers of adults were also found at the same station in 2007 and 2008. No larvae have been found to date. Wider searches of apparently suitable habitat on Cors Erddreiniog in 2008 and 2016 proved fruitless. Whilst the vegetation at the original station looked very similar to the situation in 2006-08, the water flowing through the site was less clear and appeared to contain more iron flocculence.

Further searches of Cors Erddreiniog NNR are required to determine the current status of *L. tauricus*.

3. Introduction

3.1 Background information

The caddis *Limnephilus tauricus* Schmid, 1964 was added to the British list in 1981 (O'Connor & Barnard, 1981) and has subsequently been found in Ireland (O'Connor & Bond, 1995). In the UK, recent records are confined to Leckford in Hampshire (2003) and Cors Erddreiniog National Nature Reserve on Anglesey where it was first recorded in 2006 and again in 2007 and 2008 (Wallace *et al.*, 2010). There are historical records from single sites in Berkshire, Cambridgeshire and Norfolk (Barnard & Ross, 2012; Wallace, 1991, 2016). All known sites are fens. *L. tauricus* is Nationally Rare and has recently been assessed using IUCN criteria as Vulnerable (Wallace, 2016).

On Cors Erddreiniog, the caddis appears to be restricted to a small area of permanently wet, gently-flowing, spring-fed fen which supports an extensive bed of Yellow Flag *Iris pseudacorus*. Several adults were recorded in July 2006, five adults in August 2007 and seven adults in July 2008 (Table 1; Wallace *et al.*, 2010). No larvae have been located despite intensive searches. This habitat is very localised on the reserve and occurs at only a handful of other places but searches of these have failed to find the caddis. *L. tauricus* probably has an adult diapause as the females captured in July 2008 were not ready to lay until late August. A survey of the whole reserve in 2008 identified three other promising areas but found the caddis only at its original location.

Adults rest among fen vegetation and fly freely when disturbed. They may be near the base of plants if it is hot and sunny but during still, damp afternoons and at night they have been seen higher up the plants.

Table 1: Records of *Limnephilus tauricus* from Cors Erddreiniog NNR.

Grid Reference	Date	Recorder	Abundance
SH465821	8 th July 2006	Ian Wallace <i>et al.</i>	several adults
SH465821	4 th August 2007	Ian Wallace <i>et al.</i>	5 adults
SH465820	21 st to 23 rd July 2008	Ian Wallace <i>et al.</i>	7 adults

3.2. Objectives

The objective of the 2016 survey was to determine the current status of *L. tauricus* on Cors Erddreiniog NNR by revisiting the known locality and the three other areas thought to be suitable for the caddis.

4. Methods

Cors Erddreiniog was visited on three occasions from 29th July to 1st September 2016, and adults were searched for both during the day and at night using a variety of techniques including visual searches, beating, sweeping and netting. A 40 watt actinic light trap was also used at night.

5. Results

Despite intensive searches, no adults of *L. tauricus* were found. A brief summary of each visit is given below.

29th July 2016. After a promising start, the day turned hot and sunny. Brenda, Graham and Ian Wallace searched for resting adults during the afternoon at the main site and three other locations. No specimens of *L. tauricus* were found.

10th August 2016. This was a damp day and thus more hopeful for locating adults. Brenda and Ian Wallace searched for resting adults at the main site and two other locations during the afternoon. They returned to the main site, with Mike Howe, after dark and again searched for resting and flying adults. They also ran a light trap. No specimens of *L. tauricus* were found.

1st September 2016. Adults collected at the end of July 2008 did not lay in captivity until late August. Brenda, Ian and Matthew Wallace were on Anglesey around that time for another survey so took the opportunity to revisit the main site to look for adults again amongst the vegetation and to run a light trap. This was a wild and wet night, but *Limnephilus* adults can be active at such times. No specimens of *L. tauricus* were found.

Observations on other possible sites for *L. tauricus* on Cors Erddreiniog

The survey in 2008 looked for sites that were superficially similar to the only area where *L. tauricus* has been found. Such sites had fen vegetation associated with slight water flow and apparently retained at least some surface water throughout the year. They were not highly calcareous, tufa-depositing sites. Three areas were identified and all were investigated during the current survey, along with two more that seemed to have those characteristics. The similar areas are the eastern parts of Compartment 23 and its junction with Compartment 27a, the ditch between Compartments 9a and 9b, the ditch between Compartments 14 and 15a, the ditch between Compartments 14 and 13e and two ditches in Compartment 6a. The most promising area is that between 23 and 27a, which is near the site where *L. tauricus* was found in previous years. However, no specimens of *L. tauricus* were found.

A list of other caddis species recorded at Cors Erddreiniog during the 2016 survey is given in Table 2, all of which are common widespread species. The most unusual was the population of *Wormaldia occipitalis* at SH47488235 occupying a dense mass of encrusted *Chara* stems in a spring source arising in Compartment 13c; the surveyors have not noted this association elsewhere in their work.

Table 2: Records of caddis and Lepidoptera recorded at Cors Erddreiniog NNR in 2016.

Species	Order	Grid Reference	Date	Abundance	Comment
<i>Agrypnia varia</i>	Trichoptera	SH465819	10.8.2016	1 adult	at light
<i>Agrypnia varia</i>	Trichoptera	SH466817	10.8.2016	1 adult	resting
<i>Athripsodes aterrimus</i>	Trichoptera	SH465818	29.7.2016	sev pupal cases	
<i>Beraea pullata</i>	Trichoptera	SH465819	29.7.2016	sev pupal cases	
<i>Glyptotaelius pellucidus</i>	Trichoptera	SH465819	10.8.2016	2 adults	at light

<i>Glyptotaelius pellucidus</i>	Trichoptera	SH465819	1.9.2016	1 adult	beaten
<i>Glyptotaelius pellucidus</i>	Trichoptera	SH465819	1.9.2016	1 egg mass	
<i>Hydropsyche angustipennis</i>	Trichoptera	SH466817	29.7.2016	1 adult	swept
<i>Limnephilus centralis</i>	Trichoptera	SH465819	29.7.2016	1 adult	resting
<i>Limnephilus hirsutus</i>	Trichoptera	SH465819	10.8.2016	sev adults	at light
<i>Limnephilus hirsutus</i>	Trichoptera	SH464819	10.8.2016	1 adult	resting
<i>Limnephilus hirsutus</i>	Trichoptera	SH476822	10.8.2016	1 adult	swept
<i>Limnephilus incisus</i>	Trichoptera	SH464819	10.8.2016	1 adult	resting
<i>Limnephilus lunatus</i>	Trichoptera	SH465819	10.8.2016	1 adult	at light
<i>Limnephilus lunatus</i>	Trichoptera	SH465819	1.9.2016	7 adults	beaten
<i>Limnephilus lunatus</i>	Trichoptera	SH466817	29.7.2016	1 adult	swept
<i>Limnephilus marmoratus</i>	Trichoptera	SH465819	1.9.2016	1 adult	at light
<i>Limnephilus sparsus</i>	Trichoptera	SH465819	10.8.2016	1 adult	at light
<i>Wormaldia occipitalis</i>	Trichoptera	SH474823	10.8.2016	sev adults + larvae	
<i>Elophila nymphaeata</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Catoptria margaritella</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Yponomeuta padella</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Bactra lancealana</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Pandemis corylana</i>	Lepidoptera	SH465819	10.8.2016	4 adults	at light
<i>Agonopterix subpropinquella</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Ochropleura plecta</i>	Lepidoptera	SH465819	10.8.2016	3 adults	at light
<i>Noctua janthe</i>	Lepidoptera	SH465819	10.8.2016	3 adults	at light
<i>Apamea monoglypha</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Lampropteryx otregiata</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Noctua interjecta</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Notodonta ziczac</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Helotropha leucostigma</i>	Lepidoptera	SH465819	10.8.2016	1 adult	at light
<i>Nymphula nitidulata</i>	Lepidoptera	SH467817	10.8.2016	1 adult	netted
<i>Eulithis testata</i>	Lepidoptera	SH467817	10.8.2016	1 adult	netted
<i>Cabera exanthemata</i>	Lepidoptera	SH467817	10.8.2016	1 adult	netted
<i>Orthonama vittata</i>	Lepidoptera	SH474823	10.8.2016	1 adult	resting
? <i>Nemophora cupriacella</i>	Lepidoptera	SH472815	29.7.2016	sev adults	no vouchers

6. Discussion

Whilst *L. tauricus* was not recorded in 2016 and was last seen in 2008, it is premature to conclude that the caddis has been lost from Cors Erddreiniog. The species did seem to decline between 2006 and 2008 at its only location but the line of fencing suggested by Wallace *et al.* (2010) to limit pony and cattle trampling seems to have been successful. This area still supports permanently wet, gently-flowing, spring-fed fen with extensive beds of *Iris pseudacorus*. However, it was the impression of the surveyors that the water flowing through the site was less clear and contained more iron flocculence in 2016 than 10 years earlier.

The adult flight period may be very short and vary a little from year to year, making surveying for adults difficult but until larvae are found, searches will have to focus on the adult stage.

7. Conclusions & Recommendations

Adult searches should continue in an attempt to determine the current status of *L. tauricus* on Cors Erddreiniog. Whilst this is best undertaken by experienced personnel, entomologists visiting Cors Erddreiniog during July could be encouraged to search for plain-looking *Limnephilus* adults. Regular light-trapping within and near the original location during the adult flight period could also be undertaken. It should be noted that the common *L. hirsutus* (Pictet), which is abundant on Cors Erddreiniog, looks very similar and the two species can only be distinguished by examination of the genitalia with either a hand lens or microscope.

8. Acknowledgements

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10. Data Archive Appendix

The data archive contains:

- [A] The final report in Microsoft Word and Adobe PDF formats.
- [B] Species records, which are held on the NRW Recorder 6 database.

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue <http://libcat.naturalresources.wales> or <http://catllyfr.cyfoethnaturiol.cymru> by searching 'Dataset Titles'. The metadata is held as record no. 118344.



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