

A Survey of Fairy Shrimp *Chirocephalus diaphanus* at Occupied Sites in Wales in 2025

NRW Evidence Report No. 971

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Abundant Fairy Shrimp netted from a temporary pool at Aberedw Hill, Radnorshire

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Crynodeb Gweithredol

Arolygwyd pob safle hysbys yng Nghymru sydd â chofnodion diweddar (ar ôl 2000) o'r ferdysen gwisgi *Chirocephalus diaphanus* ym mis Medi a mis Hydref 2025, yn cynnwys wyth safle wedi'u lleoli yng Ngwent, Sir Forgannwg, Sir Frycheiniog a Sir Faesyfed, ac mae un ohonynt yn ymestyn dros ffin Cymru-Lloegr i mewn i Swydd Henffordd. Arolygwyd tri safle ychwanegol ym Mrycheiniog a Maesyfed heb unrhyw gofnodion blaenorol hefyd, ac ymwelwyd â hen safle yng Ngwent hefyd. Roedd yr arolygon yn cynnwys rhwydo pyllau tymhorol o dan drwydded gan Cyfoeth Naturiol Cymru, wedi'i ategu gan chwiliadau gweledol. At ei gilydd, ymwelwyd â 98 o byllau ar draws y 12 safle arolwg.

Roedd canlyniadau'r arolwg yn galonogol ar y cyfan, gyda'r ferdysen gwisgi wedi'i chofnodi mewn 19 o byllau ar draws chwe safle. I roi cyd-destun, dim ond mewn 14 pwll yng Nghymru yr oedd y ferdysen gwisgi wedi'i chofnodi o'r blaen. Yn ddiamau, cafodd llwyddiant cymharol yr arolwg ei gynorthwyo gan amodau'r tywydd yn 2025, gyda'r gwanwyn-haf sych a'r hydref cynnar gwlyb yn darparu amodau delfrydol ar gyfer deor wyau. Dangosodd yr arolwg bwysigrwydd Bryn Aberedw (Sir Faesyfed) i'r ferdysen gwisgi. Nid yn unig y canfuwyd y rhywogaeth mewn 11 pwll – mwy na'r holl safleoedd eraill gyda'i gilydd – ond mae'n debygol bod y rhwydwaith o dros 40 o byllau ar y bryn hwn yn cynnal metaboblogaeth gref. Mae'r cynigion cyfredol ar gyfer fferm wynt fawr ar y safle hwn yn destun pryder. Mae Cefn Hergest (Sir Faesyfed/Sir Henffordd) hefyd yn cynnal poblogaeth gref.

At ei gilydd, rhoddodd yr arolwg ddiweddariad pwysig ar statws y ferdysen gwisgi yng Nghymru. Cyn yr arolwg hwn, nid oedd y rhywogaeth wedi'i chofnodi yn Litton Hill ers 2007 ac yng Nghefn Hergest ers 2009. Cofnodion Bryn Aberedw a chytir Brechfa oedd y cyntaf ar gyfer y safleoedd hyn ers 2016. Cafwyd canlyniadau negyddol gan ddau safle hysbys. Yng Nghefn Llechid, nid yw diffyg y ferdysen gwisgi yn 2025 yn destun pryder mawr o ystyried mai dim ond yn ddiweddar y cafodd rhigolau cerbydau eu hail-lenwi. Fodd bynnag, mae'r canlyniad negyddol o Henllyn Mawr yn fwy pryderus, gan fod y ferdysen gwisgi yn nodwedd gymhwys yma gan ei fod o fewn SoDdGA Bryniau Llandeilo, Rhulen a Llanbedr. Y cofnod positif diwethaf o'r pwll hwn oedd yn 2011 ac mae wedi cael ei arolygu yn 2020, 2022 a 2023 heb lwyddiant. Cafwyd canlyniadau negyddol gan arolygon mewn tri chytir ucheldirol heb unrhyw gofnodion blaenorol.

Mae bygythiadau i'r safleoedd cytir ucheldirol yn gyffredinol, gan gynnwys datblygu ffermydd gwynt, addasu/cloddio pyllau a llygredd â chemegau trin da byw. Mae corchwyn Seland Newydd *Crassula helmsii* yn fygythiad ychwanegol mewn rhai safleoedd a gall ddod yn fwy o broblem yn y dyfodol. Mewn safleoedd iseldir, y risg o adael llwybrau fferm, gan arwain at gollu rhigolau cerbydau, yw'r bygythiad tymor byr mwyaf arwyddocaol o bosibl. Mae effeithiau presennol a photensial newid hinsawdd yn anhysbys i raddau helaeth ac ni ddylid o reidrydd eu hystyried yn negyddol i'r rhywogaeth hon yng Nghymru, o ystyried ei dosbarthiad ym Môr y Canoldir yn bennaf. Mae angen mynd i'r afael â cholffeydd diweddar pyllau a feddiannwyd yn Parish Draen ar Whitson oherwydd mewnlenni a draenio trwy dynnu sylw at bresenoldeb y Berdys Tylwyth Teg i berchnogion/deiliaid.

Argymhellir bod safleoedd hysbys yn cael eu harolygu o leiaf unwaith bob pum mlynedd i asesu statws, cyflwr cynefin a bygythiadau, a bod Henllyn Mawr yn cael ei ail arolygu i benderfynu a yw'r ferdysen gwisgi yn dal i fodoli yn SoDdGA Bryniau Llandeilo, Rhulen a Llanbedr. Dylid ystyried dynodi pob safle sy'n cynnal y ferdysen gwisgi yng Nghymru yn SoDdGA, ac yn enwedig Bryn Aberedw o ystyried ei fod yn ymddangos fel y safle allweddol ar gyfer y rhywogaeth. Dylid ychwanegu'r ferdysen gwisgi fel nodwedd gymhwysol o SoDdGA Gwastadeddau Gwent – Whitson.

Executive Summary

All known Welsh sites with recent (post-2000) records of Fairy Shrimp *Chirocephalus diaphanus* were surveyed in September and October 2025, comprising eight sites located in Gwent, Glamorgan, Breconshire and Radnorshire, one of which extends over the England-Wales border into Herefordshire. Three additional sites in Breconshire and Radnorshire with no previous records were also surveyed, and an old site in Gwent was also visited. Surveys involved pond netting of seasonal pools under licence from Natural Resources Wales, supplemented by visual searches. In total, 98 pools were visited across the 12 survey sites.

Results of the survey were generally encouraging, with Fairy Shrimp recorded from 19 pools across six sites. For context, Fairy Shrimp had only been recorded from 14 pools in Wales previously. The relative success of the survey was undoubtedly aided by the weather conditions in 2025, with the dry spring-summer and wet early autumn providing ideal conditions for egg hatching. The survey demonstrated the importance of Aberedw Hill (Radnorshire) for Fairy Shrimp. Not only was the species found in 11 pools – more than all other sites combined – but the network of over 40 pools on this hill is likely to support a strong metapopulation. Current proposals for a large windfarm at this site are a cause for concern. Hergest Ridge (Radnorshire/Herefordshire) also supports a strong population.

Overall, the survey provided an important update on the status of Fairy Shrimp in Wales. Prior to this survey, the species had not been recorded at Litton Hill since 2007 and at Hergest Ridge since 2009. The Aberedw Hill and Brechfa Common records were the first for these sites since 2016. Two known sites produced negative results. At Cefn Llechid, the lack of Fairy Shrimp in 2025 is not too much of a concern given that vehicle ruts had only recently refilled. The negative result from Henllyn Mawr, however, is more concerning, as Fairy Shrimp is a qualifying feature here as it lies within Llandeilo, Rhulen & Llanbedr Hills SSSI. The last positive record from this pool was in 2011 and it has been surveyed in 2020, 2022 and 2023 without success. Surveys at three upland commons with no previous records all produced negative results.

Threats to the upland common sites are largely generic, including windfarm development, pond modification/excavation and pollution with livestock treatment chemicals. New Zealand Pigmyweed *Crassula helmsii* is an additional threat at some sites and may become more of an issue in the future. At lowland sites, risk of abandonment of farm tracks, leading to a loss of vehicle ruts, is perhaps the most significant short-term threat. The current and potential impacts of climate change are largely unknown and should not necessarily be considered negative for this species in Wales, given its largely Mediterranean distribution. Recent losses of occupied pools at Parish Reen on Whitson to infilling and drainage needs to be addressed by highlighting the presence of Fairy Shrimp to owner/occupiers.

It is recommended that known sites are surveyed at least once every five years to assess status, habitat condition and threats, and that Henllyn Mawr is resurveyed to determine if Fairy Shrimp still occurs with Llandeilo, Rhulen & Llanbedr Hills SSSI. Consideration should be given to designating all sites supporting Fairy Shrimp in Wales, and particularly Aberedw

Hill given that it appears to be the key site for the species. Fairy Shrimp should be added as a qualifying feature of Gwent Levels – Whitson SSSI.

1. Introduction

The following background information on ecology and status of Fairy Shrimp *Chirocephalus diaphanus* Prevost, 1803 is adapted from Howe (2020) and updated where necessary with recent records.

Fairy Shrimp is a circum-Mediterranean species which extends north-west as far as Britain. It is associated with temporary pools, ranging from tractor ruts to large, muddy ponds, which usually receive regular disturbance from livestock or vehicles. Adults are able to tolerate a wide range of water temperatures from as high as 26°C to very cold water with a covering of ice. Requiring an absence of predators such as fish, ostracods and various insect larvae, the slow-swimming Fairy Shrimps filter-feed on minute algae, protozoans and detrital particles which are promoted by a supply of livestock dung. Adults can be found in all months of the year but perish when the habitat dries out. It survives these periods of drought as eggs which remain viable for more than three years (Bradley, 2006; Bratton, 1990; Bratton & Fryer, 1990). Most eggs hatch soon after a pond refills although hatching is not simultaneous, such that the overall Fairy Shrimp population within a single pond can be at different stages of development. The triggers for hatching involve water saturation, oxygen tension and temperature cues (Bratton, 1990). A proportion of eggs remain dormant for many years, acting as a reserve for future fillings. Immature shrimps pass quickly through several moults and soon begin producing eggs.

Most recent records of Fairy Shrimp in the UK are confined to Salisbury Plain (Gillam & Pile, 1992), the New Forest, Devon and Cornwall (Bratton, 1990; Bratton & Fryer, 1990), with isolated records from Cambridgeshire (Bratton, 1992). In Wales, Fairy Shrimp was first recorded from Pen-y-clawdd in Monmouthshire in April 1978 (Whiting, 1978) and was subsequently found at Nant Coslech and Peterston-super-Ely in the Vale of Glamorgan between 1989 and 1992. It was found at a third site in the Vale at St. Hilary in May 2004 and has been recorded periodically from the same pond up to 2024, although a wider search of 21 pools failed to locate additional populations (Lowe, 2006). It was recorded in a pool on Litton Hill near Presteigne in Radnorshire in 1993 and was found periodically here up to 2007 (Boyce, 1993; Bradley, 2008; Fowles, 1993a&b, 1996; Jones, 2003) although a 2016 survey was negative (Shaw & Shaw, 2016a). A wider survey of 50 temporary pools ('mawn' pools) in the county failed to locate additional populations (Anon, 1999). However, Fairy Shrimp was discovered in two pools on Hergest Ridge, one in Herefordshire and one in Radnorshire, in 2005 (Anon, 2005a&b), and there is a possible record from Radnor Forest although details are not available (Bradley, 2006).

A Countryside Council for Wales-funded search of 65 pools and ruts across south Radnorshire was undertaken in August 2006 using visual/netting searches two weeks after the onset of rain following a long period of drought (Bradley & Bradley, 2007). Fairy Shrimps were found in one new occupied pool, Henllyn Mawr on Aberedw Rocks, as well as in the known pools on Litton Hill and the two Hergest Ridge pools. A new site on Aberedw Hill was found during a survey by Radnorshire Wildlife Trust. All five occupied sites were ephemeral pools with areas of bare mud giving rise to silty conditions when wet and accessed by grazing sheep. A follow-up survey of 52 new pools plus numerous ruts from June to

November 2007 failed to locate Fairy Shrimps and none was reared from collected mud samples (Bradley & Bradley, 2008). It was not found in Henllyn Mawr during the survey but was recorded there again in June 2011 (V. Bradley, pers. comm.).

During a study of the ecology and wildlife of over 80 mawn pools on five hilltop areas in Radnorshire (Aberedw Hill, Begwns, Llandeilo-Llanbedr Hills, Maeliennydd and Red Hill), four new Fairy Shrimp pools were found on Aberedw Hill in October 2007, comprising two small pools and two ruts (Bransden, 2011; Bransden & Slater, 2010). One of these was in close proximity to Pen-waun Pool that was found by Radnorshire Wildlife Trust in 2006, whilst the other three were spread over a wide area of the north end of the hill (Bradley, 2008). During surveys for a Freshwater Habitats Trust project, Fairy Shrimp was again recorded in Pen-waun Pool in 2016 (reared from mud samples) and 2017, and also in a nearby pool in 2016 (Shaw & Shaw, 2016b&c, Shaw *et al.*, 2017). As part of the same project, two new sites were found in Breconshire in September 2016, these being the first records for the county. One of these pools was located on the edge of Cefn Llechid Common (Bradley, 2016) and the other on Brechfa Common (Shaw *et al.*, 2016). Six other pools on and around Brechfa Common produced negative results.

The Radnor mawn pools are part of the Radnorshire and Brecknock Important Pond Area, one of six such areas in Wales identified by the Freshwater Habitats Trust and the Countryside Council for Wales as being of national importance for their wetland plant and macroinvertebrate species and assemblages including Fairy Shrimp and the rare creeping fern Pillwort *Pilularia globulifera* (Nicolet *et al.*, 2013). These pools experience a relatively low rainfall as the Radnor hills lie within the rain shadow of the Cambrian Mountains which, coupled with the underlying geology, promote the formation of temporary pools.

In April 2022, Fairy Shrimp was recorded on a trackway within the Gwent Levels - Whitson SSSI by Gavin Vella, and again at the same site in May 2023 by Richard Clarke (records accessed via iRecord). All other records are from non-statutory sites.

In total Fairy Shrimp has been recorded from 12 sites in Wales (Table 1), though at four of these there are no records since 2000 and two of the sites in the Vale of Glamorgan - Nant Coslech and Mwndy Business Park - are believed to have been lost to development (J. Woodman, pers. comm.).

Fairy Shrimp is a qualifying feature of Llandeilo, Rhulen & Llanbedr Hills SSSI, with populations in Henllyn Mawr.

The aim of the current survey was to visit all Welsh sites with recent records of Fairy Shrimp at a time when conditions were suitable for the temporary pools hold enough water to support shrimps, in order to obtain up-to-date information on status, site condition and threats. Any pools in the vicinity of known pools were to be sampled in addition to the known pools, and pools lacking water were to have mud samples collected for rearing *ex situ*.

Table 1. Fairy Shrimp sites in Wales. *Hergest Ridge is a cross border site with one pool either side of the Radnorshire-Herefordshire boundary.

Site	No. Known Pools	Grid Reference(s)	Vice County	No. Records	Last Record
Pen-y-clawdd	Unknown	SO4507	35	1	1978
Whitson	1	ST383841	35	2	2023
Nant Coslech sewage works	0	ST065790	41	2?	1989 - 1994
Mwndy Business Park	0	ST056816	41	1?	1990s
Peterston-super-Ely	Unknown	ST085779	41	1	1989
Y Bwthyn, St. Hilary	1	ST01777339	41	4	2024
Brechfa Common	1	SO08593884	42	1	2016
Aberedw Hill	2	SO08025173, SO08295148	43	4	2016
Henllyn Mawr (Aberedw Rocks)	1	SO080452	43	2	2011
Hergest Ridge	2*	SO24815578, SO25605649	36 & 43	6	2009
Litton Hill	1	SO26276684	43	6	2007
Cefn Llechid Common	1	SN94312703	42	1	2016

2. Methods

All Welsh sites with recent (post-2000) records of Fairy Shrimp were visited between 18th September and 15th October 2025. The oldest known Welsh site at Pen-y-clawdd was also visited. Three additional sites located close to known sites were also surveyed where time allowed. Table 2 summarises the dates on which each site was surveyed and the number of pools that were visited.

Conditions for survey were almost ideal: after a long dry spell through spring and summer – during which all seasonal pools would have dried out – there followed a wet period from late August to mid-September; this was sufficient to refill most of the known pools. Following this wet spell, conditions were largely dry during the survey period, which made sampling those pools situated in exposed, upland areas more straightforward than it might have been.

All known pools were surveyed and any nearby pools on the same sites were also checked and surveyed where appropriate. These additional pools were identified in advance from O.S. maps and aerial photos, with some additional pools that were not marked on maps identified during site reconnaissance.

Pools that held water at the time of survey were searched visually (except for pools where the water was very turbid), both from the margins and from within the pool. Netting was then

carried out by sweeping a long-handled pond net with 1.5mm mesh through the water and emptying the contents into a white tray filled with water from the same pool. Netting focussed on the central, deepest parts of the pool, as this is where most Fairy Shrimp were located. Any Fairy Shrimps in the sample were counted, sexed and aged (adult or juvenile; approximate length also noted) and then returned to the pool. If Fairy Shrimp was not detected in the first sample then further netting was carried out, sampling different parts of the pool. The survey effort per pool was not standardised and depended on both the density of the Fairy Shrimp population (once shrimps were detected then sampling was stopped, to minimise disturbance) and the size of the pool. Any pools that were permanent (i.e. which appeared based on their depth and aquatic vegetation to hold water year-round) were recorded as such but were not sampled. Likewise, pools with strongly peaty water in mire areas were not usually sampled; Fairy Shrimp is known to avoid highly acidic water and those peaty pools that were sampled always gave negative results.

Table 2. Sites surveyed for Fairy Shrimp in 2025.

Site	Vice County	Status	Survey Date(s)	No. Pools Visited
Whitson	35	Post-2020	18/09/2025	Many vehicle ruts
Pen-y-clawdd	35	Pre-2000	15/10/2025	2
Y Bwthyn, St. Hilary	41	Post-2020	23/09/2025	1
Brechfa Common	42	Post-2010	25/09/2025	6
Llandyfalle Hill	42	Not known site	25/09/2025	3
Cefn Llechid Common	42	Post-2010	06/10/2025	6
Daudraeth Illtyd	42	Not known site	06/10/2025	12
Llandeilo Hill / Aberedw Rocks (inc. Henllyn Mawr)	43	Post-2010	19/09/2025, 13/10/2025	7
Aberedw Hill	43	Post-2010	02/10/2025, 08/10/2025	40
Litton Hill	43	Post-2000	30/09/2025	4
Llanbedr Hill	43	Not known site	13/10/2025	9
Hergest Ridge	36 & 43	Post-2000	30/09/2025	3

All pools were visited once only, with the exception of the known pool at Henllyn Mawr which produced negative results on the first survey visit, thus necessitating a second survey. Larger sites with many pools required two survey days. All surveys were carried out under licence from Natural Resources Wales (Licence No. S095728/1).

Mud samples were collected from several of the ponds that did not support standing water at the time of survey (i.e. those that had beds with either damp or dry mud only). Mud sampling followed established methods (Fowles, 1997; Hammett, 1997), as follows. Samples were taken from the bed of the pool in several places, focussing on the centre of the pool which would generally retain water for longest and where most eggs are likely to be deposited. At home, mud was placed into large, clear plastic containers and rewetted using rainwater. Samples were left on a north-facing windowsill at room temperature and checked every few days for the appearance of Fairy Shrimp and other invertebrates.

A photographic record was made of each pool surveyed. The following data were also collected for each survey pool: grid reference (8-figure), current pool size (length and breadth), water depth, extent of exposed drawdown zone (if any), presence of aquatic vegetation (both on the surface and on the pond bed) including main plant species, presence/absence of livestock poaching and dung, turbidity of water, muddiness of pond bed, and surrounding land use. Other invertebrate taxa collected by pond netting were also noted. Any threats to the temporary pool or shrimp population were noted e.g. signs of recent excavation to deepen pools.

3. Results

3.1. Results Summary

In total 98 pools were visited across the 12 survey sites; a table of results for each pool is included in Appendix 1. The number of pools visited per site ranged from a single pool at St. Hilary to 40 pools at Aberedw Hill. Of the 98 pools that were visited, 14 were dry at the time of survey and at six of these mud samples were collected. 17 other pools were not sampled in the field, being either permanent (4 pools), strongly peaty (11 pools) or inaccessible due to deep mud around the margins (2 pools). Two pools with New Zealand Pigmyweed *Crassula helmsii* present were searched visually but were not netted, to minimise the risk of spreading this invasive plant.

Fairy Shrimp was recorded in 19 pools at six sites, as summarised in Table 3 and mapped in Figure 1. Over half of the recorded pools were at a single site, Aberedw Hill, where Fairy Shrimp was recorded in 11 pools. Two sites with recent (post-2000) records produced negative results, Henllyn Mawr at Aberedw Rocks and Cefn Llechid Common. None of the mud samples collected produced any Fairy Shrimp, although a range of other freshwater invertebrates were reared.

Table 3. Fairy Shrimp (FS) 2025 survey results summary. * NS = not sampled. ** Location of pools recorded by Bransden in 2007 not known; some may be the same as those recorded in 2025.

Site	Vice County	Known FS Pools	Pools with FS 2025	New FS Pools
Whitson	35	1	1	0
Pen-y-clawdd	35	1	NS*	0
Y Bwthyn, St. Hilary	41	1	1	0
Brechfa Common	42	1	2	1
Llandyfalle Hill	42	0	0	0
Cefn Llechid Common	42	1	0	0
Daudraeth Illtyd	42	0	0	0
Llandeilo Hill / Aberedw Rocks	43	1	0	0
Aberedw Hill	43	5**	11	9**
Llanbedr Hill	43	0	0	0

Site	Vice County	Known FS Pools	Pools with FS 2025	New FS Pools
Litton Hill	43	1	1	0
Hergest Ridge	36 & 43	2	3	1

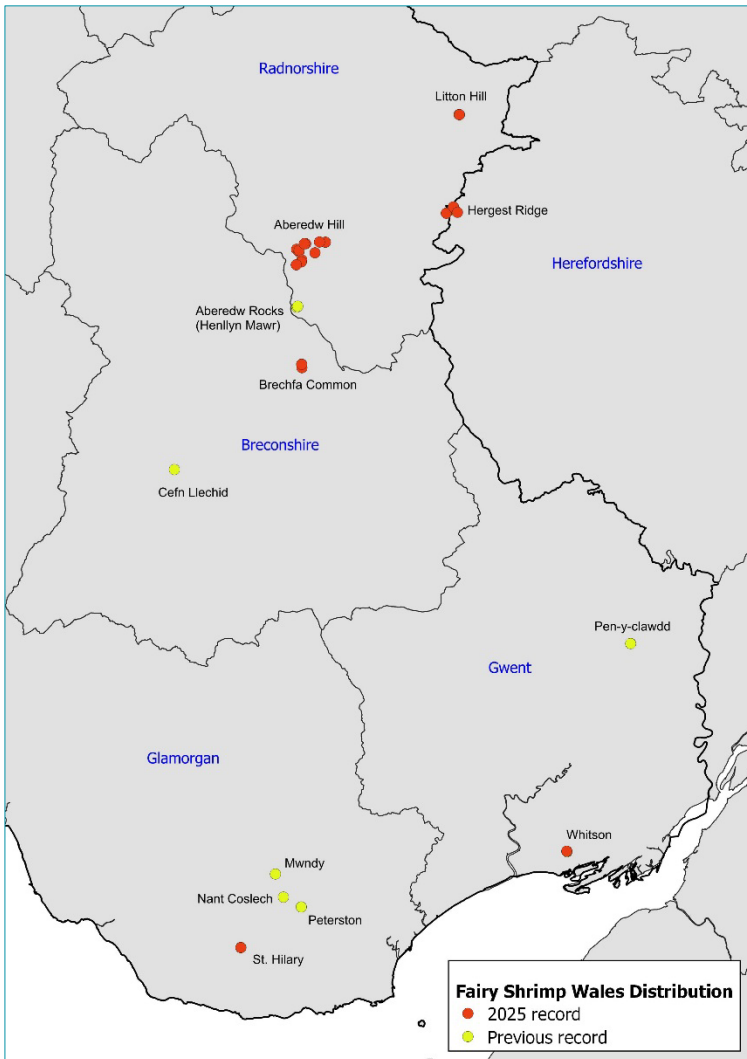


Figure 1. Map of Fairy Shrimp records in Wales.

The 19 pools in which Fairy Shrimp was recorded ranged in size from 5 x 5m (St. Hilary) and 8 x 2m (Whitson) to a maximum of 50 x 30m (Aberedw Hill). Mean pool size was 18 x 10m. Occupied pools ranged in depth from 10cm to 35cm, with a mean depth of 22cm. Most of the occupied pools had a muddy bed and this was a good predictor of the presence of Fairy Shrimp, with pools that had a well-vegetated bed with little exposed mud generally producing negative results. There were a few exceptions however. In the uplands, none of the pools were located in area surrounded by heath and mire vegetation; most were surrounded by Bracken overlying acid grassland.

Sections 3.2 to 3.13 summarise results for each of the survey sites in greater detail.

3.2. Whitson

Numerous vehicle ruts and other large puddles were present along the grassy track adjacent to Parish Reen. Fairy Shrimp was recorded at the known location (Parish Reen, ST38338420; Figure 2), which is a muddy, irregularly-shaped pool formed by vehicle ruts on a bend in the track. The pool was 17cm deep at the time of survey and 20 juvenile Fairy Shrimp 3-7mm in length were netted, suggesting the pool had only recently refilled. Other pools along the track produced negative results – most of these were only 5-10cm deep and are likely to be too ephemeral for Fairy Shrimp to complete its development.



Figure 2. Fairy Shrimp pool location (Parish Reen, ST38338420) and survey routes at Whitson.

The trackway is bordered on both sides by reens, with cattle pasture beyond on one side and a small airfield on the other. The track is used occasionally by farm traffic. There is also occasional recreational horse riding along the track, with dung present at intervals although none was seen in the known pool.

A similar track adjacent to Hare's Reen (ST38838363), also at Whitson, was surveyed but the pools along this track produced negative results. This track appears to be used by vehicles more frequently than the Parish Reen track and it is possible that disturbance is too frequent for the shrimps.

The main threat to the known pool is considered to be abandonment of the trackway by farm vehicles – some nearby farms have been converted to solar, and if this land use continues

to expand on the Gwent Levels, a lack of tractor use along the Parish Reen track would lead to the loss of the known pool due to a lack of rutting / occasional disturbance. Horse riding may provide some additional disturbance and a possible supply of dung, though this appears insufficient to maintain the known pool in the absence of vehicle disturbance.

3.3. Pen-y-clawdd

The exact location of the pool where Fairy Shrimp was recorded in 1978 is unknown, and hence the pools visited in 2025 may not necessarily be those that originally supported the target species. Two pools were visited (at SO45280754 and SO46580738), both located in livestock pasture. However, very deep, soft mud around the pool margins prevented safe access for netting; an extra long-handled net (>4m) would be required to sample these pools. It is possible that both pools are permanent in any case, though it was hard to be certain of this. Given the age of the Fairy Shrimp record, and the lack of specific details, these sites are not a high priority for further survey.

3.4. Y Bwthyn, St. Hilary

The single pool at this site (ST01777339) is somewhat atypical, being in a depression by a farm track and partially shaded by adjacent hedgerow bushes, although the pool is open to the south (Figure 3). Adjacent fields are grazed by horses and sheep but there is no stock access to the pool and plenty of weedy vegetation is present. Eight juvenile Fairy Shrimp, 6mm in length, were netted, indicating that the pool had only recently refilled.

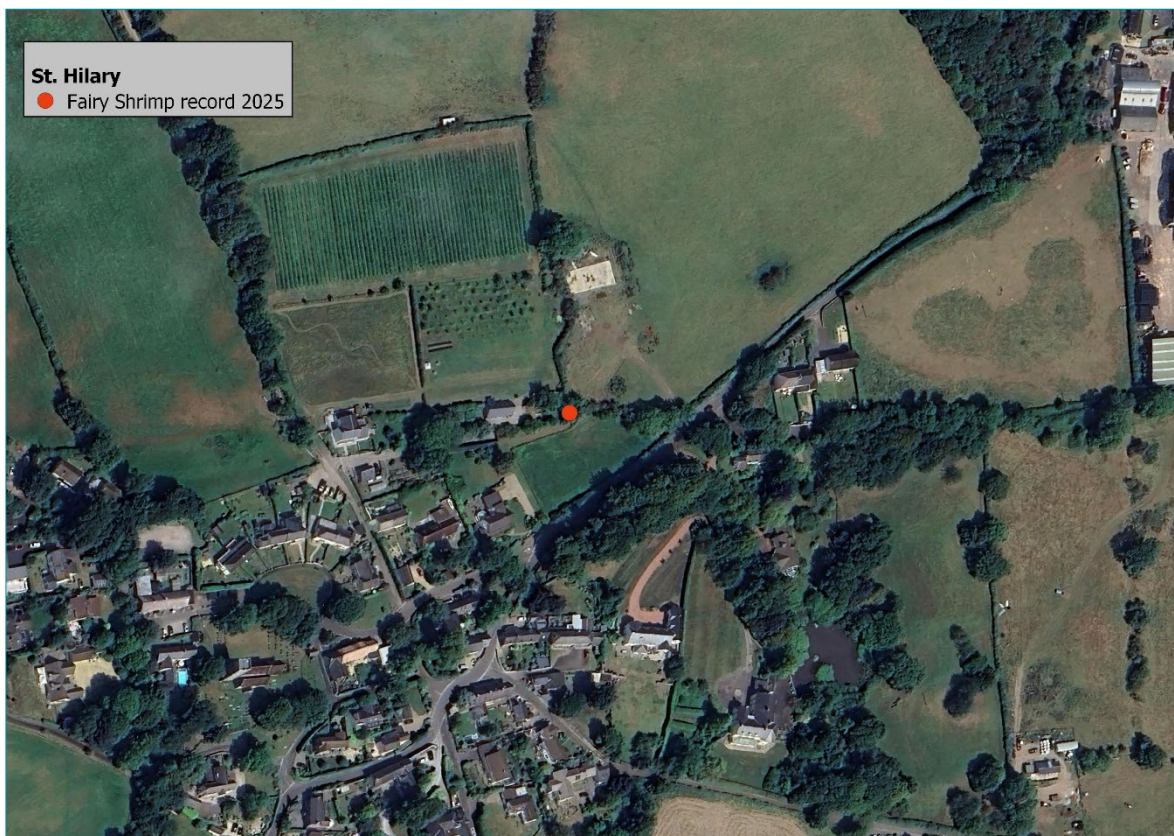


Figure 3. Fairy Shrimp survey pool location at St. Hilary.

Threats to this site include possible run-off of farm chemicals (fertilisers, herbicides, etc.) from adjacent fields, although current land use intensity appears quite low. Scrub encroachment and subsequent shading of the pool could potentially become an issue in the future. Although Fairy Shrimp is known to occur in shaded pools in, for example, the New Forest (Aquilina, 2014), shading may lower the water temperature and thus increase development time. In addition, leaf litter build-up could result in the pool drying out over time.

3.5. Brechfa Common

Six of the seven pool first surveyed by Shaw *et al.* (2016) were sampled, the one exception being a farm pond located off the common. Fairy Shrimp was again recorded from Pond 7 (SO08593883), one of a cluster of three ponds near the western edge of the common (Figure 4). A single adult male was netted from this small seasonal pool, which has a muddy bed and is surrounded by acid grassland and cut Bracken *Pteridium aquilinum*. In addition, a single juvenile was recorded from Pond 6 (SO08623845), a new location for Fairy Shrimp around 400m to the south of Pond 7. This elongated seasonal pool is larger than Pond 7 and at the time of survey was being accessed by horses and ponies for drinking water.



Figure 4. Fairy Shrimp survey pool locations at Brechfa Common & Llandyfalle Hill. Pool numbers are shown.

Fairy Shrimp was not recorded from the other four surveyed pools, in keeping with the findings of Shaw *et al.* (2016). Most of the pools appear superficially suitable, although Brechfa Pool (Pool 1 - SO11933768) itself is potentially a very large pool (mostly exposed drawdown at the time of survey) and is heavily infested with New Zealand Pigmyweed.

Another pool (Pond 3 - SO10713885) has been excavated at one end to create a more permanent water body, although this pool appears acidic and was probably unsuitable in any case.

Brechfa Common is a large upland common dominated by Bracken, much of which is cut annually, and acid grassland. It is grazed, often heavily, by sheep, with a few ponies and horses also present. One of the main threats to this population of Fairy Shrimp is the invasive non-native plant New Zealand Pigmyweed, which is choking Brechfa Pool and is also present in one of the other pools. The plant could easily be transferred to the other pools on the common by livestock, birds or farm vehicles. Other potential threats include windfarm development, livestock treatment chemicals, cessation of grazing and modification/excavation of pools (as has already happened at one of the pools).

3.6. Llandyfalle Hill

This grassy, sheep-grazed upland common is not a known site but is located just 1.5km to the south-west of Brechfa Common and has several seasonal pools that appear superficially suitable, having muddy beds with abundant Shoreweed *Littorella uniflora*. Three pools were sampled (at SO07673712, SO07853667 & SO08223619; Figure 4), one of which was dry at the time of survey and from which a mud sample was collected. Mud was also collected from one of the other pools that had a large drawdown zone and appeared to have only recently started to refill. No evidence of Fairy Shrimp was recorded. Mud samples produced an abundance of zooplankton only.

3.7. Cefn Llechid Common

Five pools were visited on this upland common (Figure 5), although one of these was dry at the time of survey. Vehicle ruts along the track at the edge of the field leading to the common were also sampled (Pool 6 - SN94322701). These ruts may be the location of the 2016 record (Bradley, 2016), as the grid reference provided is on the boundary of the common and there do not appear to be any pools within the common boundary at this location. These ruts may have refilled only recently and this might explain the negative result in 2025. The pools on the common itself appeared potentially suitable although they have rather grassy beds with Shoreweed and only small areas of mud. There do not appear to be any larger livestock grazing this common, only sheep.

Assuming the known population is located in the vehicle ruts just off the edge of the common, threats would include disuse of the track (currently it is used by tractors accessing the common) and chemical treatment of sheep grazing the field. Introducing pony or cattle grazing to the common would improve suitability of the pools for Fairy Shrimp.

3.8. Daudraeth Illtyd

This large common which encompasses Illtyd Pools SSSI is not a known site but is located only 2km to the south-east of Cefn Llechid Common. Numerous seasonal pools are present – 12 of these were visited in 2025 but Fairy Shrimp was not recorded (Figure 5). Some of the pools appear too acidic but several pools appear suitable. However, most have grassy

beds lacking exposed mud, which may limit the suitability of the site for the target species. Grazing by livestock other than sheep would be expected to improve habitat quality.



Figure 5. Fairy Shrimp survey pool locations at Cefn Llechid & Daudraeth Illtyd. Pool numbers are shown.

3.9. Llandeilo Hill / Aberedw Rocks

Seven pools were visited including the known site Henllyn Mawr (Pool 1 - SO08064525), although two of the pools were not sampled (Figure 6). One of these is clearly a permanent pool and the other is a small, dry pool that appears to rarely hold standing water. Fairy Shrimp was not recorded from the five sampled pools, although some pools appeared suitable for it.

Henllyn Mawr sits in a large, flat grassy depression surrounded by Bracken. It is potentially a very large pool but at the time of the first visit on 19th September only a small area of standing water was present. A second visit was therefore made on 13th October, but by this time, after a few weeks of relatively dry weather, the pool held no standing water at all (a mud sample was collected but no shrimps were reared). Another unwelcome finding was the presence of New Zealand Pigmyweed in the centre of the pool.

The site is a large upland common within Llandeilo, Rhulen & Llanbedr Hills SSSI that is (where Fairy Shrimp is a qualifying feature) grazed by sheep; grazing intensity is variable although the dry bed of Henllyn Mawr was hard grazed. If Fairy Shrimp is extant at the site, potential threats would include windfarm development, livestock treatment chemicals and

the invasive New Zealand Pigmyweed. This plant was only noted in Henllyn Mawr but could easily spread to other pools at the site.



Figure 6. Fairy Shrimp survey pool locations at Llandeilo Hill / Aberedw Rocks. Pool numbers are shown.

3.10. Aberedw Hill

This very large upland common has over 40 seasonal pools, nearly all of which were visited over two days in 2025 (Figure 7) although time limitations prevented two of the pools in the far south of the site from being checked. Aberedw Hill appears to be the most important site in Wales for Fairy Shrimp, with populations recorded from 11 pools in 2025. At least two of these were already known, including Pen-waun Pool (Pool 1 - SO08025173) where Fairy Shrimp has been recorded twice before. The locations of the four pools recorded by Bransden in 2007 (Bransden, 2011; Bransden & Slater, 2010) are not known and may overlap with the occupied pools found in the current survey. Occupied pools produced small to moderate numbers of shrimps with the exception of one small pool (Pool 35 - SO08885236) in the north of the site where around 75 Fairy Shrimp were netted in a single sample. Some of the pools that didn't produce Fairy Shrimp in 2025 are located among mire vegetation and are probably too acidic, but others appear broadly suitable and it is likely that at least some of these support populations, especially those that were dry or had only recently started to refill.

Aberedw Hill, which has no statutory protection, supports a mosaic of Bracken (much of which is cut), short acid grassland and mire. Most areas are quite heavily sheep-grazed and

no larger livestock were noted, although some pony trekking takes place. The only disturbance to most of the pools is caused by sheep, which graze the dry pool beds in summer, though quad bike tracks were also seen in some of the pools. The most imminent threat to the Fairy Shrimp population is the current proposal for a large windfarm at the site (see: <https://bute.energy/aberredw/overview/>). This would involve the installation of 18 large turbines, as well as associated hard standings, access tracks, an electrical substation and temporary storage compounds. Although the pools of the sites are unlikely to be affected directly by the project, the areas of hardstanding in particular can be expected to affect the hydrology of the site. There is also a pollution risk during the construction phase.

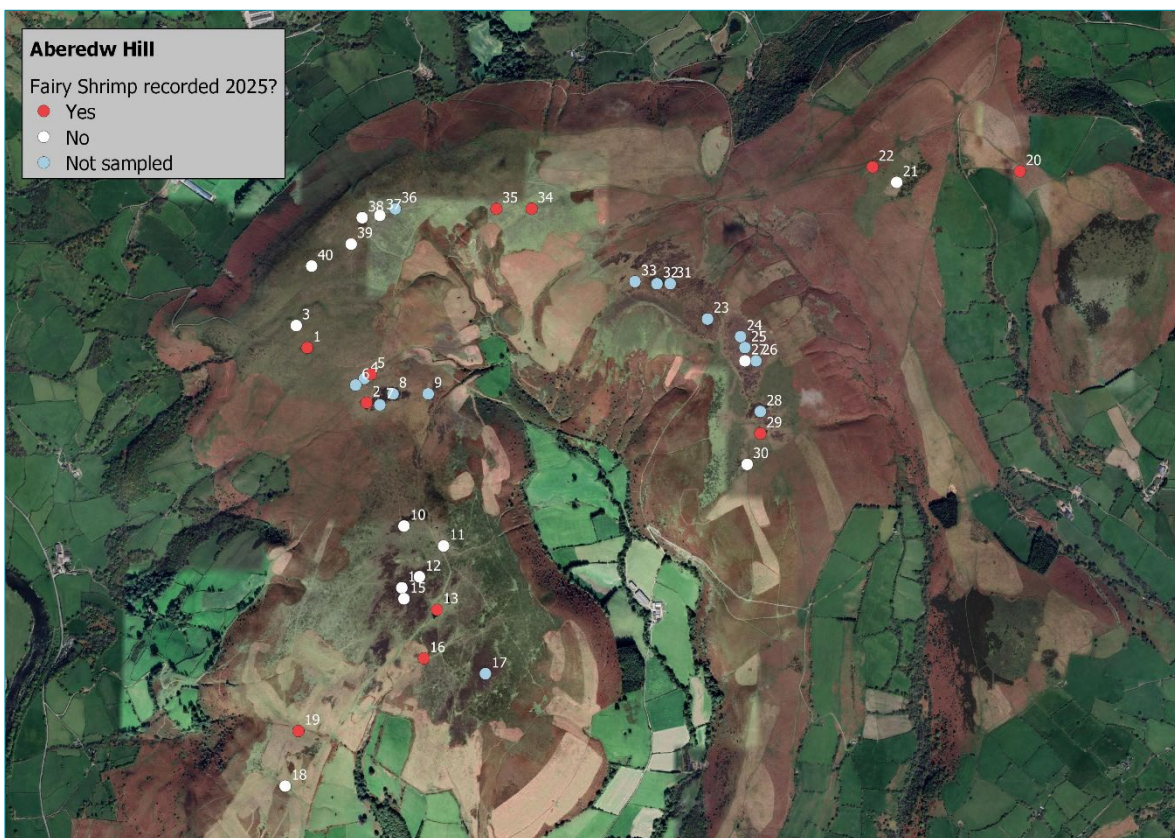


Figure 7. Fairy Shrimp survey pool locations at Aberredw Hill. Pool numbers are shown.

3.11. Llanbedr Hill

This upland common is a continuation of Llandeilo Hill (Section 3.9) to the south-west, and lies within Llandeilo, Rhulen & Llanbedr Hills SSSI. Fairy Shrimp is not known from this area and although nine pools were visited (Pool 1 is at SO14904821; Figure 8), five of which were netted, the target species was not recorded. The hill is dominated by mire vegetation and heathland and it is likely that most if not all of the pools are too acidic for Fairy Shrimp.

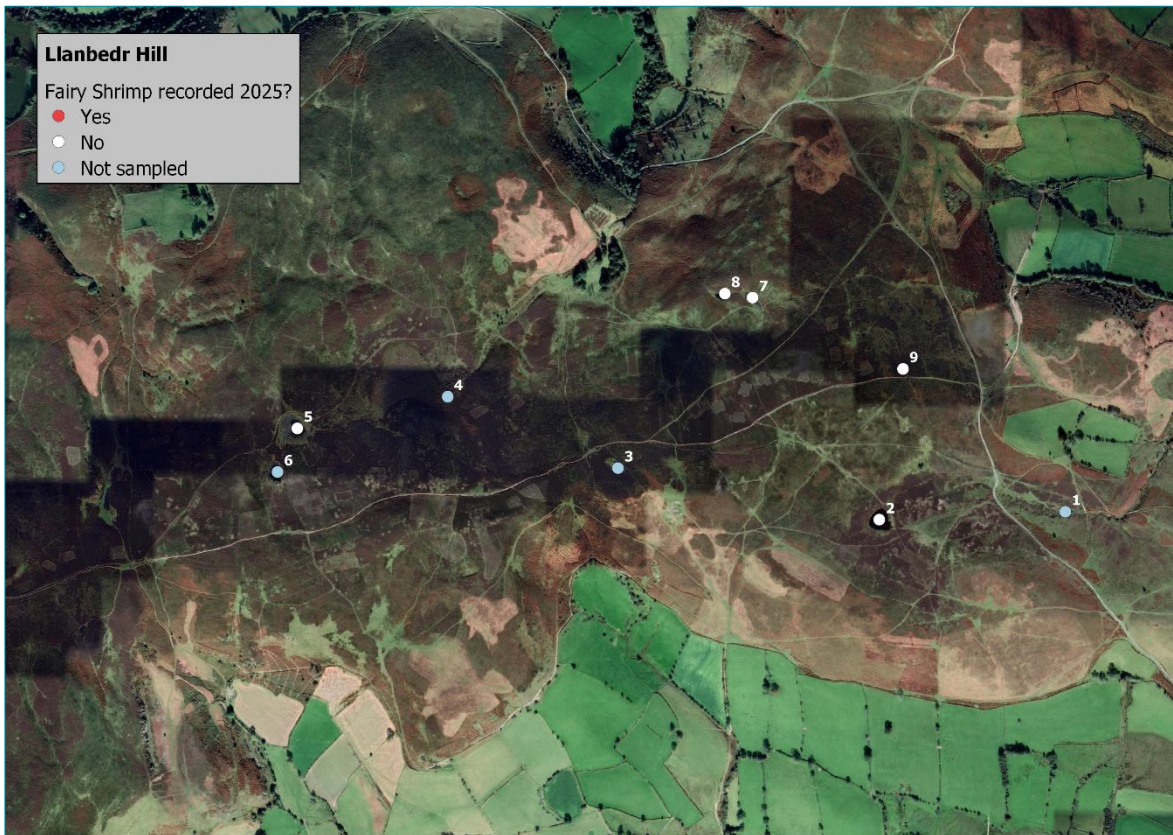


Figure 8. Fairy Shrimp survey pool locations at Llanbedr Hill. Pool numbers are shown.

3.12. Hergest Ridge

The two known pools produced good numbers of Fairy Shrimp, with both adult and juvenile shrimps present. The Herefordshire pool (Pool 2 at SO25605649; Figure 9) in particular supports a very large population, the water being thick with shrimps at the time of survey. The greenish colour of the shrimps indicated that they had been feeding on algae. Pool 1 (SO24815578) lies on the Radnorshire side of the border. A third pool (Pool 3 - SO26075588) was discovered on the Herefordshire side of the hill in a depression, well down the slope from the hilltop. This is a small pool and may not have been surveyed previously. The pool was not netted but four adult Fairy Shrimp could be seen swimming in the clear water.

Hergest Ridge is a sheep- and pony-grazed upland common dominated by Bracken over acid grassland. Much of the Bracken is cut annually, in keeping with the other upland Fairy Shrimp sites in mid-Wales. There is currently an application for a borehole to provide water for livestock (M. Howe, pers. comm.); this could adversely affect the hydrology of the site. Less imminent threats are similar to those at other upland sites, namely: livestock chemical treatments, windfarm development, pond excavation and cessation of grazing (e.g. rewilding projects).



Figure 9. Fairy Shrimp survey pool locations at Hergest Ridge. Pool numbers are shown.

3.13. Litton Hill

Litton Hill is another sheep-grazed upland common with acid grassland and cut Bracken. Four pools were visited with the target species being recorded from the known pool (Pool 1 - SO26286684) on the northern edge of the common (Figure 10), this being the first site record since 2007. Four shrimps – three adults and a juvenile – were recorded by netting this small, shallow pool.

Two of the remaining pools (Pools 2 & 4) appeared permanent and unsuitable, and the other (Pool 3) was dry and may hold water for short periods only. Mud was collected from this pool but the sample produced only zooplankton.

Long-term threats to the population at Litton Hill are largely the same as for Hergest Ridge above. An additional threat at this site is run-off from the intensively-farmed field to the north of the known pool, although a low bank on the boundary of the common separates this pool from the field, and the field mostly slopes away from the common.



Figure 10. Fairy Shrimp survey pool locations at Litton Hill. Pool numbers are shown.

4. Discussion

Results of the 2025 survey were generally encouraging, with Fairy Shrimp recorded from 19 pools across six sites. For context, Fairy Shrimp had only been recorded from 14 pools in Wales previously (including the Hergest Ridge pool just over the border in Herefordshire). The relative success of the survey was undoubtedly aided by the weather conditions in 2025, with the dry spring-summer and wet early autumn providing ideal conditions for egg hatching. This can be contrasted with the 2007 survey by Bradley & Bradley (2008), which failed to locate Fairy Shrimp in 52 pools plus numerous ruts from June to November. The summer in 2007 was especially wet, and it is likely that many pools would not have dried out sufficiently to trigger egg hatching.

The 2025 survey demonstrated the importance of Aberedw Hill for Fairy Shrimp. Not only was the species found in 11 pools – more than all other sites combined – but the network of over 40 pools on the hill is likely to support a strong metapopulation, with many of the other pools also appearing suitable. Some of these are very likely to support Fairy Shrimp even where none were recorded in 2025. The current proposals for a large windfarm at this site are clearly a cause for concern.

Hergest Ridge also supports a strong population, albeit that two of the three pools are located just over the border in Herefordshire. One of these pools had very large shrimp

numbers in 2025 and has also produced high counts in the past. Other sites appear to support smaller populations, although it should be noted that sampling was not standardised and the earliest surveyed sites, at Whitson and St. Hilary, had only small juvenile shrimps, indicating recent hatching. Later surveys at these sites might have produced bigger numbers.

The survey provides a timely update on the status of Fairy Shrimp at known sites. At Litton Hill the most recent record was in 2007; a 2016 survey at this site was negative although it was noted that the pool had only recently started to refill (Shaw & Shaw, 2016a). At Hergest Ridge, Fairy Shrimp had not been recorded since 2009 though there are not known to have been any surveys in the intervening period. The Aberedw Hill and Brechfa Common records were the first for these sites since 2016.

The negative result from Cefn Llechid is not too much of a concern, given that the 2016 record (Bradley, 2016) appears to be from vehicle ruts just off the common and these appeared to have only refilled soon before the 2025 survey. However, the negative result from Henllyn Mawr is more concerning, given that Fairy Shrimps is a qualifying feature of Llandeilo, Rhulen & Llanbedr Hills SSSI here. Since the last positive record from this pool in 2011, it has been surveyed in 2020, 2022 and 2023 without success (Val Bradley via Mike Howe, pers. comm.). The fact the pool had dried out in the month between the September and October 2025 surveys, and the very wide drawdown zone that appears to stay dry most of the year (based on the vegetation present), leads to the suspicion that the local hydrology might have changed and that this pool might no longer stay wet for long enough to allow shrimps to complete their development. The presence of New Zealand Pigmyweed might also be a factor in the apparent loss of shrimps from this pool.

The three surveys at upland common sites with no previous records of Fairy Shrimp all produced negative results. While these surveys were somewhat speculative, all three sites were located close to, or continuous with, known sites, and all had seasonal pools that appeared superficially suitable. The pools at Llanbedr Hill are probably too acidic, whereas those at Llandyfalle Hill and Daudraeth Illtyd perhaps lack sufficient mud for egg deposition and survival, due to an absence of livestock other than sheep.

Threats to the upland common sites are largely generic across all survey sites, including windfarm development, pond modification/excavation and pollution with livestock treatment chemicals. New Zealand Pigmyweed is an additional threat at some sites and may become more of an issue in the future. At lowland sites, risk of abandonment of farm tracks, leading to a loss of vehicle ruts, is perhaps the most significant short-term threat. The current and potential impacts of climate change are largely unknown and should not necessarily be considered negative for this species in Wales, given its largely Mediterranean distribution. The predicted warmer, wetter winters and drier, hotter summers may in fact be beneficial.

It should be noted that Welsh populations of Fairy Shrimp mostly occur on sites with no statutory protection. The seemingly lost population at Henllyn Mawr occurs, as noted above, in Llandeilo, Rhulen & Llanbedr Hills SSSI, and occupied the site at Parish Reen, Whitson occurs within Gwent Levels – Whitson SSSI. Given the importance of Aberedw Hill, consideration should be given to designating the common as a SSSI. Populations at Brechfa

Common, Y Bwthyn, St. Hilary, Hergest Ridge and Litton Hill also merit designation as SSSIs.

Recent discussions with Gavin Vella have highlighted that Fairy Shrimp at Half Acre Lane/Parish Reen on Whiston has thrived since its discovery in 2022 due “to the farming and digger activity that has continually ensured the ponds remain ‘temporary’ enough that they dry out during the summer but constant enough that they’re able to sustain their population” (Gavin Vella, pers. comm.). However, occupied and/or suitable pools at the north end of Half Acre Lane have been lost to infilling with building materials, attempted drainage of the pools, and access improvements.

5. Conclusions & Recommendations

Fairy Shrimp remains present on at least six sites in Wales (Aberedw Hill; Brechfa Common; Y Bwthyn, St. Hilary; Hergest Ridge; Litton Hill; Whitson) occupying at least 19 pools, and with strong populations at Aberedw Hill in particular and also Hergest Ridge. Further surveys of other sites in eastern mid-Wales should be considered, although past surveys have been wide-ranging (e.g. Anon, 1999; Bradley & Bradley, 2007, 2008; Bransden & Slater, 2010) and the required survey effort would be significant.

Known sites should be surveyed at least once every five years, to assess status, habitat condition and threats. A resurvey of Henllyn Mawr should be undertaken to determine if Fairy Shrimp still occurs within Llandeilo, Rhulen & Llanbedr Hills SSSI. The Cefn Llechid site would be worth resurveying, given that the negative result in 2025 might have been due simply to survey timing.

Consideration should be given to designating all sites supporting Fairy Shrimp in Wales, and particularly Aberedw Hill given that it appears to be the key site for the species. Fairy Shrimp should be added as a qualifying feature of Gwent Levels – Whitson SSSI.

Discussions with owner/occupiers at Parish Reen on Whitson are required to highlight the presence of Fairy Shrimp, to prevent the further loss of temporary pools and to restore infilled pools.

6. Acknowledgements

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Appendix 1. Detailed Results for all Pools Visited in 2025. Further details, including habitat descriptions, are provided in a separate Excel file. FS = Fairy Shrimp; NS = Not Sampled, NR = Not Recorded; NA = Not Applicable.

Date	Site	Pool No.	Grid Ref.	Known Pool?	Wet?	Mud Collected?	Netted?	FS Number	FS size	Pool Size (m)	Max. Depth (cm)
18/09/2025	Parish Reen, Whitson	1	ST38338420	Y	Y	N	Y	20	Juvenile, 3-7mm	8 x 2	17
18/09/2025	Parish Reen, Whitson	2	ST38358417	N	Y	N	Y	0	NA	NR (ruts)	15
18/09/2025	Parish Reen, Whitson	3 (start)	ST37838378	N	Y	N	Y	0	NA	NR (ruts)	5-10
18/09/2025	Parish Reen, Whitson	3 (end)	ST38238486	N	Y	N	Y	0	NA	NR (ruts)	5-10
18/09/2025	Hare's Reen, Whitson	4 (start)	ST38838363	N	Y	N	Y	0	NA	NR (ruts)	20
18/09/2025	Hare's Reen, Whitson	4 (end)	ST38818342	N	Y	N	Y	0	NA	NR (ruts)	15
19/09/2025	Llandeilo Hill / Aberedw Rocks: Henllyn Mawr	1	SO08064525	Y	Y	Y	Y	0	NA	7 x 2	10
19/09/2025	Llandeilo Hill / Aberedw Rocks	2	SO07804519	N	Y	N	Y	0	NA	30 x 15	22
19/09/2025	Llandeilo Hill / Aberedw Rocks	3	SO08064553	N	N	N	N	NS	NA	0	0
19/09/2025	Llandeilo Hill / Aberedw Rocks	4	SO08454595	N	Y	N	N	0	NA	NR	35+
19/09/2025	Llandeilo Hill / Aberedw Rocks	5	SO08704648	N	Y	N	Y	0	NA	NR	40
19/09/2025	Llandeilo Hill / Aberedw Rocks	6	SO09294581	N	Y	N	Y	0	NA	NR	NR
19/09/2025	Llandeilo Hill / Aberedw Rocks	7	SO09334555	N	Y	N	N	NS	NA	NR	NR

Date	Site	Pool No.	Grid Ref.	Known Pool?	Wet?	Mud Collected?	Netted?	FS Number	FS size	Pool Size (m)	Max. Depth (cm)
23/09/2025	St Hilary	1	ST01777339	Y	Y	N	Y	8	Juvenile, 6mm	5 x 5	20
25/09/2025	Brechfa Common	1	SO11933768	N	Y	N	N	0	NA	NR	25
25/09/2025	Brechfa Common	2	SO11843840	N	Y	N	N	0	NA	15 x 10	20
25/09/2025	Brechfa Common	3	SO10713885	N	Y	N	Y	0	NA	10 L	60
25/09/2025	Brechfa Common	5	SO08443838	N	Y	N	Y	0	NA	15 x 10	15
25/09/2025	Brechfa Common	6	SO08623845	N	Y	N	Y	1	Juvenile, 12mm	25 x 8	30
25/09/2025	Brechfa Common	7	SO08593883	Y	Y	N	Y	1	Male, 18mm	10 x 10	30
25/09/2025	Llandyfalle Hill	1	SO07673712	N	Y	N	Y	0	NA	50 L	25
25/09/2025	Llandyfalle Hill	2	SO07853667	N	Y	Y	Y	0	NA	3 x 3	10
25/09/2025	Llandyfalle Hill	3	SO08223619	N	N	Y	N	0	NA	0	0
30/09/2025	Hergest Ridge (VC43)	1	SO24815578	Y	Y	N	Y	13	Adults & juveniles, 10-20mm	18 x 13	25
30/09/2025	Hergest Ridge (VC36)	2	SO25605649	Y	Y	N	N	200+	Juveniles & adults	12 x 10	12
30/09/2025	Hergest Ridge (VC36)	3	SO26075588	N	Y	N	N	4	Adults, 20mm	9 x 6	15
30/09/2025	Litton Hill	1	SO26286684	Y	Y	N	Y	4	3 adults (2f, 1m), 20mm. 1 juvenile, 7mm.	5 x 6	10
30/09/2025	Litton Hill	2	SO25746615	N	Y	N	N	NS	NA	NR	NR
30/09/2025	Litton Hill	3	SO24966673	N	N	Y	N	0	NA	0	0
30/09/2025	Litton Hill	4	SO25606620	N	Y	N	Y	0	NA	15 x 12	40+
02/10/2025	Aberedw Hill (Pen-waun Pool)	1	SO08025173	Y	Y	N	Y	17	4 adult, 23mm. 13 juvenile, 10mm.	20 x 12	17

Date	Site	Pool No.	Grid Ref.	Known Pool?	Wet?	Mud Collected?	Netted?	FS Number	FS size	Pool Size (m)	Max. Depth (cm)
02/10/2025	Aberedw Hill	2	SO08295148	Y	Y	N	Y	15	13 adult, 22mm. 2 juvenile, 15mm.	20 x 7	20
02/10/2025	Aberedw Hill	3	SO07975183	N	Y	N	Y	0	NA	16 x 6	NR
02/10/2025	Aberedw Hill	4	SO08285159	N	N	N	N	NS	NA	0	0
02/10/2025	Aberedw Hill	5	SO08315161	N	Y	N	Y	3	Adults, 20-25mm	30 x 10	12
02/10/2025	Aberedw Hill	6	SO08245156	N	N	N	N	NS	NA	0	0
02/10/2025	Aberedw Hill	7	SO08355147	N	N	N	N	NS	NA	0	0
02/10/2025	Aberedw Hill	8	SO08415152	N	N	N	N	NS	NA	0	0
02/10/2025	Aberedw Hill	9	SO08575152	N	N	N	N	NS	NA	0	0
02/10/2025	Aberedw Hill	10	SO08465092	N	Y	N	Y	0	NA	20 x 8	12
02/10/2025	Aberedw Hill	11	SO08645083	N	N	Y	N	0	NA	0	0
02/10/2025	Aberedw Hill	12	SO08535069	N	Y	N	Y	0	NA	20 x 10	20
02/10/2025	Aberedw Hill	13	SO08615054	N	Y	N	Y	1	Adult male, 25mm	20 x 15	15
02/10/2025	Aberedw Hill	14	SO08455064	N	Y	N	Y	0	NA	12 x 7	13
02/10/2025	Aberedw Hill	15	SO08465059	N	Y	N	Y	0	NA	9 x 5	10
02/10/2025	Aberedw Hill	16	SO08555032	N	Y	N	Y	4	Adult males, 17-25mm.	20 x 8	30
02/10/2025	Aberedw Hill	17	SO08835025	N	N	N	N	NS	NA	0	0
02/10/2025	Aberedw Hill	18	SO07924974	N	Y	N	Y	0	NA	30 x 18	15
02/10/2025	Aberedw Hill	19	SO07984999	N	Y	N	Y	8	5 adults (4m, 1f), 25mm. 3 juvenile, 12mm.	20 x 10	25
08/10/2025	Aberedw Hill	20	SO11265253	N	Y	N	Y	13	Adults (6m, 7f), 25mm.	20 x 13	30

Date	Site	Pool No.	Grid Ref.	Known Pool?	Wet?	Mud Collected?	Netted?	FS Number	FS size	Pool Size (m)	Max. Depth (cm)
08/10/2025	Aberedw Hill	21	SO10705248	N	Y	N	Y	0	NA	30 x 8	12
08/10/2025	Aberedw Hill	22	SO10595255	N	Y	N	Y	7	6 adults (3m, 3f), 25mm. 1 juvenile, 10mm.	18 x 12	30
08/10/2025	Aberedw Hill	23	SO09845186	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	24	SO09995178	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	25	SO10015173	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	26	SO10065167	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	27	SO10015167	N	Y	N	Y	0	NA	15 x 8	15
08/10/2025	Aberedw Hill	28	SO10085144	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	29	SO10085134	N	Y	N	Y	9	7 adults (7m), 25mm. 2 juvenile, 12 & 6mm.	50 x 30	35
08/10/2025	Aberedw Hill	30	SO10025120	N	Y	N	Y	0	NA	20 x 8	20
08/10/2025	Aberedw Hill	31	SO09675202	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	32	SO09615202	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	33	SO09515203	N	Y	N	N	NS	NA	NR	NR
08/10/2025	Aberedw Hill	34	SO09045236	N	Y	N	Y	18	15 adults (8m, 7f), 20mm. 3 juvenile, 6-10mm.	25 x 15	25
08/10/2025	Aberedw Hill	35	SO08885236	N	Y	N	Y	75	Adults, c. 18mm. 1 juvenile.	8 x 4	15
08/10/2025	Aberedw Hill	36	SO08425236	N	N	N	N	NS	NA	0	0
08/10/2025	Aberedw Hill	37	SO08355233	N	Y	N	Y	0	NA	15 x 5	15
08/10/2025	Aberedw Hill	38	SO08275232	N	Y	N	Y	0	NA	13 x 5	17
08/10/2025	Aberedw Hill	39	SO08225220	N	Y	N	Y	0	NA	8 x 5	17

Date	Site	Pool No.	Grid Ref.	Known Pool?	Wet?	Mud Collected?	Netted?	FS Number	FS size	Pool Size (m)	Max. Depth (cm)
08/10/2025	Aberedw Hill	40	SO08045210	N	Y	N	Y	0	NA	3.5 x 2	10
06/10/2025	Cefn Llechid	1	SN94442729	N	Y	N	Y	0	NA	10 x 10	15
06/10/2025	Cefn Llechid	2	SN94392752	N	N	N	N	NS	NA	0	0
06/10/2025	Cefn Llechid	3	SN94362750	N	Y	N	Y	0	NA	10 x 4	15
06/10/2025	Cefn Llechid	4	SN94422749	N	Y	N	Y	0	NA	40 x 17	20
06/10/2025	Cefn Llechid	5	SN94422743	N	Y	N	Y	0	NA	10 x 7	15
06/10/2025	Cefn Llechid	6	SN94322701	Y?	Y	Y	Y	0	NA	20 long	10
06/10/2025	Daudraeth Illtyd	1	SN96032579	N	Y	N	Y	0	NA	8 x 6	10
06/10/2025	Daudraeth Illtyd	2	SN96062565	N	Y	N	Y	0	NA	Irregular	NR
06/10/2025	Daudraeth Illtyd	3	SN96452555	N	Y	N	N	NS	NA	NR	NR
06/10/2025	Daudraeth Illtyd	4	SN96482606	N	Y	N	N	NS	NA	NR	NR
06/10/2025	Daudraeth Illtyd	5	SN97012638	N	Y	N	Y	0	NA	20 long	15
06/10/2025	Daudraeth Illtyd	6	SN96812661	N	Y	N	Y	0	NA	8 long	22
06/10/2025	Daudraeth Illtyd	7	SN96872660	N	Y	N	Y	0	NA	15 long	15
06/10/2025	Daudraeth Illtyd	8	SN97422643	N	Y	N	Y	0	NA	NR	15
06/10/2025	Daudraeth Illtyd	9	SN97552659	N	Y	N	Y	0	NA	NR	NR
06/10/2025	Daudraeth Illtyd	10	SN97652639	N	Y	N	Y	0	NA	NR	NR
06/10/2025	Daudraeth Illtyd	11	SN98082679	N	Y	N	Y	0	NA	NR	15
06/10/2025	Daudraeth Illtyd	12	SN98012699	N	Y	N	Y	0	NA	NR	25
13/10/2025	Llandeilo Hill / Aberedw Rocks	1	SO08064525	Y	N	Y	N	0	NA	0	0
13/10/2025	Llandeilo Hill / Aberedw Rocks	2	SO07804519	N	Y	N	Y	0	NA	NR	NR
13/10/2025	Llanbedr Hill	1	SO14904821	N	N	N	N	NS	NA	NR	NR

Date	Site	Pool No.	Grid Ref.	Known Pool?	Wet?	Mud Collected?	Netted?	FS Number	FS size	Pool Size (m)	Max. Depth (cm)
13/10/2025	Llanbedr Hill	2	SO14434819	N	Y	N	Y	0	NA	NR	40
13/10/2025	Llanbedr Hill	3	SO13774832	N	(Y)	N	N	NS	NA	NR	5
13/10/2025	Llanbedr Hill	4	SO13344850	N	Y	N	N	NS	NA	NR	NR
13/10/2025	Llanbedr Hill	5	SO12964842	N	Y	N	Y	0	NA	NR	5
13/10/2025	Llanbedr Hill	6	SO12914831	N	Y	N	N	NS	NA	NR	NR
13/10/2025	Llanbedr Hill	7	SO14114875	N	Y	N	Y	0	NA	NR	NR
13/10/2025	Llanbedr Hill	8	SO14044876	N	Y	N	Y	0	NA	NR	30
13/10/2025	Llanbedr Hill	9	SO14494857	N	Y	N	Y	0	NA	12 x 6	20
15/10/2025	Pen-y-clawdd	1	SO45280754	?	Y	N	N	NS	NA	20 x 20m	NR
15/10/2025	Pen-y-clawdd	2	SO46580738	N	Y	N	N	NS	NA	12 x 12m	NR

Appendix 2. Site Images



Occupied pool at Parish Reen, Whitson, ST38338420. 18th September 2025.



Occupied pool at St. Hilary, ST01777339. 23rd September 2025.



Occupied pool at Brechfa Common. Pond 6, SO08623845. 25th September 2025.



Occupied pool at Brechfa Common. Pond 6, SO08623845. 25th September 2025.



Occupied pool at Brechfa Common. Pond 7, SO08593883. 25th September 2025.



Wheel ruts on approach to Cefn Llechid Common, SN94322701. Likely location of 2016 Fairy Shrimp record but none recorded here on 6th October 2025.



Henllyn Mawr, SO08064525, on 19th September 2025. Fairy Shrimp was not recorded in this pool or elsewhere on the wider Aberedw Rocks site in 2025.



Henllyn Mawr, SO08064525, on 13th October 2025. The small pool present on 19th September had dried up by this date, following a dry spell.



Occupied pool at Aberedw Hill. Pool 1 (Pen-waun Pool), SO08025173. 2nd October 2025.



Occupied pool at Aberedw Hill. Pool 2, SO08295148. 2nd October 2025.



Occupied pool at Aberedw Hill. Pool 5, SO08315161. 2nd October 2025.



Occupied pool at Aberedw Hill. Pool 13 (Llyn Cawr), SO08615054. 2nd October 2025.



Occupied pool at Aberedw Hill. Pool 16, SO08555032. 2nd October 2025.



Occupied pool at Aberedw Hill. Pool 19, SO07984999. 2nd October 2025.



Occupied pool at Aberedw Hill. Pool 20, SO11265253. 8th October 2025.



Occupied pool at Aberedw Hill. Pool 22, SO10595255. 8th October 2025.



Occupied pool at Aberedw Hill. Pool 29, SO10085134. 8th October 2025.



Occupied pool at Aberedw Hill. Pool 34, SO09045236. 8th October 2025.



Occupied pool at Aberedw Hill. Pool 35, SO08885236. 8th October 2025.



Occupied pool at Hergest Ridge. Pool 1, SO24815578. 30th September 2025.



Occupied pool at Hergest Ridge. Pool 2, SO25605649. 30th September 2025.



Occupied pool at Hergest Ridge. Pool 3, SO26075588. 30th September 2025.



Occupied pool at Litton Hill. Pool 1, SO26286684. 30th September 2025.



Female Fairy Shrimp at Litton Hill. Pool 1, SO26286684. 30th September 2025.

Data Archive Appendix

The data archive contains:

[A] The final report in Microsoft Word and Adobe PDF formats.

[B] A full set of maps produced in JPEG format.

[C] A series of GIS layers on which the maps in the report are based with a series of word documents detailing the data processing and structure of the GIS layers.

[D] A set of raster files in ESRI and ASCII grid formats.

[E] A database named [name] in Microsoft Access 2000 format with metadata described in a Microsoft Word document [name.doc].

[F] A full set of images produced in [jpg/tiff] format.

[G] Species records are held in the Welsh Invertebrate Database (WID).

Metadata for this project is publicly accessible through Natural Resources Wales' Library Catalogue <https://libcat.naturalresources.wales> (English Version) and <https://catllyfr.cyfoethnaturiol.cymru> (Welsh Version) by searching 'Dataset Titles'. The metadata is held as record no. **NRW_DS161500**.

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