

# Southern Damselfly habitat restoration works at Preseli and Gweunydd Blaencleddau SACs in March 2020

Jon Hudson Ecological Consultancy

NRW Evidence Report No. 451

## About Natural Resources Wales

Natural Resources Wales is the organisation responsible for the work carried out by the three former organisations, the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales. It is also responsible for some functions previously undertaken by Welsh Government.

Our purpose is to ensure that the natural resources of Wales are sustainably maintained, used and enhanced, now and in the future.

We work for the communities of Wales to protect people and their homes as much as possible from environmental incidents like flooding and pollution. We provide opportunities for people to learn, use and benefit from Wales' natural resources.

We work to support Wales' economy by enabling the sustainable use of natural resources to support jobs and enterprise. We help businesses and developers to understand and consider environmental limits when they make important decisions.

We work to maintain and improve the quality of the environment for everyone and we work towards making the environment and our natural resources more resilient to climate change and other pressures.

## Evidence at Natural Resources Wales

Natural Resources Wales is an evidence based organisation. We seek to ensure that our strategy, decisions, operations and advice to Welsh Government and others are underpinned by sound and quality-assured evidence. We recognise that it is critically important to have a good understanding of our changing environment.

We will realise this vision by:

- Maintaining and developing the technical specialist skills of our staff;
- Securing our data and information;
- Having a well-resourced proactive programme of evidence work;
- Continuing to review and add to our evidence to ensure it is fit for the challenges facing us; and
- Communicating our evidence in an open and transparent way.

This Evidence Report series serves as a record of work carried out or commissioned by Natural Resources Wales. It also helps us to share and promote use of our evidence by others and develop future collaborations. However, the views and recommendations presented in this report are not necessarily those of NRW and should, therefore, not be attributed to NRW.

Report series: NRW Evidence Report  
Report number: 451  
Publication date: April 2020  
Contract number:  
Contractor: Jon Hudson Ecological Consultancy  
Contract manager: Mike Howe  
Title: **Southern Damselfly Habitat Restoration Works at Preseli and Gweunydd Blaencleddau SACs in March 2020**  
Author(s): Jon Hudson Ecological Consultancy  
Restrictions: None

### **Distribution list (core)**

NRW Library, Bangor	2
National Library of Wales	1
British Library	1
Welsh Government Library	1
Scottish Natural Heritage Library	1
Natural England Library (Electronic Only)	1

### **Distribution list (others)**

Dr Mike Howe, NRW Lead Specialist Advisor – Invertebrates  
Mair Rees, NRW  
Mary Chadwick, PCNPA

### **Recommended citation for this volume:**

Jon Hudson Ecological Consultancy. 2020. Southern Damselfly habitat restoration works at Preseli and Gweunydd Blaencleddau SACs in March 2020. NRW Evidence Report No: **451**, 20pp. Natural Resources Wales, Bangor.

## Contents

1. Crynodeb gweithredol.....	5
2. Executive summary .....	6
3. Project sites.....	7
3.1. Pantithel Leat.....	7
3.2. Waun Isaf.....	8
3.3. Blaencleddau.....	11
3.4. Dolau Isaf.....	13
4. References.....	15
5. Data Archive Appendix .....	15

## List of figures

Figure 1. Pantithel Leat.....	7
Figure 2. Pantithel Leat .....	8
Figure 3. Waun Isaf.....	9
Figure 4. Waun Isaf.....	10
Figure 5. Waun Isaf.....	10
Figure 6. Blaencleddau .....	11
Figure 7. Blaencleddau .....	11
Figure 8. Blaencleddau.....	12
Figure 9. Dolau Isaf.....	13
Figure 10. Dolau Isaf.....	13
Figure 11. Dolau Isaf.....	14

## 1. Crynodeb gweithredol

Fel rhan o brosiect Natur Hanfodol a gyllidwyd gan Cyfoeth Naturiol Cymru, cafodd gwaith adfer cynefin ei gwblhau ym mis Mawrth 2020 gan Awdurdod Parc Cenedlaethol Arfordir Penfro er mwyn adfer amodau mwy addas ar gyfer mursen las Penfro *Coenagrion mercuriale*. O fewn Ardaloedd Cadwraeth Arbennig Preseli a Gweunydd Blaencleddau, defnyddiwyd cloddiwr mecanyddol i drin sianeli nentydd a oedd eisoes yn bodoli ym Mhantithel, Blaencleddau a Dolau Isaf ac i greu sianeli newydd yn Waun Isaf. Cyflawnwyd gwaith cynefin gan ddefnyddio cyfuniad o ddulliau a thechnegau fel y nodir yn Atodiad 1 Adroddiad Tystiolaeth Cyfoeth Naturiol Cymru Rhif **441**. *Cynllun Gwaith Creu ac Adfer Cynefin ar gyfer Mursen Las Penfro Coenagrion mercuriale yn Sir Benfro o 2020 ymlaen* (Jon Hudson Ecological Consultancy, 2020). Goruchwyliodd Jon Hudson yr holl waith adfer.

Tyrchwyd cyfanswm o ychydig dros 1.6km o nentydd a llaciau ar draws y pedwar safle (732 metr ym Mhantithel Leat, 123 metr yn Waun Isaf, 239m ym Mlaencleddau a 517m yn Nolau Isaf). Cafodd y gwaith ei gwblhau dros bedwar diwrnod a defnyddiwyd peiriannau tyrchu â thraciau i agor sianeli nentydd a oedd eisoes yn bodoli, ac i i greu sianeli newydd yn Waun Isaf. Yn Waun Isaf a Blaencleddau, byddai amser wedi caniatáu i waith pellach gael ei gwblhau, ond yn Waun Isaf daeth un o draciau'r peiriant tyrchu i ffwrdd gan ddod â gwaith i ben yn gynnar, a themlwyd nad oedd rhagor y gellid ei wneud yn ardal gul ddeheuol y comin. Ym Mlaencleddau, cafodd pob cwrs dŵr yr oedd tyfiant wedi cau drosto ei dyrchu cyn diwedd y dydd, ac felly daethpwyd â'r gwaith i ben yn gynnar.

Mae hyn yn dangos y dylai fod yn bosibl tyrchu tua 2km o sianeli gyda pheiriant cloddio unigol, o dan amodau sych rhesymol lle ceir cynefin digonol i'w adfer, yn ystod wythnos waith.

## 2. Executive summary

As part of a Vital Nature project funded by Natural Resources Wales, habitat restoration works were undertaken in March 2020 by the Pembrokeshire Coast National Park Authority to restore more suitable conditions for the Southern Damselfly *Coenagrion mercuriale*. Within Preseli and Gweunydd Blaencleddau SACs, a mechanical digger was used to manipulate existing stream channels at Pantithel, Blaencleddau and Dolau Isaf and to create new channels at Waun Isaf. Habitat works were accomplished using a combination of methods and techniques as set out in Appendix 1 of *NRW Evidence Report No. 441. Habitat Creation and Restoration Work Plan for Southern Damselfly Coenagrion mercuriale in Pembrokeshire from 2020 onwards* (Jon Hudson Ecological Consultancy, 2020). All restoration works were supervised by Jon Hudson.

A total of just over 1.6km of streams and flushes was excavated across the four sites (732m at Pantithel Leat, 123m at Waun Isaf, 239m at Blaencleddau and 517m at Dolau Isaf). The work was undertaken over four days and used tracked excavators to open up existing stream channels and, at Waun Isaf, to create new channels. At Waun Isaf and Blaen Cleddau, time would have allowed for more works to be done but at Waun Isaf a track came off the excavator bringing works to an early stop and it was felt that there was no more that could be done on the southern neck area of the common. At Blaencleddau, all closed-over watercourses with potential were excavated before the day was over and so work stopped early.

This indicates that it should be possible to excavate around 2km of channels under reasonably dry conditions where there is sufficient habitat to restore with a single digger within the course of a working week.

### 3. Project sites

#### 3.1. Pantithel Leat (common land)

Pantithel Leat is on the south side of Preseli common land, above Pantithel Farm. Work was undertaken along c.732m of stream and involved creating a more shallow, wider profile to the leat and the creation of new pools along its length. Several “cuts” were made into the downslope bank in order to allow flood waters to escape the channel both to avoid road flooding issues and stop a farm track from being eroded. Towards the western end of the leat, the channel was left intact and instead a series of larger pools were created as it was felt that the channel was not suitable due to its stony bottom and faster flow. It is hoped that the pools will collect sediment and slow flow rates, thus allowing suitable habitat patches to develop.



Figure 1. Pantithel Leat. The leat being cleared from upslope side.

#### Pantithel Leat Details

**Site name:** Pantithel leat

**Date of works:** 4 March 2020

**GPS start point:**

**GPS end point:** see GIS layer

**Brief description of works and sketch map:** Pantithel Leat (on south side of Preseli common land, above Pantithel Farm). Work was undertaken along c.728 of stream. This involved creating a more shallow, wider profile to the leat and the creation of new pools along its length. Several “cuts” were made into the downslope bank in order to allow flood waters to escape the channel to avoid road flooding issues. Along the western half of the leat, the channel was left intact and instead a series of larger pools were created as it was felt that the channel was not suitable due to its stony bottom and faster flow.



Figure 2. An aerial view showing Pantithel Leat

**Length of restored habitat:** 728 m

### **Pantithel Leat first assessment**

**Recorder:** Jon Hudson

**Date:** March 2020

### **Habitat assessment**

**Length of restored stream:** 728 m

**Is the watercourse open, unshaded and shallow with a permanent (summer), discernible flow?** Yes

**Are there areas of adjacent tussocky vegetation on the banksides and/or a low cover of emergent vegetation in the stream?** Yes

**Is bare peat or other organic substrate visible in the watercourse?** Yes

**How much of the stream has SUITABLE HABITAT - a cover of submerged and semi-emergent, plants including some Bogbean *Menyanthes trifoliata*, Fool's Watercress *Apium nodiflorum*, Marsh St. John's-wort *Hypericum elodes*, Bog Pondweed *Potamogeton polygonifolius* and/or Spearwort *Ranunculus flammula*. Sedges (*Carex* spp.) or rushes (*Juncus* spp.):** 0 m / 0%

### **3.2. Waun Isaf (common land)**

This site was identified with PCNPA staff to show how access opportunities could be built into habitat creation schemes on project sites. The PCNPA Public Rights of Way officer had identified access issues caused by waterlogging of the footpath at the southern end of the common. Works to attempt to remedy this were undertaken and adapted to create potential new areas of suitable Southern Damselfly habitat. A new

crossing point was created for the path and water was directed into a newly-created stream (c.50m long). A ditch (c.65m long) was also dug alongside the footpath and two short (4m long) channels were created to carry water from the path into this ditch. It is anticipated that all newly- created channels will be able to support suitable habitat in time.



Figure 3. Waun Isaf. Working on the area where the footpath crosses the stream to create habitat and improve access.



Figure 4. Waun Isaf. A newly-created stream channel carrying water away from the footpath.

#### Waun Isaf details

**Site name:** Waun Isaf South (Footpath)

**Date of works:** 3 March 2020

**GPS start point:**

**GPS end point:**

**Brief description of works and sketch map:** Works to improve drainage along a footpath and create Southern Damselfly habitat by creating a new stream and ditch.



Figure 5. An aerial view showing new stream and ditch lines at Waun Isaf.

**Length of restored habitat:** 177 m

## Waun Isaf first assessment

Recorder: Jon Hudson

Date: March 2020

### Habitat assessment

Length of restored stream: 117 m

Is the watercourse open, unshaded and shallow with a permanent (summer), discernible flow? Yes in stream, very little water in ditch

Are there areas of adjacent tussocky vegetation on the banksides and/or a low cover of emergent vegetation in the stream? Yes

Is bare peat or other organic substrate visible in the watercourse? Yes

How much of the stream has SUITABLE HABITAT - a cover of submerged and semi-emergent, plants including some Bogbean *Menyanthes trifoliata*, Fool's Watercress *Apium nodiflorum*, Marsh St. John's-wort *Hypericum elodes*, Bog Pondweed *Potamogeton polygonifolius* and/or Spearwort *Ranunculus flammula*. Sedges (*Carex* spp.) or rushes (*Juncus* spp.): 0 m / 0%

### 3.3. Blaencleddau (private land)

This site was selected as all streams on the site were very overgrown and "piped" apart from in a few short sections. Restoration included opening up of 126m of piped stream, 58m of shallow ditch and 55m of a stream that had reasonable amounts of suitable habitat present in patches. The surviving patches of suitable habitat were **NOT** excavated. Areas where suitable habitat was present were expanded (made wider) and areas of unsuitable habitat between these patches was excavated.



Figures 6 and 7. Blaencleddau. A silt trap pool at the lowest end of a restored stream and view of the machine on site (the stream is entirely lost in dense vegetation and has become piped).

### Blaencleddau details

**Site name:** Blaencleddau

**Date of works:** 24 March 2020

**GPS start point:**

**GPS end point:**

**Brief description of works and sketch map:** Restoration of 126m of piped stream, 58m of shallow ditch and 55m of a stream that had reasonable amounts of suitable habitat present in patches. The suitable habitat was NOT excavated. Areas where suitable habitat was present were expanded (made wider) and areas on unsuitable habitat between these patches was excavated.



Figure 8. An aerial view showing stream and ditch lines at Blaencleddau.

**Length of restored habitat:** 239 m

### Blaencleddau first assessment

**Recorder:** Jon Hudson

**Date:** March 2020

### Habitat assessment

**Length of restored stream:** 239 m

**Is the watercourse open, unshaded and shallow with a permanent (summer), discernible flow?** Yes

**Are there areas of adjacent tussocky vegetation on the banksides and/or a low cover of emergent vegetation in the stream?** Yes

**Is bare peat or other organic substrate visible in the watercourse?** Yes

How much of the stream has **SUITABLE HABITAT** - a cover of submerged and semi-emergent, plants including some Bogbean *Menyanthes trifoliata*, Fool's Watercress *Apium nodiflorum*, Marsh St. John's-wort *Hypericum elodes*, Bog Pondweed *Potamogeton polygonifolius* and/or Spearwort *Ranunculus flammula*. Sedges (*Carex* spp.) or rushes (*Juncus* spp.): 0 m / 0%

#### 3.4. Dolau Isaf (private land)

This site was selected as it was known to be an important site for Southern Damselfly and all streams on the site were overgrown and "piped" apart from in a few short sections. Restoration involved opening up 517m of piped streams across the site. These streams were excavated to varying depths and profiles in order to create variety and to ensure it all does not "mature" at the same time. Any surviving patches of suitable habitat were **NOT** excavated.



Figure 9. Dolau Isaf. A piped stream with no suitable habitat being restored to a shallow and wide profile.



Figure 10. Dolau Isaf. Stream restoration.

### Dolau Isaf details

**Site name:** Dolau Isaf

**Date of works:** 23 March 2020

**GPS start point:**

**GPS end point:**

**Brief description of works and sketch map:** Restoration of piped streams across the site. Dug to varying depths and profiles in order to create variety and to ensure it all does not “mature” at the same time.



Figure 11. An aerial view showing streams on Dolau Isaf

**Length of restored habitat:** 517 m

### Dolau Isaf assessment

**Recorder:** Jon Hudson

**Date:** March 2020

### Habitat assessment

**Length of restored stream:** 517 m

**Is the watercourse open, unshaded and shallow with a permanent (summer), discernible flow?** Yes

**Are there areas of adjacent tussocky vegetation on the banksides and/or a low cover of emergent vegetation in the stream?** Yes

**Is bare peat or other organic substrate visible in the watercourse?** Yes

**How much of the stream has SUITABLE HABITAT - a cover of submerged and semi-emergent, plants including some Bogbean *Menyanthes trifoliata*, Fool's Watercress *Apium nodiflorum*, Marsh St. John's-wort *Hypericum elodes*, Bog Pondweed *Potamogeton polygonifolius* and/or Spearwort *Ranunculus flammula*. Sedges (*Carex* spp.) or rushes (*Juncus* spp.):** 0 m / 0%

## 4. References

Jon Hudson Ecological Consultancy. 2020. Habitat Creation and Restoration Work Plan for Southern Damselfly *Coenagrion mercuriale* in Pembrokeshire from 2020 onwards. NRW Evidence Report No. 441. Natural Resources Wales, Bangor.

## 5. Data Archive Appendix

The data archive contains:

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