

## Update to Vitacress Conservation Trust of outputs in the conservation of white-clawed crayfish in Hampshire (April 2022 – March 2023)

### Introduction

This briefing note provides detail of the outputs delivered for the conservation of white-clawed crayfish (*Austropotamobius pallipes*) by Hampshire & Isle of Wight Wildlife Trust (hereafter the 'Trust') between 1<sup>st</sup> April 2022 and 31<sup>st</sup> March 2023 inclusive. These measures have been delivered through the Trust's Southern Chalkstreams project and were funded by the Vitacress Conservation Trust.

The work funded by the Vitacress Conservation Trust has three key objectives:

1. to establish further ark sites in Hampshire;
2. to monitor Hampshire's network of ark sites; and
3. to support the establishment and operation of a crayfish hatchery at Sparsholt College.

The amended key project milestones and outcomes associated with these three broad objectives are set out in Table 1, with an outline of measures delivered to date set out below. These amendments were originally outlined in the Trust's 2021/22 briefing note (Rushbrook & Selby, 2022).

**Table 1:** Amended project outputs in response to the impact of the COVID-19 pandemic (colour coded by connection to Objective 1, [Objective 2](#) and [Objective 3](#) respectively).

Task	Estimated Start date	Estimated End date
Development and delivery of a study into the feasibility of establishing ark sites for white-clawed crayfish in Hampshire; identification of potential ark sites for further assessment	Apr 2020	Aug 2022
<a href="#">Establishment of a crayfish hatchery at Sparsholt College</a>	<a href="#">Feb 2021</a>	<a href="#">Sep 2022</a>
Detailed assessments of identified future potential ark sites	May 2022	Oct 2022
Development and delivery of a study into the feasibility of establishing ark sites for white-clawed crayfish on the Isle of Wight; identification of potential ark sites for further assessment	May 2022	Mar 2023
<a href="#">Support staff at Sparsholt College in operation of crayfish hatchery</a>	<a href="#">Jul 2022</a>	<a href="#">Mar 2023</a>
Establish up to five (and no less than two) new ark sites in Hampshire and / or the Isle of Wight	Oct 2022	Mar 2023*
<a href="#">Monitor existing ark site(s)</a>	†	†

\* Likely to extend beyond current project lifetime due to delays resulting from the COVID-19 pandemic

† Monitoring will occur after project lifetime since creation of ark sites delayed by COVID-19 pandemic

### Monitoring Hampshire's network of ark sites

Following the establishment of a crayfish ark site in a reed bed system at Sparsholt College in 2016 (Rushbrook, 2019), the Trust conducted monitoring surveys of the site in 2018 and 2019 using a combination of baited funnel traps and night viewing (torching), and again in 2021 with the addition of a novel 'brash bundle' survey technique (Rushbrook & Selby, 2022). No crayfish were returned by any of the three survey techniques during any of the three monitoring years.

It was intended that surveys of the reed bed system would continue in 2022, using all three of the above methods, and the programme expanded to include the carp lake immediately adjacent to the reed bed

ark site. This was prompted by correspondence and on-site discussions with Sparsholt College staff members confirming that students of the college had observed crayfish in the carp lake.

However, funnel trap and torching surveys of the lake undertaken on 15<sup>th</sup> and 16<sup>th</sup> August 2022 found that the crayfish present in the lake were in fact spiny-cheek crayfish (*Faxonius limosus*), a non-native invasive crayfish species from North America (Figure 1). A total of 13 spiny-cheek crayfish were recorded in the carp lake and it was considered that this indicates that the population is well-established. These findings were reported to the Vitacress Conservation Trust Technical Advisory Panel in September 2022 (Rushbrook, 2022).



**Figure 1:** A spiny-cheek crayfish caught in a baited trap at Sparsholt College; insert showing diagnostic 'spiny cheek'.

No crayfish of any species were recorded in the reed bed. It was therefore considered prudent to cancel the remaining surveys of the site planned for 2022, since no white-clawed crayfish had been recorded over three previous years of surveys, and the presence of spiny-cheek crayfish at the site poses an associated biosecurity risk.

Specifically, crayfish species from North America have the potential to be carriers of crayfish plague (*Aphanomyces astaci*), a disease which can cause up to 100% mortality in white-clawed crayfish populations. Therefore, continuing surveys at Sparsholt College could potentially carry the risk of transmitting this disease away from the site, and at that time there was not an obvious justification to support taking such a risk.

As a consequence the reed bed at Sparsholt College is no longer considered a white-clawed crayfish ark site and no further monitoring surveys of the reed bed or the adjacent carp lake are currently planned (Rushbrook, 2022).

### **Crayfish Hatchery at Sparsholt College / Wildheart Animal Sanctuary**

In May 2022 a meeting was held between the Trust and representatives from Sparsholt College to discuss plans for the crayfish hatchery / rearing facility at the college. This was prompted in part by a change in management in the relevant department of the college and by a desire to regain momentum on the project, following COVID-19 and Brexit related delays.

However, a further consequence of the discovery of spiny-cheek crayfish on site was that the college was no longer considered bio-secure in relation to crayfish plague, and therefore not an appropriate location for white-clawed crayfish conservation projects (Rushbrook, 2022). This decision was agreed with Sparsholt College, Bristol Zoological Society and other key project partners.

The construction phase of the Sparsholt College crayfish hatchery was to be funded through the Trust's Watercress and Winterbournes Partnership, a National Lottery Heritage Fund project. Following discussions with the Watercress and Winterbournes Partnership Manager, and with approval from the National Lottery Heritage Fund, it was agreed that these funds could be reallocated. Some of the funds would go towards the creation of an ark site within one of the Partnership's seven catchment areas (see *Ark Site Feasibility Study* below), and some would go towards developing a crayfish hatchery / rearing facility at another location.

Initial discussions were held between the Trust, Bristol Zoological Society and the Wildheart Trust of Sandown on the Isle of Wight, in September and November of 2022. Following these meetings it was agreed to investigate options for establishing a crayfish hatchery / rearing facility at the Wildheart Trust's Wildheart Animal Sanctuary (formerly the Isle of Wight Zoo). Site visits (part-funded by the Watercress and Winterbournes Partnership) to the former Bristol Zoo Gardens site and to the Wildheart Animal Sanctuary were attended by representatives of all three parties in January and February of 2023 respectively. Equipment was donated to the project by Bristol Zoological Society and an appropriate location for the hatchery at Wildheart Animal Sanctuary was agreed.

It is hoped that construction of the facility will be completed during the summer of 2023, with an initial stock of white-clawed crayfish (of Hampshire provenance) introduced from Bristol Zoo Gardens in the autumn.

Also discussed was the potential of creating bespoke white-clawed crayfish holding ponds at the Wildheart Animal Sanctuary, outside of the publicly accessible footprint of the site. During the February site visit an initial walkover of the proposed location was undertaken and a teleconference meeting held with a potential contractor for the project, with whom the Wildheart Trust have an existing relationship.

Following these discussions initial test drilling of the proposed pond locations was undertaken in March 2023 at no cost to the project. One part of the proposed area was found to have suitable clay soil for pond creation, however this overlapped with the easement for a Southern Water pipeline which crosses the site. Discussions will be held between the Wildheart Trust and Southern Water to determine what works could take place and what limitations there may be.

## **Ark Site Feasibility Study**

### ***Hampshire***

The Trust have continued to respond to enquiries from interested landowners and other parties suggesting locations that may be suitable for crayfish ark sites. Unfortunately, most were not suitable for further investigation, either due to the proximity of signal crayfish records or water security concerns.

However, progress has been made at a potential ark site location near Andover, delivered using funding provided by the Vitacress Conservation Trust, Test Valley Borough Council and the Trust's Watercress and Winterbournes Partnership. Following an earlier positive site visit with the landowner (Rushbrook & Selby, 2022), it was decided to investigate the potential for creating a bespoke ark site pond at two locations within the landholding. These were an existing slurry pit excavation that was never actually used for its intended purpose, but would need modifying to function as a crayfish ark site, and a second former arable field where a pond could be created in a natural low point.

A contractor brief was produced and distributed to several potential contractors, with a site meeting subsequently held with four potential contractors and the landowner in attendance.

All sets of contractors showed enthusiasm for the project, and as of the 31<sup>st</sup> March 2023 the Trust has received tender documents from each, outlining proposals and costs for an initial feasibility study into the potential for ark site pond creation at both locations, including topographical and hydrological surveys, pond design and pond construction. Further details on the delivery of this project will be provided in the Trust's 2023/24 briefing note. However, as set out above (see *Crayfish Hatchery at Sparsholt College / Wildheart Animal Sanctuary* above), funding for this initial feasibility and any

subsequent ark site pond creation will come, at least in part, from the Trust's Watercress and Winterbournes Partnership.

Site visits were undertaken in March 2023 with landowner who the Trust has had engagement on a range of topics relating to white-clawed crayfish conservation. These visits looked at the ark site potential of a large garden / ornamental pond near Preston Candover, and some woodland ponds on land near East Tytherley. It was decided that the woodland ponds held low potential as white-clawed crayfish ark sites at this time, however initial investigations of the large garden / ornamental pond are planned for late spring / early summer 2023. These will include amphibian surveys, specifically looking for evidence of great-crested newt presence, and water chemistry testing.

### **Isle of Wight**

The development of plans for a crayfish hatchery at Wildheart Animal Sanctuary represents a significant step forward for the potential of white-clawed crayfish conservation to take place in captivity on the Isle of Wight. However to date, limited progress has been made on developing a feasibility study for wild release ark sites on the island.

Volunteers from the Wildheart Trust spent time studying historic records for evidence to establish that white-clawed crayfish are, or at least have been, present on the island, however they were unable to find any corroborating records.

In early 2022 the Trust received anecdotal reports of white-clawed crayfish presence on the Isle of Wight. Members of Trust staff made enquiries with relevant parties, but were unable to corroborate these claims. However, these claims related to the Monktonmead Brook, large stretches of which lie within the Trust's estate, running along the western boundary of Wilder Nunwell (approximately 1400m) and through Swanpond Copse Nature Reserve (approximately 650m). Given this ease of access it was considered appropriate to conduct crayfish surveys at both locations, using a combination of artificial refuge traps (ARTs) and hand-searching survey techniques. Furthermore, though the initial investigations fell within the budget provided by the Vitacress Conservation Trust, due to the scale and cost it was decided that all survey work would be funded using the Trust's own monitoring budget in order to protect the funding provided to deliver the work outlined above.

Following an initial walkover visit conducted in May 2022, 40 ARTs were deployed at Swanpond Copse Nature Reserve in July 2022, with a further 11 ARTs deployed at Wilder Nunwell, and 13 ARTs deployed either side of Culfin Ford on private land located between these two sites.

Four survey checks were undertaken between July and September 2022, however no crayfish were found at any of the three locations.

### **Future Projections**

The work to be funded by the Vitacress Conservation Trust between 2020/21 and 2022/23 is set out in the *Introduction* section above. However, further amendments to the detail and timescale for delivery of project outputs have been required, a consequence of the wholly unexpected discovery of spiny-cheek crayfish at Sparsholt College, and unforeseen delays in the delivery of the ark site creation programme. In response to these challenges, Vitacress Conservation Trust very kindly provided an additional £7,500 to the Trust in the 2022/23 financial year, which the Trust carried forward to support delivery of our crayfish conservation work in 2023/24.

It was necessary to amend the third of the original three objectives due to the discovery of spiny-cheek crayfish at Sparsholt College. The amended three key objectives, in particular objective 3, are provided here for ease of reference:

1. to establish further ark sites in Hampshire;
2. to monitor Hampshire's network of ark sites; and
3. to support the establishment and operation of a crayfish hatchery / rearing facility at a site in Hampshire or the Isle of Wight.

Table 2 below presents the amended key project milestones and outcomes. It is intended that the additional funding provided by Vitacress will be spent in the 2023/24 financial year. However, it will not be feasible to deliver several of the outputs within that timeframe, and Table 2 has been adjusted

accordingly. Therefore, in some instances the delivery of these will be reliant on securing further funding. The status of these outputs, and opportunities for / success in securing additional funding will be provided in the Trust's 2023/24 briefing note.

**Table 2:** Amended remaining project outputs (colour coded by connection to Objective 1, Objective 2 and Objective 3 respectively).

Task	Estimated Start date	Estimated End date
On-going assessment of feasibility of establishing ark sites for white-clawed crayfish in Hampshire based on new information received.	Apr 2020	Mar 2024
Development and delivery of a study into the feasibility of establishing ark sites for white-clawed crayfish on the Isle of Wight; identification of potential ark sites for further assessment	May 2022	Mar 2025*
Establishment of a white-clawed crayfish holding facility / hatchery at Wildheart Animal Sanctuary (part funded in combination with Watercress and Winterbournes Partnership)	Sep 2022	Oct 2023
Establish up to five (and no less than two) new ark sites in Hampshire and / or the Isle of Wight	Oct 2022	Mar 2025*
Detailed assessments of identified future potential ark sites	Apr 2023	Aug 2024*
Support staff at Wildheart Animal Sanctuary in operation of crayfish hatchery	Oct 2023	Mar 2025*
Monitor existing ark site(s)	†	†

\* Expected to extend beyond current project and reliant on securing additional funding

† Monitoring will occur after project lifetime as no current ark sites

## References

**Rushbrook, B. (2019).** *Report outlining the outputs delivered by the Southern Chalkstreams project in the conservation of white-clawed crayfish in Hampshire (2017-19)*. Hampshire and Isle of Wight Wildlife Trust, Curdridge.

**Rushbrook, B. (2022).** *The discovery, consequences, and project response to the presence of spiny-cheek crayfish Faxonius limosus at Sparsholt College*. Hampshire and Isle of Wight Wildlife Trust, Curdridge.

**Rushbrook, B. & Selby, T. (2022).** *Update to Vitacress Conservation Trust of outputs in the conservation of white-clawed crayfish in Hampshire (April 2021 – March 2022)*. Hampshire and Isle of Wight Wildlife Trust, Curdridge.