Back from the Brink – Species summary
Bearded Tooth

BftB project: IP02 Ancients of the Future

Project lead organisation: Buglife

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Partner organisation for species: Natural England

Species name – common & scientific	Bearded tooth (*Hericium erinaceus*)
Photograph	 ©glsol / Back from the Brink
Taxon group	Fungus
Conservation status	Vulnerable (Smith, Suz, Ainsworth 2015)
UK distribution	Southern England and Wales
Habitat associations	Beech and oak, particularly sites with ancient trees and continuity of habitat
BftB work carried out:	
Survey & Monitoring	An eDNA survey method was going to be developed to detect *H. erinaceus* from wood, however permissions to take samples from 'wild populations' was not given due to the perceived risk to fungus and tree. The eDNA detection was trialled on inoculated trees (see conservation interventions). Using genus-specific primers, fungus DNA was readily detected from wood samples. This suggests that this approach would work in 'wild population' however for this to be an effective survey tool, we need refinement of the protocol e.g. the number of samples needed and where to take them from, which requires 'wild population' sampling.

Conservation 'interventions' incl. reintroductions & translocations	A translocation inoculation was trialled through a PhD project at Cardiff University. *H. erinaceus* is believed to be extinct at Savernake Forest which was chosen as the recipient site. Savernake is currently under management that is likely to favour the spread of this species in the future. Two genets of *H. erinaceus* (from southern England) were selected for inoculation into 28 young beech trees. Two substrates, wood dowels and a sawdust/grain mixture were trialled.
Links made with other taxa / conservation work?	The inoculation is only possible because of the favourable management at Savernake.
Wider engagement & advocacy activities?	• Engagement with Cotswold Fungus Group for long-term monitoring. • Poster presentation in mycology conference in Poland 2019. • Referenced in inoculation methods paper 'Wainhouse & Boddy, 2021. • Various social media/blog posts 2018-2021 • BFTB Ancients conference talk, 2021. • Royal Forestry Society seminar, 2021.
BftB results obtained:	
Recorded Distribution (in BftB focal areas)	*H. erinaceus* translocated to 1 new site. Still alive 2 years after inoculation.
Species Recovery Curve progress made	Trialled new solutions to translocating the species to new sites. Successful establishment in the tree suggests step 6. The translocations are however long-term solutions and so caution is needed in interpreting these results.
Recommendations for future work:-	*Inoculations:* The monitoring at Savernake must continue to know whether the inoculations have been genuinely successful. At present, we know the fungus has colonised the tree, but we do not yet know to want extent, and what the long-term survival of the fungus will be. This will also help to establish whether there are long-term differences between substrates and genets. Any *Hericium erinaceus* fruitbodies that are recorded at Savernake should be collected for culturing and DNA sequencing to establish whether they are progeny of the inoculated individuals. *Molecular survey:* Establishing a protocol for eDNA detection of 'wild population' would be helpful. However, the issues around risk to tree and fungus will not be diminished any time soon. This is perhaps a study that would be best trialled in N. America where *H. erinaceus* is relatively common. *Population genetics:* *H. erinaceus* has a fairly wide distribution in southern England. Data from the Lost and Found Fungi Project has found that it is often found outside the core areas of habitat with a long history of old trees. Understanding the population genetics and by proxy dispersal ecology would help understand the relationship between individuals at core sites with those scattered in less typical habitat. The cultivation of commercial strains and their potential spread makes this a priority.