

Back from the Brink – Species summary

Violet Click Beetle

BftB project: IP02 Ancients of the Future

Project lead organisation: Buglife

Contact: info@buglife.org.uk

Species name – common & scientific	Violet click beetle (<i>Limoniscus violaceus</i>)
Photograph	 <p>© Udo Schmid_Flickr (CC BY-SA 2.0) / Back from the Brink</p>
Taxon group	Invertebrate – Coleoptera (Elateridae)
Conservation status	Endangered on the European Red List of Saproxylous Beetles (2018) and at Risk of Extinction by 2020. It is an S41 Priority Species in England, and a Red Data Book species
UK distribution	Restricted to Windsor Forest, Bredon Hill (Worcestershire) and Dixton Wood (Gloucestershire)
Habitat associations	<p>In the UK, the Violet click beetle is mainly associated with old trees in active, defunct or remnant wood pasture as well as trees formerly in a regular coppice or pollard management cycle. Tree species is thought to be less important than the quality of the substrate and stage of decay. At Windsor, the beetle is associated with old beech trees in a high forest setting, while at Bredon Hill/Dixton Wood the beetle is associated mostly with old ash (including former pollards) in open grown or woodland edge/hedgerow settings.</p> <p>The larvae of the Violet click beetle develop in the richly organic accumulations of moist, compacted, black wood mould (resembling damp soot) found in hollowing trees. Wood mould itself is the woody debris that develops at the base of tree hollows during heartwood decay through the combined actions of wood-decay fungi and saproxylous invertebrates. Large accumulations of wood mould are restricted to trees in the most advanced stages of heartwood decay, particularly those more than 200 years old. The Violet click beetle is most often associated with wood mould at or below ground level (so called basal hollows), particularly where it has started to mix with the soil but has on occasion also been found in hollows</p>

	higher up the trunk. The complexity of microhabitats found within hollowing trees means they often play host to a wide variety of other animal species (e.g. birds) that contribute further to the organic content of the wood mould substrate through their nesting materials, droppings, prey remains and even corpses. It is thought these additional organic inputs may be crucial for Violet click beetle larval development.
BftB work carried out:	
Survey & Monitoring	<p>No surveys were carried out for this species over the course of the project as known survey methods are considered too destructive for such a vulnerable population.</p> <p>However, work has been undertaken by researchers at Royal Holloway, University of London to develop a pheromone lure to detect adults and also work to identify larval volatiles of the species so that non-invasive methods of monitoring for this species can be developed. This has involved importing adult beetles from France as the UK population is considered too sensitive to remove any from the wild. This research is now at the stage where the lures can be trialled at known Violet click beetle sites in 2022. Work has also been undertaken on DNA analysis of fungal assemblages in Violet click beetle occupied trees, the result of which will be received in 2022.</p> <p>A PhD has been undertaken to trial the creation of interim deadwood habitats through the installation of deadwood boxes at Windsor And Bredon Hill.</p>
Sites habitat management works	<p>Veteranising management techniques implemented at High Standing Hill and site management plans influenced to maintain existing ancient trees with basal cavities and plan for future recruitment of veteran trees. Some of this has been as a result of the project but with the deadwood assemblage in mind, not this particular species. Beetle boxes installed to mimic cavities.</p> <p>Haloing works and tree surgery around ancient Ash trees at Bredon Hill and wood pasture restoration work supported. Beetle boxes installed to mimic cavities</p>
Conservation 'interventions' incl. reintroductions & translocations	None specific to this species beyond the provision of management advice.
Technical advice provision	Advice issued to Crown Estates at Windsor and Natural England at Bredon Hill through the provision of the Cross taxa guidance document.
Links made with other taxa / conservation work?	Advice on habitat management links closely to that of other click beetles using basal cavities in ancient beech or ash.
Wider engagement & advocacy activities?	Ancient tree management training delivered to South West FWAG

BftB results obtained:	
Species Recovery Curve progress made	<p>This species has remained at 2. This reflects its rarity, the need to fully understand the species' autecology to effectively conserve it and the long-term nature of managing habitats for them before they come to maturity. We know aspects of its habitat associations and that there are problems with habitat continuity as a result of the age structure of trees on its sites. However, there is insufficient evidence to date that the works to bridge the age gap, retain existing trees or plan for future veteran trees will directly benefit the species, with very long timescales at play. The length of the BftB project is far shorter than those required to effectively confirm if the techniques can deliver for the species, with veteranisation techniques taking decades to deliver for wildlife and many of these techniques being newly introduced to project sites. Some elements of Steps 5 and 6 have been actioned by the project, with habitat works delivered on site such as deadwood boxes to bridge the age gap, but they are very much works in progress and based on an incomplete picture of their autoecology. We are awaiting the results of DNA analysis of fungal assemblages in Violet click beetle occupied trees to contribute to step 4, while a successful pheromone lure might assist with step 3 and a more efficient approach to monitoring. We remain confident that improving the resources of ancient trees and dead wood features on sites will help the species to recover, but a score beyond 2 would be based on significant assumptions.</p>
Recommendations for future work:-	<ul style="list-style-type: none"> • Field test the adult pheromone lures and larval volatiles at Windsor and Bredon during 2022. • If successful, trial the lures at sites with suitable habitat. • Maintain existing ancient trees with high potential to support the species. • Continue research into potential for beetle boxes to mimic suitable Violet click beetle habitat to bridge the age gap. • Encourage the further development of future ancient trees through targeted management. • Encourage the provision of nectar shrubs.