

HEATH TIGER BEETLES

Species Status Report
2020

the
species
recovery
trust



Project aims

- To breed Green Tiger Beetles successfully in captivity, as a first stage proof of concept.
- To learn about how to rear tiger beetles in captivity successfully
- To survey for the Heath Tiger Beetle at the more marginal sites in Surrey



Summary

The Heath Tiger Beetle (*Cicindela sylvatica*) is one of the rarest beetles in England. It is thought to have declined with the loss, fragmentation and degradation of lowland heathland habitat in England.

The beetles have a poor ability to disperse and their heathland habitat has sadly become increasingly fragmented over time, as large areas have been converted for agriculture, forestry and development.

Many of the remaining sites have been the focus of considerable conservation effort and as a result, the beetle populations do seem to be stable. However, there are a number of sites where the status of the populations remains uncertain. We need to improve our knowledge of the populations at all the sites to ensure that they are protected. In addition, to be confident of the future survival of the population, we need to work to increase the connectivity of the current sites, increase available habitat and help the populations grow.

In 2020, we made some important progress towards these aims. We surveyed a number of the marginal sites, we translocated a beetle to boost numbers and genetic diversity at a site that appeared to have very few beetles and we bred Green Tiger Beetles for the first time ever in captivity.



Captive Breeding Project

With generous support from the Valentine Charitable Trust, we have set up a reintroduction project for Heath Tiger Beetles. We plan to run a captive breeding programme to breed large numbers of beetles to reintroduce. Reintroducing small numbers of animals is often unsuccessful, as small groups are very susceptible to random factors and can quickly die out. The more individuals that we can reintroduce, the greater the chances of the population becoming established.

By running a captive breeding programme, we will also be able to explore the factors that are most important to Heath Tiger Beetles, particularly in terms of their larval development. This will allow us to identify sites for reintroductions that provide the optimum habitat for both larvae and adults, which will considerably improve the chances of success.

However, before we initiate our captive breeding programme for Heath Tiger Beetles, we will undertake a feasibility study using a closely related species, the Green Tiger Beetle. Green Tiger Beetles are extremely similar to Heath Tiger Beetles in almost every respect, but are able to survive in a broader range of habitats and so are very common in the UK. We will therefore attempt to breed this species in captivity first as a proof of concept. Heath Tiger Beetles are so rare that we need to have an extremely robust protocol in place before we take any from the wild for captive breeding.



Capturing Green Tiger Beetles from the Wild

Green Tiger Beetles are found in greatest numbers in April and May. Due to restrictions related to COVID-19 we were unable to access the site to look for Green Tiger Beetles in April, but fortunately, we were able to visit on a number of occasions in May, once the restrictions had been relaxed. We were able to capture a pair of beetles and introduce them into the purpose built enclosure at Sparsholt College.

Once the beetles were housed and settled, we quickly started to get some really exciting results. The pair were seen mating and the female was then caught on camera preparing the ground and ovipositing eggs. To our immense excitement, we then spotted a number of larval burrows in the enclosure, with tiny larvae heads popping out.

Over the following weeks, we observed the larval burrows double in size with each larval moult. Towards the end of September, the larvae blocked up their holes. This could be because they are now pupating, to emerge as adults in the spring, or because the weather became too cold and so they have burrowed down for the winter. We will have to wait for the spring to find out! In total, there were 14 larval burrows in the enclosure.

The remaining adults were not seen again in the enclosure after the 24th June. It is possible that the adults died after breeding, as many would in the wild, or they may have burrowed down again to re-emerge next year. In the wild, populations of Green Tiger Beetles peak in April and May and then decline throughout June and July, and so the disappearance of the adults at the end of June aligns with what we would expect from wild populations.



Heath Tiger Beetle surveys

We surveyed Brentmoor Heath in May 2020. This was a site where beetles had been reintroduced but the population seemed to have disappeared, until we rediscovered a female beetle in 2019. In 2020, we again found a female beetle (possibly the same one that we found in 2019). We were concerned that this might be the last remaining beetle on the site and so gained permission to translocate a male beetle from Thursley (where there is a very strong population). This would not only boost the population at Brentmoor but would also increase the genetic diversity (as the original reintroduction population was very small). We will be monitoring this site closely in the coming years to see if the translocation was a success.

We also spent two days surveying Ash Ranges, which is a very large site with lots of apparently suitable habitat, but no beetles were found.

We surveyed Hankley Drop Zone, another marginal site with sporadic past records. On the second of two surveys days we found one Heath Tiger Beetle. This is a good finding but does not confirm whether or not there is a significant population on this site.





Conclusions

- We have for the first time ever, successfully bred Green Tiger Beetles in captivity.
- We have already learnt a huge amount about how to house the beetles that will be immensely useful as we move onto a project to captive breed Heath Tiger Beetles.
- It will be really exciting to see if and how many beetles emerge next year!
- We are hugely grateful to the Valentine Charitable Trust for their generous funding which made this work possible in 2020.
- We also undertook an important translocation project at Brentmoor which will hopefully help to boost the population.
- More survey work is needed in Surrey to determine if there are established populations on some of the more marginal sites.