

Thames Valley

Environmental Records Centre



Enabling data-driven decisions to better enhance and protect our natural environment

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@TVERC1

WEST OXON GARDEN VILLAGE GREAT CREATED NEWT CONNECTIVITY MAPPING

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QUALITY MANAGEMENT

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|----------------|-----------------------------------|------------|
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FEEDBACK

If you have any feedback on this project, please email tverc@oxfordshire.gov.uk

WEST OXFORDSHIRE GARDEN VILLAGE GREAT CRESTED NEWT CONNECTIVITY MAPPING

SUMMARY

Wokingham Borough Council asked Thames Valley Environmental Records Centre (TVERC) to investigate functional habitat connectivity for great crested newts in and around the area of the proposed West Oxfordshire Garden Village near Eynsham, to inform their area action plan.

TVERC carried out a cost-distance analysis using data on current habitat types and their permeability to great crested newts in order to determine to what extent great crested newts are able to move through the existing landscape and identify areas in which habitat creation as part of the development would be most beneficial.

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INTRODUCTION

West Oxfordshire District Council are preparing an Area Action Plan for the proposed West Oxfordshire Garden Village, located near Eynsham. This will set out how the new development will be taken forward, what it will look like and how it will function.

Garden villages are new settlements of between 1,500 and 10,000 homes. These new settlements will be based on key principles established through the 'Garden City movement' in the late 19th Century. The key principle for the natural environment is 'development that enhances the natural environment, providing a comprehensive green infrastructure network and net biodiversity gains, and seeks to minimise carbon use and achieve energy positive technology to ensure climate resilience'.

In order to support the delivery of the garden village principles, West Oxfordshire District Council asked Thames Valley Environmental Records Centre (TVERC) to provide analysis of habitat connectivity for great crested newts, and provide guidance on, and potential locations for, the creation of habitats both on and off the garden village site.

METHOD

TVERC has built upon the work of Roger Catchpole and the Forestry Commission to assign costs to habitats in Berkshire and Oxfordshire for great crested newts. These costs have been peer reviewed by independent ecologists to ensure their accuracy. By setting maximum dispersal distances and maximum costs, we can model how functionally well-connected habitats are. TVERC modelled habitat connectivity for great crested newts in the area in and around the West Oxfordshire Garden Village site using this cost-distance approach.

Essentially, this approach looks at the ecological energetic cost to great crested newts of moving through a landscape. Core habitats on which a species relies (i.e. where there are generally found) have sufficient food, shelter and mating opportunities and therefore have a low energetic cost. Unsuitable habitats that have little or no food, shelter or mating opportunities have high energetic costs. Great crested newts will be able to move further through favourable habitat than through unfavourable habitat. By assigning costs to different habitat types based on the preferences of great crested newts, or the cost to them of using the habitat, it is possible to model the permeability of a landscape. Great crested newts can move further through permeable landscapes and can therefore move more easily between patches of core habitat. Impermeable landscapes mean that great crested newts find it harder to move between habitat patches.

RESULTS

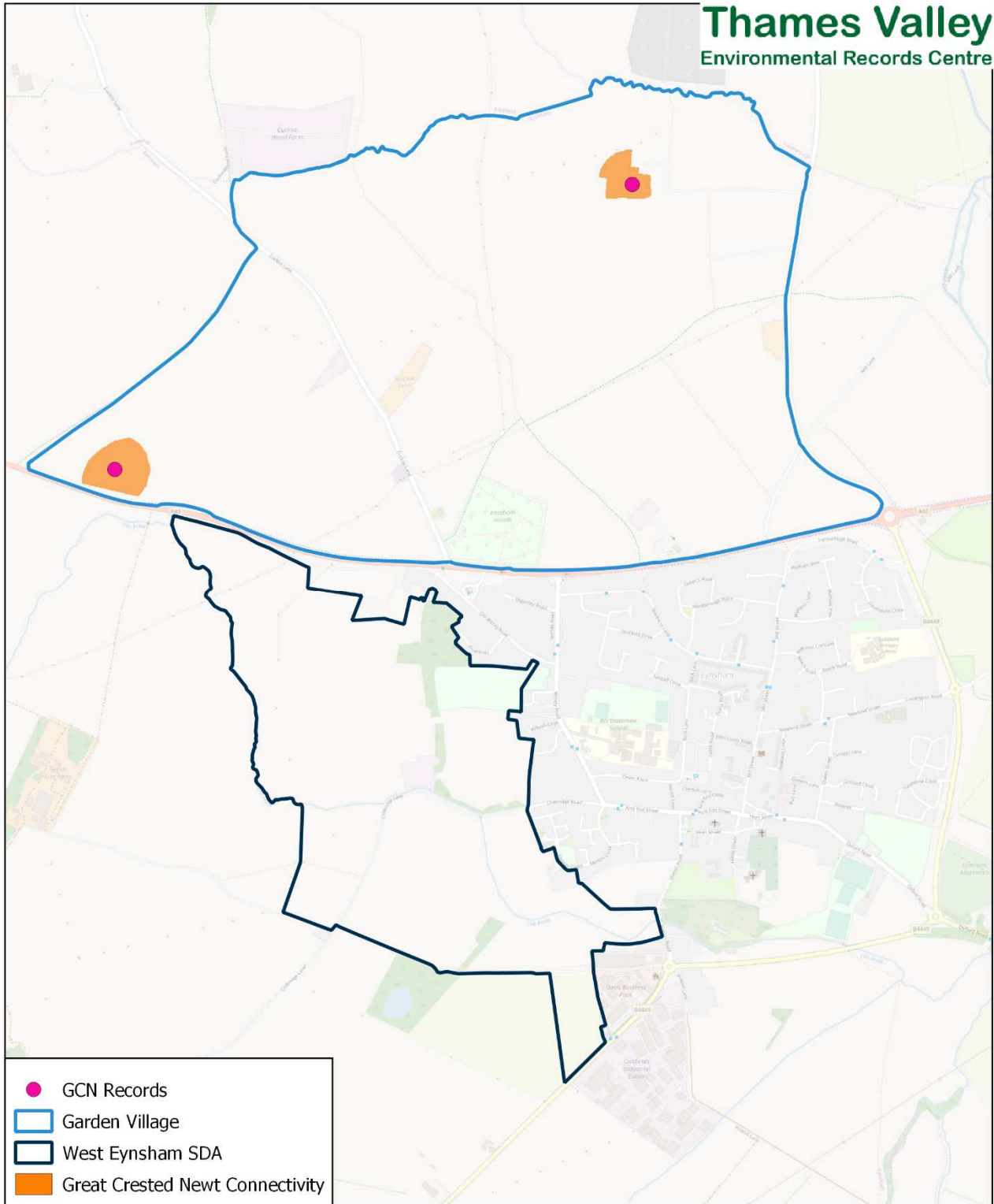
Two maps displaying the areas of functionally connected great crested newt habitat are shown below. Currently functional habitat connectivity for great crested newts is very poor across the area in question. The map shows that the largest areas of functionally connected habitat for great crested newts lie towards the north and south-east of the site. There are also several records of great crested newt within isolated areas of habitat to the west of the site. Any habitat creation with the intention of increasing habitat connectivity for great crested newts should extend in one of these directions, with the aim of connecting the population within the garden village site to one or more of the others.

One limitation of this analysis is that it heavily relies on current records of great crested newts within the area. An absence of records does not imply an absence of the species and it is possible that other populations of great crested newts do exist. If additional great crested newt records were incorporated into the dataset used for the analysis it is likely that functional habitat connectivity would appear to be much greater.

West Oxon Garden Village Great Crested Newt Habitat Connectivity



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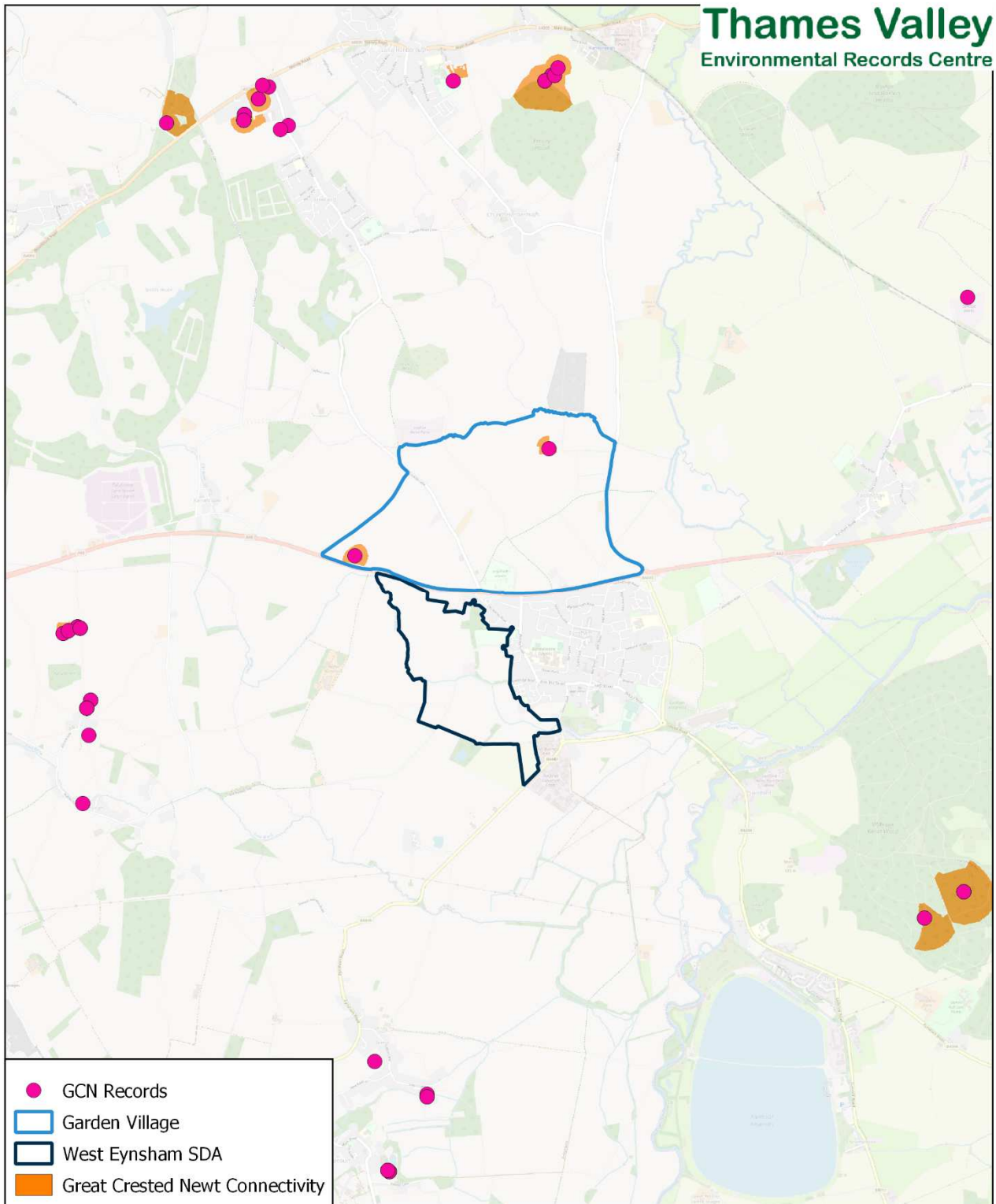


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West Oxon Garden Village Great Crested Newt Habitat Connectivity



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CONCLUSION

There is currently poor functional connectivity of suitable great crested newt habitat around the site of the new West Oxfordshire Garden Village. As part of the development habitat creation work should be carried out in order to link the great crested newt population within the site boundary to those in surrounding areas. Currently the greatest areas of functionally connected great crested newt habitat lie to the north and south-east of the West Oxfordshire Garden Village site, so extending new habitat in these directions will bring the greatest benefit in terms of the size of the resulting network. Towards the west of the site there are several great crested newt populations that are isolated from each other by impermeable habitat. Extending new habitat in this direction will allow these populations to be better connected to each other as well as to the population within the Garden Village.

Once the designs for the Garden Village are closer to being finalised this connectivity analysis should be revisited, as the design will impose limitations on where habitat creation can be effectively carried out. TVERC recommends that further great crested newt surveys are carried out, as it is likely that the current dataset does not include all populations within the area. More records of great crested newts will result in a more informative connectivity analysis and give a better indication of major gaps and barriers to connectivity.

ABOUT TVERC

Thames Valley Environmental Records Centre (TVERC) is a 'not for profit' organisation covering Berkshire and Oxfordshire. We are run by a partnership and are one of a national network of local records centres. We are a member of the Association of Local Records Centres (ALERC) and the National Biodiversity Network (NBN). Our funding partners include all the local authorities in Oxfordshire & Berkshire plus the Environment Agency. We also work closely with the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust.

WHAT WE DO

We provide our funding partners with annually updated species and sites information as GIS tables, and undertake surveys of local wildlife sites. We also carry out data analysis for the monitoring of local authority Local Plans. We provide information to parish councils, local people, conservation bodies, land-owners, students and commercial organisations such as ecological consultants and utilities companies via data searches, data licensing and data exchanges. We provide other services such as ecological surveys, data analysis & presentation and training.

OUR RECORDS

We hold over 2.7 million records of flora and fauna in Berkshire and Oxfordshire plus information about Local Wildlife and Geological Sites, NERC Act S41 Habitats of Principal Importance (previously called UK Biodiversity Action Plan (BAP) habitats) and Ecological Networks (Conservation Target Areas and Biodiversity Opportunity Areas). We collect this data from the general public, skilled volunteer /amateur recorders, professionals working for wildlife charities (BBOWT and RSPB), professionals working for government agencies (the Environment Agency & local authorities) and ecological consultants. This information is used:

- by planning authorities and developers to make informed decisions on the design and location of sustainable development
- to help farmers, land-owners and conservation organisations manage land in the best way to enhance biodiversity
- by nature partnerships to direct wildlife conservation work
- by teachers, students and scientists for education and scientific research.

For more information please visit our website: www.tverc.org