Great Crested Newt Survey and Mitigation Guidelines 2025

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Great Crested Newt Survey and Mitigation Guidelines 2025

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Preface:

You may be aware that the original English Nature Great Crested Newt Mitigation Guidelines were published in 2001. They have remained in use and unchanged for nearly a quarter of a century.

Following the widespread adoption in the United Kingdom (UK) by consultant ecologists of environmental DNA (eDNA) water sampling as a great crested newt *Triturus cristatus* (GCN) survey methodology and the introduction by Natural England of GCN mitigation licensing options, that do not necessarily require Site specific GCN survey or onsite mitigation to be undertaken, the original guidelines have become, increasingly in need of replacement.

A year ago I made the decision that I would voluntarily 'grasp the nettle' and attempt to produce a replacement for the original guidelines. My intention was to combine the best of the old with the new. The outcome has been the Great Crested Newt Mitigation Guidelines 2025 (GCN SMG 2025).

The aim was to provide consultant ecologists, developers, local planning authorities and others with a resource that contained relevant and current guidance with practical advice and links to other materials that I have personally found to be of value during my 20 years as a consultant ecologist. My hope is that, in addition to its primary purpose as a 'day to day' go to reference document for consultant ecologists the GCN SMG 2025 will also become a training resource for early career ecologists.

While the not inconsiderable personal commitment, financial cost, time and effort involved in bringing this endeavour to a conclusion may be of interest, I anticipate that the first questions you will ask regarding the GCN SMG 2025 will be have they been endorsed or approved by the three GCN licensing authorities (Natural England or Natural Resources Wales or NatureScot?). My answer is simple, no they have not.

Your next question will likely be why not? My answer: following cordial discussions and sharing the previous draft, I was emailed first by Amphibian and Reptile Conservation on 19th November 2024 and informed that they had concluded that they would not be contributing to, or at this time, supporting the GCN SMG 2025. A day later I received a similar toned collective email from the three GCN licensing authorities informing me that they did not feel that they were in a position to be able to collaborate with me on the GCN SMG 2025. While both emails contained constructive suggestions, that I have sought to incorporate into this 'Final Draft', it would be true to say that I was disappointed by their response. However, I have decided not to discuss further my views on the content of their emails.

Despite this apparent setback I have decided, in the time-honoured tradition of the volunteer to push on. I therefore respectfully request that you, as my peers and colleagues, review this 'Final Draft' of the GCN SMG 2025 and determine their value or otherwise. If you believe they have a value, I would request that you use them and consider sharing them with your colleagues. Any comments that you feel able to make through LinkedIn / other media, be they good, bad or indifferent, will be welcomed with my thanks. Alternatively, please feel free to contact me privately via james@gcntraining.co.uk or by phone on 0794 3723 935.

I have sought to ensure that the resources and links included in the GCN SMG 2025 are current / valid, have been appropriately credited and copyright and intellectual rights attributed and referenced. My apologies if you encounter any broken links, omissions or errors, which will of course be corrected as I am made aware of them.

I would like to close this 'Jim Grundy' style Preface on a positive note by expressing my sincere gratitude to the 100 plus consultant ecologists from graduate to director level and other individuals and organisations from across the ecology sector who have already commented on and/or contributed to this and previous drafts of the GCN SMG 2025 and given freely of their time to support me.

1.0 Introduction

1. The great crested new *Triturus cristatus* survey and mitigation guidelines 2025 (GCN SMG 2025) have been written and published by James Grundy (the author) with contributions from over 100 ecologists, including graduates, assistants, consultants, seniors, principals, directors and heads of ecology.

2. The author, over a period of 20 years as a consultant ecologist, has been directly involved with the successful delivery of several hundred GCN licensed and non-licensed development related mitigation projects. He has also led innumerable GCN related training courses and educational events. He is known and respected by colleagues, clients, peers and others for his experience, professionalism and approachability regarding all things GCN.

3. It has become apparent to the author and many others that the widespread adoption, by consultant ecologists, of the single visit GCN eDNA survey has resulted in a significant reduction in workplace training opportunities for early career ecologists seeking practical experience in the use of traditional GCN survey methods. The current situation has created a lack of 'field skills' issue for a number of professional ecologists involved with GCN projects and for the ecology sector as a whole.

4. With the publication of the GCN SMG 2025 the author has endeavoured to bring together his personal and professional experience with a range of GCN related materials and resources that are freely available, but not always easy to locate. The content and links provided have been thoughtfully selected and are presented in a practical manner, intended to promote flexible learning and aid understanding.

5. While an initial review of the GCN SMG 2025 content and the links provided will undoubtedly be informative, it is anticipated that to gain a full and rounded understanding, a consultant ecologist will likely need to revisit the content and links on multiple occasions. It is suggested that they bookmark or copy and paste paragraphs or statements or links that they find to be of particular value, use or interest.

6. It should quickly become apparent to consultant ecologists that much of the authors text within the GCN SMG 2025 may be 'tweaked' to become a recommendation and/or form the basis of the rationale for a proposed GCN mitigation strategy. The text may be made Site specific / individualised by minor revisions; for example 'a Site' to 'the Site' and replacing words such as could, should, would or may with will. Consultant ecologists may find this intentional copy and paste facility to be of value when preparing standard ecological reports that make reference or recommendations relating to GCN.

7. A consultant ecologists should understand that if a local planning authority decides to attach GCN related conditions to a planning consent for a Site, they will likely base such conditions on the GCN recommendations made in the ecological report. Consequently, GCN recommendations must be appropriate, proportionate, clear, specific, definitive and quantifiable.

8. The author has granted permission for consultant ecologists, companies, organisations and/or others who are involved directly or indirectly with work or projects that relate to GCN to use his copyrighted text (to be referenced GCN SMG 2025). They should also ensure that they appropriately reference other material accessed via the links provided.

9. It is the view of the author that the GCN SMG 2025 represent only a starting point for future improvements to GCN guidance. It is self-evident that they will need to be subject to regular review and update. It has been suggested that such work may be taken up by a volunteer panel of consultant ecologists and GCN specialists, with an element of professional governance. It is intended / hoped that such a panel, will be formed during 2025.

10. To support the release of the final version of the GCN SMG 2025 (currently scheduled for 1st January 2025) a one-day training course, focused on their purpose and how to use them effectively, will be offered to consultant ecologists. For details and/or to book a place please use the link below.

Link: GCN Training Ltd 'How to use the GCN SMG 2025' https://gcntraining.co.uk/gcn-smg-2025-course

2.0: Legislation

11. It is essential that consultant ecologists and those involved with GCN related projects have, as a minimum, a good basic understanding of the relevant and current legislation relating to GCN.

12. A consultant ecologist would have great difficulty defending any claims against them of providing professional advice or recommendations, that resulted in potential breaches of legislation relating to GCN, on the basis of their ignorance of the law, their lack of understanding and/or their misinterpretation of GCN related legislation.

13. Key sources of further information relating to current GCN legislation are signposted via the links provided and should be regularly reviewed by consultant ecologists.

14. A necessarily very brief summary of the extensive and detailed current UK GCN related legislation is provided below. However, to be absolutely clear, it is and remains the responsibility of the individual consultant ecologist to ensure that they regularly review current GCN legislation and understand the implications of any amendments made to legislation relating to GCN in England or Wales or Scotland.

Conservation of Habitats and Species Regulations 2017 (as amended)

15. The GCN is a European Protected Species (EPS) and as such receives protection under The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act (WCA) 1981 (as amended). Under the Regulations GCN are protected from deliberate capture, injury or killing, from deliberate disturbance and from deliberate damage or destruction of a breeding site or resting place.

The Wildlife and Countryside Act 1981

16. Under the WCA 1981 (as amended) it is also an offence to intentionally or recklessly disturb GCN while they are using a structure or place used for shelter/protection, or to obstruct access to or damage any such structure or place. The provisions of the Act (1981) also protect GCN from activities associated with their / or derivative sales.

17. Schedule 9 Part 1 of the WCA 1981 (England and Wales) (Amendment Regulation 2016) or its latest iteration should be consulted for current information on UK Non-Native species and guidance on the action/s to take if they are encountered.

18. Any animal listed in Schedule 9 Part 1 (but not Part 1A or 1B) of the WCA 1981 which is a species which is not ordinarily resident in England in a wild state, that is caught or comes under the control of man; must not be released or allowed to escape back into the wild; it must be humanely despatched; unless a specific licence to release the species has been obtained or alternative advice has been provided.

19. Smooth newt *Lissotriton vulgaris*, palmate newt *Lissotriton helveticus*, common frog *Rana temporaria* and common toad *Bufo bufo* are included in Section 9(5) of the WCA 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy these species.

20. Under the WCA 1981 (as amended) it is an offence to carry out actions deemed to be Deliberate, Intentional or Reckless and where they result in the Capture, Injury, Killing or Disturbance of individual GCN their eggs and/or larvae, or where such actions result in Damage and/or Destruction of GCN Shelter Sites (including a resting place or structures used by GCN for Hibernation) and/or GCN Breeding Sites, or where such actions Obstruct GCN access to their Shelter, Hibernation or Breeding Sites. Unless and until such actions are undertaken and made lawful under the terms and conditions of the appropriate GCN licence.

21. In England the GCN is listed as a Priority Species under the Natural Environment and Rural Communities (NERC) Act 2006.

22. In Wales the GCN is listed as a Priority Species under the NERC Act and the Environmental Wales Act 2016.

23. In Scotland the GCN is listed as a priority species on the Scottish Biodiversity List Version 1.4 (2012).

24. In addition, any individual GCN that are captured or come under human control (for example when GCN are caught by hand, net, bottle trap or pitfall trap) are legally protected from unnecessary suffering.

The Animal Welfare Act 2006

25. The Animal Welfare Act 2006 was introduced by the Department for Environment, Food and Rural Affairs (Defra) to combat animal abuse and came into force in 2007. Its aim was to update the Protection of Animals Act 1911, making the law reflect 21st century practice and the developments in veterinary science. The Animal Welfare Act 2006 only applies to vertebrate, non-human animals (e.g. mammals, birds, reptiles, amphibians and fish).

26. The categories of animals protected by the Act depend on the offence in question (it relates in particular but not exclusively to farm animals and pets etc...). A person commits an offence under Section 4 of The Animal Welfare Act 2006 in one of two ways:

Firstly, a person can be prosecuted for undertaking an act, or failing to undertake an act, which causes a 'protected' animal unnecessary suffering and knowing, or reasonably foreseeing that the act or failure to act would have that effect.

Secondly, a person can be prosecuted, in relation to an animal they are 'responsible' for, in respect of permitting or failing to take reasonable steps to either prevent an act of another person causing an animal unnecessary suffering or to prevent an omission by another person from causing unnecessary suffering to the animal.

27. It is important to understand that: 'unnecessary suffering' is not defined in the Act, but section 4(3) sets out a range of factors that a court is to consider when determining whether the suffering was unnecessary.

28. The Animal Welfare Act 2006 is one of the more controversially used pieces of legislation on the statute books; it can form the basis of state prosecution but is often privately prosecuted by either the RSPCA or 'concerned individuals. A decision on if an offence has been committed under the Act and at what level is a matter for a court to decide.

Link Conservation of Habitats and Species Regulations 2017 (as amended)

Link: Wildlife and Countryside Act (WCA) 1981 (as amended)

Link The Animal Welfare Act 2006

Link: Animal Welfare Act 2006 Natural England Advice Note

Link Animal Health and Welfare (Scotland) Act 2006

3.0: GCN Survey Methods

The GCN survey licence

29. Although still relatively widespread across much of lowland England and north and south-east Wales, GCN are regarded as scarce in Scotland with the bulk of GCN populations occurring in the Highland area between Strathpeffer to Inverness and eastwards to Forres, a central belt area extending from Paisley to northern Fife and Dunbar in the east with several southern population clusters in Dumfries and Galloway and the Borders.

30. It has been suggested that approximately 61,000 waterbodies could be used by GCN across the UK of these between 27,000 and 46,000 may potentially support GCN breeding. However, these figures should be treated with caution. Despite decades of survey effort and more recent GCN population distribution modelling there are still no definitive answers to how many waterbodies in the UK landscape support GCN or how many of the three million UK garden ponds potentially support the species.

31. Obtaining GCN survey licensed status is a major personal and professional milestone and should be a goal of all consultant ecologists involved with GCN projects. It should be understood that the GCN survey licence places significant

legal and professional responsibilities on the Licenced Person (the consultant ecologist).

32. The relevant UK Country specific GCN aquatic or terrestrial survey licence must be obtained by a consultant ecologist if they intend to undertake GCN surveys in England and/or Wales and/or Scotland. It is not permissible or lawful to undertake a GCN survey under a licence issued for one UK Country in another.

    GCN survey licenses are issued and regulated in:

    - England: by Natural England.
    - Wales: by Natural Resources Wales.
    - Scotland: by NatureScot.
    - GCN are not known to be present in Northern or Southern Ireland.

33. It is for the consultant ecologist, in consultation with the developer, to determine in accord with current guidance, if a GCN survey licence is required to allow specific GCN survey actions to proceed lawfully including:

    - A Habitat Suitability Index (HSI) Assessment (when using hand netting).
    - Environmental DNA (eDNA) water sampling (if a HSI is also undertaken).
    - Leaf Fold / Egg Search
    - Hand Netting.
    - Torch Survey.
    - Bottle Trapping.
    - Hand Search.
    - Terrestrial Survey.
    - Detection Dog Team.

34. The Licensed Person should read and must understand the terms and conditions of the GCN survey licence that they are operating under and their personal legal responsibilities. They should always carry a copy of the licence with them and ensure that it is the latest version and dated correctly. The GCN survey licence registration / reference number should always be included in any report or communication that relates to works carried out under the licence.

35. The Natural England GCN survey or research Class Level 1 Licence CL08 for aquatic surveys and the Natural England GCN survey or research Class Level 2 Licence CL09 for terrestrial surveys are reissued annually and may only be used by persons officially registered with Natural England to use them or their designated Accredited Agents and Assistants.

36. The Welsh GCN aquatic survey licence is issued individually to the person named on the licence and is valid for 2 years.

37. The Scottish GCN aquatic survey licence is issued individually to the person named on the licence and is valid for 5 years.

38. Accredited Agents may work independently of the Licensed Person under the terms and conditions of a GCN survey licence on the basis that they carry a copy of the licence and a letter of authorisation / accreditation from the Licensed Person.

39. Persons carrying out work as an Assistant, under a GCN survey licence, must always be directly supervised by the Licensed Person or their Accredited Agent.

- A GCN aquatic survey licence will always be required when it is considered possible that GCN may be encountered at a target waterbody and the proposed actions could potentially result in a breach of GCN legislation.
- The Licensed Person, their Accredited Agent or Assistant may lawfully undertake a Hand Search of terrestrial refugia at a Site for GCN under the terms and conditions of a GCN aquatic survey licence.
- A GCN terrestrial survey requires that the consultant ecologist be registered to use or to hold a Country specific GCN terrestrial survey licence to lawfully undertake a GCN terrestrial presence / likely absence survey at a Site.

40. A failure to comply with the terms and conditions of a GCN survey licence may result in an offence under the Habitats Regulations or mean that the licence cannot be relied upon and an offence could therefore be committed. The maximum penalty available for an offence under the 1981 Act and Habitats Regulations is currently an unlimited fine and/or a six-month custodial sentence.

41. A Licensed Person or their Accredited Agent or Assistant by breaching the licence conditions may invalidate the licence registration which could result in their ability to use the licence being revoked and/or the refusal to allow them to be registered on future licences, it may also mean that they are not able to rely on the licence as a defence in respect to the prohibitions within the Animal Welfare Act 2006 for example not to cause ‘unnecessary suffering’.

42. The GCN aquatic and terrestrial survey licenses issued in England, Wales and Scotland are not intended and should never be used, to justify actions that result in the deliberate movement of individual GCN their eggs or larvae from a Site in order to facilitate proposed development works or activities. Any such deliberate actions would invalidate the survey licence and result in a breach of GCN legislation.

43. When commissioning a consultant ecologist, to undertake any GCN related survey work, it is advised, that a developer request that the consultant ecologist provides them with a copy of their GCN survey licence and/or licence registration number and details of their experience.

Link: CIEEM Competency Standard for Great Crested Newt Survey, Mitigation and Management Draft Version: August 2021:
https://cieem.net/wp-content/uploads/2021/08/GCN-Competency-Standard-August-2021.pdf

Link: National Biodiversity Network Trust (NBN) Atlas GCN UK Distribution
https://species.nbnatlas.org/species/NHMSYS0000080156

Target Waterbody Distance from a Site Boundary

44. For consistency and in keeping with a proportionate and risk-based approach, GCN surveys need reasonable parameters. The original Great Crested Newt Mitigation Guidelines 2001 indicated that waterbodies (ponds, pools and non-flowing ditches) up to approximately 500 metres (m) from a Site might need to be surveyed. With the decision on whether to survey dependent primarily on how likely and at what level that proposed development / works would impact on GCN using the target waterbodies.

45. Based on the original guidance a standard recommendation to survey waterbodies within a 500m radius of a Site boundary was historically adopted by consultant ecologists across the ecology sector.

46. In recent years concerns raised regarding the 500m radius by consultant ecologists and GCN survey guidance updates from the licensing authorities have led to reconsideration of what represents an acceptable and proportionate GCN survey distance. Currently waterbodies are only likely to be deemed relevant to the survey effort if they are located at a Site or within a 250m radius from a Site boundary.

47. For proposed developments resulting in permanent and/or temporary terrestrial habitat loss and impacts, a GCN aquatic survey would likely only be appropriate at waterbodies located onsite and/or within 250m of the Site boundary (on the basis that there are no major barriers to GCN dispersal).

48. It is important to note that survey effort may reasonably exclude target waterbodies within 250m if they are separated from a Site by a major physical barrier to GCN dispersal, such as:

    - Motorways and dual carriageways (not minor roads)
    - Major or fast-flowing rivers,
    - Significant built environs that have no suitable, continuous, connecting habitat for GCN to move along such as hedgerows, field boundary strips or ditches.

49. A GCN aquatic survey of a target waterbody located 250-500m from a Site boundary would only be appropriate and proportionate when all of the following four conditions are met:

    (1) Maps, aerial photos, walk-over surveys or other data indicate that the target waterbodies are deemed to have the potential to support a large GCN population (peak count/s >100 adult GCN),

    (2) A Site footprint contains particularly favourable GCN terrestrial habitat, especially if it constitutes the majority of such habitats available locally,

    (3) The development would have a substantial negative effect on that GCN terrestrial habitat, and

    (4) There are no physical barriers to GCN dispersal.

50. Given that meeting all of the four conditions detailed above would, in most circumstances, be unlikely it may be reasonably concluded that, recommending or undertaking a GCN survey at any waterbodies identified to be located 250m up-to 500m from a Site boundary would, except in specific instances, not be deemed appropriate or proportionate.

51. Based on the accepted terrestrial range of GCN generally <250m, occasionally >500m, rarely >1 kilometre (km) from their breeding sites it may also be reasonably concluded that any GCN populations potentially associated with waterbodies located 250m up-to 500m from a Site boundary would likely not be dependent, in any material way, on the terrestrial habitats at a Site.

52. Developers should request clarification, if their commissioned consultant ecologist recommend that a GCN survey is required at any waterbodies located at a distance of more than 250m from a Site boundary.

Garden Ponds and Ornamental Water Features

53. Consultant ecologists and developers should understand that in keeping with a proportionate and risk-based approach a GCN aquatic survey needs to consider the potential presence of garden ponds and ornamental water features located adjacent or within 250m of a Site boundary. Aerial photography and imaging may prove useful as will direct visual observations from a Site boundary and engaging with local residents.

54. Most consultant ecologists will at some point in their career encounter a situation where a concerned individual comes forward with information that they or a neighbour has or believes that they may have found or seen GCN in their garden or pond (often located adjacent a development Site). These situations can result in delays to the determination of a planning application or may cause delays to ongoing works until the issue is resolved.

55. A consultant ecologist should always consider the possibility of the existence of garden ponds and ornamental water features in gardens neighbouring a Site. The possibility of the existence of garden ponds and ornamental water features and the potential risk of GCN and/or other amphibians presence should be addressed / assessed as a risk factor in the survey report.

56. In general, garden ponds and ornamental water features are likely to be relatively small in size and are most likely to be used by common amphibians i.e. smooth newt, and/or palmate newt and/or common frog. The risk of encountering GCN in a garden pond is reasonably likely to be low. However, irrespective of their size, GCN and common toad may use them in certain circumstances, for example if GCN or toads have historically been introduced into a garden by the householder or a previous resident and/or there is a larger waterbody close by that supports breeding GCN or toad populations.

GCN Survey Biosecurity

57. Compliance with Amphibian and Reptile Groups of the United Kingdom (ARG UK) Advice Note 4 (2017) forms part of the Natural England, Natural Resources Wales and NatureScot GCN survey licence terms and conditions. The aim is to help prevent the spread of amphibian diseases (including Chytridiomycosis) and Invasive Non-Native Species (INNS).

58. ARG UK Advice Note 4 details amphibian disease and INNS precautions developed and intended to act as a guide primarily for consultant ecologists
and field workers undertaking GCN aquatic surveys at multiple target waterbodies on the same date (collectively referred to as a site).

59. A site in the context of ARG UK Advice Note 4 is defined as all target waterbodies (to be subject to GCN survey effort) located within 1km of each other, on the basis that this distance is considered to be the likely maximum distance of natural GCN / amphibian disease dispersal and occurrence.

60. The importance of reviewing the latest biosecurity and INNS guidance and the need for and requirement to demonstrate implementation of appropriate and practicable biosecurity measures, during aquatic GCN surveys, should not be underestimated.

61. There is anecdotal evidence that suggests GCN aquatic surveys, can without safeguards in place, result in the inadvertent spread of INNS from one target waterbody to another. GCN survey activity should be regarded by a consultant ecologist as a potential dispersal vector for INNS.

62. ARG UK Advice Note 4 indicates:

- One pair of disposable vinyl gloves should be used at each site.
- Amphibians handled only if necessary.
- Amphibians to be released only at the site of capture.
- All equipment including footwear, clothes, nets, torches, bottle traps & plastic canes, eDNA sampling kits should be checked by the consultant ecologist and confirmed to be clean / free of INNS before visiting a target waterbody.
- Following a GCN survey visit all equipment including footwear, clothes, nets, torches, bottle traps & plastic canes, eDNA sampling kits etc… should be disinfected (or appropriately disposed of) by the Licensed Person or Accredited Agent in accordance with the procedures detailed in the ARG UK Advice Note 4.

63. It is for the consultant ecologist to regularly review the latest published information relating to amphibian disease and INNS precautions and become familiar with their use and the practicalities of their implementation.

Link: Amphibian and Reptile Groups of the United Kingdom Advice Note 4 (2017)
https://www.arguk.org/downloads-in-pages/resources/advice-notes/324-advice-note-4-amphibian-disease-precautions-a-guide-for-uk-fieldworkers-pdf-2/file

The GCN Habitat Suitability Index Assessment

64. Since its introduction the use of the GCN Habitat Suitability Index (HSI) assessment has become a standard component of all traditional and GCN eDNA surveys undertaken by consultant ecologists in England, Wales and Scotland. The HSI assessment may also be used on its own to inform GCN aquatic habitat management and/or as a measure for qualitative enhancement works at a target waterbody.

65. The GCN HSI assessment is not a substitute for undertaking GCN surveys; it may indicate habitat suitability for GCN but cannot establish GCN presence or likely absence at a target waterbody.

66. Whilst historic data indicates a correlation between high scoring target waterbodies and GCN presence and low scoring waterbodies and likely GCN absence the methodology and data is still not sufficiently precise to allow a definitive conclusion of species presence or likely absence or to predict the GCN population size class at a target waterbody from the GCN HSI assessment score alone.

67. The HSI assessment is a repeatable, objective, quantitative measure of aquatic habitat quality for GCN at a target waterbody. It produces a calculated number (score) between 0 and 1, derived from an assessment of ten factors / indices (habitat variables known to influence the habitat suitability of a target waterbody for GCN).

    The ten factors / indices are:

    1) location,
    2) area,
    3) drying,
    4) water quality,
    5) shade,
    6) fowl,
    7) fish,
    8) pond count,
    9) terrestrial habitat,
    10) macrophytes.

68. A GCN HSI assessment can be carried out at a target waterbody throughout the year, albeit the spring and summer are preferential and will minimise seasonal limiting factors, i.e. aquatic and marginal vegetation dieback and reduced aquatic invertebrate numbers during the autumn and winter months.

69. A HSI assessment should be undertaken by a GCN Licensed Person or their Accredited Agent on the basis that hand netting at a target waterbody is integral to the HSI assessment to inform factor 4 water quality and factor 7 fish presence. It should be noted that hand netting could potentially result in the incidental, albeit foreseeable, capture and/or disturbance of GCN or their eggs and larvae which without a survey licence would be unlawful.

70. A HSI assessment score of:
    - >0.8 indicates ‘Excellent’ suitability for GCN.
    - 0.7 – 0.79 indicates ‘Good’ suitability for GCN.
    - 0.6 – 0.69 indicates ‘Average’ suitability for GCN.
    - 0.5 – 0.59 indicates ‘Below Average’ suitability for GCN.
    - <0.5 indicates ‘Poor’ suitability for GCN.

71. A HSI assessment should be undertaken at a target waterbody (where landowner access permission has been secured). A photograph of waterbodies subject to HSI assessment should always be taken and included within the survey report.

72. During the HSI assessment the consultant ecologist should determine what GCN aquatic survey methods would be most appropriate for a target waterbody. Factors to consider include safe access (given a waterbody may need to be accessed after dark) macrophyte cover and risks from the public and/or livestock.

73. While appropriate for most ponds and non-flowing ditches, in some atypical circumstances, the HSI assessment can result in the generation of unusual or anomalous scores for example when a target waterbody is totally dry at the time of the assessment or for large expanses of marshes or complex series of water filled depressions or extended ditch systems. For ponds larger than 2000 m2 factor 2 should be omitted from the HSI calculation (as there are no data for such large ponds). Such HSI scores should be recorded as limited / constrained.

74. The HSI assessment score should not be used in isolation to exclude a waterbody, located within 250m of a Site boundary, from GCN survey effort.

75. However, at the discretion of the consultant ecologist, a very low GCN HSI assessment score (<0.5) indicating 'Poor' suitability may reasonably be used, to add support for the exclusion of a waterbody from further GCN survey effort where its exclusion is also informed / supported by at least one other factor including:

    - Limited availability of suitable onsite GCN terrestrial shelter habitats,
    - The presence of significant barriers to GCN dispersal,
    - Extensive similar or more suitable terrestrial habitat in the wider area,
    - The dispersal range of GCN,
    - Predicted low level development impacts.

76. In respect of predicted low level development impacts a very low HSI assessment score (<0.5) may be used by the consultant ecologist, in conjunction with the development proposals, to infer a minimal possibility of encountering GCN at a Site and therefore a negligible risk of breaching current GCN legislation and a minimal risk of committing an offence.

77. In April 2021 it was brought to the attention of the ecology sector, via a report relating to the reliability of the habitat suitability index as a predictor of GCN presence or likely absence, published in the Herpetological Journal that there was a widespread issue with use of the HSI.

78. The 2021 report concluded that that since its introduction the GCN HSI assessment had been frequently mis-used and subject to misinterpretation by a number of consultant ecologists, developers and local planning authorities on the basis that it was wrongly being used as a predictor of GCN presence / likely absence and/or as a substitute for GCN surveys.

79. Consultant ecologists, developers and local planning authorities should review and ensure that they understand the purpose and the limitations of the GCN HSI assessment.

80. The licensing authorities recommend that those involved with GCN related works familiarise themselves with the HSI assessment by reading the original paper by Oldham et al (2000).

81. The licensing authorities also advise that consultant ecologists adhere to the methodology detailed in the Amphibian and Reptile Groups of the United Kingdom ARG UK Advice Note 5 Great Crested Newt Habitat Suitability Index (May 2010).

82. The consultant ecologist, developer and local planning authority should understand that any GCN conventional / development mitigation licence application submitted to a licensing authority that seeks to establish GCN presence or likely absence at a target waterbody from HSI assessment data alone i.e. no GCN survey data presented, will likely be rejected.

Link: Amphibian and Reptile Groups of the United Kingdom Advice Note 5 (2010) https://www.arguk.org/info-advice/advice-notes/9-great-crested-newt-habitat-suitability-index-arg-advice-note-5/file#:~:text=Oldham%20Et%20Al
Link: Herpetological Journal 2021: How reliable is the habitat suitability index as a predictor of great crested newt presence or absence? Andrew S. Buxton, Hannah Tracey & Nick C. Downs https://www.thebhs.org/publications/the-herpetological-journal/volume-31-number-2-

april-2021/3275-07-how-reliable-is-the-habitat-suitability-index-as-a-predictor-of-great-crested-newt-presence-or-absence/file

Link: The Original HSI assessment paper by Oldham et al (2000)
https://www.thebhs.org/publications/the-herpetological-journal/volume-10-number-4-october-2000/1617-03-evaluating-the-suitability-of-habitat-for-the-great-crested-newt-triturus-cristatus

GCN Environmental DNA (eDNA) Water Sampling

83. Since its introduction in 2016 the GCN Environmental DNA (eDNA) water sampling survey, referred to as a GCN eDNA survey, has been widely adopted and largely replaced the four GCN survey methods traditionally used to determine GCN presence / likely absence at a target waterbody. The approved water sampling period for a GCN eDNA survey currently encompasses 15th April until 30th June.

84. A GCN eDNA survey involves a single survey visit and the collection of water samples from 20 regularly spaced locations at a target waterbody by the consultant ecologist (as safe and practical to do so) and subsequent laboratory analysis of the water samples for the presence of GCN eDNA.

85. The laboratory findings are presented as a 'Positive' or 'Negative' or 'Indeterminate' result for the presence of GCN eDNA in a target waterbody 'Positive' establishing GCN presence, 'Negative' indicating GCN likely absence and 'Indeterminate' results indicating sampling issues with GCN status remaining unknown at a target waterbody. It is important to note that a GCN eDNA survey cannot by itself be used to establish the GCN population size class at a waterbody.

86. A laboratory result of 'Indeterminate' for a target waterbody may prove problematic on the basis that GCN status at the waterbody remains unknown. The consultant ecologist should give careful consideration to the requirement for repeating eDNA survey effort at a waterbody that has returned an 'Indeterminate' result (as it may do so again). In such circumstances it may be deemed appropriate to recommend that a traditional presence / likely absence GCN survey be undertaken at a target waterbody.

87. While a GCN eDNA survey may notionally be undertaken without a survey licence, on the basis of no disturbance to GCN at a target waterbody, it is advised that GCN eDNA surveys should be led by a Licensed Person.

88. It is only acceptable to use Accredited Agents to collect water samples for eDNA testing if it can be demonstrated that they are adequately trained and competent in GCN ecology, traditional survey methods and have been trained in the collection of water samples for eDNA testing. The Licensed Person is responsible for ensuring that such requirements are adhered to.

89. As part of a GCN mitigation licence application the Licensed Person must affirm that the Defra Technical Advice Note (WC1067 Appendix 5) has been strictly followed. If not or the Licensed Person is unable to do so, the eDNA results may not be accepted as valid by the licensing authority.

90. The use of a Licensed Person to undertake eDNA testing at a target waterbody will allow aquatic vegetation and suspected leaf folds to be lawfully examined for GCN

eggs and any incidental visual observations of GCN or other newts (adults and/or larvae) at a target waterbody to be established / confirmed with a high degree of confidence.

91. At a target waterbody where GCN presence has been established, by a GCN eDNA survey, but there remains a requirement for GCN population size class data to be obtained, then a further six non-consecutive survey visits, will need to be undertaken to establish the GCN peak count and GCN population size class. Each visit must employ torch surveying and/or bottle trapping.

92. The potential cost and timing implications of any requirement to undertake further survey effort to establish the GCN population size class at a target waterbody should be considered by the consultant ecologist and discussed fully with the developer at the earliest opportunity.

93. It would only rarely be deemed appropriate, for the consultant ecologist to recommend the use of traditional GCN survey methods at a target waterbody that has been subject to a GCN eDNA survey and where a Negative result has been returned from the laboratory indicating GCN likely absence.

Link: Collecting water samples for GCN eDNA testing
https://www.greatcrestednewtedna.co.uk/service/edna-sampling/#sampling-video

Link: Analytical and methodological development for improved surveillance of the Great Crested Newt WC1067 Final Report Project contractors: Freshwater Habitats Trust, Spygen, Amphibian and Reptile Conservation and the Durrell Institute of Conservation and Ecology (January 2014) - Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford: https://freshwaterhabitats.b-cdn.net/app/uploads/2023/09/WC1067ReportVersionFinalUpdated1.pdf

Link: Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA. Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA. Freshwater Habitats Trust, Oxford. https://adas.co.uk/wp-content/uploads/2021/01/Natural-England-Technical-Advice-Note-2.pdf

Traditional GCN Aquatic Survey Methods

94. The GCN aquatic survey period has historically encompassed mid-March to mid-June and traditionally required that four or six non-consecutive survey visits be undertaken with half of the visits to be carried out between mid-April and mid-May.

95. As practicable and resources allow the survey visits should ideally be spaced at a minimum of one week apart.

96. Traditional GCN survey methodology requires the Licensed Person to employ a minimum of three of the four GCN survey methods listed below on each survey visit.

    - Leaf Fold / Egg Search
    - Netting
    - Torch Survey
    - Bottle Trapping

97. To robustly establish GCN likely absence at a target waterbody a traditional GCN aquatic survey requires that four non-consecutive survey visits, with each visit employing three of the above survey methods, are undertaken with no GCN eggs or adult GCN or their larvae observed or caught.

98. To establish GCN presence at a target waterbody a traditional GCN aquatic survey requires GCN eggs to be found and/or adult GCN or their larvae to be observed or caught during any of the four survey visits. If the aim of the survey is only to establish GCN presence at a waterbody then the survey effort can cease when GCN presence is established (there is no need to complete all four survey visits).

99. At a target waterbody where GCN presence has been established, a traditional aquatic survey requires that a total of six non-consecutive survey visits with each visit employing torch survey and/or bottle trapping are undertaken to establish the GCN peak count and population size class. It would not be acceptable to undertake the required six GCN population size class assessment visits over an extended period of two years.

100. It is important to note that GCN egg search, hand netting, eDNA water sampling and terrestrial survey cannot be used to establish the GCN population size class.

GCN Population Size Class

101. The GCN population size class is derived from the peak count which is the aggregated sum of the highest number of adult GCN observed or captured via torch survey and/or bottle trapping at a target waterbody on the same survey visit during the survey period. The peak count is based on the following categorisations:

    - Small population size class: 0 to 10 individual adult GCN.
    - Medium population size class: 11 to 100 individual adult GCN.
    - Large population size class: more than 100 individual adult GCN.

102. A peak count of >100 adult GCN at a single waterbody or as aggregated across the target waterbodies during a single survey visit during the survey period will establish the GCN population size class as ‘Large’. In such a circumstance a consultant ecologist should consider suspending further survey visits, on the basis of cost and unnecessary disturbance to GCN (given that further counts of >100 GCN would likely not be meaningful). Should a consultant ecologist decide to complete the full suite of six non-consecutive survey visits, after a peak count of >100 adult GCN, they should detail the rationale for continuing with the survey effort in their survey report.

103. The peak GCN count, when aggregated across the target waterbodies, may reasonably be used by the consultant ecologist to infer the existence of a GCN meta-population associated with a Site and/or waterbodies in the local area, on the

basis that there is habitat connectivity and likely to be movement of individual GCN between the target waterbodies.

104. GCN population size class counts are indicative only with a survey visit count based on torch survey and/or bottle trapping deemed likely to represent anything between 2% and 30% of the adult GCN population present within a target waterbody on a specific date.

105. Anecdotal evidence from consultant ecologists suggests that, over the last 20 years, there have been subtle changes in GCN behaviour, possibly due to higher average winter temperatures that are a consequence of the ongoing ‘climate crisis’.

106. These behavioural changes may result in adult GCN emerging from their terrestrial hibernation / winter dormancy and migrating back to their breeding sites, to commence courtship and egg laying, approx. four to six weeks earlier than previously recorded.

107. This potential change, while not currently scientifically proven, has implications for the species and may create issues for consultant ecologists who undertake traditional GCN aquatic surveys during the mid-March to mid-June survey period, as the maximum number of adult GCN and their leaf folds / eggs at a target waterbody may have passed before traditional survey effort commences.

108. Consequently, at the discretion of the consultant ecologist, consideration should be given to undertaking early traditional GCN aquatic survey effort at a target waterbody from mid-February until mid-June with a minimum of half of the required four or six survey visits scheduled to be undertaken during the period mid-April to mid-May.

109. Any early GCN traditional survey visits undertaken between mid-February and mid-March may be deemed appropriate on the basis that they are carried out during suitable weather conditions. Such conditions would include periods of mild, wet or damp weather, when the minimum overnight air temperature is forecast to stay above 5°C (ideally >10°C) for more than two-three consecutive nights, no recent overnight ground frost, no ice on the target waterbody, no or only light winds.

110. Evidence of other amphibian activity / breeding i.e. common frog or common toad, smooth or palmate newt known or reported to be active in the local area and/or observations or reports of their spawn or eggs may reasonably be used by a consultant ecologist to support a rationale for early GCN traditional survey visits (as would any observations of GCN and/or their leaf folds / eggs at a target waterbody).

111. The data obtained from survey visits undertaken during the period mid-February to mid-March should be acceptable to the licensing authorities providing that a clear rationale for such early GCN survey effort has been detailed and fully justified in the GCN survey report.

GCN Leaf Fold / Egg Search

112. All UK native female newts lay their eggs singly onto the submerged leaves of water or marginal plants and/or other suitable submerged substrate, usually close to the surface and in the shallows around the waterbody margins. With their hind feet, utilising the initially sticky jelly coating of the egg, the female newt creates a leaf fold to hide each egg from predators. On occasion this can result in a distinctive concertina effect, as a leaf may be used repeatedly, folded first one way then the other then back again with eggs hidden within each of the multiple folds.

113. The consultant ecologist should focus the leaf fold / egg search effort on the area approx. 0.5m - 2m from the bank of a target waterbody, in water up to a depth of approximately 1m, with emphasis on the unshaded margins where the sun will warm the water quickly during the day aiding newt egg development.

114. Careful visual and hand examination of aquatic vegetation and unfolding of suspected leaf folds by the Licenced Person or their Accredited Agent can be used to conclusively establish the presence of GCN and/or other newt species in a target waterbody during the survey season (potentially mid-February to mid-June). GCN eggs can be distinguished, from those of palmate and/or smooth newts, by their relative large size (approximately 6-8mm) and their highly distinctive cream / white coloration enabling species specific presence to be established (smooth and palmate newt eggs are usually much smaller 3-4mm and are grey or brown in colour).

115. The GCN leaf fold / egg search should commence at the target waterbody margins identified to receive direct sunlight. Experience indicates that such areas will often contain aquatic / emergent vegetation i.e. stands of Water-forget-me-not *Myosotis scorpioides* or floating sweet grass *Glyceria fluitans* or water mint *Mentha aquatica* all suitable for GCN egg laying. Should GCN be present their leaf folds / eggs are likely to be located in these areas.

116. With sufficient field experience GCN leaf fold / eggs may be found at a target waterbody within minutes of starting the search, albeit under ten seconds is the current record set by a contributor to the GCN SMG 2025.

117. In certain circumstances, for example at a target water body containing no suitable aquatic / emergent vegetation or egg laying substrate, it may be deemed expedient to make and deploy a number of grass ‘fans’ made from a handful of terrestrial grasses approximately 20cm in length collected from the immediate surrounds. Should GCN be present it is highly likely that they will utilise these grass ‘fans’ for egg laying aiding the egg search effort on subsequent survey visits. The grass ‘fans’ may safely be left in-situ at a target waterbody throughout and at the end of the survey period without any issues.

118. Historically, ‘pom-poms’ made from narrow strips, cut from plastic black bin bag liners, have been employed in the same role as grass ‘fans’. However, experience has shown that, while effective, deploying plastic ‘pom-poms’ to aid egg search effort is problematical for a number of reasons including:

- with eggs present they cannot be removed from a target waterbody,
- members of the public may view them as litter and remove them,
- waterfowl may incorporate them into their nests,
- they are not degradable and their deployment is not environmentally acceptable.

119. When GCN eggs have been identified as present at a target waterbody (establishing GCN presence and that a waterbody is a breeding site for the species) no further egg search effort is required and therefore no further inspections of leaf folds should be undertaken.

120. Any unnecessary disturbance to leaf folds could result in egg predation and/or reduce viability of the embryo as a consequence of exposure to direct sunlight (ultraviolet radiation) or inadvertent damage to the egg jelly coating or the developing embryo when unfolding the leaf fold.

121. All disposable field kit items e.g. the vinyl gloves used at a target waterbody during leaf fold eggs search efforts must be securely bagged by the Licensed Person or Accredited Agent leading the survey for appropriate disposal in accord with the procedures detailed in Biosecurity Advice Note 4.

Link: GCN Training leaf fold and newt egg identification & submit a question or a photograph for assistance with species identification
https://gcntraining.co.uk/newt-identification-cards

Link: Video of a female GCN laying eggs onto a discarded plastic bag
https://m.youtube.com/watch?si=3WqCWsYoLteJcu4w&embeds_referring_euri=https%3A%2F%2Fwww.google.com%2F&source_ve_path=MTY0OTksMjg2NjQsMTY0NTA2&v=WkhJEaH5FCQ&feature=youtu.be

Hand Netting

122. This method may be useful in confirming GCN presence within a target waterbody. However, it should not be regarded as particularly reliable because adult GCN and their larvae can easily evade capture, especially in deep, large, difficult to access and/or densely vegetated waterbodies.

123. Hand netting (as practicable) can be used in conjunction with two of the other traditional survey methods to deliver the required survey effort requirement of three survey methods to be undertaken at a target waterbody on each survey visit.

124. Care must be taken by the Licensed Person or the Accredited Agent when hand netting to not inadvertently damage or cause disturbance to areas of submerged aquatic vegetation which may contain GCN eggs or newly emerged GCN larvae (which are highly susceptible to injury and may be killed, by excessive hand netting efforts).

125. Hand netting effort at a target waterbody between July and September may, on occasion, result in the capture of well-developed GCN larvae (which are less susceptible to injury) such captures can be used to establish GCN presence at a target waterbody.

126. Hand netting efforts at a target waterbody between October and February that results in the capture of overwintering GCN larvae would also establish GCN presence and successful breeding.

127. It is important to understand that GCN likely absence at a target waterbody cannot be established or inferred by hand netting efforts undertaken outside of the mid-February to mid-June period, that result in no GCN captures.

128. Consultant ecologists should be aware that any non-native species including Alpine newt *Ichthyosaura alpestris* captured during netting at a target waterbody must not be released back into the 'wild' and should be humanely dispatched or taken into secure captivity in accord with the GCN survey licence terms and conditions.

129. Hand nets should be cleaned in accord with the procedures detailed in Biosecurity Advice Note 4.

Link: GCN Training 2025 newt identification also submit a question or a photograph for assistance with species identification
https://gcntraining.co.uk/newt-identification-cards

Torch Survey

130. The torch survey method, using 1-million candlepower torches, is a reliable and widely used method employed by consultant ecologists to establish GCN presence / likely absence and population size class counts at a target waterbody.

131. A torch survey should ideally commence approximately 1 hour after sunset, when the sky has become dark, potentially earlier if the sky is very cloudy / overcast. During each torch survey visit the entire margins of a target waterbody should, as practicable, be walked at a steady pace, by two ecologists with one surveying the water and the other recording results, or each ecologist surveying half of the pond (depending on health and safety considerations).

132. The shallows, to a distance of approximately 3m out from the bank, should be subject to torch survey effort, ideally without the ecologists entering the water, as this would likely disturb GCN, resulting in them taking cover in the silt/substrate or deeper water and potentially evading detection.

133. Air temperature should be 5 °C or above at sunset with no more than minimal light rain and no more than a breeze/light wind. Weather conditions should be recorded on every survey visit. Note data indicating <5 °C will trigger a GCN mitigation licence application survey limitation warning.

134. Water turbidity on a scale of 1 – 5 must be recorded (with 1 clear and 5 no visibility). A turbidity score of more than 3 will trigger a GCN mitigation licence application survey limitation warning.

135. Aquatic vegetation cover on a scale of 1 - 5 must be recorded (with 1 clear and 5 no visibility). Aquatic vegetation scores of more than 3 will trigger a GCN mitigation licence application survey limitation warning.

136. A running total should be kept by each ecologist of GCN males, females, any unidentified newts and larvae observed. The totals should be collated / recorded before moving onto the next target waterbody.

137. Smooth and palmate newt and other amphibians (numbers, sex and life stage) should also be recorded by the consultant ecologists during the torch survey and included in the GCN survey report.

Link: GCN Training 2025 newt identification and submit a question or a photograph for assistance with species identification https://gcntraining.co.uk/newt-identification-cards

Bottle Trapping

138. It is often not appreciated by consultant ecologists that when bottle trapping was originally introduced as a GCN aquatic survey method it was originally intended that it would only be used in 'exceptional circumstances'. The original intent was based on animal welfare concerns and the implications associated with the use of submerged bottle traps to purposely capture GCN / other newts, which are air breathing animals.

139. For a variety of reasons, despite the original intent, and the introduction of the Animal Welfare Act 2006, bottle trapping rather than being used exceptionally became embedded as a standard and frequently used GCN aquatic survey method across the ecology sector.

140. Despite misgivings and animal welfare concerns raised by consultant ecologists and anecdotal evidence of potential harm to amphibians and other species caught in bottle traps deployed during the last 25 years, it remains an accepted licensed GCN aquatic survey method.

141. It should be noted that other forms of potentially safer aquatic GCN funnel / box traps have been designed over the years. However, their use needs to be specifically licensed by the licensing authorities. Such alternative designs are only very rarely (if ever) used by consultant ecologists undertaking traditional GCN surveys in relation to development.

142. Research indicates that in extremis the Italian crested newt *Triturus carnifex* can create oxygen within their liver using a process known as Oxygenogenesis, potentially allowing individuals to survive and recover if subjected to extreme hypoxia. It is considered likely that GCN and other newt species also have this ability. The implications of this research, in the context of bottle trapping, have not yet been fully considered by the ecology sector.

143. Bottle trapping may be deemed appropriate at a target waterbody where the water is very turbid or dense vegetation restricts visibility. It can be used to establish GCN presence or likely absence and has historically been employed in population size class counts. Bottle trapping enables identification of newt species, sex and life stage and may also help to establish the presence of other amphibians and small fish e.g. three-spined stickleback *Gasterosteus aculeatus aculeatus* at a target waterbody.

144. It is important to understand that GCN population counts, using bottle traps, are inherently unreliable. Such counts are considered, at best, to represent between 2% and 30% of the adult GCN population present within a waterbody on a specific date. This level of uncertainty (despite the considerable survey time, effort and cost expended) suggests that bottle trap GCN count data may be of limited value.

145. The number of bottle traps deployed at and retrieved from each target waterbody must always be carefully and accurately recorded. Bottle traps and the plastic canes used to fix them in position should always be counted out when deployed and counted back in on their retrieval (by both persons undertaking the survey). It should be understood that attention to detail and a pedantic approach to the count is necessary to prevent a lost bottle trap becoming a 'Death Trap'.

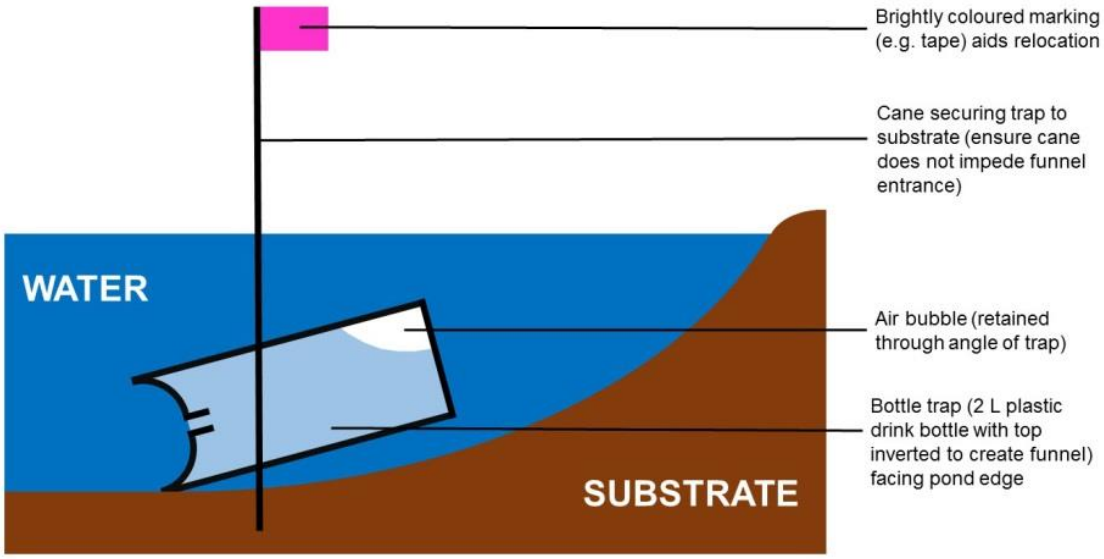
146. Made of a durable food grade polyurethane plastic, if lost, a bottle trap will catch and kill GCN and other animals (potentially for many years). A lost bottle trap

will continue to catch GCN and other species until it is physically full of animal corpses or it is removed from a target waterbody. Such events have historically occurred in England, Wales and Scotland, when/if discovered a lost bottle trap should be reported to the relevant licensing authority and potentially the police.

147. Based on a precautionary approach / animal welfare grounds and in line with the original intent, the contributors to the GCN MG 2025 advise that bottle trapping should only be used by consultant ecologists, as a GCN survey method, in 'exceptional circumstances' when the use of other aquatic survey methods at a waterbody are not possible or deemed appropriate. There should be a clear and demonstrable need for their use.

148. All GCN survey reports prepared by consultant ecologist should detail the specific 'exceptional circumstances' that required bottle traps to be deployed and include a clear rationale / justification for their use.

149. Bottle traps should always be set **fully submerged** at an approximately 45 degree angle to the upright plastic cane with the funnel entrance positioned close to the substrate forming the base of the waterbody. The traps should be set (with an air bubble) at 2m intervals around the margins of the waterbody (while still light, during the early evening). The trap entrance should be clear of vegetation or other obstructions and face towards the centre of a target waterbody.



150. Where areas of a target waterbody are inaccessible due to steep sides, deep water / silt or overhanging trees, etc., the bottle traps may, if practicable to do so, be set in random transects, utilising the same number of traps as for a 2m intervals whenever possible (30 traps for a 60m circumference).

151. Bottle trapping should not be used at a waterbody where there are health and safety concerns i.e. steep banks and deep water / silt or where there is a risk of vandalism or disturbance of traps from cattle or other animals or members of the public.

152. Bottle traps should be set with an air bubble and should not be deployed for any longer than 17 hours. They should be retrieved between 06.00 and 10.00 hours the following morning.

153. Bottle trap retrieval should involve at least one of the ecologists who deployed them the previous evening. This will help to ensure that all the traps set are located and retrieved with none lost and left behind.

154. Any GCN deaths in a bottle trap must be reported immediately to the licensing authority by the Licensed Person or the Accredited Agent leading the survey. In the event that a GCN death occurs or they are found unconscious but appear to recover after release from the trap then bottle trapping must be suspended and the licensing authority contacted for advice.

155. If the Licensed Person or the Accredited Agent considers that there is a possibility of capturing protected species such as water shrews *Neomys fodiens* or in the event that protected species other than GCN are trapped then the bottle trapping effort should be halted.

156. It will be at the discretion of the Licensed Person or their Accredited Agent undertaking the survey to decide if the deployment of bottle traps is appropriate and under what circumstances to suspend or halt their deployment at a target waterbody. Any suspended or halted bottle trapping effort should be justified within the GCN survey report.

157. The loss of a bottle trap at a target waterbody (following all reasonable efforts to locate / retrieve it) must be recorded by the Licensed Person or their Accredited Agent. The record should include waterbody location, survey visit date, circumstances resulting in its loss and attempts made to recover it. The loss of a bottle trap at a target waterbody must be reported to the relevant licensing authority at the earliest opportunity.

158. In accord with the procedures detailed in Biosecurity Advice Note 4 on completion of trapping the bottle traps and plastic canes should be cleaned with water from the target waterbody, with care taken to ensure silt, mud, plant debris, aquatic invertebrates etc. are removed and returned to the water. The traps and canes should be wiped clean with disposable disinfectant wipes. When deemed clean they should be secured for transit and storage. All disposable field kit i.e. disinfectant wipes & vinyl gloves must be securely bagged for appropriate disposal.

159. A full set of bottle traps and plastic canes should be allocated to each target waterbody for the duration of the four – six survey visit period. Ideally they should not be deployed at any other waterbodies during the survey season. Should bottle traps and plastic canes be required to be re-used at other target waterbodies they must first be disinfected by ensuring their complete immersion in a 4% bleach solution for a minimum of 5 minutes before rinsing with clean water (waste water/bleach solution must be disposed of via the connection to the main drain which links to the local water treatment plant) then allowed to air dry.

Link: Oxygenogenesis - The Dynamics of Hepatic Melanogenesis in Newts in Recovery Phase from Hypoxia © Frangioni et al.; Licensee Bentham Open.
https://img1.wsimg.com/blobby/go/16cbc21b-e74b-4442-9465-d2e986160b14/downloads/Oxygenisis%20-%20Zoology%20Journal.pdf?ver=1720962725668

Link: An evaluation of aquatic funnel traps for great crested newt surveys (Triturus cristatus) Neil Madden & Robert Jehle> https://www.thebhs.org/publications/the-herpetological-journal/volume-23-number-4-october-2013/726-10-farewell-to-the-bottle-trap-an-evaluation-of-aquatic-funnel-traps-for-great-crested-newt-surveys-i-triturus-cristatus-i/file

Link: Plastic garden canes for use with bottle traps.
https://www.gardenskill.com/webshop/plant-supports/plant-stakes/plant-stake-bundles-1-8m-71/

The Humane Dispatch of Non-Native Amphibians

160. Consultant ecologists should understand that any non-native amphibian species, including Alpine newt captured during licensed activities, must not be released back into the 'wild' and should be humanely dispatched or taken into secure captivity in accord with GCN survey licence conditions. Any failure to comply with a GCN survey licence terms and conditions may invalidate the licence and result in a breach of GCN legislation.

161. Natural England have stated that they employ and are of the view that cranial decapitation, in conjunction with the use of clove oil in water (as an anaesthetic) represents an appropriate and humane method for dispatching Alpine newts captured during a GCN survey. Many consultant ecologists have ethical concerns with this approach and the level of experience required to carry it out effectively.

162. It should be noted that the dispatch of individual non-native amphibians may be of limited value if the source population is not to be targeted for eradication. It is suggested that consultant ecologists raise their concerns directly with Natural England and that they seek guidance from Natural Resources Wales and/or NatureScot regarding their official stance on the humane dispatch of non-native amphibians.

163. The contributors to the GCN SMG 2025 are predominantly of the view that the humane dispatch of a non-native amphibian should be undertaken by a trained and experienced person such as a veterinarian or other animal specialist at a local animal rescue centre. The humane dispatch of non-native amphibians, given their physiology and biology, poses a number of practical difficulties and may raise personal ethical and moral issues that should be considered by a consultant ecologist at an early stage in their career.

Table 1 below details the GCN aquatic survey effort required to be undertaken at a target waterbody in order to appropriately inform the GCN impact assessment and support a GCN conventional /development mitigation licence application.

Table 1: GCN Survey Requirement and Acceptable Age of Data

Impact type and location	**Potential terrestrial habitat - loss or damage (ha)**	**Presence/ likely absence survey**		**Population size class assessment**	**HSI**	**Maximum age of survey data (# breeding seasons)**
Permanent habitat loss or damage						
Pond(s) and/or non-flowing ditches lost or damaged, with or without other habitat loss or damage	≥0	YES		YES	YES	2
No ponds and/or non-flowing ditches lost or damaged, development within 50m of nearest waterbody	≤0.01	YES		NO	YES	3
	>0.01	YES		YES	YES	2
No ponds and/or non-flowing ditches lost or damaged, development 50-100m from nearest waterbody	≤0.2	YES		NO	YES	3
	>0.2	YES		YES	YES	2
No ponds and/or non-flowing ditches lost or damaged, development 100-250m from nearest waterbody	≤0.5	YES		NO	YES	4
	>0.5	YES		YES	YES	3
No ponds and/or non-flowing ditches lost or damaged, development >250m from nearest waterbody (NB see notes)	≤5	YES		NO	YES	4
	>5	YES		NO	YES	3
Temporary habitat loss or damage						
Pond(s) lost or damaged, with or without other habitat loss or damage	≥0	YES		YES	YES	2
No ponds and/or non-flowing ditches lost or damaged, development within 50m of nearest waterbody	≤0.05	YES		NO	YES	3
	>0.05	YES		YES	YES	3
No ponds and/or non-flowing ditches lost or damaged, development 50-100m from nearest waterbody	≤0.5	YES		NO	YES	4
	>0.5	YES		YES	YES	3
No ponds and/or non-flowing ditches lost or damaged, development >100m from nearest waterbody	≤5	YES		NO	YES	4
	>5	YES		NO	YES	4

Example: Survey of target waterbody undertaken in 2023 between April and June. Application submitted in Autumn 2025 using the 2023 survey data. The survey supporting the application would not suffice and the 2023 survey data is actually 3 survey seasons old by Autumn 2025 (i.e. 1st survey season = 2023, 2nd survey season = 2024 and 3rd survey season = 2025). If the application had been submitted in March/April or even May 2025 it may have been acceptable if fully justified why no further survey effort was required.

GCN Terrestrial Survey

164. Consultant ecologists and developers should understand that the purpose of the terrestrial GCN survey licence is specifically to allow GCN presence / likely absence terrestrially at a Site to be lawfully established between February and October (weather dependent).

165. A terrestrial GCN survey cannot be undertaken during the GCN winter hibernation / dormancy period which encompasses November to January (weather dependent).

166. A terrestrial GCN survey, in relation to a Site, would only be appropriate and proportionate in very specific circumstances. Consequently, such surveys should only very rarely be recommended by consultant ecologists and then only when the following conditions are met:

- Access to all the target waterbodies has been denied by the relevant landowner/s,
- All other GCN survey data options have been considered and discounted,
- All possible GCN mitigation strategy options (licensed and non-licensed) have been considered and discounted,
- Where a clear overriding need to obtain GCN presence / likely absence data for a Site remains.

167. The consultant ecologist must be registered to use or must hold the Country specific GCN terrestrial survey licence in England, Wales or Scotland to lawfully undertake a GCN terrestrial survey. The licence terms and conditions must be strictly adhered to.

168. A standard terrestrial GCN survey would involve the short-term installation of 20m of upright temporary amphibian fencing (TAF) and the installation of 15 pitfall traps at the target Site. TAF and pitfall traps must only be in place for a maximum period of 20 consecutive nights.

169. If pitfall traps are used in areas where shrews occur, the traps must be designed to allow shrews, voles and mice to escape and/or a specific shrew trapping licence be obtained.

170. It is not permissible to ring fence a waterbody as part of a terrestrial GCN survey.

171. To minimise the risk of predation by birds i.e. jackdaws, crows, magpies etc… the pitfall traps should be checked daily by the Licensed Person or their Accredited Agent at sunrise.

172. The capture of any individual GCN during the 20-night survey period will conclusively establish presence of the species at a Site.

173. The capture of a GCN at any point during the 20-night survey period will require that the terrestrial survey effort be immediately halted and all the TAF and pitfall traps removed.

174. The licensing authority must be notified at least five working days prior to the installation of any TAF and pitfall traps at a Site under the terms of a terrestrial survey licence.

175. The GCN terrestrial survey licences issued in England, Wales and Scotland are not intended and should never be used, to justify actions that result in the deliberate movement of individual GCN their eggs or larvae from a Site, in order to facilitate proposed development works or activities. Any such deliberate actions would invalidate the survey licence and result in a breach of GCN legislation.

GCN Detection Dog Teams

176. Due to their strong olfactory senses, ability to cover large areas in short timeframes as well as displaying non-invasive indications, GCN detection dogs have been trained in the UK since 2011. Detection dogs have been used as a standalone method as well as complimenting traditional GCN capture methods to assist in the translocation of GCN under the terms and conditions of European Protected Species Licences. Detection dogs have also been used to undertake precautionary searches at a Site where the risks of finding GCN are deemed to be low due to size of the area being impacted and/or the distance of a Site from a waterbody.

177. Unlike traditional methods which relies on suitable climatic conditions, chance encounters and easy visibility, detection dogs are able to locate GCN in a variety of terrestrial habitat such as woodland, grassland and scrub habitat, log piles, rock piles, hedgerows, mammal burrows, stone walls, rocky crevices etc (Grimm-Seyfarth 2022; Stanhope and Sloan 2019; Glover et al., 2023). Detection dogs have scientifically been proven to detect GCN through soil and at a 2-metre channelled distance perception in summer conditions (Glover et al., 2023).

178. Professionally trained detection dogs have been scientifically proven to outcompete an experienced human hand-searcher in controlled field trial experiments (Glover 2023a unpublished) And can also distinguish between GCN and other common amphibian species (Glover 2023a unpublished).

179. It is important to note that environmental factors such as temperature, humidity, vegetation density and soil type as well as handler experience and detection dog ability may influence detection success probability (Glover et al., 2023 and Grimm-Seyfarth 2022). The detection dog teams chosen to perform searches should therefore be equipped with the knowledge and experience required to perform effective GCN searches.

180. Detection dog teams that have not received adequate training and third-party assessments before operational deployment could result in GCN misses as well as become a danger to wildlife, livestock, public, co-workers and themselves. Further detailed guidance on detection dog team standards can be found via the Link provided below.

181. It is important to note that detection dog teams can prove presence but assessing GCN population size or densities terrestrially at a Site is not currently possible given the distance that GCN may disperse from their breeding waterbodies (Jehle 2000).

182. In order to train detection dogs to locate GCN, a specific GCN licence is required to be obtained from the relevant licensing authority to permit this activity. It is important that detection dog teams are able to demonstrate that their dogs have been trained under the relevant licence before being deployed.

183. In certain circumstances the consultant ecologist may deem it appropriate to use a GCN detection dog team to support terrestrial survey effort. The implications associated with commissioning a professional GCN detection dog team, must be discussed with the developer prior to recommending or commissioning such effort.

184. When a GCN has been found at a Site by the detection dogs (establishing GCN presence) no further dog search effort is required and search efforts should be halted.

185. The use of GCN detection dogs may complement GCN terrestrial survey effort. However, detection dogs cannot currently be used by themselves as a survey method that will definitively establish GCN likely absence at a Site.

186. The deployment of a detection dog team, to locate GCN sheltering terrestrially at a Site, will need to be overseen by a Licensed Person under the terms and conditions of a GCN survey licence.

187. The use of detection dogs under a GCN survey licence will not permit GCN to be moved to facilitate development related works, unless there is also a Site specific GCN mitigation licence / method statement already in place that authorises the lawful capture, removal and exclusion of GCN from a Site.

Link: Great crested newts: survey or research level 1 licence (CL08).
https://www.gov.uk/government/publications/great-crested-newts-survey-or-research-licence-level-1.

Link: Great crested newts: survey or research level 2 licence (CL09).
https://www.gov.uk/government/publications/great-crested-newts-survey-or-research-licence-level-2.

Link Wales great crested newt licences for surveys and conservation work
https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/great-crested-newt-licences-for-surveys-and-conservation-work/?lang=en

Link: Scotland Newts and toads licences for surveys and research
https://www.nature.scot/professional-advice/protected-areas-and-species/licensing/species-licensing-z-guide/great-crested-newts-natterjack-toads/newts-and-toads-licences

Link: Possessing great crested newts for the purpose of detection dog training Guidance document to inform licensing (August 2023). © Copyright ADDC 2023
https://theaddc.org/wp-content/uploads/2023/08/Possessing-great-crested-newts-for-the-purpose-of-detection-dog-training-2023-Published.pdf

Link: Glover NJ, Wilson LE, Leedale A, Jehle R (2023) An experimental assessment of detection dog ability to locate great crested newts (*Triturus cristatus*) at distance and through soil. PLoS ONE 18(6): e0285084. © 2023 Glover et al.
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0285084

4.0: The GCN Impact Assessment

188. A GCN impact assessment relies on the consultant ecologist having a good understanding of GCN ecology, habitats, biology and behaviour (often gained through experience of development related projects were the species has been a constraint).

189. The GCN impact assessment should identify the development impacts in the absence of any mitigation measures.

190. To appropriately inform a GCN impact assessment the survey data used should reflect the status of GCN at a Site and inform consideration of terrestrial habitat availability at a Site.

191. Table 2 below outlines the key opportunities for GCN offered by widely encountered terrestrial habitats and their potential suitability for GCN.

Table 2: GCN Terrestrial Habitat Suitability

GCN Opportunities	Example Habitats	Suitability for GCN
No shelter/hibernation sites No foraging habitat No habitat connectivity Complete barrier to GCN dispersal	Extensive areas of intact hard standing Compacted sports field Built environs Industrial/commercial sites	Negligible
No shelter/hibernation sites Limited foraging habitat No/restricted habitat connectivity Significant barriers to GCN dispersal	Compacted hard-standing Intensively managed farmland Closely mown amenity grassland School playing field Industrial/commercial sites	Poor
Limited availability of shelter sites No obvious hibernation sites Some foraging habitat Restricted habitat connectivity Restrictions/barriers to GCN dispersal	Managed arable farmland High density grazing Intensively managed grassland Areas of formal planting Industrial/commercial sites	Below average
Some shelter and hibernation sites Some foraging habitat Some habitat connectivity Some barriers to GCN dispersal	Managed semi-improved grassland Grazed pasture Infrequently mown grassland Hedgerows narrow buffer zone Railway embankments Brownfield sites abandoned <5yrs Gardens	Average
Shelter and hibernation sites Varied foraging habitat Habitats linked/connected Few barriers to GCN dispersal	Unimproved grassland Unmanaged semi-improved grassland Mature hedgerows wide buffer zone Low density grazing Established gardens Brownfield site abandoned >5yrs	Above average
Range shelter & hibernation sites Varied and diverse foraging habitat Habitats connected Few/no barriers to GCN dispersal	Rough/tussocky grassland Areas of scrub New woodland Organically managed farmland Railway embankments Mature gardens Allotments Mineral workings	Good
Widespread shelter and hibernation sites Extensive varied and diverse foraging habitat Habitat extensive and well connected No barriers to GCN dispersal	Mature deciduous woodland Managed wildlife areas/reserves Old abandoned mineral workings	Excellent

192. The impact assessment should consider the Quantitative, Qualitative, Functional and Contextual implications of proposed development on the GCN population associated with a Site and the local area with due consideration for the specific points below:

Quantitative:

- The number of waterbodies identified to be extant or potentially extant located at or <250m of a Site.
- The likely GCN population size class of any GCN population/s potentially associated with extant or potentially extant waterbodies located at or <250m of a Site.
- The extent in hectares (ha) and the relative suitability for GCN of terrestrial habitat/s on a Site and <250m of the Site boundary (categorised from 'Very Poor' to 'Excellent').

Qualitative:

- Does GCN breeding occur on a Site and/or at any waterbodies located <250 m of the Site boundary.
  The GCN HSI assessment score/s of waterbodies located on a Site and/or <250m of the Site boundary.
- How typical or unusual are the GCN populations or metapopulation (categorised by the survey peak count/s as 'small' or 'medium' or 'large' and deemed to be associated with the Site) in the local area.
- Consider data from the Local Biological Records Centre and/or the Multi-Agency Geographic Information for the Countryside (Magic) website to help inform a view on GCN distribution in the local area based on historic GCN survey data.
- The local and wider area waterbody density may be obtained from OS and aerial imaging and can reasonably be used to inform potential GCN population distribution and the possible presence of GCN metapopulations in areas where numerous, potentially suitable waterbodies (ponds and/or non flowing ditches) occur within 1km of each other.
- In England, the NE GCN Risk Zone or the NSP GCN Risk Zone mapping dataset may be used to assess / indicate likely typical GCN population distribution in the local area (the GCN population size is reasonably likely to classed be 'Medium in Amber Risk Zones and 'Large' in Red Risk Zones).

Functional:

- How does a Site contribute to the connectivity or fragmentation of GCN population/s in the local area.
- Are GCN likely to disperse across and/or through the Site to reach neighbouring terrestrial and/or aquatic habitats
- Are GCN likely to be located terrestrially within shelter, hibernation, foraging habitat/s and features at a Site and/or within 250m of a Site boundary.
- Is the population identified to be associated with a Site considered likely to be isolated with little/no movement of individual GCN between other GCN populations potentially located in the local area
- Is the population identified to be associated with a Site considered likely to form part of a metapopulation with frequent / regular movement of individual GCN between other populations potentially located in the local area.

Contextual:

- The local and wider area significance of the GCN population identified to be associated with a Site
- The likely importance of the GCN population associated with a Site in respect of its genetic value to other GCN populations located within the local area.
- The likely importance of the Site and the associated GCN breeding, shelter, hibernation, foraging and dispersal opportunities it offers to other GCN population/s potentially located within the local area.

- While open to interpretation on a 'case by case' basis: A 'Small' GCN population may generally be deemed to be of relatively low importance
- A 'Medium' GCN population may generally be deemed to be of relatively moderate / medium importance
- A 'Large' GCN population may generally be deemed to be of relatively high importance

Aquatic Impacts

193. Aquatic impacts on GCN should be assessed by the consultant ecologist on the basis of Permanent Impacts and Temporary Impacts on the target waterbodies confirmed or considered likely to support GCN.

194. Permanent Impacts and Temporary Impacts should also be assessed for any other target waterbodies, where no GCN have been recorded as present or no survey was undertaken, but where they had good habitat connectivity to other target waterbodies (confirmed or considered likely to support GCN). Specific impacts to consider include:

- The number of waterbodies to be lost.
- The area (in hectares) of aquatic habitat loss.
- The number of waterbodies to be damaged.
- The area (in hectares) of aquatic habitat damage.
- Any loss or damage to habitat connectivity with other waterbodies in the local and/or wider area.
- The area of each waterbody should be calculated by measuring or estimating the extent of the water level at the winter maximum.

Terrestrial impacts

195. Site level terrestrial impact on GCN should be assessed by the consultant ecologist on the basis of Permanent Impacts and Temporary Impacts and relate specifically to Immediate, Intermediate and Distant terrestrial habitats. Consideration should be given to habitat type i.e. arable farmland or feature i.e. hedgerow and the area (in hectares) to be impacted, with regard for their distance from the target waterbody or waterbodies identified to support or likely to support GCN breeding.

- Core or immediate GCN terrestrial habitat located <50m from a waterbody.
- Intermediate GCN terrestrial habitat located >50m - ≤250m from a waterbody.
- Distant GCN terrestrial habitat located >250m from a waterbody.

196. Specific areas and habitats may be excluded from the GCN impact assessment and area calculations if they are substantially isolated by barriers to GCN dispersal and highly unlikely to be used by GCN. Other areas may also be excluded from the GCN impact assessment if, for any reason, that they are

considered highly unlikely to be used by GCN and the rationale for their exclusion is fully detailed.

The Predicted Scale of Impact

197. Table 3 below broadly summarises Habitat Features and the most commonly encountered Development Effects on Habitat and indicates the predicted scale of impact on GCN based on a scale of 'Low' 'Medium' or 'High'. In general, the higher the level of the predicted impacts, the greater the requirement for the implementation of GCN mitigation and habitat compensation measures.

198. When considered in combination with the GCN Impact Assessment findings Table 3 may reasonably be used by a consultant ecologist to determine the requirement for a GCN conventional mitigation licence to be obtained or if the implementation of a non-licensed GCN mitigation strategy would be appropriate, proportionate and defensible. In general, a predominantly medium or any high predicted scale of impact on GCN would indicate that a GCN mitigation licence is likely to be required in order to allow the proposed activity at a Site to proceed lawfully.

199. The contents of Table 3 Scale of Impact are fixed and the text and check marks: ✓ must not be altered or moved. Rows may be highlighted, to indicate the specific features, effects and impact levels that apply.

Table 3: Scale of Impact

Habitat Feature	**Development Effect on Habitat**	**Predicted Scale of Impact on GCN**		
		Low	**Medium**	**High**
Confirmed GCN breeding waterbody	Destruction			✓
	Isolation caused by fragmentation			✓
	Partial destruction - modification		✓	
	Temporary disturbance	✓		
	Post-development interference			✓
Other waterbody	Destruction		✓	
	Isolation caused by fragmentation		✓	
	Partial destruction; modification	✓		
	Temporary disturbance	✓		
	Post-development interference	✓		
Core or Immediate Terrestrial Habitat: less than 50m from a GCN breeding waterbody or other waterbody identified to be potentially used by the species	Destruction			✓
	Isolation caused by fragmentation			✓
	Partial destruction		✓	
	Modified management, resurfacing		✓	
	Temporary disturbance	✓		
	Post-development interference		✓	
	Temporary-destruction, reinstatement	✓		
Intermediate Terrestrial Habitat: at a distance of 50m up to 250m from a GCN breeding waterbody or other waterbody identified to be potentially used by the species	Destruction		✓	
	Isolation caused by fragmentation		✓	
	Partial destruction	✓		
	Modified management, resurfacing	✓		
	Temporary disturbance	✓		
	Post-development interference	✓		
	Temporary-destruction, reinstatement	✓		
Distant Terrestrial Habitat: more than 250m from a GCN/breeding waterbody or other waterbody potentially used by the species	Destruction	✓		
	Isolation caused by fragmentation	✓		
	Partial destruction	✓		
	Modified management, resurfacing	✓		
	Temporary disturbance	✓		
	Post-development interference	✓		
	Temporary-destruction, reinstatement	✓		

Pre and Mid Development Impacts

200. There are a number of activities which can impact GCN prior to the start of and during development. These may include ground investigation works, archaeological investigations, vegetation removal, clearance of fly tipped / abandoned material, Site compound / storage area creation / operation. Also any activities that result in significant ground disturbance such as soil strip / regrading / spoil mound creation, excavations i.e. installation of foundations, access tracks / roads / drainage works and connection to services.

Example 1: Vegetation clearance and archaeological investigations in Area A would kill and injure GCN, and damage core refuge sites, close to Pond 1 with a predicted 'Medium' negative impact on the GCN population.

Example 2: Development in Area A including soil strip and excavation / levelling works will damage predominantly intermediate terrestrial habitat offering GCN with mainly foraging opportunities (comprising arable farmland) with a minor 'Low' to 'Medium' negative impact on the population.

Development in Area B is likely to kill/injure GCN and at the Site level will result in the loss/ damage of core GCN refuge sites and foraging and dispersal habitat (comprising predominantly scrub/tall herbs) close to Ponds 1 & 2 with a 'High' to 'Medium' negative impact on the population.

Development in Area C is likely to kill/injure GCN and at the Site level will result in the loss of GCN shelter, foraging and dispersal habitat (comprising predominantly rough grassland) close to Ponds 1 & 2 with a 'High' to 'Medium' negative impact on the population.

The removal of 10 metres of existing hedgerow on the sites northern boundary (to create the site access road) will result in the loss of intermediate shelter, foraging and dispersal habitat with a predicted 'Low' negative impact on the GCN population.

Long-Term Impacts

201. Long term impacts such as habitat loss, fragmentation, isolation, habitat modification and/or increased levels of interference includes the loss of onsite waterbodies, construction of new buildings, roads, creation of public open spaces with areas of hardstanding and amenity grassland with a loss or reduction in the availability of habitat offering GCN with suitable breeding and/or shelter, hibernation, foraging and dispersal opportunities.

Example 3: Major impact due to loss of the onsite pond that supports a medium population of GCN. Without mitigation the loss of the pond is predicted to have a significant 'High' negative impact on the GCN population.

Example 4: Development and construction at the Site of plots in Area A will result in the permanent loss of arable farmland resulting in a loss of potential GCN foraging opportunities and will increase habitat fragmentation at the Site level and create a dispersal barrier between Ponds 1 and 2 with a 'Medium' to 'High' negative impact on the population.

Development and construction of plots in Area B is likely to kill/injure GCN and will result in a reduction of core refuge sites and foraging and dispersal habitat comprising predominantly scrub/tall herbs close to Ponds 1 & 2 with a ' 'Medium' negative impact on the population.

Development and construction of plots in Area C is likely to kill/injure GCN and will result in a reduction of core refuge sites and foraging and dispersal habitat comprising predominantly rough grassland close to Ponds 1 & 2 with a ‘High’ to ‘Medium’ negative impact on the population.

The loss of 10m of hedgerow on the Sites northern boundary is predicted to have only a minor ‘Low’ negative impact on the population. It is proposed that Pond 1 (a GCN

breeding site) will be ring fenced and that any GCN present will be captured and moved to a receptor site, prior to development commencing, then excluded from this pond during the construction period, this impact has been deemed to be temporary aquatic damage and will have a predicted minor ‘Low’ impact on the GCN population.

Post-Development Interference Impacts:

202. Post-Development Interference Impacts would include any predicted increase in the level of activity or recreational use of areas retained at or adjacent the Site by the residents and pets (cats /dogs) of new residential housing at a Site.

Example 5: Major increase in risk of fish and invasive aquatic plant introduction due to creation of large residential development adjacent to the proposed two new onsite ponds and offsite ponds located adjacent public footpaths with a predicted ‘High’ negative impact on the GCN population.

Example 6: Post-development, the presence of 175 new dwellings at the site will result in a major increase in the risk of human interference impacts on GCN and aquatic / terrestrial habitats both at and neighbouring the Site. These impacts potentially include increased risk of road / drainage-related injury to GCN and other amphibians and increased levels of direct or ambient light, fish and/or water fowl introduction into existing and/or new GCN breeding pond/s, disturbance / damage of aquatic and/or terrestrial habitats and/or wildlife, accidental or deliberate introduction of non-native or invasive species and pollution incidents, with a predicted ‘Medium’ to ‘High’ negative impact on the GCN population.

Other Impacts:

203. Other impacts would include any permanent or significant change in the water levels at waterbodies retained at or adjacent the Site.

Example 7: Reduced water table due to altered local hydrology when development is complete. Increased early waterbody desiccation, resulting in lower breeding success with a predicted ‘High’ negative impact on the GCN population.

Example 8: Changes to the water table due to altered local hydrology when development is complete. Waterbody no longer occasionally dries out and retains water permanently at an increased depth, resulting in likely fish colonisation and no GCN breeding success with a predicted ‘Medium’ to ‘High’ negative impact, with the possible localised extinction of the GCN population at the Site level.

The Multi-Agency Geographic Information for the Countryside (MAGIC)
https://magic.defra.gov.uk/

Natural England GCN Impact Assessment Planning Guidance 2022
https://www.gov.uk/guidance/great-crested-newts-advice-for-making-planning-decisions#assess-the-effect-of-development-on-gcn

NatureScot GCN Standing Advice for Planning © NatureScot 2020
https://gcntraining.co.uk/naturescot-gcn-standing

5.0: The GCN Mitigation Strategy

204. There has been a divergence in the approach to GCN mitigation taken by Natural England from that adopted by Natural Resources Wales and NatureScot. This has created a number of licensed GCN mitigation strategy options and non-licensed GCN Reasonable Avoidance Measures (RAM) and amphibian Best Practice Measures (BPM) that initially may appear confusing.

205. It is for the developer, with advice from their consultant ecologist, based on an assessment of the risk of encountering GCN and the predicted level of impact, to decide if a GCN mitigation strategy employing a licensed approach or a non-licensed approach using GCN RAM or amphibian BPM is appropriate at a Site.

206. The importance of early discussions, between the consultant ecologist and the developer, regarding the relevance of the various GCN mitigation strategy options available for a Site, before any GCN survey effort is recommended, commissioned or undertaken, cannot be overstated.

207. Where planning permission is required for a Site, it is for the local planning authority (LPA) to determine if the licensed or the non-licensed GCN mitigation strategy proposed at a Site is acceptable and if the GCN mitigation measures proposed should be secured via planning conditions.

208. In respect of a GCN mitigation licence application submitted in relation to a Site it would be for the licensing authority based on set criteria and the information provided by the consultant ecologist and developer to determine if a GCN mitigation licence can be granted for a Site. In most instances the licensing authority will not determine a mitigation licence application until relevant / required planning consents have been obtained.

209. A number of GCN mitigation licensing schemes / options are now available in England. Some enable a ‘no GCN survey data available’ option to be adopted. The use of the no survey data option means that there is no requirement for the consultant ecologist to undertake a GCN presence / likely absence or population size class survey or a GCN impact assessment.

210. When current GCN presence data is known to exist for a Site and is available, it must be submitted with the mitigation licence enquiry / application. A failure to declare the existence of such data for a Site would be a breach of the licence terms and conditions, invalidate the granted GCN mitigation licence and may result in prosecution.

211. District level licensing of development affecting GCN involves consideration of the conservation of this species at a geographical scale and is currently only available in England. It can allow harm to individual GCN and their habitat caused by a development at a Site to be compensated for by the creation and/or restoration of suitable amounts of new habitat elsewhere. District licensing can be operated by an

individual LPA within their area, or by a group of LPA or other bodies acting on their behalf such as NatureSpace Partnership or by Natural England.

212. In appropriate cases, instead of requiring harm to GCN to be avoided or mitigated at a Site, GCN are benefited elsewhere in the area by the provision of waterbodies funded by the developer. This safeguards the favourable conservation status of GCN in the area concerned and also represents a streamlining of the GCN licensing element of the development planning consent process.

Natural England GCN District Level Licensing scheme and GCN Risk Zones

213. Consultant ecologists and developers involved with advising on or the commissioning of GCN surveys, should understand that a detailed review of the Natural England GCN Risk Zone Mapping Geoportal Dataset is now integral to the initial decision process when making any recommendation relating to the requirement for a GCN survey to be undertaken in respect of a proposed development.

214. The Natural England GCN Risk Zone Mapping Geoportal Dataset identifies those areas in England where the distribution of GCN has been categorised relating to GCN occurrence and the level of impact development is likely to have on this species.

215. The consultant ecologist and the developer should discuss, at the earliest opportunity, the implications of the Site location in relation to its proximity to any Natural England GCN Risk Zones.

216. The GCN Risk Zones categorisations are outlined below. However, it remains the responsibility of the consultant ecologist and the developer to ensure that they regularly review the online Natural England GCN Risk Zone Mapping Geoportal Dataset and check for revisions.

- Red zones: Contain key populations of GCN, which are important on a regional, national or international scale and include designated Sites of Special Scientific Interest for GCN. Note: A proposed development Site located in a Natural England GCN Red Risk Zone cannot be entered into the GCN District Level Licensing scheme.

- Amber zones: Contain main population centres for GCN and comprise important connecting habitat that aids natural dispersal.

- Green zones: Contain sparsely distributed GCN and are less likely to contain important pathways of connecting habitat for this species.

217. The Natural England GCN Risk Zone Mapping Geoportal Dataset is based on historic and updated GCN survey data obtained from a rolling programme of surveys at thousands of ponds across England. The Risk Zone mapping dataset has been created and is primarily used to inform the implementation and administration of the Natural England GCN District Level Licensing (NE GCN DLL) scheme currently available in approximately 550 Local Authority areas.

218. The NE GCN DLL scheme includes a ‘no GCN survey data available’ approach that, if adopted, means there is no requirement for the consultant ecologist to undertake a GCN presence / likely absence or population size class aquatic

survey or a detailed GCN impact assessment in respect of a proposed development Site in order to apply to enter a Site into the NE GCN DLL scheme.

219. The NE GCN DLL scheme GCN impact assessment (with or without GCN survey data submitted) will be undertaken at the licence enquiry stage.

220. The impact assessment will inform the level of habitat compensation payment required to appropriately and proportionately address the development impact on GCN.

221. It is advised that consultant ecologists regularly review the NE GCN DLL scheme enquiry / application process and become familiar with the requirements and costs associated with submitting a formal enquiry, on behalf of a developer, to enter a development Site into the scheme.

222. In the event that a GCN survey has been undertaken, on any of the target waterbodies (ponds or non-flowing ditches) in the preceding 4 years, the survey findings must, if available, be provided as part of the NE GCN DLL scheme enquiry / application process. It would not be acceptable, in any circumstances, to purposely withhold such data if it is available.

223. GCN survey data should be presented to Natural England by the ecological consultant or developer in the form of a geographic information system (GIS) polygon shapefile 'pond layer'.

224. The pond layer must include all waterbodies i.e. ponds and non-flowing ditches identified to be extant (via desk-based study and/or a Site walkover visit) at the Site and/or within 250m of the Site boundary. The waterbodies shown on the GIS polygon shapefile should be numbered and labelled as either:

- P (GCN present)
- A (GCN absent)
- NS (No survey)

225. Waterbodies between 1 and 2,500m^2 . should be included in the pond layer. It should be noted that a waterbody over 2,500m^2 should only be included in the pond layer if GCN presence has been confirmed.

226. Do not include flowing waterbodies i.e. rivers, streams or flowing ditches that have a constant flow of water.

227. Do not include waterbodies if they're separated from the development site by a major physical barrier to GCN, such as:

- Motorways and dual carriageways (not minor roads),
- Major or fast-flowing rivers,
- Significant built environs that have no suitable, continuous, connecting habitat for GCN to disperse through i.e. hedgerows, field boundary strips or ditches.

228. It is only appropriate to include a waterbody, separated from the Site by a major physical barrier to GCN dispersal, in the pond layer if it can be clearly shown that there is suitable, continuous, connecting linear habitat i.e. a (hedgerow or ditch) running through the area/s deemed to be a barrier and when such linear habitat is less than 250m in length.

229. Waterbodies that have not been surveyed must be included in the pond layer, even if they contain fish. However, a waterbody that has not been surveyed but is known to be stocked with fish for aquaculture or angling, can be labelled as A (GCN absent) on the basis that evidence is provided to Natural England that the waterbody is used for aquaculture or angling evidence should be in the form of either:

- the name of the business
- the most recent stocking record

230. Waterbodies that are identified / visible on an Ordnance Survey (OS) or aerial map, but are dry at the time of the survey, can be labelled as A (GCN absent).

231. A dry waterbody does not need to be included in the pond layer if evidence can be provided to Natural England that the waterbody has been dry throughout the GCN breeding season for 3 or more consecutive years. Evidence provided should be in the form of either:

- dated photographs that show the pond has been dry for 3 consecutive GCN breeding seasons
- other dates the pond has been recorded as being dry for 3 consecutive years

232. Waterbodies that are not visible on an OS or aerial map and are found to be dry at the time of the survey do not need to be shown on the pond layer.

233. If there is no evidence found of a waterbody during the survey visit, that is identified / shown on an OS or aerial map, do not include it in the pond layer. However, a 10 figure National Grid reference and a dated photograph of the waterbody location must be provided to Natural England to evidence that it is no longer extant.

234. Any waterbodies that are hydrologically linked should be regarded as a single waterbody and shown as a single polygon in the pond layer.

235. Where ponds are directly linked to other features that are also considered suitable to support GCN (such as non-flowing ditches) they should be shown as a single feature in the pond layer with dated photographs submitted to Natural England that show the waterbodies are linked.

The pond layer should also include:

- ditches where GCN presence has been established
- ditches with standing water which have not been surveyed and have suitable habitat for GCN

Do not include on the pond layer:

- ditches where GCN likely absence has been established
- ditches that are dry or contain flowing water

236. It is important to note that waterbodies should not be excluded from the pond layer based on a low HSI score alone.

237. When a Site is accepted for inclusion in the NE GCN DLL scheme Natural England will issue a provisional Impact Assessment and Conservation Payment Certificate (IACPC) which will detail the level of GCN conservation payment required.

238. The IACPC payment will be calculated by Natural England using a standardised metric based on the number of waterbodies deemed relevant

located at and/or within 250m of the Site boundary, the relevant Natural England GCN Risk Zone categorisation and the applicable cost multiplier.

- All onsite waterbodies at a Site (irrespective of if they are to be retained) will be assessed as functionally lost.
- The 2024 IACPC baseline cost per compensation pond required is £20,200.
- The distance of a waterbody from the Site boundary will impact on the IACPC calculation on the basis that the further a waterbody is located from the Site the lower the predicted impact on GCN with a commensurate and proportionate reduction in the IACPC cost.
- A NE GCN DLL enquiry submitted **without** any GCN presence / likely absence survey data will attract the IACPC **x2** cost multiplier for all the ponds deemed relevant.
- A NE GCN DLL enquiry submitted **with** GCN presence / likely absence survey data will attract the IACPC **x4** cost multiplier, for all ponds where GCN presence has been confirmed.

Example:

- Given that there is one pond onsite and two ponds located offsite (both within 250 m of the Site boundary) the application of the x2 multiplier, on the basis that there is 'no GCN survey data available' for any of the three ponds, would generate a total IACPC cost of approximately £60,400 i.e. onsite pond cost of £40,400 and a proportionate impact / distance based cost of £10,000 for each of the two offsite ponds.
- The application of the x4 multiplier, on the basis that survey data is submitted establishing GCN presence in all three ponds, would generate an IACPC of approximately. £120,800.
- Establishing GCN likely absence at any of the three ponds, via survey effort, would significantly impact the calculation and proportionally reduce the IACPC cost.
- In the event that access permission to undertake a GCN survey cannot be obtained from a landowner and/or GCN eDNA survey effort delivers an indeterminate finding for any of the three ponds, the 'no GCN survey data available' approach would need to be adopted and the x2 multiplier proportionately applied to the IACPC payment.
- Establishing GCN likely absence at all of the three ponds, via survey effort, would negate any requirement to enter the Site into the NE GCN DLL scheme on the basis that the species are not a constraint to the development.

239. When the IACPC payment has been agreed / signed by the developer and countersigned by Natural England the countersigned IACPC may be used by the developer to support a planning application for a Site.

240. The signed IACPC represents a provisional agreement to enter a Site into the NE GCN DLL scheme and will enable the LPA to determine (via a pre-commencement condition) a submitted Site planning application.

241. The formal NE GCN DLL application can only be submitted when planning permission has been granted and will likely need to be supported with a detailed Reasoned Statement. The licence will only be issued when all costs including the IACPC payment and licence fees have been paid in full by the Developer. The formal application to enter into a Site into the NE GCN DLL scheme can generally be completed and the licence issued within 10 working days.

242. The developer or a named individual on their behalf will be required to take on the role of Licensee. They should understand that as the Licensee they are legally responsible for ensuring compliance with the licence terms and conditions.

243. The licenced period will initially encompass 2 years from date of issue. A Report of Action taken under GCN DLL is required to be submitted to Natural England with any licence renewal / extension request, a minimum of one month before the existing licence 2-year expiry date. The Licensee must submit to Natural England a Report of Action taken under the NE GCN DLL (even if no actions are undertaken) within 14 days of the end of the current 2-year licence period.

244. The acceptance of a Site into the NE GCN DLL scheme and issue of the licence by Natural England will effectively negate the legal risks associated with potentially encountering GCN at a Site during the proposed works, will appropriately and proportionately address the predicted development impacts on GCN, satisfy GCN related planning requirements and will enable the proposed works at a Site to proceed lawfully, in a timely manner without the requirement to provide specific onsite GCN mitigation or habitat compensation.

245. It is the role of the consultant ecologist to ensure that the Licensee is fully aware that any failure to comply with the licence terms and conditions will invalidate the licence and is likely to result in a breach of legislation relating to GCN. A breach of GCN legislation could potentially result in legal action being brought against the Licensee and in certain circumstances also the consultant ecologist. The importance and responsibilities associated with the role of Licensee must be understood and discussed by the consultant ecologist and the developer at the earliest opportunity prior to the submission of any NE GCN DLL application.

246. The funds generated by the NE GCN DLL scheme will be used to build new and/or enhance existing waterbodies within designated strategic opportunity areas. The new / enhanced waterbody works will be undertaken by a Natural England appointed Habitat Delivery Body i.e. a local Wildlife Trust or the East Midlands Environmental Consultancy, or Froglife Ecological Services or other and will be subject to regular monitoring and required habitat management over a period of 25 years.

Link: Natural England District Level Licensing for great crested newts video
https://www.youtube.com/watch?v=LNc8_OJKiLw

Link: Natural England GCN District Level Licensing Species Distribution Modelling video:
https://www.youtube.com/watch?v=McljEIsFaJw

Link: The Natural England DLL GCN Risk Zone Mapping Geoportal Dataset
https://naturalengland-defra.opendata.arcgis.com/search?q=GCN

Link: Natural England GCN DLL Advice for Local Planning Authorities. All content is available under the Open Government Licence v3.0, except where otherwise stated
https://www.gov.uk/guidance/great-crested-newts-district-level-licensing-for-local-planning-authorities

Link: The Natural England GCN DLL Application Document
https://www.gov.uk/government/publications/great-crested-newts-district-level-licensing-schemes-for-developers

Link: A Natural England GCN DLL Countersigned IACPC
https://gcntraining.co.uk/a-ne-dll-iacpc

Link: A Natural England GCN DLL Location Plan
https://gcntraining.co.uk/a-ne-dll-location-plan-ex

Link: A Granted Natural England GCN DLL
https://gcntraining.co.uk/a-granted-ne-dll-licence

Link: The Natural England Guidance Note issued for works that are to be carried out under a GCN DLL: https://gcntraining.co.uk/the-ne-dll-licensed-works

The NatureSpace Partnership GCN Risk Zones and District Licensing scheme

247. A detailed review of the NatureSpace Partnership (NSP) GCN Risk Zone mapping dataset is now also integral to the initial decision-making process when making any recommendation relating to the requirement for a GCN survey to be undertaken in respect of a proposed development.

248. The NSP GCN Risk Zone mapping dataset identifies those areas in England where the distribution of GCN has been categorised into zones relating to GCN habitat suitability, importance and probability of GCN presence.

249. While the NSP GCN Risk Zone criteria may appear similar to the Natural England Risk Zone designations they are in fact significantly different, with major implications for Site development proposals.

250. The NSP GCN Risk Zone mapping dataset has been created and is primarily used to inform and administer the NSP GCN District Licensing (NSP GCN DL) scheme currently available in approx. 70 Local Authority areas in England.

251. It should be noted that the NSP GCN DL scheme requires waterbodies (ponds and non-flowing ditches) located within 500m of the development Site boundary to be mapped and included in their impact assessment.

252. The consultant ecologist and the developer should discuss, at the earliest opportunity, the implications of the Site location in relation to its proximity to any NSP GCN Risk Zones.

253. The NSP GCN Risk Zone categorisations are outlined below. However, it remains the responsibility of the consultant ecologist and the developer to ensure that they regularly review the NSP GCN Risk Zone mapping dataset and check for revisions.

- *Black zones – nationally or regionally important site for GCN – excluded from development impacts under the NatureSpace Partnership District Licence Scheme.*
- *Red zones – highly suitable habitat – the most important areas for GCN.*
- *Amber zones – suitable habitat – GCN are likely to be present.*
- *Green zones – moderate habitat suitability – GCN may be present.*
- *White zones – low habitat suitability – low probability of GCN presence.*

254. The NSP GCN DL scheme includes a ‘no GCN survey data available’ approach that, if adopted, means there is no requirement for the consultant ecologist to undertake a GCN presence / likely absence or population size class aquatic survey or a detailed GCN impact assessment in respect of a proposed development Site in order to apply to enter the Site into the scheme.

255. It is advised that consultant ecologists regularly review the NSP GCN DL scheme enquiry / application process and become familiar with the requirements and costs associated with submitting a formal enquiry, on behalf of a developer, to enter a development Site into the scheme. A proposed development Site in England located in a NSP GCN Black Risk Zone will be excluded and cannot be entered into the NSP GCN DL scheme.

256. Entry into the NSP GCN DL scheme is based on a Site requiring planning permission to be obtained. When planning consent is granted compliance with the terms of the NSP GCN DL become pre-commencement planning condition/s, secured via the planning process. Consequently, a Site cannot be entered into a NSP GCN DL scheme if it does not require a Local Authority planning consent to be obtained.

257. Consultant ecologists and developers should be aware that proposed development in a NSP GCN Red Risk Zone will, dependent on the impact assessment, usually require onsite GCN mitigation measures to be implemented.

258. NSP will appoint a designated 'Officer' to undertake a detailed Site assessment and issue a Site specific GCN Impact Assessment Report. The report will detail the predicted level of impacts, the level of the GCN compensation payment required to offset the impacts and any onsite GCN mitigation measures to be implemented.

259. The GCN compensation payment cost will be calculated by the NSP 'Officer' dealing with the enquiry, the calculation will involve consideration of the number of waterbodies deemed relevant present at and/or within 500 m of the Site boundary, the NSP GCN Risk Zone/s associated with the Site, the predicted development impacts and a cost multiplier. **Note: Waterbodies located within 500m (not just 250m of a Site) must be considered relevant under the NSP DL Scheme.**

260. The NSP GCN mitigation measures required in Red Risk Zones may involve the installation of temporary amphibian exclusion fencing, pitfall traps, artificial refugia and implementation of night and hand/destructive searches to remove GCN from a Site. In certain circumstances a 25-night GCN capture and translocation strategy may be required to be implemented at a Site prior to the commencement of development. It should be noted that any onsite mitigation measures may also include a requirement for ongoing GCN exclusion from a Site to be implemented (using TAF upright and/or one-way) for the duration of the construction period. The onsite mitigation measures required to be implemented will form the basis of and be legally enforceable through a specific condition of the granted planning consent.

261. The acceptance of a Site into the NSP GCN DL scheme and formal issue of the licence by the Local Authority to the developer will effectively negate the legal risks associated with potentially encountering GCN at the Site during the proposed works, will appropriately and proportionately address the predicted development impacts on GCN, satisfy GCN related planning requirements and will enable the proposed development to proceed lawfully in a timely manner.

262. The developer or a named individual on their behalf will be required to take on responsibility for complying with the licence. They should understand that they are legally responsible for ensuring compliance with the licence terms and conditions.

263. It is the role of the consultant ecologist (as the Supervising Ecologist on the licence) to ensure that the developer is fully aware that any failure to comply with the licence terms and conditions will invalidate the licence and is likely to result in a

breach of legislation relating to GCN. A breach of GCN legislation could potentially result in legal action being brought against the developer and in certain circumstances also the consultant ecologist.

264. The funds generated by the NSP GCN DL scheme will be used to build new or enhance existing waterbodies and/or terrestrial habitat within selected / designated areas. The new / enhanced waterbodies and/ or terrestrial habitat works will be undertaken by the Newt Conservation Partnership and subject to regular monitoring and required habitat management over a period of 25 years.

Link: The NatureSpace Partnership GCN District Licence Process
https://naturespaceuk.com/district-licensing/the-process/

Link: A NatureSpace Partnership GCN Impact Assessment Report © NatureSpace December 2023 https://gcntraining.co.uk/nsp-report

Link: The NatureSpace Partnership GCN District Licence Mitigation Principles © NatureSpace November 2021 https://gcntraining.co.uk/nsp-gcn-mp

Link: The NatureSpace Partnership GCN District Licence Best Practice Principles © NatureSpace March 2021 https://gcntraining.co.uk/nsp-dl-gcn-best-practice

Note: There are also three independently run Local Authority GCN District Licence schemes available to developers in Dorset, Telford & Wrekin and Woking.

Companies with a GCN Organisational Licence

265. There are a number of large companies and organisations in England that already have in place a specific GCN Organisational Licence (GCN OL) granted to them by Natural England.

266. The GCN OL approach has not been adopted by Natural Resources Wales or NatureScot and is not available as a mitigation strategy licencing option for Sites located in Wales or Scotland.

267. When approached or commissioned to undertake any works for a large company or organisation the consultant ecologist should establish, at the earliest opportunity, if a GCN OL is in place. A consultant ecologist should not assume that the individual, commissioning the GCN works, would be aware of the existence of a GCN OL within their company or organisation or even that such a licencing option may be available.

268. GCN OL are currently only issued by Natural England, in accord with strict criteria and protocols, to companies and organisations that undertake regular, routine management and maintenance works that are deemed likely to impact on GCN. Each licence is administered by the company or organisations in-house ecologist/s or a suitably experienced external consultant ecologist.

269. The terms, conditions and protocols of the GCN OL (albeit directly linked to the individual operational needs of the company or organisation) are broadly similar in respect of the requirement to assess predicted impacts and deliver appropriate and proportionate GCN mitigation and habitat compensation measures.

270. Where a GCN OL is in place there is no requirement to undertake any further GCN presence / likely absence or population size class aquatic survey effort in

respect of proposed works, given that such work may proceed lawfully under the terms, conditions and protocols of the GCN OL.

271. Organisations and companies that currently have a GCN OL in place include Network Rail, HS2, United Utilities, South East Water and Southern Water. It is the responsibility of the consultant ecologist to review and fully familiarise themselves with the terms, conditions and protocols of any specific GCN OL in place, before undertaking GCN related works under such a licence. Any failure to do so may result in an inadvertent breach of the GCN OL with potentially significant consequences.

The Network Rail GCN Organisational Licence

272. Consultant ecologists should be aware that Network Rail currently have two GCN OL in place the first encompassing the Network Rail Eastern Region and the second covering Network Rail Southern Region. Both these licenses are administered on a project by project basis by NatureSpace Partnership.

273. Network Rail and its subcontractors are therefore able to lawfully carry out works, with the potential to impact on GCN, across the entire Network Rail Eastern and Southern Regions under the relevant NatureSpace Partnership Network Rail GCN Organisational Licence (NSP NR GCN OL) without any requirement for further GCN survey to be undertaken.

The GCN Risk Zone categorisations used to inform implementation of the NSP NR GCN OL are detailed below

- *Black zones – nationally or regionally important site for GCN – excluded from development impacts.*
- *Red zones – highly suitable habitat – the most important areas for GCN.*
- *Amber zones – suitable habitat – GCN are likely to be present.*
- *Green zones – moderate habitat suitability – GCN may be present.*
- *White zones – low habitat suitability – low probability of GCN presence.*

274. NatureSpace Partnership use the impact levels and charging strategy outlined below to assess the appropriate habitat impact compensation fee to be charged to Network Rail and the GCN mitigation measures i.e. Best Practice Measures (BPM) or Precautionary Measures of Working (PMW) to be implemented in respect of works to be carried out under the NSP NR GCN OL.

Impact Level 0: No works are to be undertaken within 250m of a waterbody.

Impact Level 1: Works to be undertaken, within 250m of a waterbody, will result in a temporary and very low level of localised disturbance. Upon works completion, habitat would return to its original condition immediately.

Impact Level 2: Works to be undertaken, within 250m of a waterbody, will result in low level habitat damage (rather than destruction). Upon works completion, habitat would be allowed to return to its original condition naturally.

Impact Level 3A and 3B: Works to be undertaken, within 250m of a waterbody, will result in moderate level habitat destruction. Upon works completion, habitat is considered likely to be lost permanently.

Impact Level 4: Works to be undertaken, within 250m of a waterbody, will result in high level habitat destruction. Upon works completion, habitat is considered likely to be lost permanently.

- Impact Level 0: Green and White Zones - No fee & no BPM/PMW required.
- Impact Level 0: Amber and Red Zones - No fee & no BPM/PMM required.

- Impact Level 1: Green and White Zones - No fee & no BPM/PMW required.
- Impact Level 1: Amber and Red Zones - No fee & no BPM/PMW required.

- Impact Level 2: Green and White Zones - No fee & no BPM/PMW required.
- Impact Level 2: Amber and Red Zones - No fee & no BPM/PMW required.

- Impact Level 3a: Green and White Zones - No fee & no BPM/PMW required.
- Impact Level 3a: Amber Zone – Standard fee & BPM required.
- Impact Level 3a: Red Zone – Standard fee & PMW required.

- Impact Level 3b: Green and White Zones - No fee & no BPM/PMW required.
- Impact Level 3b: Amber Zone – Assessed variable fee & BPM/PMW required
- Impact Level 3b: Red Zone – Assessed variable fee & PMW required

- Impact Level 4: Green & White Zones - Standard fee & BPM required.
- Impact Level 4: Amber Zone - Assessed variable fee & BPM/PMW required.
- Impact Level 4: Red Zone - Assessed variable fee & PMW required.

275. The NSP NR GCN OL categorises habitats such as ballast, rough grasslands, scrub or woodland as optimal habitat for GCN and the impacts of proposed works in such areas are assessed accordingly. The extent of the NSP NR GCN OL extend 10km into the wider landscape around the route/s of the rail tracks which allows the NR GCN OL to facilitate required works on land outside of Network Rail ownership.

276. A third Network Rail GCN OL encompassing the Network Rail North West & Central Region is expected to be granted in due course and will bring the entire rail network in England under a NSP NR GCN OL with implications for consultant ecologists and Network Rail subcontractors undertaking work on the Rail Network.

277. The funds generated by the NSP NR GCN OL will be used to build new or enhance existing waterbodies and/or terrestrial habitat within selected / designated areas. The new / enhanced waterbodies and/ or terrestrial habitat works will be undertaken by the Newt Conservation Partnership and subject to regular monitoring and required habitat management over a period of 25 years.

Link: The Network Rail / NatureSpace Partnership GCN Organisational Licence Video December 2023. https://www.youtube.com/watch?v=qZUJR_k-Jgc

The Site Specific GCN Conventional or Development Mitigation Licence

278. It is for the developer as the prospective 'Licensee' via their consultant ecologist, acting on their behalf as the 'Named Ecologist', based on an assessment of the risk of encountering the species and the predicted level of impact to decide if a Site specific GCN conventional or development mitigation licence would be appropriate or required in order to allow a proposed development or action to proceed lawfully.

279. The Natural England Site specific GCN conventional mitigation licence, while no longer widely used by consultant ecologists, is still available as an option across all districts of England. It offers an alternative to the NE GCN DLL and the NSP GCN DL schemes and is appropriate for both stand alone and multiphase development Sites.

280. Consultant ecologists advising on development in England should ensure they familiarise themselves with the Natural England GCN survey requirements and the range of information, documents, plans and figures required to support a GCN conventional mitigation licence application.

281. The Natural Resources Wales Site specific GCN Development Licence is currently the only mitigation licensing option for development that will impact on GCN populations in Wales. Consultant ecologists advising on development in Wales should ensure they familiarise themselves with the Natural Resources Wales GCN survey requirements and the range of information and documents required to support such a licence application.

282. The NatureScot Site specific GCN Licence for Development is currently the only mitigation licencing option for developments that will impact on GCN populations in Scotland. An up-to-date great crested newt survey and a great crested newt protection plan and method statement must be submitted with the NatureScot licence application, together with details of the development proposals. Consultant ecologists advising on development in Scotland should ensure they familiarise themselves with the GCN survey requirements and the range of information and documents required to support such a licence application.

283. While these three Country specific GCN conventional or development mitigation licenses may differ in terms of their specific formats they are all underpinned by UK legislation and have the same aim which is to enable development works / activities to proceed lawfully and ensure that the favourable conservation status of the GCN population identified to be associated with a Site is safeguarded.

Link: The Natural England GCN Conventional Mitigation Licence Application
https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence

Link: The Natural Resources Wales GCN Development Licence Application
https://naturalresources.wales/permits-and-permissions/species-licensing/list-of-protected-species/great-crested-newt-licensing/?lang=en

Link: The NatureScot GCN Licence for Development Application
https://www.nature.scot/professional-advice/protected-areas-and-species/licensing/species-licensing-z-guide/great-crested-newts-natterjack-toads/newts-and-toads-licences-2

The Three Licensing Tests & The Reasoned Statement

There are three statutory licensing tests which must all be addressed, before the licensing authorities can grant a specific GCN conventional or development mitigation licence or a NE GCN DLL or a NSP GCN DL or a GCN OL for a Site:

1) Favourable Conservation Status (FCS),

2) Purpose / Need: Imperative Reasons of Overriding Public Interest (IROPI)

3) No Satisfactory Alternative (NSA),

284. A GCN mitigation licence can only be issued where the licensing authority is confident that, as a minimum, the FCS of the local GCN population associated with a Site will be maintained post development.

285. Conservation status is defined as the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population within its natural range. The status of a species may be assessed as favourable when:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*

- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*

- *there is, or will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

286. The Method Statement which forms part of a GCN conventional or development mitigation licence application will provide the evidence on which the consultant ecologist / developer demonstrates compliance with Regulation 55(9)(b) and addresses the FCS test.

287. The FCS test is integral and dealt with within the application for a NE GCN DLL or a NSP GCN DL or a GCN OL.

288. The ‘purpose’ and the ‘no satisfactory alternative’ tests are assessed by the licensing authorities using other set criteria. The consultant ecologist / developer will, in most cases, be expected to address both of these tests in a Reasoned Statement supported with a range of detailed information.

289. A Reasoned Statement will need to be prepared for the majority of GCN conventional or development mitigation licence applications.

290. A Reasoned Statement will also need to be prepared for the majority of NE GCN DLL or a NSP GCN DL or a GCN OL.

291. The consultant ecologist and developer should ensure that they are conversant with the current Reasoned Statement format and the detailed information that is required to be submitted to the licensing authority. The consultant ecologist will need to work closely with the developer to avoid delays that may be triggered by the submission of an incomplete / inaccurate Reasoned Statement.

292. All mitigation schemes carry a risk of failure. If mitigation measures fail, then the resulting impact on the conservation status of the newts may mean that the FCS test will not have been met. This risk is greatest for activities that are judged to have a medium or high impact.

293. Consequently, post-development GCN population monitoring has an important role in providing confidence in any judgement that there will be no detriment to FCS by identifying / detecting problems that may lead to such a detrimental effect and enabling appropriate timely remedial action to be taken to avoid them.

294. Consultant ecologists and developers should be aware that post-development monitoring will be expected for developments that are predicted to have a medium or high level impact on GCN. Monitoring and remedial action will form an important component of the mitigation proposed and must be fully detailed for a GCN conventional or development mitigation licence applications to pass the FCS test.

295. The level of post-development monitoring required at a Site is linked to the status of the GCN population and the predicted level of impact. For developments with only temporary Low predicted impacts, there may not be a requirement for post development GCN population monitoring.

296. Objective evidence to satisfy the Reasoned Statement IROPI test should include clear reference to the relevant parts of the LPA local plan documentation, other supporting information such as the five-year housing land supply and government policy on development need. The issues of location, scale, impact and timeframe should also be addressed.

297. Where development is of a type consented by bodies other than an LPA a comparable level of evidence will be required. The status of any plan or policy document provided as evidence must be referenced and taken into account. Where such a document has not been formally adopted additional evidence will be required, for example reference to relevant regional or national planning policy, in order to justify development need.

298. Even where a proposed development is justified by IROPI the licensing authority must still be satisfied that there is no satisfactory alternative that will meet the identified need and which is less harmful to GCN. If a less damaging satisfactory alternative exists and is feasible and satisfies the need the no satisfactory alternative test cannot be met and a GCN mitigation licence cannot be granted.

299. To be classed as “satisfactory” the alternatives must be real, not merely theoretical, options and ought themselves to be capable of receiving planning permission, if required. Physical, planning and timing constraints are relevant to the question and may prove decisive in determining whether an alternative is “satisfactory”.

Link: When to include a reasoned statement with your GCN mitigation licence application
https://www.gov.uk/government/publications/reasoned-statement-to-support-a-mitigation-licence-application

Link: A Completed Natural England GCN Reasoned Statement
https://gcntraining.co.uk/completed-gcn-reasoned

The GCN Conventional or Development Mitigation Licence Application

300. In respect of a Site specific GCN conventional or development mitigation licence application in England or the development related GCN mitigation licenses available in Wales and Scotland it is for the consultant ecologist, in consultation with the developer, to prepare a detailed GCN mitigation strategy for a Site.

301. The developer will submit the GCN mitigation strategy to the local planning authority as part of the planning application process.

302. When planning permission has been obtained, the consultant ecologist will incorporate the GCN impact assessment and the GCN mitigation strategy into the GCN conventional mitigation licence application and submit to the relevant licensing authority for determination.

303. The developer or a named individual on their behalf will be required to take on the role of Licensee. They should understand that as the licensee they are legally responsible for ensuring compliance with the licence terms and conditions.

304. It is the role of the consultant ecologist to ensure that the licensee is fully aware that any failure to comply with the licence terms and conditions will invalidate the licence and is likely to result in a breach of legislation relating to GCN that could potentially result in legal action being brought against the licensee and in certain circumstances also the consultant ecologist.

305. The GCN mitigation strategy should be based on the Mitigation Hierarchy (avoidance, mitigation and compensation) and seek to address the Quantitative, Qualitative, Functional and Contextual impacts on GCN identified in the GCN impact assessment.

Avoidance

- The retention and enhancement of existing waterbodies and terrestrial habitat offering potential / suitable GCN breeding, shelter, hibernation foraging and dispersal habitat at a Site should be the objective, as practicable, of the consultant ecologist and the developer.

- Minimising the level of loss, damage or disturbance to GCN aquatic and/or terrestrial habitats should be the aim were such habitat loss or damage, or disturbance is deemed to be unavoidable.

- The risk of encountering or killing or injuring individual GCN may be reduced by altering working methods and/or the work schedule to take account of GCN aquatic and terrestrial behaviours.

- Major ground disturbance works should ideally avoid potential GCN hibernation habitat or be undertaken outside of the GCN winter hibernation period (November to January weather dependent).

- To minimise the injury / death risk to breeding GCN, their eggs and larvae it is advised that scheduling of any required waterbody destruction, damage or disturbance works (including enhancement) should ideally encompass the period October to January.

- The risk of encountering or killing or injuring individual GCN at the Site may be further reduced by the considered management of onsite terrestrial habitats. Such management works may involve the clearing of above ground vegetation and/or keeping the sward cut very short and/or the prompt removal of onsite materials / features that may offer GCN with shelter opportunities.

Mitigation

- The predicted level of impact on the GCN population and the potential for individual GCN death or injury may be mitigated by the implementation of a GCN capture, removal and exclusion programme at a Site. The aim would be to protect individual GCN and safeguard the FCS of the GCN population.

- A GCN capture and removal programme at a Site would involve the physical capture and movement of GCN from the Site and their immediate release into suitable, safe habitat at a designated receptor site (usually located adjacent the Site boundary).

- The GCN receptor site should contain aquatic, shelter, hibernation, foraging and dispersal habitat and/or have good connectivity to such GCN habitats in the local and wider area.

- As a minimum the GCN receptor site and/or the local / wider area must be able to support the numbers of GCN deemed likely to be captured and moved from the development Site.

- Any works deemed necessary by the consultant ecologist to enhance the GCN 'carrying capacity' of the release / receptor area for example creation of a new waterbody or GCN shelter / hibernation habitat of the release / receptor area must be undertaken before the Site GCN capture programme commences.

- A GCN capture and removal programme will usually require the use of TAF, drift fencing, pitfall traps and artificial refugia and may include supplementary GCN capture effort such as terrestrial torch searches, hand and destructive searches, pond netting / drain down and/or the use of GCN detection dog teams.

- A GCN capture and removal programme would also be likely to involve the ongoing exclusion of GCN from the development Site during development using TAF installed around the Site perimeter to prevent / discourage GCN from entering or re-entering the development Site (following their removal).

- Access to the Site will be facilitated during the GCN capture and removal programme and the subsequent development works via 'amphibian gates' or TAF 'kick or turn backs' or 'amphibian exclusion grids' to be incorporated into the perimeter TAF at agreed locations.

- The inclusion of amphibian friendly drainage measures into the development design will help to mitigate the risk of road and drainage related GCN death and injury. Measures to consider include the installation of Sustainable Urban Drainage schemes (SUDs) the use of water permeable block paving, French drains and swales.

- The use of box culverts with amphibian shelves should be considered where there is a requirement to bridge onsite ditches / streams. Consideration should also be given to the installation of amphibian road tunnels and/or permanent amphibian guide fencing and public information boards at important amphibian road crossing locations.

- Drop curbs, offset gully pots and/or gully pot amphibian escape ladders should be installed on roads within 50m of all onsite waterbodies and key terrestrial GCN shelter or hibernation habitat or features.

Compensation

- Compensation for the loss of confirmed or likely GCN aquatic habitat at the Site level should be based on the replacement of any waterbody destroyed at a ratio of two for one.

- This will require the creation of two new waterbodies, with each to be the same size / area as the waterbody destroyed OR the creation of a single waterbody that is double the size / area of the waterbody lost.

- The aim in respect of both new and retained waterbodies should be to deliver a Quantitative and Qualitative increase in aquatic habitat for GCN.

- The GCN HSI assessment may be used to inform the original and the predicted increase in waterbody Qualitative and/or Quantitative value for GCN on the basis of the HSI score categorisations that indicate a range of 'Poor' to 'Excellent' suitability for GCN

- The location of a new waterbody and/or the retention / enhancement of an existing waterbody should be decided by the consultant ecologist with regard to their current / predicted Functional and Contextual status.

- Generally new waterbodies intended for GCN should not be planted with aquatic or emergent species. The waterbodies should be excavated, lined as necessary and filled with water. In most cases they will be quickly colonised naturally by native species (plant and animal) from other waterbodies in the local area.

- On occasion the planting of new waterbodies with native aquatic and emergent of local provenance may, in specific circumstances, be acceptable in order to hasten the naturalisation process and/or create optimum aquatic conditions for GCN.

- New or retained / enhanced waterbodies, that are intended to provide a release / breeding site for captured or excluded GCN should ideally be created and allowed to establish for a minimum of 12 months prior to the commencement of Site GCN capture efforts.

- Compensation for the permanent or temporary loss of GCN terrestrial habitat at a Site should be focused on the replacement and/or enhancement of existing GCN shelter, hibernation, foraging and dispersal habitat.

- In respect of the GCN conventional mitigation licence in England and the development related GCN mitigation licences available in Wales and Scotland the GCN compensation habitat will ideally need to be provided by the developer at or adjacent a Site.

- In certain circumstances, at the discretion of the consultant ecologist, it may be deemed acceptable to provide GCN compensation habitat at a distance of up to 1km of a Site boundary. This approach may be employed to address issues related to the natural dispersal range of GCN and the potential occurrence / spread of amphibian disease and INNS.

- For the majority of Sites, it will not be possible to deliver a Quantitative gain in GCN terrestrial habitat at the Site and the provision of offsite GCN terrestrial habitat compensation will often not be a viable option.

- In such circumstances, the consultant ecologist and developer will need to formulate specific Site compensation measures on the basis that Qualitative, Functional and Contextual increases in the value of proposed terrestrial GCN compensation habitat are achievable and can be successfully delivered ensuring that the FCS of the GCN population will be maintained.

- Post-development GCN population monitoring and long-term habitat maintenance / management safeguards will be required in order to ensure the success and effectiveness of the implemented licenced mitigation strategy.

- Consequently, detailed proposals and a timetable for post development GCN and Site monitoring and habitat maintenance / management safeguards will need to be produced to support a GCN conventional mitigation licence application.

- The consultant ecologist and developer must agree and ensure that a long-term habitat management and monitoring plan detailing relevant roles and responsibilities, future funding, ownership, and legal agreements and/or planning commitments and/or conditions relating to the created, retained and/or enhanced GCN aquatic and terrestrial habitats at a Site is prepared and included with the licence application method statement.

- Long-term habitat management and monitoring of retained, enhanced or created GCN habitats is required to ensure the GCN population will persist and GCN FCS is maintained.

Note: Historically, consultant ecologists and developers have generally allocated 25% - 30% of the total area of a Site for the delivery of onsite specific GCN aquatic and terrestrial habitat compensation / enhancement measures. This approach, has generally satisfied the LPA in terms of their GCN / protected species planning policies and where deemed to be appropriate and proportionate has usually satisfied and enabled the licensing authorities to grant a GCN conventional or development mitigation licence for a Site.

A GCN conventional / development mitigation licence application Masterplan

For all phased or multi-plot development Sites that will impact on a known GCN population the consultant ecologist will need to prepare a detailed GCN Masterplan Report to support / inform the GCN conventional or development mitigation licence application. The Masterplan Report should provide information relating to the consented development phases at a Site and where known the outline details likely impacts on GCN of any intended future development phases or plots that are intended to be brought forward at a Site by the developer, but which may not yet have been consented by the local planning authority.

The Masterplan Report should enable the overall impacts and in-combination effects of consented development and proposed future development phases or plots on GCN to be fully considered and assessed by the licensing authority.

A copy of the Masterplan Report will need to be submitted (updated to reflect development progress at a Site) with each of the GCN conventional or development mitigation licence applications required to be submitted to the licensing authority when/as planning permission is granted for each phase or plot.

The Defra Four European Protected Species Policies

In certain circumstances it may be possible for the consultant ecologist to employ one or more of the Defra 4 European Protected Species (EPS) licensing policies to formulate a Site specific conventional GCN mitigation licence application for Sites located in England.

Consultant ecologists and developers should be aware that the four Defra EPS licensing policies available for use in England do not apply in Wales or Scotland.

Policy 1 - Greater flexibility when excluding and relocating European Protected Species (EPS) from development sites.

Defra considers that compensation for EPS impacts can be delivered without the need to relocate or exclude populations, where:

- exclusion or relocation measures are not necessary to maintain the conservation status of the local population;
- the avoid-mitigate-compensate hierarchy is followed; and
- proposed compensation provides greater benefits to the local population than would exclusion and/or relocation.

Policy 2 - Greater flexibility in the location of newly created habitats that compensate for habitats that will be lost.

If the licensing tests are met and the avoid-mitigate-compensate hierarchy is followed, off-site compensation measures may be preferred to on-site compensation measures, where there are good reasons for maximising development on the site of EPS impacts, and where an off-site solution provides greater benefit to the local population than an on-site solution.

Policy 3 - Allowing EPS to have access to temporary habitats that will be developed at a later date.

Where development (such as mineral extraction) will temporarily create habitat which is likely to attract EPS, Defra favours proposals which enable works to proceed under a licence without the exclusion of EPS, where the conservation status of the local population would not be detrimentally affected.

On completion of development such sites must contribute to the conservation status of the local population as much as or more than the land use which preceded development. The measures to achieve this should be set out by the consultant ecologist in a detailed Site Masterplan Document and a Site Habitat Maintenance and Management Plan and secured by a legal agreement.

Policy 4 - Appropriate and relevant surveys where the impacts of development can be confidently predicted.

Natural England are expected to ensure that licensing decisions are properly supported by survey information, taking into account industry standards and guidelines. It may, however, accept a lower than standard survey effort where:

- the costs or delays associated with carrying out standard survey requirements would be disproportionate to the additional certainty that it would bring;
- the ecological impacts of development can be predicted with sufficient certainty;
- proposed mitigation or compensation will ensure that the licensed activity does not detrimentally affect the conservation status of the local population of GCN or any other EPS.

306. The EPS licensing policies do not affect Natural England's statutory functions or the discretion it has to grant a GCN conventional mitigation licence. Consultant ecologists must still apply for a mitigation licence if a development proposal affects GCN in a way that would otherwise be illegal. The consultant ecologist will need to include evidence and appropriate justification, as part of any GCN conventional mitigation licence application that seeks to incorporate the EPS licencing policies and demonstrate how the requirements of the policy have / will be met.

307. Consultant ecologists and developers should consider using the Natural England discretionary advice service (DAS) to get advice on using these EPS policies either before, or when, developing the GCN mitigation strategy for a Site. Advice from the Natural England DAS team should be sought at the earliest opportunity ideally before a GCN conventional mitigation licence application has been drafted.

308. It is advised that the Natural England GCN mitigation licence application pre-submission screening service is used prior to the preparation of the final licence application documents.

309. On a 'case by case' basis it may be deemed acceptable for an experienced consultant ecologist, considering adopting a GCN conventional mitigation licence approach at a Site, to infer GCN status (at the Site and local level) using the Natural England GCN Risk Zone and/or the NSP GCN Risk Zone datasets. This approach would broadly align with the four EPS licencing policies and effectively enable the predicted scale of impact on GCN to be assessed and enable appropriate and proportionate mitigation and habitat compensation measures to be formulated potentially without the need for further GCN survey effort.

Link: The Defra 4 EPS Licencing Policies January 2022
https://www.gov.uk/guidance/european-protected-species-policies-for-mitigation-licences

Link: Text for completing a Natural England GCN Conventional Mitigation Licence Application Excel Method Statement © James Grundy 2025

Link: A Completed Natural England GCN Method Statement Works Schedule © James Grundy 2025 https://gcntraining.co.uk/completed-ne-gcn-work

Link: A Completed Natural England GCN Phased Development Masterplan © James Grundy 2025 https://gcntraining.co.uk/completed-ne-gcn-work

Link: The Natural England GCN Conventional Mitigation Licence Application
https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence

6.0: GCN Capture and Exclusion

310. The deliberate capture and exclusion of GCN undertaken in relation to development at a Site is only permissible and lawful when the relevant GCN conventional or development mitigation licence or a NE GCN DLL scheme licence or a NSP GCN DL scheme licence or a GCN OL has been issued for a Site.

311. At a Site where GCN capture and exclusion is to be implemented the granted GCN conventional or development mitigation licence or method statement or the issued NE GCN DLL guidance note or the issued NSP GCN DL mitigation principles document or the issued NSP best practice principles document will detail the terrestrial and aquatic measures to be implemented.

312. In circumstances where GCN capture and exclusion is not a requirement of the granted NE GCN DLL or a NSP GCN DL they may still be moved lawfully under the licence terms and conditions, in accord with the methods detailed in the GCN SMG 2025. Animal welfare and ethical considerations dictate that the consultant ecologist and developer should give very careful consideration as to what will be done with GCN and/or other amphibians if they are encountered terrestrially or within a waterbody at a NE GCN DLL or a NSP GCN DL licensed Site.

313. It is the role of the consultant ecologist to ensure that the developer understands and adheres to the licence terms and conditions, any failure to do so may invalidate the licence and result in a breach of legislation relating to GCN.

314. Before licenced GCN capture activities commence under a conventional or development mitigation licence or a NE GCN DLL scheme licence or a NSP GCN DL scheme licence a designated GCN receptor site (GCN RS) must be established. The GCN RS should not be subject to any significant disturbance following commencement of the GCN capture activities or during or post development at a Site.

315. At a Site where GCN capture, and exclusion is not a requirement of the granted GCN mitigation licence it is strongly advised that a GCN RS should still be established. The provision of a GCN RS (albeit not a requirement of the mitigation licence) will enable incidental GCN captures to be dealt with in an ethical manner with consideration for animal welfare.

316. The GCN RS should contain or have direct connectivity to aquatic and terrestrial habitat offering the captured / released GCN with breeding, shelter, hibernation, foraging and dispersal opportunities with the capacity, sufficient to support or ‘carry’ the number of GCN considered likely to be captured at a Site. The ‘carrying capacity’ of the GCN RS and/or the adjacent habitats may be increased prior to the commencement of the GCN capture effort by the provision of new and/or the enhancement of existing GCN habitat features such as waterbodies and/or shelter and hibernation sites and/or foraging and dispersal habitat.

Temporary Amphibian Fencing (TAF) and Drift Fence

317. TAF installation should follow the Site red line boundary / perimeter. The perimeter TAF should enclose the entire area of the Site where impacts on GCN are predicted. The installation of TAF outside of the GCN licence area may result in a breach of the licence terms and conditions. Perimeter TAF should remain in place until development at a Site has been completed. A failure to remove perimeter TAF when development works at a Site are complete would represent a breach of the licence and likely to be deemed unlawful (should TAF at a Site remain in situ beyond the end date of the licence and act as a barrier to GCN movement / dispersal post development).

318. Drift fences are lines of TAF that are installed within the area enclosed by the perimeter TAF. The purpose of a drift fence is to enhance the GCN capture effort and/or to compartmentalise a Site. Drift fences will be removed, when the GCN capture criteria at a Site and/or the individual compartments has been achieved.

319. Dividing a Site into compartments using drift fence is appropriate to enhance GCN capture effort and/or when capture criteria differs across a Site. The use of compartments may also be appropriate when a developer requires a Site compound / storage area or a Site entrance to be created at the earliest opportunity.

320. The installation of perimeter TAF and drift fence should ideally be mechanised and undertaken by an experienced fencing contractor under the guidance of the consultant ecologist.

321. The provision of stile type crossings may be appropriate where perimeter TAF crosses a public footpath or a right of way that needs to remain open, the aim should be to minimise public damage to the perimeter TAF and ensure the maintenance of any required access route e.g. for dog walkers, local residents and others.

322. In certain circumstances, it may be necessary to allow continuous access, across a section of the perimeter TAF i.e. for vehicles or cyclists. This will require establishing a gap in the perimeter TAF. Such gaps should be as narrow as practicable with each end of the perimeter TAF turned or ‘kicked back’ at 45° for 3m – 5m in order to deflect GCN away from the gap and limit the risk of GCN gaining access to the Site.

323. Alternatively, commercially available ‘amphibian exclusion grids’ or purpose built ‘newt gates’ may be incorporated into the perimeter TAF to facilitate continuous Site access while excluding GCN.

324. The route of the proposed perimeter TAF and drift fence at a Site should be searched and established to be clear of GCN. To assist the search vegetation may be strimmed or cut back to ground level, taking care to avoid injury to GCN.

325. GCN capture effort may be enhanced by the cutting of areas of longer vegetation present at a Site e.g., scrub, tall grass and ruderals. Vegetation should be strimmed / cut in a directional two-stage process with due regard for the presence of GCN. As practicable the strim / cut of long vegetation should not take place during or within 24 hours of rainfall. In such conditions GCN and/or other amphibians may be foraging within such areas and could potentially be injured or killed by the machinery used.

326. The first stage strim / cut should cut the vegetation to approximately 15cm above ground level to encourage any GCN other amphibians potentially present to move by their own volition towards the perimeter TAF and/or Drift fence. The second stage strim / cut should take the vegetation down to ground level (or 5cm as appropriate) 48 hours following the first cut.

327. At the discretion of the consultant ecologist, it may be acceptable, to reduce the 48 hour period and undertake the two-stage strim / cut in a single day over the course of a morning then afternoon with a hand search for GCN to be carried out immediately prior to the second-stage afternoon strim / cut.

328. As practicable cut material should be removed from a Site after each strim / cut and either taken offsite or utilised to create additional amphibian refugia features such as habitat mounds within the designated GCN RS.

329. Drift fencing may also be used to ring fence (totally enclose) a waterbody or a specific shelter or hibernation feature located within the Site perimeter TAF.

330. TAF may be installed during the winter (November to January) on the basis that there is no/minimal risk of encountering hibernating GCN or disturbing potential GCN hibernation habitat. For example, it is unlikely that GCN would be present in areas with few / no shelter opportunities such as compacted ground and amenity grassland.

331. As deemed appropriate by the consultant ecologist the route/s of proposed perimeter TAF and drift fence installation may be searched by a professionally trained detection dog team for sheltering GCN.

332. If vegetation clearance along route/s of the perimeter TAF and drift fence installation is required, it should be strimmed or cut back to ground level, taking care to avoid injury to GCN,

333. The perimeter TAF should be installed to a height of approx. 60cm incorporating an overhang or ‘top curl’ to prevent GCN from climbing over the TAF and entering the Site and a depth of approximately 30cm incorporating an ‘under-lap’ to prevent GCN from passing underneath the TAF and gaining access to the Site.

334. The excavated material, resulting from the creation of the narrow trench required to facilitate the installation of perimeter TAF and drift fences, should be used as ‘backfill’ and placed turf down on the ‘under lap’ in the trench (to aid suppression of grass re-growth) then be well compacted to limit voids or gaps.

335. The ‘backfill’ must not remain un-compacted overnight, and all perimeter TAF and drift fence should be installed and the trenches back filled on the same day that they have been excavated, to discourage GCN from taking shelter within the trench.

336. The perimeter TAF and drift fence membrane selected for use should be of a type that will not break down or become brittle under exposure to the elements, notably UV light. ‘1000 gauge’ transparent polythene sheeting works well in many situations, as does woven polypropylene. The sheet width must be sufficient to permit the forming of the ‘top curl’ and ‘under-lap’ (a 1m width is appropriate in most instances).

337. Perimeter TAF and drift fence should be installed as taut as possible without noticeable creases or folds which could allow GCN to climb the fence. The use of too heavy a gauge of plastic may make it difficult to remove the creases and folds which could prove problematic on uneven ground.

338. The perimeter TAF and drift fence should be secured to wooden support posts or similar by pads and nails or staples (not battens, which may allow GCN to scale the fence). The support posts should ideally be positioned outside of the area to be subject to GCN capture effort and in the case of drift fencing, on the side of the fence that is considered least likely to encounter GCN.

339. Care should be taken when creating the TAF 'top curl' and the 'underlap, to ensure that they form an effective barrier for any GCN attempting to climb the TAF or pass underneath it. The fencing contractor should ensure that the TAF 'top curl' and the 'underlap' face away from the area subject to GCN capture or exclusion effort. A number of GCN fencing systems with a built in 'top curl' and/or 'underlap' or similar are commercially available.

340. Incorporating sections of one-way TAF into the perimeter TAF layout will effectively deliver an element of Site self-clearance while excluding GCN and preventing them from re-entering the Site. One-way TAF should be sloped at an angle of between 40° and 45° this will allow GCN to climb over and access habitats in the wider area. The use of one-way TAF will enable other species including reptiles and mammals to vacate the Site of their own volition.

341. Any joins in the perimeter TAF must be well secured to a support post with pads and nails. The jointing method should continue underground as well as above. Adhesive taped joins are not normally acceptable for perimeter TAF joins as they will not be sufficiently durable. However, it is acceptable to use adhesive tape to make short-term, temporary repairs to small holes or tears in the perimeter TAF and drift fence.

342. A record of perimeter TAF fence inspections and repair works should be kept by the consultant ecologist as evidence that the perimeter TAF has been properly maintained and that the Site has been kept free of GCN.

343. GCN will often seek shelter in the shrinkage cracks that occur between the perimeter TAF and/or drift fence and the backfill. Consequently, care should be exercised when removing or repairing sections of TAF or replacing support posts.

344. Should sections of the perimeter TAF or drift fence need replacement or removal the backfill should be carefully excavated, under the direction of the consultant ecologist, to minimise the risk of injury or killing sheltering GCN.

345. It will be necessary to control the vegetation along the perimeter TAF and drift fence to prevent the membrane becoming overgrown or over-topped which may enable GCN to re-enter the Site and/or impede the GCN capture effort.

346. Vegetation control along the perimeter TAF and drift fence may be achieved by regular strimming and/or the professional application of an approved herbicide (incorporating a 1m wide strip on both sides of the TAF).

347. At a Site where perimeter TAF is to be retained throughout the development period to exclude GCN the developer / Site manager should schedule a daily

morning TAF inspection and report the findings and any requirement for repairs to the consultant ecologist in a timely manner. The developer should consider installing a security fence or 'Heras' to prevent inadvertent or deliberate TAF damage. Where repeated damage or vandalism to perimeter TAF is experienced the daily morning TAF inspection effort may need to be expanded to include an evening inspection.

348. Should damage to the TAF continue to re-occur or vandalism persist it will become necessary for the consultant ecologist to seek advice from the licensing authority. A failure, for whatever reason, to inspect and maintain the perimeter TAF in good order would represent a breach of the GCN licence terms and conditions and is likely to result in GCN gaining access to a Site.

349. It is the responsibility of the developer and the consultant ecologist to inform the licensing authority, in a timely manner, of any circumstances that are considered to represent a significant breach of the licence terms and conditions. Should it be concluded that GCN have entered or re-entered a Site development works may need to be halted, and a licence modification prepared to address the situation.

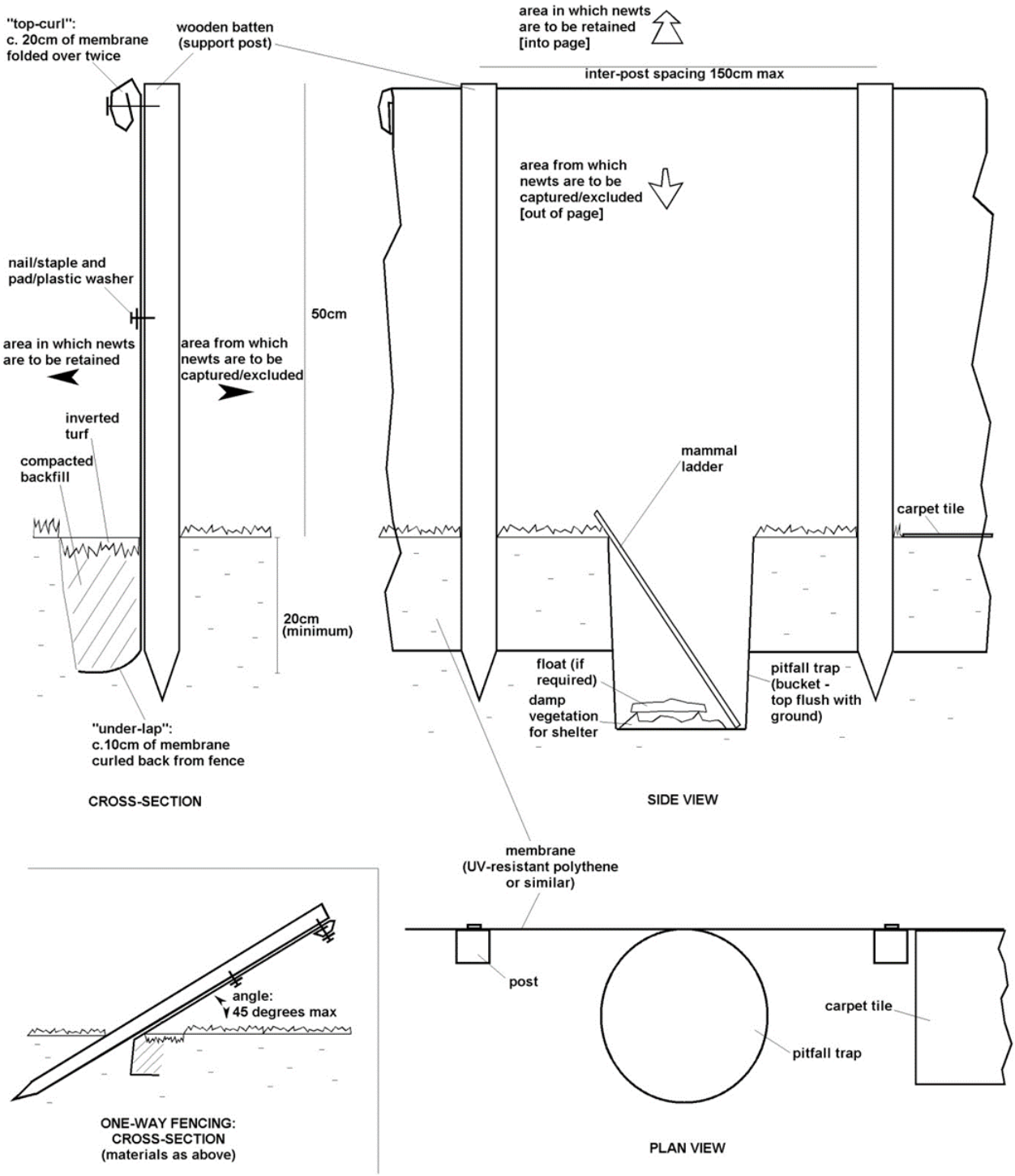
350. During development at a Site the developer may on occasion request that the perimeter TAF is realigned to enable unforeseen, intractable construction or Site layout issues to be addressed. In such circumstances the consultant ecologist must be informed and will decide if the requested TAF realignment requires a GCN licence modification to be submitted to the licencing authority. In general, the minor realignment of TAF (indicatively <100 m) within the Site boundary will not require a licence modification to be submitted.

351. As development works at a Site draw to a close there may be a need to permanently remove sections of the perimeter TAF to enable public open space landscaping and/or the creation of gardens and boundary fences associated with the completed development / properties. The removal of perimeter TAF at a Site as development works concluded should be overseen by the consultant ecologist and may potentially be regarded as minor TAF realignment that does not require a licence modification to be submitted or the TAF to be reinstated.

352. When development works at a Site have been completed the perimeter TAF remaining must be removed in accord with the GCN mitigation licence terms and conditions. The removal of perimeter TAF at a Site should not be undertaken during the winter months (November to January inclusive) as hibernating / dormant GCN may be sheltering along the fence line or in the TAF back fill.

353. In certain circumstances at the discretion of the consultant ecologist and with the agreement of the developer it may be deemed appropriate and permissible to cut the TAF down to ground level and leave the buried sections in place on the basis that they will not be disturbed in the future. It is not acceptable to leave or abandon intact upright perimeter TAF in-situ at a Site following the completion of development works as it may prevent or obstruct GCN movement / dispersal. To do so would breach the GCN mitigation licence terms and conditions and would likely be unlawful.

Figure 2: TAF Standard Installation General Advice



TAF diagram sourced from the English Nature GCN Mitigation Guidelines 2001

Link TAF and Drift Fence, Pitfall Trap Suppliers and Installation Contractors
https://www.legacy-habitat.co.uk/newt-fencing.html

The Natural Resources Wales preferred TAF and Drift Fence Specification
https://gcntraining.co.uk/the-nrw-gcn-taf-spec

GCN Pitfall Traps

354. GCN pitfall traps have historically been used by consultant ecologists in conjunction with the installation of perimeter TAF and drift fences (in combination with the use of artificial amphibian refugia i.e. carpet tiles) to capture and clear a Site of GCN.

355. A GCN pitfall trap is quite simply a white plastic bucket sunk into the ground, directly adjacent the perimeter TAF and drift fence membrane with the top of the bucket set just below ground level.

356. Each pitfall trap should be furnished with amphibian shelter in the form of a thick clump of moss or other suitable material, a float to prevent captured animals drowning in the event of the trap flooding and a mammal ladder to enable shrews', voles and mice to escape should they be caught. It is not acceptable for a smooth piece of dowl or similar to be used as a mammal ladder.

357. The intention is that GCN will walk along the line of the perimeter TAF and drift fence until they encounter a pitfall trap at which point it is intended that the GCN will fall into the plastic bucket and take cover in the shelter material provided.

358. The use of white, square or round plastic buckets as pitfall traps has been debated among consultant ecologists for the last 25 years. It is considered that square buckets may be slightly more effective at intercepting GCN but that GCN may find it easier to scale the corners of square buckets and escape. The use of round buckets may potentially reduce the possibility of GCN escapes.

359. As deemed appropriate by the consultant ecologist, plastic tape or similar may be used around the inner edge at the top of each pitfall trap bucket, to form a small overhang or lip in order to discourage GCN from escaping.

360. White plastic buckets have become the standard for pitfall traps as they reflect light and reduce the risk of overheating in direct sunlight, minimising heat stress impacts on captures. The consultant ecologist, in consultation with the fencing contractor, will determine the design of the pitfall traps to be deployed at a Site.

361. GCN pitfall traps will only work effectively if they are fitted and remain flush to the perimeter TAF and drift fence, with their tops just below ground level. Therefore, as part of the daily inspection of each trap to remove captures a check should be made to ensure that the pitfall traps have not pulled away from the TAF or their tops become raised above ground level, especially after periods of heavy rainfall or very dry weather.

362. In wet periods, especially in clay areas where the water table can rise rapidly, the pitfall traps are likely to be hydraulically lifted above ground level (therefore becoming ineffective) unless some form of pegging-down system is used.

363. If repair / replacement works to a pitfall trap are required, the excavation originally created to seat the pitfall trap and the backfill used to position it should be carefully searched for GCN prior to it being reinstalled.

364. In certain circumstances drilling a series of holes in the pitfall trap base may improve drainage on free-draining soils, conversely these holes may cause any rise in groundwater to quickly flood the trap rendering it ineffective.

365. Spacing of the pitfall traps should generally be between 5m and 10m along the line of the perimeter TAF and drift fence, though higher densities may result in increased capture rates and be appropriate around key areas (e.g. GCN breeding waterbodies and shelter features such as rubble piles). The criteria relating to the minimum level of pitfall trap deployment required at a Site is detailed in Table 4 below.

366. In certain circumstances the consultant ecologist may deem it appropriate to deploy pitfall traps and/or artificial amphibian refugia on the outside of the perimeter TAF membrane. The aim of such deployments is to capture GCN from the local / wider area that are attempting to access or cross a Site to reach a breeding waterbody and/or favoured terrestrial habitat or shelter or hibernation feature. Standard pitfall trap deployment criteria at a Site is detailed in Tabe 4 below.

Table 4: Pitfall Trap Deployment

GCN population size class assessment	Minimum trap density (traps/ha)	Minimum no. of 'trapping nights'
Small	50	30
Medium	80	60
Large	100	90

367. A reduced GCN capture period of 25 nights may be deemed acceptable in exceptional circumstances, for example when a 'Small' GCN population size class is associated with a Site and only minor / low level impacts are predicted and the consultant ecologist deems that reduced GCN capture effort at a Site is appropriate, proportionate and can be justified.

368. The licensing authority will likely grant a conventional GCN mitigation licence application involving a proposed 25-night GCN trapping effort for small scale development and/or in relation to linear developments which involve temporary impacts and where habitats will be quickly re-instated to their previous status and no waterbodies will be lost or damaged.

369. A 'trapping night' is defined as a night during which the weather and seasonal conditions (February to October) indicate that GCN capture is reasonably likely. Such conditions are generally taken to include overnight air temperature >5° Celsius, with rain, or if no rain, there should have been some recent period/s of rainfall, such that the ground remains damp underfoot with no or only light winds (strong winds will cool and/or dry amphibians deterring them from foraging / migrating above ground).

370. In specific circumstances, at the discretion of the consultant ecologist and with regard to the financial and environmental cost, the use of artificial watering (at the scale of a football pitch water sprinkler system) may be deemed appropriate to mimic heavy rainfall and aid the GCN capture effort.

371. The consultant ecologist should review the daily pitfall trap monitoring data and determine if the trapping night conditions on any given date met the capture criteria. The capture of any amphibians, on any given date, would generally indicate that the overnight conditions for GCN capture were suitable.

372. A trapping period of 30 nights as indicated in the above table would mean 30 nights on which conditions were deemed suitable. Intervening periods of cold or dry weather or high winds would mean that the actual period of capture, from start to finish, would in actuality be more than 30 nights. Experience indicates that to deliver 30 trapping nights in accord with GCN capture criteria would be likely to take 40 to 45 nights.

373. To establish that sufficient pitfall trap capture effort has been expended the final five nights of the licenced capture period, will need to result in no or (with the agreement of the licensing authority) only a low capture number i.e. less than 10 adult GCN on any given night.

374. A low number in respect of GCN capture effort is generally accepted to be under 10 GCN (adults and/or sub-adults). It will be at the discretion of the consultant ecologist with reference to the capture data and the licence terms and conditions to determine when the licenced GCN capture effort criteria has been successfully achieved at a Site.

375. To aid the GCN capture effort it is advised that suitable artificial amphibian refugia e.g. carpet tiles approximately 50cm x 50cm should be placed at a 5m to 10m spacing (ideally one between each pitfall trap) along the perimeter TAF and drift fence. Artificial refugia should be placed flush up to the fence and as practicable given approximately seven days to ‘bed in’.

376. On occasion the sole use of artificial refugia along sections of the perimeter TAF and drift fence may be deemed appropriate, specifically when the deployment of pitfall traps is or becomes problematic or is not possible i.e. on areas of hard standing or when specific traps are repeatedly flooded or subject to disturbance or vandalism.

377. Any minor damage to the TAF or pitfall traps should be repaired during the daily monitoring visit. In the event of significant damage or vandalism to the TAF or pitfall traps the consultant ecologist and developer must be immediately informed and remedial repairs undertaken at the earliest opportunity (ideally within 48 hours).

378. During periods of wet weather pitfall traps are likely to require bailing out to remove excess water, to minimise the risk of overnight captures drowning, (a clean, cut down plastic milk bottle can be very effective). It is important to understand that amphibians in their terrestrial phase can and will drown in a pitfall trap containing any significant depth of water. There is also an increased risk of death for small mammals such as shrews, voles and mice if their fur becomes waterlogged.

379. Conversely, during hot or prolonged dry weather it will be necessary to add a splash of water to the pitfall traps during the monitoring visit. The aim should be to ensure that the shelter material used in the pitfall trap remains permanently damp. Adding water will reduce the risk of amphibian stress / deaths as a result of desiccation. To facilitate such effort a water source must be accessible or provided at a Site during the GCN capture period.

380. Anecdotal evidence from consultant ecologists and others, over the past 25 years, indicates that pitfall traps, lawfully deployed at Sites under a GCN mitigation licence, have resulted in high numbers of shrew, vole and mouse deaths likely due to their high metabolic rate, energy / food requirements and individual susceptibility to death due to shock, stress and cold or wet conditions.

381. Where shrews and/or other protected species are considered likely to be encountered or are physically captured in a pitfall trap at a Site it will be necessary for the consultant ecologist to obtain the relevant species licence/s, adhere to the species licence terms and conditions and safeguard any individuals of such species encountered.

382. There is evidence from many Sites (in the form of shelter material, mammal ladders and floats being removed, on a daily basis, from pitfall traps) supported by direct observations that bird species particularly Jackdaws, Crows, Magpies, Jays and Gulls have become habituated to TAF.

383. There have been many instances, where following the installation of perimeter TAF and drift fencing at a Site, birds individually or in flocks have started to visit a Site at dawn to predate the overnight pitfall trap captures before the traps could be subject to the required daily monitoring visit.

384. The extent of such bird behaviour and other potential issues related to foxes, badgers, cats, rats etc… (that may also predate overnight pitfall trap captures) and the likely in-trap predation of each other by captured species, has regrettably not been subject to any detailed research and is likely to be under recorded. The overall impact of pitfall trap predation on GCN populations, subject to capture effort, remains little understood. It is therefore advised that the required daily monitoring of pitfall traps and artificial amphibian refugia should commence at dawn.

385. GCN and/or other amphibian captured should only be handled using a gloved hand (albeit not Latex or Nitrile gloves) and may be held captive for a brief period in secure, clean container/s lined with damp moss prior to their release into suitable cover in accord with the licence terms and conditions at the designated GCN RS. In the event that more than one amphibian species and/or adults and sub-adults are captured they should be kept in separate containers to minimise the risk of injury and/or predation.

386. The overnight temperature and weather conditions and all individual pitfall trap captures (not just GCN and other amphibians) must be recorded. Pitfall trap captures should be recorded by the consultant ecologist, as practicable, to species, sex and life stage and/or number. It is not acceptable to exclude dead animals from the pitfall trap capture record.

387. Photographs should be taken of pitfall trap captures, if deemed likely to aid identification or appropriate to support a change to the GCN capture effort at a Site. It is advised that only suitable trained and experienced personnel should undertake the daily pitfall trap monitoring visits.

388. During extreme weather conditions the consultant ecologist may deem it appropriate to temporarily suspend the GCN capture effort at a Site for a short period (not exceeding four weeks). In such circumstances the pitfall traps may be effectively closed in-situ by securely attaching the plastic bucket lids. If there is any risk of pitfall trap interference the daily monitoring visit will need to continue in order to check for disturbance. The artificial amphibian refugia may safely be left in position as they will not require inspecting every day and pose no specific risk to sheltering amphibians.

389. In the event that the GCN capture criteria at a Site has not been achieved by the end of October it will be necessary for the consultant ecologist to bring the capture effort to a close until the following year. In such a circumstance the pitfall traps must be removed from the ground for storage and the excavations used to seat them checked for sheltering GCN then infilled to ground level. The perimeter TAF and drift fences and artificial amphibian refugia may safely be left in position as they pose no specific risk to sheltering amphibians.

390. The consultant ecologist should advise the licensing authority of any suspension of licenced GCN trapping effort at a Site at the earliest opportunity. It is likely that any October suspension of trapping at a Site will require a licence modification request and a revised work schedule to be submitted to the licencing authority and a revised licence issued before the GCN capture effort can lawfully resume the following year.

391. From November when GCN enter their winter hibernation / dormancy period (generally after the first hard frosts) all GCN terrestrial capture effort at a Site must be suspended and the pitfall traps closed and ideally removed from the ground. Terrestrial capture effort cannot recommence, and pitfall traps re-opened at a Site until the following February (weather dependant) when GCN have started to emerge from hibernation and migrate back to waterbodies used for breeding.

392. Natural England, Natural Resources Wales and NatureScot will not grant (other than in exceptional circumstances) a GCN conventional or development mitigation licence application that proposes the terrestrial capture of GCN at a Site between November and January.

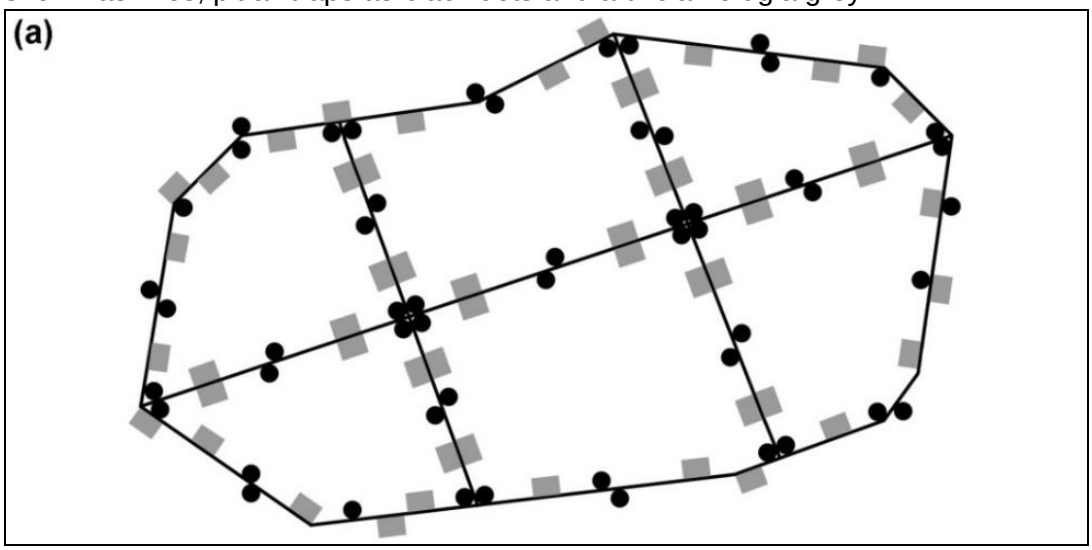
393. The NE GCN DLL scheme has no specific licence terms and conditions relating to winter or other seasonal restrictions on the timing and implementation of terrestrial GCN capture and disturbance at a Site.

394. The NSP GCN DL scheme and the Network Rail / NSP NR GCN OL and GCN OL issued to other companies have restrictions that do not permit or limit the terrestrial capture or disturbance of GCN at a Site during the winter (November to January inclusive). The specific winter restrictions that apply will be detailed in the granted licence terms and conditions.

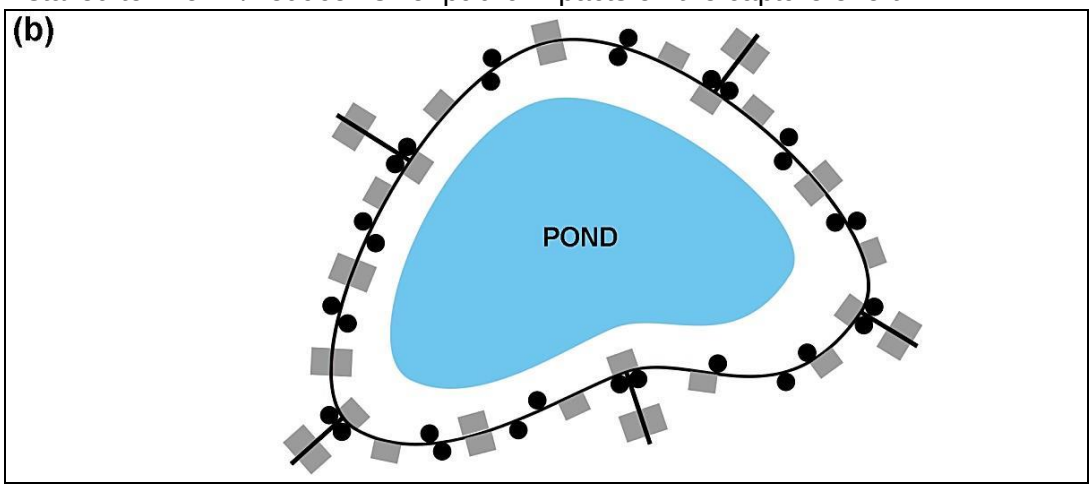
395. The strong directional movement exhibited by adult GCN during their migration back to their breeding sites (February to April) will significantly enhance the effectiveness of perimeter TAF and drift fence and pitfall trap capture effort. A strong, directional movement of GCN away from a waterbody will occur in June / July when the adult GCN leave their breeding waterbodies and enter their annual terrestrial phase and also in August / September when the majority of the seasons GCN sub-adults leave the water to start their three - four-year terrestrial phase. As practicable GCN capture effort at a Site should seek to encompass at least one of these periods.

TAF, drift fence, pitfall trap and artificial refugia Site layout.

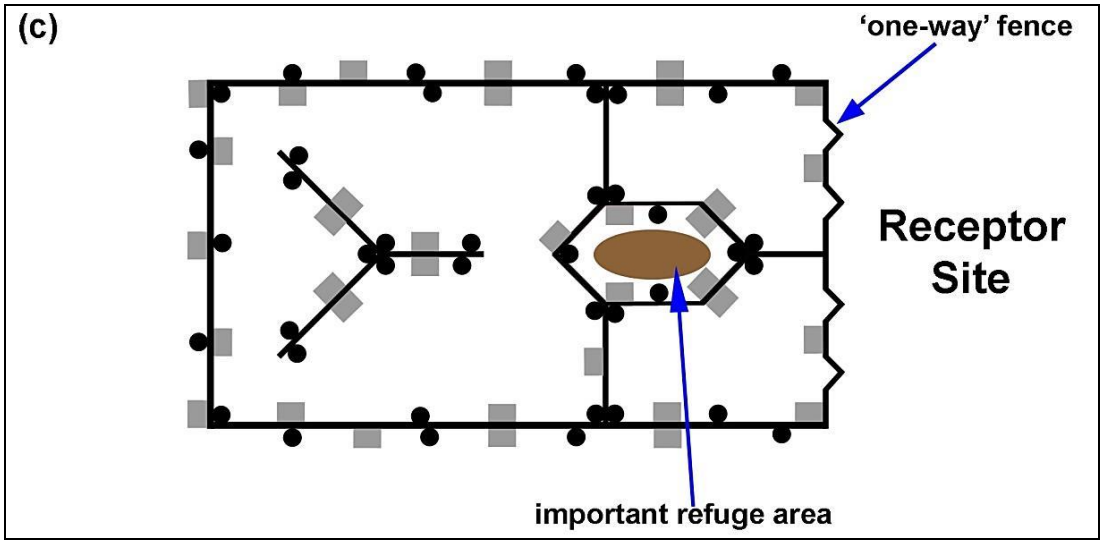
Plan (a) capture of GCN from a large area of terrestrial habitat due to be destroyed. TAF shown as lines, pitfall traps as black dots and artificial refugia grey.



Plan (b) capture of GCN from a ring fenced waterbody. Pitfall traps & refugia on the outside of the fence intended to capture GCN attempting to access the waterbody. Notice boards installed to inform / reduce risk of public impacts on the capture effort.



Plan (c) Capture of GCN from terrestrial habitat containing a refuge area with one-way TAF facilitating an element of self-clearance into the receptor / release site.



Night Torch Search GCN Capture

396. Night torch search GCN capture visits are generally employed at a Site to enhance the perimeter TAF, drift fences and pitfall trap capture effort. They involve at least two suitably trained and experienced ecologist walking the route of the installed TAF and using 1-million candlepower torches to search for migrating, dispersing, foraging GCN.

397. Such visits should ideally be undertaken when the air temperature is >5 °C during February to April and/or August to October (preferably during or shortly after rainfall, with no or only light winds and when GCN prey species such as earthworms and slugs are visible on the surface of the ground. Night torch search visits at a Site are generally not appropriate during, June and July due to the seasonally short nights and very limited periods of darkness at this time of year (reducing the possibility of encountering GCN).

398. The night torch search capture effort employed at a Site should involve a minimum of five visits during each 30-night capture period. A torch search visit should commence approximately 1 hour after sunset and as practicable encompass a minimum of 3 hours and involve multiple checks / sweeps along both sides of the installed TAF membrane. The night torch search area may, at the discretion of the consultant ecologist, be extended to encompass other habitat or features at a Site deemed likely to support GCN.

399. Night torch search personnel should avoid directing their torch beams across the wider Site as this is likely to cause GCN to temporally become inactive and halt their movement towards the perimeter TAF and drift fence.

400. Anecdotal evidence indicates that individual GCN will emerge from shelter and move to and arrive at sections of the perimeter TAF and drift fence at different times and locations throughout the course of the night (dependent on weather conditions, night length and disturbance factors, which may include the torch beams).

401. Experience has shown that an interval of approx. 20-30 minutes between repeat sweeps along the perimeter TAF and drift fence will often reveal GCN previously not encountered / seen and will effectively maximise night torch search GCN captures at a Site. The pitfall traps should also be incidentally checked during the night torch search visits with captures to be recorded, removed and released at the designated GCN receptor site.

402. GCN and/or other amphibian captured at a Site during a night torch search visit should be handled using a gloved hand and may be held captive for a brief period in secure, clean container/s lined with damp moss prior to their release. Should more than one amphibian species and/or adults and sub adults be captured they should be kept in separate containers to minimise the risk of injury and/or predation.

403. In certain specific and exceptional circumstances night torch search visits may be employed as the primary GCN capture method at a Site where:

- Perimeter TAF and drift fences and artificial refugia have been installed but ground conditions make it impractical or not physically possible to deploy pitfall traps,
- The risk of predation, disturbance or vandalism at a Site is so high and severe that even with standard safeguards the consultant ecologist considers that the risk of harm to pitfall captures is unacceptable,
- The consultant ecologist deems, on the basis of a Site-specific rationale, that night torch search effort would be appropriate, proportionate and likely to be as effective as pitfall trapping and
- Conditions at a Site are such or may be modified i.e. by vegetation clearance so that foraging and dispersing GCN are reasonably likely to be visible above ground and detectable during the night torch search visits.

404. The consultant ecologist will need to fully detail and justify the rationale for replacing pitfall trapping with night torch search visits as the primary GCN terrestrial capture method at a Site. The licensing authorities would expect the night torch search capture effort proposed to mirror that for pitfall trapping namely 30 visits for a small population, 60 visits for a medium population and 90 visits for a large GCN population, with all visits to be undertaken during suitable weather conditions.

405. To establish that sufficient GCN night torch search capture effort has been expended the final five-night torch search visits, of the licenced capture period, will need to result in no or (with the agreement of the licensing authority) only a low capture number i.e. less than 10 adult GCN on any given night.

Hand Search GCN Capture Effort

406. A terrestrial hand search for GCN should be undertaken, at the discretion of the consultant ecologist, with due regard for health and safety considerations. Such effort would only be appropriate for distinct habitat features i.e. artificial refugia and/or 'natural' refugia that can be carefully lifted/dismantled by hand including fly tipped material, corrugated tin sheets, brash piles, wooden boards/planks, plastic sheeting, fallen/old timbers, small soil / rubble mounds and areas of fractured hard standing etc. that can be searched with a reasonable possibility of locating / a minimal risk of harming GCN. The hand search should be scheduled to sequentially follow the perimeter TAF, drift fence and pitfall trap and artificial refugia, night torch search GCN capture efforts at a Site.

407. The use of a GCN professional detection dog team to assist with the hand search effort at a Site has become increasingly popular in recent years. Detection dogs can cover large areas quickly, with precision and efficiency. They are non-invasive and can locate GCN when human detection methods are potentially limited or ineffective.

Destructive Search GCN Capture Effort

408. A destructive search should be undertaken, at the discretion of the consultant ecologist, with due regard for health and safety considerations. Such effort would only be appropriate for distinct terrestrial habitat features that can be carefully dismantled / destroyed by hand and/or machine, with minimal risk of harm to GCN. Such features may include large rubble piles, topsoil or subsoil mounds, fractured hard-standing, linear features i.e. hedgerows, ditches, dry stone wall etc.

409. A terrestrial destructive search should, be scheduled to sequentially follow the hand search GCN capture efforts at a Site and as practicable, should not be undertaken in the winter (November to January) or during extended periods of exceptionally hot weather.

410. Destructive terrestrial search effort has historically proved to be relatively ineffective at locating sheltering GCN on large extents of habitat such as grassland or scrub. In certain circumstances GCN capture rates may be improved during a destructive search by the use of a detection dog team.

Waterbody GCN Capture Effort

411. Waterbody drain down and destruction should be viewed as a last resort, when all other options have been considered and discounted. Where waterbody drain down and destruction is unavoidable then under the terms and conditions of a GCN conventional mitigation licence the waterbody destroyed must be replaced at a ratio of 2 new for 1 lost.

412. The NE GCN DLL does not require the developer to undertake GCN capture effort at a waterbody scheduled to be drained down and destroyed. Albeit the developer should undertake capture effort when required to do so to satisfy a planning consent condition or should they decide (on animal welfare and ethical

grounds) to do so. As agreed with the developer the consultant ecologist should put in place arrangements to supervise the waterbody drain down and seek permission from relevant landowner/s to release incidental amphibian captures made during the drain down works into an existing waterbody located within 1km of a Site.

413. The NSP GCN DL may in certain circumstances require the developer to undertake some specific GCN aquatic capture effort at a waterbody scheduled to be drained down and destroyed. The requirement for any such effort will be detailed in the licence terms and conditions and/or the granted planning consent.

414. The Network Rail / NSP GCN OL and other GCN Organisation Licences may in certain circumstances require the developer to undertake some specific GCN aquatic capture effort at a waterbody scheduled to be drained down and destroyed. The requirement for any such effort will be detailed in the licence terms and conditions.

415. Waterbodies scheduled for drain down and destruction under a GCN conventional mitigation licence must be subject to a minimum 60-night GCN aquatic capture effort. The waterbody should be totally enclosed with a drift fence to create a designated compartment. Then a combination of pitfall trapping, artificial refugia, torch search, hand / destructive searches, hand netting and drain down, implemented, as deemed appropriate by the consultant ecologist.

416. When waterbody drain down and destruction at a Site includes a GCN mitigation licence requirement for GCN aquatic capture effort then the designated GCN receptor site (RS) will need to contain a new or enhanced waterbody that has the carrying capacity to support the likely level of GCN and other aquatic captures.

417. Should a new waterbody be proposed as a GCN RS for aquatic captures it will need to be constructed and allowed to establish for a minimum of 12 months prior to the GCN licensed drain down and destruction works at a Site waterbody.

418. In certain circumstances the consultant ecologist may deem it acceptable to reduce this period to 6 months on the basis that water / aquatic vegetation / silt material is transferred into the new waterbody from the waterbody being destroyed thereby enhancing and hastening its establishment and carrying capacity.

419. The consultant ecologist may deem it appropriate to enhance aquatic habitat at an existing waterbody (prior to drain down and destruction of a Site waterbody). Given that qualitative improvements are delivered, i.e. shade reduction, aquatic vegetation control, fish removal etc. the existing waterbody could be designated as the GCN RS for aquatic captures.

420. It would never be acceptable for GCN mitigation licenced waterbody drain down and destruction at a Site to commence or for aquatic captures to be released at a waterbody without landowner permission or without undertaking the identified and required aquatic habitat enhancement works at the designated GCN RS.

421. The required minimum 60-night GCN aquatic capture effort at a waterbody should be undertaken during the period February to October and run concurrently with GCN terrestrial capture effort at a Site.

422. Where a waterbody is located within a Site boundary or within a compartment that is to be subject to a 30 or 60- or 90-night GCN terrestrial capture effort the waterbody must remain enclosed with drift fencing (ring fenced) until the minimum

60-night GCN aquatic trapping effort criteria has been achieved. At that point, on the basis that the Site or the compartment containing a waterbody has meet the 30 or 60 or 90-night terrestrial capture criteria, the drift fence enclosing a waterbody, pitfall traps and artificial refugia may be removed and the area integrated back into a Site.

423. The waterbody drain down and destruction should be overseen by the consultant ecologist and ideally undertaken immediately following completion of the minimum 60 night GCN aquatic capture effort.

424. In specific circumstances for example if the waterbody has totally dried out or the water level has significantly reduced naturally before the end of the 60-night GCN aquatic capture effort period (due to an extended period of dry weather) the consultant ecologist may deem it appropriate to bring forward the drain down and destruction works particularly at a Site where GCN capture numbers have been low.

425. When draining down a waterbody, mesh screens with a diameter of less than 1.5mm, should be fitted to the water pump inlet and outlet hoses, the screens will reduce the risk of GCN and/or fish and aquatic invertebrates, being inadvertently drawn into the pump inlet and assist in their speedy rescue should this occur. The pump outlet hose should be continually monitored during the drain down operation to ensure that water drains / soaks away as planned, and animals are rescued and relocated in a timely manner.

426. Captures made during the drain down operation should be held in a series of water filled buckets with species segregated on the basis of size, life stage and likelihood of predation. GCN and other captures should be recorded and promptly released into the waterbody designated as the GCN RS. In the event that a non-native species is encountered the relevant GCN mitigation licence condition/s relating to INNS must be adhered to.

427. Rather than pumping / drawing water directly from the waterbody, the consultant ecologist, may deem it appropriate to excavate a narrow trench and pump out the waterbody via the trench. If this method is employed, then in addition to the pump inlet and outlet hose screens a further screen should be installed across the mouth of the trench where it joins the waterbody.

428. The excavation of a narrow trench may also enable water to be drained away from a waterbody under gravity negating or limiting the need to use a pump. In such a circumstance the outflow from the trench should be continually monitored during the drain down operation to ensure that water drains / soaks away as planned, and animals are rescued and relocated to the GCN RS.

429. Hand netting should be employed throughout the waterbody drain down process and should involve targeting of any observed individual GCN, their larvae or other species and/or repeated sweep netting across the entirety of the waterbody. Aquatic vegetation should also be checked, as the water level falls, for GCN egg leaf folds or larvae which should be collected for transfer to the GCN RS.

430. Depending on the size and depth of the waterbody the physical drain down and destruction process should normally be completed within 1-3 days. A GCN detection dog team may prove particularly useful in locating individual GCN at the drained waterbody and/or during associated hand and destructive searches and drift fence removal. The area previously occupied by a drained waterbody should be mechanically infilled and levelled / destroyed as soon as reasonably practicable to limit the possibility of it refilling with water.

431. In certain specific circumstances a consultant ecologist may deem it appropriate and proportionate (following discussion with the relevant licensing authority) to use a professional trained detection dog team rather than pitfall traps to undertake required licensed GCN capture effort at a Site. The capture effort may also involve the installation of perimeter TAF, drift fences, deployment of artificial refugia and night torch search, hand and destructive search effort and should accord with the standard pitfall trap deployment criteria as detailed in Table 4 above. The methodology to be employed should be fully detailed in a method statement agreed and licenced by the licensing authority.

Ecological Clerk of Works (ECoW)

432. The use of a Site Ecological Clerk of Works (ECoW) who hold or are Accredited under a GCN survey licence has become widespread across the ecology sector and ECoW are often employed to supervise GCN mitigation licence works including vegetation control, perimeter TAF, drift fence, pitfall trap and artificial refugia installation. They also undertake daily pitfall trap and artificial refugia monitoring, night torch search visits, TAF inspections, hand and destructive searches and supervise waterbody drain down / destruction and may oversee the use of detection dog teams and assist with GCN habitat creation and enhancement works.

433. It should be noted that the role of ECoW provides early career ecologists with varied invaluable training opportunities and experience that should be recorded as part of their continuous professional development.

434. The ECoW and developer should understand that it would not be acceptable for the ECoW to purposefully search for GCN, with the intent to move them in order to facilitate the continuation of development activities, unless a GCN mitigation licence is in place for a Site. To do so would invalidate the GCN survey licence or the ECoW Accreditation and result in a breach of GCN legislation.

435. The ECoW and developer should be aware that the discovery of a GCN at a Site that does not have in place a Site specific GCN mitigation licence will require works to be halted and the licensing authority to be immediately notified (by the ECoW or the consultant ecologist) of the presence of GCN. The advice given by the licensing authority must be followed.

7.0: Non-Licensed GCN Mitigation

436. The licensing authorities take the view that consultant ecologists generally adopt an overly risk adverse approach. Whilst considering all potential risks to GCN could be viewed as commendable, many historic GCN mitigation schemes were designed for developments that actually had very little or no effect on the GCN population. In part this is because it can be very difficult to assess whether GCN will be affected by certain activities, especially when they take place at some distance from GCN breeding waterbodies.

437. GCN tend to be present at increasingly low density at a distance >250m from waterbodies and the task of detecting and capturing them becomes more problematic. Further from waterbodies, there is a corresponding reduction in the predicted scale of impact on GCN populations.

438. Given that GCN can disperse over 1km from a waterbody, the potential for offences may initially seem vast, yet the probability of an offence outside the core breeding and resting area is often small, and even if an offence takes place, the effect on the population may be negligible.

439. Therefore precautionary ‘risk-adverse’ mitigation licence applications should be avoided; mitigation options should consider and appropriately and proportionately redress the actual rather than a perceived risk posed to GCN.

440. The licensing authorities are concerned about risk-averse GCN mitigation licence applications for several reasons. Primarily, there is no legal need, and little benefit to GCN conservation, in undertaking GCN mitigation where there are no offences through development’.

441. Even where there technically is an offence, such as the destruction of a small, distant area of resting place habitat, or even killing low numbers of GCN, it is arguable likely that impacts beyond the core area often have little or no tangible impact on the viability of GCN populations or their FCS.

442. The licensing authorities would like to see perimeter TAF and drift fencing and pitfall traps. used more appropriately, i.e. only where there is a clear, reasonable and justified rationale for employing GCN capture and exclusion measures to safeguard the FCS of a GCN population.

443. The domestic legislation protecting GCN in England, Wales and Scotland arises largely from the original GCN legislation, which has a central aim to restore the species to a favourable conservation status.

444. A more proportionate approach to GCN mitigation, addressing tangible impacts on GCN populations whilst giving lower priority to negligible effects and low impacts, is deemed to be broadly consistent with the aims of the original and current GCN legislation.

445. It remains the responsibility of the developer, acting via their consultant ecologist, to decide whether to apply for a GCN mitigation licence. The early consideration of options including the implementation of GCN reasonable avoidance measures or amphibian best practice measures can often result in no licence being required.

446. In respect of predicted low level development impacts a very low HSI assessment score (<0.5) may be used by the consultant ecologist, in conjunction with GCN survey data and the development proposals, to infer a minimal possibility of encountering GCN at a Site and therefore a negligible risk of committing an offence.

447. In such circumstances it is likely to be deemed appropriate for the consultant ecologist to recommend that a non-licenced 'at risk' GCN mitigation strategy is formulated and implemented at a Site.

448. Adopting a GCN non-licenced mitigation strategy will require the consultant ecologist to prepare a detailed Site specific GCN Reasonable Avoidance Measures Method Statement (GCN RAM MS) or amphibian Best Practice Measures (BPM) document.

- **A GCN RAM MS is appropriate and may be employed when it is deemed that the risk of encountering GCN at a Site is <u>reasonably unlikely</u>. The use of GCN RAM MS will usually require onsite ECoW support.**

- **Amphibian BPM are appropriate and may be employed when it is deemed that the risk of encountering GCN at a Site is <u>highly unlikely</u> but that common amphibians may be present or encountered. The use of amphibian BPM will usually require no or only minimal onsite ECoW support.**

449. While regarded as a 'grey area' it would likely be deemed acceptable, under a GCN survey licence, on the grounds of animal welfare concerns and at the discretion of the licenced person, to move incidentally encountered individual GCN into suitable safe cover located on a Site boundary on the basis that works are halted and the licensing authority are immediately contacted and their advice followed.

The GCN RAM Method Statement

450. A GCN RAM MS should explain the rationale for the non-licenced strategy adopted and will form the basis of a defence in the event that GCN are encountered at the Site following commencement of development works.

451. Should the consultant ecologist decide that the proposed works / actions at a Site may lawfully proceed under a non-licensed GCN RAM MS the approach should be based on a conclusion that it is reasonably unlikely that GCN are present and will not be encountered at the Site and/or that GCN are not dependent, in any way, on habitats at the Site. The conclusion may be supported given that:

- *no GCN breeding sites or other aquatic habitat is to be lost or damaged and/or*
- *low HSI assessment scores of waterbodies located within 250 m of the Site and/or*
- *the normal 250 m terrestrial dispersal range of GCN, and/or*
- *the presence of barriers to GCN dispersal, and/or*
- *no / few GCN shelter opportunities available at the Site, and/or*
- *current or historic GCN presence / likely absence survey data,*

and/or

- *status of GCN in the local area,*
  and/or
- *no or limited increase in post-development human interference impacts,*
  and/or
- *no or predominantly temporary habitat impacts,*
  and/or
- *no or limited habitat fragmentation impacts,*
  and/or
- *no or only predicted low level development impacts,*
  and/or
- *no or limited GCN foraging, dispersal habitat within the Site,*
  and/or
- *more suitable or extensive GCN shelter, foraging, dispersal habitats off-site*
  and/or
- *no predicted negative impact on the favourable conservation status of local GCN population/s potentially associated with the Site,*
  and/or
- *a low risk or only a negligible possibility that unmitigated commencement of development at the Site could adversely impact on individual GCN.*

452. The use of a GCN detection dog team may be of value at a Site where a non-licensed GCN mitigation strategy is implemented and/or when the risks associated with encountering GCN are considered to be low, but works are to be delayed due to a requirement to reasonably establish the likely absence of GCN in a specific area. In such circumstances detection dogs may be used to provide a degree of confidence that GCN are not present. However, the unexpected discovery of a GCN would require works to be halted and the licensing authority contacted, and their advice followed.

453. The GCN licensing authorities will generally not comment on a Site specific non-licenced GCN mitigation strategy formulated by a consultant ecologist. Albeit, the GCN licensing authorities may become involved if concerns are raised with them by a third party i.e. Police or ‘concerned individuals’ regarding the lawfulness of any actions proposed or undertaken at a Site under a GCN RAM MS or amphibian BPM.

454. The licencing authority cannot tell you whether to erect TAF, whether to apply for a licence, ‘approve’ the installation of TAF without a licence or whether any offences would be committed by doing so. It is for the person in charge of the scheme, normally through their consultant ecologist, to decide on these matters.

455. In only very limited circumstances, is it feasible that installing TAF would probably not result in an offence, and therefore no licence would be required. This could include cases where both the following criteria are met:

- There is no habitat suitable for shelter or protection in the area subject to potentially harmful activities.
- The layout of the TAF would not result in substantial interference to the dispersal routes of great crested newts.

456. The chance of an offence being committed increases close to waterbodies used by GCN for breeding and/or suitable terrestrial habitats that can be used as hibernation or daytime refuge sites. For example, no offence is likely if the area to be enclosed with TAF was a small tarmac car park, or area of short mown grassland supporting no resting place habitat and not situated in-between a breeding waterbody and key terrestrial habitat.

457. The consultant ecologist and developer should ensure that they understand the 'at risk' legal, licensing, planning, financial and scheduling consequences associated with implementing a GCN non-licenced mitigation strategy, including worst case scenarios where GCN are unexpectedly found to be present or associated with the Site and development works have to be halted and a GCN mitigation licence application prepared and submitted to the relevant GCN licencing authority for determination.

GCN Reasonable Avoidance Measures

1. Prior to commencing work at a Site a suitably experienced and GCN survey licenced consultant ecologist should be commissioned by the developer to prepare the GCN RAM MS and ensure that the RAM are successfully implemented.

2. The RAM should be implemented at a Site as deemed appropriate by the consultant ecologist or their ECoW with due regard for the current biosecurity guidelines issued by ARG UK in Advice Note 4 Amphibian Disease Precautions: A Guide for UK Field Workers.

3. A copy of the GCN RAM MS and supporting materials including GCN / amphibian identification sheets and 'on call' consutant ecologist or ECoW contact details should be kept on-site and available for inspection during works at a Site.

4. Prior to works commencing at a Site the developer / contractors should undergo a site induction / toolbox talk where the implications arising from the potential presence of GCN / amphibians within the local area and the need to implement GCN RAM should be explained by the consultant ecologist or their ECoW.

5. Prior to any vegetation clearance and/or ground disturbance works commencing at a Site, the extent of works should be agreed by the consultant ecologist or ECoW and the developer / contractors.

6. TAF may be used at a Site in order to discourage amphibians from entering the working area and taking shelter within open excavations, disturbed ground, spoil mounds created as a consequence of the works.

7. In accordance with current guidance, the non-licenced use of TAF (upright and/or one-way) at a Site will be at the discretion of the consultant ecologist and for a limited period until works are complete.

8. TAF may be used as a short-term measure only if it is considered likely to reduce the risk of injury to amphibians and where its use would have no significant impact on the ability of GCN to migrate / disperse and reach their breeding waterbodies and/or shelter sites. The use of one-way TAF would allow amphibians and/or other wildlife, i.e. small mammals to safely vacate a Site into the wider area and discourage them from entering the working area.

9. TAF installation, inspections, maintenance and removal at a Site should be overseen by the consultant ecologist or ECoW in accordance with current guidance.

10. In respect of works at a Site, the short-term installation of TAF, upright and/or one-way should not (in the view of the consultant ecologist) result in any significant interference to the dispersal routes of GCN / amphibians and be reasonably unlikely to result in a breach of current legislation relating to GCN.

11. TAF, if installed at a Site, should be inspected on a regular basis and maintained in good order by the consultant ecologist or ECoW. A detailed record should be kept of the TAF installation date, rationale for its use, the dates of the inspection visits and any required repairs.

12. Terrestrial habitat protection measures, including the use of exclusion zones, should be implemented at a Site, as deemed appropriate by the consultant ecologist.

13. The consultant ecologist and the developer / contractors should identify, agree and appropriately secure any required terrestrial habitat exclusion zones prior to the commencement of works at a Site.

14. The consultant ecologist and the developer / contractors should ensure that no areas of aquatic or terrestrial habitat that are to be retained adjacent / neighbouring a Site are inadvertently destroyed or damaged as a consequence of the works.

15. A Site, together with any storage / lay down areas, should be kept clear of debris and, where practicable; stored materials should be kept off the ground on stillages or pallets so as to prevent GCN / amphibians from seeking shelter under or within them.

16. Where materials need to be delivered to a Site for immediate use and/or temporary storage, directly on the ground, care should be taken not to cause unnecessary or inadvertent damage or disturbance to neighbouring terrestrial habitat.

17. Any skips or bins, if used at a Site, should ideally be stored on baulks of timber to keep them off the ground so as to prevent GCN / amphibians from seeking shelter under them.

18. In the event that spoil needs to be removed from a Site, it should be taken off-site at the earliest opportunity for appropriate disposal.

19. The consultant ecologist should advise the developer / contractor to consider potential bio-security issues relating to the import and removal of material at a Site and the need to undertake a bio-security risk assessment and/or implement measures to prevent the inadvertent spread of non-native species, disease and biological pathogens.

20. Should any excavation/s be left open overnight for any reason, the excavation/s should be searched and checked for sheltering GCN / amphibians. The search should be carried out by the consultant ecologist or ECoW before works re-commence.

21. All open excavations at a Site should ideally incorporate soil ‘ramps’ at either end to allow GCN / amphibians and small mammals falling into them to escape.

22. Wherever practicable, excavations should be in-filled and made good to ground level at the earliest opportunity, so as to remove any hazard to GCN / amphibians.

23. Should spoil/materials be left on the ground overnight at a Site they may require searching for sheltering GCN / amphibians by the consultant ecologist or ECoW before they are moved.

24. Should amphibians (other than GCN) be found terrestrially at a Site they should be captured by gloved hand and may be held captive for a short period in secure, clean container/s lined with damp moss prior to their release into suitable cover adjacent the site boundaries, as deemed appropriate by the consultant ecologist or ECoW.

25. If more than one amphibian species is found (other than GCN) they should be kept in separate secure, clean container/s lined with damp moss to avoid injury and/or predation. Amphibian capture should be carried out by the appointed ecologist or ECoW
.
26. In the event that ecological supervision is not present at a Site when an amphibian is found the developer / contractor should use a gloved hand to place the amphibian/s into the secure, clean container/s lined with damp moss provided by the consultant ecologist or ECoW and kept on-site for such an eventuality.

27. The consultant ecologist or ECoW should be contacted immediately (using the 'on call' service, if appropriate) for advice on the release of any amphibians encountered at a Site and to ensure that the amphibian species is correctly identified.

28. Works at a Site and the implementation of the GCN RAM will, as practicable, encompass daylight hours and the period when the majority of GCN / amphibians are considered likely to be at their breeding waterbodies and/or not active above ground. Consequently, the risk of GCN / amphibians being impacted will be minimised.

29. The consultant ecologist or ECoW should ensure that the implementation of GCN RAM at a Site is undertaken with due regard and consideration for the potential presence of other species.

30. The implementation of a non-licenced GCN RAM MS at a Site does not allow GCN to be captured or removed from a Site and released at another location. In the reasonably unlikely event that GCN are encountered at a Site works must stop and the consultant ecologist and the relevant licensing authority immediately contacted for advice on how to proceed.

Example of a GCN RAM Method Statement

Amphibian Best Practice Measures

The amphibian Best Practice Measures (BPM), detailed below should be implemented at a Site, as recommended by the consultant ecologist and deemed practicable by the developer / site manager. All Site personnel should be made aware of the BPM and a copy should be retained onsite throughout the works.

The implementation of BPM (also referred to as Precautionary Method of Work) at a Site will help to safeguard any population/s of common amphibians i.e. smooth newt, palmate newt, common frog and/or common toad identified to be potentially associated with terrestrial habitats at or neighbouring a Site and/or waterbodies located within 250m.

The BPM should be implemented at a Site with due regard for the current biosecurity guidelines issued by ARG UK in Advice Note 4 Amphibian Disease Precautions: A Guide for UK Field Workers.

In the highly unlikely event that GCN are encountered at a Site work should be halted and advice sought immediately from the consultant ecologist and the relevant licensing authority.

Pre-commencement of works

- Before any work commences at a Site a suitably experienced consultant ecologist should be commissioned by the developer. They will advise the developer and Site Manager on the appropriate and proportionate use of amphibian BPM during the works.
- Prior to the commencement of works at a Site the consultant ecologist will prepare and deliver an amphibian toolbox talk (TbT) for Site personnel. The TbT will encompass amphibian species, ecology, legislation and provide a summary of the BPM to be implemented at a Site and what action Site personnel should take if any amphibians including GCN are encountered during the works.
- All Site personnel should be advised to maintain a high level of vigilance for amphibians during the works (in particular when clearing vegetation or working in close proximity to waterbodies including wet ditches or drains, ponds, water-filled excavations or temporarily flooded areas.

Hand searches

- Hand search effort to locate sheltering amphibians at a Site, where deemed appropriate, may be undertaken by Site personnel.
- Hand search effort, will involve searching for amphibians (by hand and/or machine) at suitable onsite habitat features i.e. areas of scrub, rough grassland, broken ground, rubble and spoil mounds, then, as required, the dismantling of such features.

Waterbody / aquatic habitat works

- All amphibian species are opportunistic, and they may exploit existing, new and/or temporary aquatic habitat i.e. ponds, ditches or flooded trenches or excavations on or neighbouring a Site for breeding, foraging and shelter.
- Given that the proposed works would temporarily impact on an existing waterbody at or neighbouring a Site i.e. draining down, dredging, silt or vegetation clearance it is advised that, as practicable, such work should be carried out between October and January.
- Should a Site excavation fill with water or a previously dry area flood and need to be pumped dry the consultant ecologist should be contacted for advice as the drain down may need to be supervised by an ECoW.

Terrestrial habitat / ground works

- Amphibians are generally active at night and will usually be found by Site personnel sheltering terrestrially under or within suitable shelter habitat during the day i.e. timbers, other materials, scrub, rough grassland, ruderals, broken ground rubble and spoil mounds.
- As practicable topsoil strip or ground disturbance works at a Site, with the potential to disturb amphibians, should be scheduled to be undertaken during the active period for amphibians (February to October weather dependent). This approach will enable

any amphibians potentially present or entering a Site during the works to move away by their own volition.

- Where topsoil strip or ground disturbance works at a Site, with the potential to disturb amphibians, are scheduled to be carried out during the amphibian hibernation period (November to January weather dependent). they should, as practicable, not be undertaken when overnight frosts or temperatures <5°C are forecast for an extended period (more than five consecutive days). In such conditions amphibians will enter a state of torpor / hibernation and will not be able to move away from Site by their own volition (with a high risk of death should they be disturbed at their shelter / hibernation site).

- The consultant ecologist should be contacted for advice when topsoil strip or ground disturbance works at a Site, with the potential to disturb amphibians, are required to be carried out during the amphibian hibernation period (November to January weather dependent).

Vegetation clearance

- When carrying out required vegetation clearance at a Site any areas of longer vegetation present e.g., scrub, tall grass and ruderals should, as practicable, be strimmed/cut in a directional two-stage process with vigilance for the potential presence of amphibians.

- As practicable the strim/cut should not take place during or within 24 hours of rainfall as amphibians may potentially be actively foraging for prey within the vegetation and inadvertently injured or killed by the machinery used.

- The first stage strim should cut the vegetation to approximately 15cm above ground level to encourage any amphibians potentially present to move by their own volition into suitable off-site habitats.

- The second stage strim / cut will take the vegetation down to ground level (or 5cm as appropriate) and will as practicably take place 48 hours following the first cut. However, at the discretion of the consultant ecologist it may be acceptable, to reduce the 48-hour period and undertake the two-stage strim / cut in a single day over the course of a morning then afternoon with a hand search for GCN to be carried out immediately prior to the second-stage afternoon strim / cut.

- All cut material should ideally be removed from Site after each stage and either taken offsite or utilised as practicable to create onsite amphibian refugia features such as habitat mounds.

Site materials delivery and storage

- Designated delivery and storage areas should, as practicable, be identified at a Site prior to the commencement of works and should be used for the delivery and storage of materials and/or spoil arising from any excavations required to facilitate the works.

- The delivery and storage areas should, as practicable, be located on areas of hard-standing or bare ground at a Site, they should be located well away from areas of vegetation including scrub, rough grassland, ruderals and woodland and any waterbodies including wet ditches or drains, ponds, water-filled excavations or temporarily flooded areas located at a Site or on neighbouring land.

- As practicable materials delivered to Site should be stored on pallets or within skips raised off the ground on baulks of timer to discourage amphibians from seeking shelter beneath.

Site excavations

- Required excavations at a Site should ideally be covered or have a scaffold board or equivalent placed in them overnight to allow any amphibians to exit, should they fall in. Excavations should be inspected each morning by onsite personnel to ensure that no amphibians have entered and become trapped in them overnight.

- Where practicable spoil, arisings from excavations and other debris from the works should be removed off Site (ideally on the same day) in order to prevent amphibians potentially taking shelter under or within. If this is not possible any such materials left onsite for more than 24 hours should be checked by onsite personnel for sheltering amphibians prior to removal.

Encountering amphibians on Site

- Site personnel must inform the Site Manager immediately should they encounter any amphibians at a Site during the works. Where practicable, safe and permissible Site personnel may photograph, using their mobile phone camera, the amphibian that they encounter.

- Should amphibians be encountered the Site Manager should immediately contact the consultant ecologist to seek advice on how to proceed. A photograph, if available, will help enable prompt identification of the amphibian species encountered.

- Should smooth newt, palmate newt, common frog or common toad (not GCN or Natterjack toad) be encountered on Site they may be moved, by the Site Manager or site personnel to suitable safe habitat away from the area of works. Amphibians should, as practicable, be captured in a gloved hand, handled minimally and transported to safe habitat in a secure, well-ventilated container, lined with damp moss or leaf litter.

- To avoid the possibility of captured amphibians preying on or cannibalising each other when they are placed into the container, each species should, as practicable, be segregated based on their size with adults and sub-adults moved in separate containers.

- If amphibian/s are encountered at a Site during the hibernation period (November to January) they may be in torpor/hibernation. In such circumstances, at the discretion of the consultant ecologist and strictly on the grounds of animal welfare, it may be deemed appropriate to keep them captive for a short time (24-48 hours) in order for them to warm and become active, before their release into suitable safe habitat.

- In the highly unlikely event that non-native amphibian species are encountered at a Site then works should be halted (as safe to do so) and the consultant ecologist contacted for advice on how to proceed.

- A record should be kept of any amphibians encountered at a Site. The record should include, as practicable, place of capture, species, life stage, release location or other action/s.

- In the highly unlikely event that GCN are encountered at a Site, works will need to be halted, and the consultant ecologist and relevant licensing authority immediately contacted for advice on how to proceed.

Section 8: GCN Habitat Creation / Management / Monitoring

The GCN Habitat Management and Monitoring Plan

458. To ensure that the GCN population, associated with a Site impacted by development, is maintained at a favourable conservation status the developer may be required to produce and fund the implementation of a Site GCN Habitat Management and Monitoring Plan (GCN HMMP) which should encompass a minimum period of 25 years.

459. Delivery of the GCN HMMP objectives should be secured via a planning condition and the GCN conventional / development mitigation licence terms and conditions. The GCN HMMP should provide advice on current best practice for the long-term management of the habitats at a Site created or retained and/or enhanced specifically for GCN.

460. The NE GCN DLL and NSP GCN DL administered schemes and Network Rail NSP GCN OL and the three independently run Local Authority GCN DL schemes and other GCN Organisational Licence schemes are required to deliver GCN Habitat Management and Monitoring over a 25 year period, as detailed in their specific licence terms and conditions.

461. The habitats and features covered by the GCN HMMP, under the terms and conditions of a GCN conventional mitigation / development licence, should ideally remain under the ownership and control of the developer. Alternatively, the developer will need to secure a long-term agreement with the landowner to enable the GCN HMMP to be implemented. The developer will be responsible for ensuring that sufficient funds are made available to ensure the successful delivery of the GCN HMMP objectives.

462. In the event that Public Open Space or areas specifically designated for GCN at a Site are adopted by the Local Authority or transferred to a management company then a management / maintenance fee must be agreed with the developer and paid to the Local Authority or the management company.

463. As practicable and to help safeguard the GCN population/s associated with a residential development Site and the local area all new dwellings should be sold with a 'free' one year Wildlife Trust or a similar organisation membership and supplied with a wildlife information pack. The pack should include information on wildlife-friendly gardening and information relating to GCN aquatic and terrestrial habitat. The aim will be to inform and educate local residents in order to avoid inadvertent disturbance to GCN and other wildlife or damage to their habitats.

464. The GCN HMMP should be implemented by suitably experienced land management contractors with due regard to the presence of GCN and current wildlife legislation relating to the species and encompass the need:

- To maintain the GCN population associated with the Site and local area at a favourable conservation status within their natural range;
- To maintain/monitor the aquatic and terrestrial habitats at the Site created / retained / enhanced specifically for GCN;
- To maintain / enhance the status of other native amphibian and wildlife population/s and biodiversity associated with the Site and local area;
- To prevent damage to, or disturbance of, GCN breeding and/or shelter sites;
- To prevent injury to, or the disturbance of, GCN and other wildlife associated with the Site and local area;
- To ensure current wildlife legislation relating to GCN and other protected species is not inadvertently breached.

465. The GCN HMMP should be implemented in conjunction with the habitat management prescriptions detailed in the Great Crested Newt Conservation Handbook 2001. Additional information on GCN habitat and up to date best practice recommendations may be obtained from Natural England, Natural Resources Wales, NatureScot also ARG UK, The British Herpetological Society, Froglife and GCN Training.

466. It is likely that the successful implementation of a GCN HMMP would ensure that the long-term favourable conservation status of the GCN population associated with a Site and local area is safeguarded.

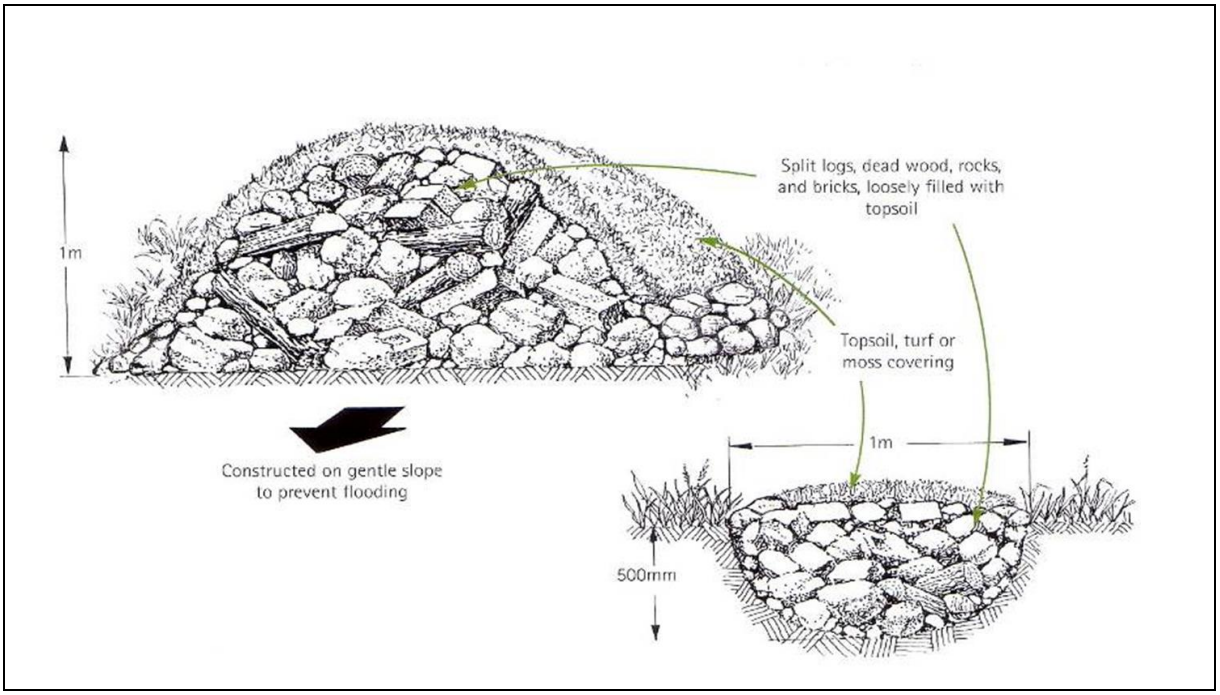
467. The habitat management and monitoring works to be implemented should encompass the aquatic and terrestrial habitats at a Site created / retained and enhanced for GCN. Measures that may be implemented and subject to the GCN HMMP are detailed below:

468. Public open space and specific GCN areas and retained / enhanced hedgerows at a Site should be subject to annual monitoring and management which may, as deemed appropriate by the consultant ecologist, include two site visits each year to assess their status.

469. Regular checks should be undertaken, and remedial measures implemented in a timely manner as required, to ensure the successful establishment / enhancement of any new tree/shrub/scrub planting at a Site.

470. In the event of individual tree/shrub/scrub failures/loss replacement planting should be undertaken at the earliest opportunity. NB: Tree/shrub planting works should be carried out in suitable weather conditions during the autumn/winter planting season.

471. Amphibian hibernacula should be constructed at suitable locations within areas of the public open space and designated GCN habitat areas. The hibernacula should be a minimum of 2 metres long by 1 metre wide by 1 metre high and comprise a mix of very loosely compacted clean rubble, untreated timber, cut vegetation, leaf litter and clods of top or sub soil capped with grass turf. The provision of hibernacula should create / enhance shelter and foraging opportunities for GCN and other amphibians associated with a Site. Where practicable to do so, the hibernacula may be of the inverted design, i.e. buried and covered with soil/leaf litter/turf and will not require any future management or be likely to suffer any significant disturbance.



Great Crested Newt Conservation Handbook © Froglife 2001

472. Areas designated specifically for GCN may be delineated by post and rail fence (with access gates installed as appropriate) to restrict public access. Wildlife information boards should be installed at the access gates to inform the public or residents of new dwellings about the presence of GCN and other species at a Site. Annual checks should be undertaken and remedial measures implemented in a timely manner as required to ensure that the post and rail fences and notice boards are maintained in good order.

473. The grassland areas at a Site should be subject to active management via the implementation of an autumn and/or early spring cutting regime, to encourage the formation of a rough grassland / tussocky type sward. This approach will increase habitat diversity for invertebrates and enhance foraging, shelter and dispersal opportunities for GCN and other wildlife.

474. Any areas of retained woodland at or adjacent a Site should be retained and where practicable enhanced with UK native species tree/shrub planting.

475. Existing waterbodies at a Site should ideally always be retained and as appropriate subject to aquatic enhancement works. The works may include the removal of silt and leaf litter, cutting back and on-going management of trees such as willow *Salix spp* that left unmanaged will excessively shade the waterbody margins.

476. In the event that a waterbody onsite is found to contain a non-native invasive species such as New Zealand pigmyweed *Crassula helmsii* annual works over a number of years will be required to affect its removal and/or ongoing control. Such works should be carried out under direct ecological supervision in accordance with current best practice guidance relating to GCN aquatic habitat management / enhancement / monitoring works and non-native aquatic plant control.

477. Material arising from aquatic habitat management works at a Site should ideally (as practicable) be kept onsite and carefully feathered into suitable adjacent terrestrial habitat under ecological supervision to prevent inadvertent damage to any mature trees and shrubs to be retained.

478. Aquatic habitat management works should be carried out during the period October to January under direct ecological supervision and in accordance with current best practice guidance. The aim of aquatic habitat creation / enhancement works should be to create a waterbody with:

- Limited shading on the banks;
- Substantial (>50%) aquatic/marginal plant cover;
- Areas of open water;
- Varied water depths (<4 metres);
- Surface area of >100m^2 to 300m^2;
- Good populations of aquatic invertebrates and amphibians;
- Absence of non-native, invasive plant species;
- Absence of fish;

- Absence or low density of waterfowl,
- A tendency to dry out occasionally.

479. Waterbodies to be created or retained at a Site located within public open spaces and/or areas designated specifically for GCN should ideally achieve a GCN Habitat Suitability Index score >0.7 indicating 'Good' suitability for GCN. The objective should be that created or retained waterbodies at a Site support successful GCN breeding at least one year in three.

480. In order to restrict public access to any created or retained waterbodies at a Site and address the risk of post development human and/or pet disturbance to GCN and aquatic habitat, appropriate signage should be installed at suitable viewing/vantage points around the margins of all onsite waterbodies.

481. Annual checks should be undertaken to assess the status of any created or retained waterbodies at a Site. Remedial measures should be implemented, as required, in a timely manner, to ensure that the waterbodies continue to provide GCN with suitable aquatic / breeding habitat post-development.

482. Future management works required to be undertaken on any created or retained waterbodies at a Site should be implemented under direct ecological supervision in accordance with current best practice recommendations / guidance.

483. Created or retained waterbodies at a Site may be required to be subject to post development GCN presence / likely absence and/or GCN population size class monitoring. The GCN monitoring effort required at a Site will be detailed and secured in the GCN mitigation licence terms and conditions. Table 5 below details the likely level of post development Site GCN monitoring required at the target waterbodies under the terms and conditions of a GCN conventional mitigation licence.

Table 5: Site/ Waterbody GCN Monitoring Criteria

Site status assessment/ population size class	**Impact type and post development GCN monitoring requirement**		
	Low	**Medium**	**High**
Small population/ low importance	Presence/absence; 1 survey in the second-year post development	Presence/absence; 2 surveys over 4 alternate years	Presence/absence; 4 surveys over 8 alternate years
Medium population/ medium importance	Presence/absence; 2 surveys over 4 alternate years post development	Pop size class assessment; 4 surveys over 8 alternate years	Pop size class assessment; 6 surveys over 12 alternate years
Large population/ high importance	Pop size class assessment; 4 surveys over 8 alternate years post development	Pop size class assessment; 6 surveys over 12 alternate years	Pop size class assessment; 10 surveys over 20 alternate years

484. The GCN population monitoring period will commence when development works at Site have been completed and should be undertaken as detailed / scheduled in the granted GCN mitigation licence.

485. Post-development GCN monitoring at a Site should be undertaken every other year. For clarity, in respect of development works that end during 2025 with a licence requirement to carry out four years post-development GCN monitoring over 8 alternate years, the surveys should be scheduled for 2027, 2029, 2031 and 2033.

486. GCN population monitoring should be carried out at a Site by a suitably experienced and licensed consultant ecologist during the GCN aquatic survey period (mid-February to end of June) and employ current survey methods. The GCN monitoring effort should accord with the granted GCN conventional mitigation licence terms and conditions.

487. Monitoring at a Site should establish the status of the GCN population and identify habitat management issues and inform the implementation, in a timely manner, of required remedial habitat measures.

488. The consultant ecologist commissioned to undertake the post-development GCN monitoring at a Site should provide the developer or the appointed land management company with a short annual report detailing their findings and recommendations in respect of:

- Aquatic habitat created and retained / enhanced at a site;
- Fish presence / control / eradication at a Site;
- Terrestrial habitat created and retained / enhanced at a Site;
- Woodland / scrub / tree / hedgerow management and maintenance;
- Hibernacula status / maintenance;
- Any required additional Site monitoring;
- Education / engagement of the public post-development;
- Disturbance / damage of habitats and/or wildlife at a Site by the public;
- Maintenance of fencing and signage;
- Bio-security accidental or deliberate introduction of INNS onto a Site; and
- Littering, fly-tipping and pollution incidents at a Site.

489. The implementation of the management prescriptions detailed below will help to ensure that the GCN HMMP objectives are successfully achieved. It is important that all personnel involved with the management and monitoring works are made aware that GCN are associated with a Site and the local area. They should fully understand the strict legal protection that applies to GCN and their breeding/shelter sites and their personal responsibility to ensure that current legislation relating to GCN is not breached during required management and monitoring works.

490. Waterbodies at a Site should be managed so that approximately one third of the surface area is clear of aquatic vegetation by the end of winter. This will enable sunlight to warm the water which will aid the development of GCN eggs and larvae and help to prevent the waterbody from becoming choked with vegetation during the summer.

491. Removal of excess aquatic vegetation from a waterbody should be conducted during the winter months (November to January) when GCN are less likely to be present and in accord with current best practice guidance.

492. Aquatic vegetation should be removed carefully by hand or raking out from designated locations around the waterbody margins to minimise disturbance. Vegetation removed from a waterbody should be checked for GCN (adults and larvae) other amphibians and aquatic invertebrates and then left to drain on the bank for several hours, ideally days, to allow any aquatic invertebrates inadvertently removed to return to the water.

493. Aquatic vegetation removed from a waterbody at a Site should be retained and used to create habitat mounds or terrestrial shelter habitat within onsite areas designated for GCN. This approach will provide GCN and other wildlife with additional shelter/foraging opportunities at a Site.

494. Carrying out waterbody management and maintenance works during the winter months will significantly reduce the likelihood of encountering and inadvertently removing adult GCN or their eggs and / larvae from a waterbody with removed aquatic vegetation and/or litter.

495. The removal of any wind-blown litter or fly-tipped materials from a waterbody during the spring and summer should be approached with caution as GCN have been known to shelter within such material and will occasionally lay their eggs on litter within a waterbody i.e. plastic bags, paper, bin liners and crisp packets.

496. The use of herbicides, pesticides, and fertilizers or other chemicals should be avoided within the areas at a Site created, retained and/or enhanced for GCN and especially around waterbodies. In the event that some herbicide spraying becomes necessary at a Site for the control of dominant vegetation or INNS then great care should be taken to avoid any accidental wind-blown or run-off contamination of any ponds/water bodies and terrestrial habitats.

497. Amphibians, especially their larvae, are susceptible to a range of products commonly used in land management. Even relatively low levels of contamination can result in their injury, death or may adversely impact on their ability to breed successfully.

498. Should the presence of INNS including New Zealand pigmyweed *Crassula helmsii;* Water fern *Azolla filiculoides*; Nuttall's waterweed *Elodea nuttallii*; Parrot's feather *Myriophyllum aquaticum*; Curly pondweed *Lagarosiphon major*; Alien marsh pennywort *Hydrocotyle ranunculoides* and Himalayan balsam *Impatiens gl*andulifera

be identified in a waterbody or terrestrially at a Site then the consultant ecologist should seek specialist advice regarding their removal without delay.

499. Should fish be identified as present within a Site waterbody they should be removed as soon as reasonably practicable. This is of importance as many fish species will predate GCN larvae. Historically, deliberate / accidental introductions of fish into GCN breeding waterbodies have caused or been associated with the collapse and/or localised extinction of GCN populations at sites in England and Wales.

500. The successful removal of fish from a waterbody is fraught with difficulty and requires careful consideration of the likely impacts on other protected species potentially present i.e. water shrew, water vole, eels, white clawed crayfish and a variety of protected aquatic invertebrate species. Fish removal may only be achievable by lowering the water level (using a pump) and allowing the waterbody to completely dry out and remain dry over several week / months.

501. Bird and mammal predators i.e. herons and foxes, mink, cats etc. may take advantage of the opportunity presented to predate fish from a partially drained waterbody (albeit they will also take amphibians). Alternatively, netting and/or electro-fishing (to stun the fish prior to netting) and their subsequent removal and relocation may be deemed appropriate.

502. It is important to note that fish removal / eradication works must be carried out by suitably experienced personnel and supervised by specialist experienced / licensed consultant ecologists.

503. Prior to undertaking any fish removal / eradication works at any waterbody that supports GCN, Natural England or Natural Resources Wales, or NatureScot and The Environment Agency or the Scottish Environment Protection Agency should be contacted for advice.

504. The removal / eradication of American signal crayfish, identified to be present at a waterbody created or enhanced for GCN, should also be undertaken as soon as reasonably practicable by a suitably experienced consultant ecologist.

505. Should waterfowl impacts become excessive at a waterbody i.e. the presence of large numbers of mallards *Anas platyrhynchos* or Canada geese *Branta canadensis*, a suitably experienced consultant ecologist should be contacted to advise on the implementation of waterfowl discouragement measures.

506. As practicable no large trees or shrubs should be planted or allowed to become established within approximately 5m of a waterbody onsite. Any self-sown shrub / tree seedlings found within 5m of the water's edge should be promptly removed. This will help to prevent a waterbody from becoming excessively shaded.

507. Should a waterbody fail to hold a sufficient depth of water for long enough to support successful GCN breeding for more than three consecutive breeding seasons, or if the waterbody is considered to have failed, appropriate repair /

restoration works must be carried out as soon as is reasonably practicable. All works should be undertaken by a suitably experienced contractor and supervised by a suitably experienced / licensed amphibian ecologist.

508. The licensing authority will generally consider a created / enhanced waterbody to be successful if, having regard to its age, the GCN monitoring effort establishes that it has been colonised / occupied by GCN, has a Habitat Suitability Index score ≥ 0.7 and is not in evident decline.

509. The created/retained/enhanced terrestrial habitats at a Site should be managed in order to provide GCN with a mosaic of habitats offering shelter, foraging and dispersal opportunities.

510. Areas of grassland should ideally be managed, via the implementation of a late autumn and/or early spring cutting regime, to encourage the formation of rough grassland and tussock type sward. This approach will increase habitat diversity for invertebrates and enhance foraging, shelter and dispersal opportunities for GCN and other wildlife.

511. When cutting, grassland areas should not be cut below 15cm in height in order to encourage the formation of the desired 'tussocky' sward. To avoid ground compaction low ground pressure mowing equipment, i.e. quad and flail or hand-operated 'brushcutter / strimmers', should be used. Works should include the cutting or strimming of terrestrial vegetation at a Site (in rotation) to help maintain a mosaic of wildlife friendly habitats.

512. Care should be taken when undertaking any vegetation management works using machinery. This is especially relevant following overnight rainfall when the ground is wet or damp (when amphibians are more likely to be present or active on the surface during the day). Care should also be taken when working or using machinery close to a waterbody to avoid inadvertently damaging the margins.

513. Any significant vegetation control works required at a Site requiring the use of machinery should ideally not be undertaken during the bird nesting season (March to September) in order to avoid potential disturbance to nesting birds (which would be an offence). Ideally the works should be carried out after the first hard frosts, during dry weather, when GCN and other amphibians are likely to be under cover and are least likely to be disturbed.

514. In the event that fly-tipped material is illegally dumped at a Site (including old supermarket trolleys, timbers, plastic sheeting, carpets, rubble, paving slabs, etc.) specialist advice should be sought prior to removal as GCN may shelter under or within such material. If GCN or other amphibians are accidentally found / disturbed during management or maintenance works care must be taken when replacing the shelter object to ensure that they are not killed or injured. If the object cannot be immediately replaced, without the risk of injury to the animal it should be released into neighbouring suitable safe cover.

515. The use of herbicide and pesticides should be avoided to encourage the maintenance and development of a diverse vegetative structure and allow the invertebrate population/s associated with a Site to increase.

516. Should any areas at a Site need to be significantly disturbed in the future specialist advice should be sought well in advance of any such works taking place. A GCN mitigation licence may need to be obtained to enable such works to be undertaken lawfully. NB: It is essential not to disturb/damage/destroy GCN breeding or shelter sites as this would constitute an offence.

517. Areas of new tree/shrub planting at a Site should require only relatively infrequent management which will mainly involve the replacement of individual plants that are lost or damaged during the first 3 - 5 years following planting. The replacement of lost/damaged trees and shrubs and/or any required additional planting should be with UK native species of local provenance. New planting should be protected with rabbit guards and appropriately staked. Thinning of trees may be appropriate after Year 7-10 to prevent excessive future shading and maintain a mosaic of habitats.

518. Hedgerows at a Site should ideally be managed in accordance with accepted conservation hedgerow management recommendations. Conservation hedgerow management is less intensive than modern hedgerow cutting regimes and delivers significant benefits to wildlife. The management/maintenance activities detailed below are recommended for conservation hedges and should, as practicable be implemented:

- Trim newly planted hedgerows to encourage a good root stock and bushy growth.
- Allow some hedgerow trees to ‘grow-out’ as this will provide additional habitat.
- Where practicable, retain deadwood as this is important for certain invertebrates.
- Leaf litter that collects beneath hedgerows can provide cool, damp, invertebrate-rich habitat that is ideal for amphibian foraging and shelter and so should be left in place.
- Re-plant gaps as hedgerow continuity is important for wildlife dispersal and bat navigation. Hedgerows should aim to be at least 1.4m high and 1.2m thick to provide sufficient cover for nesting birds.
- Protect hedgerow-base vegetation as it can contain a diverse range of species which offer shelter and foraging opportunities.
- Avoid herbicide usage near hedgerows as non-target species can be killed / damaged.
- Avoid using fertilisers near hedgerows as increased nutrients can encourage grass growth.
- Cut hedgerow-base vegetation infrequently.
- Cut alternative areas (or top then sides) to allow re-colonisation.
- Leave berry-bearing sections of hedgerow until February to provide winter food for birds and mammals.

519. Hedgerows at a Site may on occasion require ‘gapping up’ with young saplings to replace failed plants. Any hedgerow plants used should be UK native hedgerow species such as hawthorn, field maple, holly, dog-rose or field-rose and be of local provenance. Planting should be undertaken at 45cm spacing in a double

offset row along the section to be gapped up. All planting should be fitted with a rabbit guard and staked as appropriate.

520. Any required replacement planting and/or gapping up of hedgerows at a Site should ideally be carried out during autumn/winter and/or early spring in appropriate weather conditions (ground not frozen or waterlogged).

521. If it becomes necessary to remove any wind-blown litter or fly-tipped rubbish from a Site within areas of scrub or from the base of a hedgerow, it should be done carefully as animals, including GCN may be sheltering underneath. If and when the hedgerows require cutting and/or laying this should be carried out between October and February to avoid the bird nesting season which encompasses March to September.

Note: before undertaking any significant hedgerow disturbance/management works at a Site during the bird nesting season a suitably experienced ecologist should be contacted for advice and a nesting bird check carried out 24 hours before the works start.

522. Woodland and mature tree management at a Site should be infrequent and will mainly involve required tree works to address health and safety concerns relating to individual mature trees within or adjacent a Site that become diseased or storm damaged. Note: several species of bat use mature trees as roosting sites. All UK bat species and their roosts are strictly protected under current wildlife legislation. Therefore, any works involving the felling/cutting of damaged/diseased mature trees or removal of tree limbs at a Site should be approached with caution, after consulting an experienced bat ecologist.

523. Wherever practicable, fallen or cut trees/branches should be left in-situ at a Site to provide habitats for fungi, invertebrates and shelter/foraging opportunities for GCN and other wildlife. Where practicable to do so, required tree works should be undertaken outside of the bird nesting season (March to September inclusive).

524. Care should be taken to avoid disturbing potential amphibian hibernation sites, e.g. log piles/fallen tree limbs. Potential amphibian hibernation sites should be left undisturbed and will generally not require any maintenance. To create additional amphibian refugia habitat at a Site, cut logs, dead wood or cut plant material from terrestrial / aquatic management works can be placed in loose heaps directly onto the ground at suitable locations.

525. Amphibian refugia habitat at a Site should ideally be located in cover where sunlight will not dry them out and where there is no risk of flooding. Such habitat will provide GCN and other wildlife with additional shelter and foraging opportunities. Amphibian refugia at a Site may be secured with galvanised chicken wire or similar where vandalism or disturbance is thought likely. Willow *Salix spp* logs are deemed to be unsuitable for the creation of amphibian refugia at a Site, when in close proximity to a waterbody, as they readily take root potentially resulting in excessive shading.

526. Should any future works at a Site be likely to result in significant ground disturbance and/or disturbance the advice of a suitably experienced consultant ecologist should be sought.

527. Albeit somewhat dated the Great Crested Newt Conservation Handbook 2001 contains a wealth of information and practical advice relating to GCN aquatic and terrestrial habitat creation, enhancement, management and maintenance that remains worthy of consideration by consultant ecologists involved with GCN licenced mitigation projects.

528. The GCN HMMP should provide detailed advice on current best practice for the long-term management of the aquatic and terrestrial habitats at a Site created, retained and/or enhanced specifically for GCN. It should be implemented by suitably experienced land management contractors with due regard for the presence of GCN, current wildlife legislation and best practice relating to the species.

529. It may also be used to inform the required level of post development funding and should underpin implementation of proposed long term GCN Site safeguard control mechanisms and contingency measures.

530. The successful implementation of a GCN HMMP will help to ensure that the long-term favourable conservation status of the GCN associated with a Site and local area is appropriately safeguarded and maintained within their natural range.

Link: Great Crested Newt Conservation Handbook © Froglife 2001
https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

9.0: Long Term Site Safeguard

531. Natural England, Natural Resources Wales, NatureScot are acutely aware that a failure to deliver proposed GCN long term Site safeguards, specifically post development aquatic and terrestrial habitat management and monitoring has been the main reason why the majority of historic Site specific GCN licensed mitigation strategies have failed to achieve the primary aim of maintaining the favourable conservation status of GCN population/s.

532. It is broadly accepted within the ecology sector that, in simple terms, a lack of adequate post development funding and inadequate control mechanisms and a lack of contingency measures has been responsible for the failure of the majority of GCN licensed mitigation strategies linked to a wide variety of development projects across the UK.

533. Consultant ecologists and the licensing authorities understand that historically developers often had limited interest and little/no commercial incentive to take on the direct delivery of post development GCN Site safeguards.

534. This has resulted in a situation whereas development works at a Site draw to a close a developer will often transfer Site ownership and all legal responsibilities for the delivery of GCN safeguards to an independent organisation or land management company.

535. Such transfers of Site ownership and legal responsibilities have historically created major difficulties for the licencing authorities and LPA and have resulted in the failure of mechanisms and contingencies that were intended to secure the delivery of post-development GCN Site safeguards.

536. The main reason for such failures has been that many of the independent organisations or land management companies simply cease to exist as legal entities within 5 – 10 years as the funding put in place by the developer runs out and/or no longer meets the actual cost of delivering the required post development Site GCN habitat management and monitoring.

537. In such circumstances with legal costs prohibitive and the licencing authority and LPA having no recourse to the appointed organisation or land management company, as it no longer exists, or to the original developer who is no longer involved, post-development GCN safeguards effectively end and the intended long-term outcomes cannot be enforced or delivered.

538. The NE GCN DLL and NSP GCN DL schemes have sought to address the long-term Site safeguard issue by making it integral and a fully funded component of the granted licence.

539. From 2017 to 2025 the NE GCN DLL and NSP GCN DL schemes combined have created approximately 5,000 new and/or enhanced waterbodies. Each of these waterbodies is subject to management and monitoring over a 25-year period and adequate funds have been secured to deliver these works.

540. It worthy of note that approximately 35% of the waterbodies created / enhanced by the NE GCN DLL and NSP GCN DL schemes have had GCN presence / breeding confirmed.

541. Consultant ecologists and developers that intend to proceed with a development under a GCN conventional / development mitigation licence should agree and ensure that the proposed GCN mitigation strategy for a Site fully details how any required long term Site safeguards, specifically GCN aquatic and terrestrial habitat management and post development monitoring, will be funded over a minimum period of 25 years and what control mechanisms and contingency measures are to be implemented.

542. Mechanisms for post-development Site GCN safeguard may include Planning Conditions, a Section 106 Agreement in England and Wales or a Section 75 Agreement in Scotland, Conservation Covenants, a 25-year GCN HMMP and the terms and conditions of a GCN conventional / development mitigation licence.

543. The LPA should consider if it would be appropriate for them to approve a planning application that proposes a GCN conventional / development mitigation licence strategy that does not fully detail how GCN long term Site safeguards will be funded and the control mechanisms and contingency measures that are to be implemented over a 25-year period.

544. This is of particular relevance to the LPA, given that a failure by the consultant ecologist and the developer to clearly detail how future funding will be secured and what control mechanisms and contingency measures are to be implemented, will likely result in the licensing authority refusing to grant a GCN conventional / development mitigation licence application. In such a circumstance rejection of the licence application is likely to be on the basis that the application does not satisfy the favourable conservation status test.

545. The mechanisms for GCN long term safeguards at a Site are a highly specialised area and fraught with legal complexity. Despite this a consultant ecologist should endeavour to ensure that they have a general understanding of the process, issues, benefits and risks associated with the formulation, implementation and enforcement of such mechanisms.

546. For development impacting GCN it should be the responsibility of the developer, planning consultant/s, lawyers, LPA and the relevant licensing authority (with support from the consultant ecologist) to decide on the suitability and viability of proposed GCN long term Site safeguards and the funding and control mechanisms to be implemented at a Site. Some examples have been provided below.

Section 106 Agreement: The developer pays a one off or regular agreed sum/s in instalments to fund an agreed programme of works to be delivered over an agreed period as detailed in the Site GCN HMMP. This is the most commonly and widely used mechanism in England and Wales for defining the framework for assuring delivery of the GCN HMMP. The Section 106 Agreement should specify any proposed / intended changes in Site ownership / tenure and/or transfer of legal responsibilities to other independent organisations or land management companies or a local authority, or third sector body post development. Provisions within the Section 106 Agreement may include requirements for updates to the GCN HMMP and required reporting and detail agreements related to commuted sums or bonds, annual service charges / ground rents, commuted sums or bonds.

Commuted sum: The developer provides the independent organisation or land management company or a local authority, or third sector body that takes on Site ownership / tenure and/or the legal responsibilities for a Site with an up-front lump sum payment to fund an agreed programme of works to be delivered over an agreed period, as detailed in the Site

GCN HMMP. A commuted up-front lump sum payment may be significant and any interest earned from investing it should be ring-fenced and used only for agreed works as detailed in the Site GCN HMMP.

Annual service charge / ground rent: The owners / occupiers of the new dwellings or industrial or commercial buildings are as a condition of purchase legally required to pay an annual index-linked service charge (or a part thereof) to fund an agreed programme of works to be delivered over an agreed period, as detailed in the Site GCN HMMP. The resources / funds made available via the service charge must be ring-fenced and used only for agreed works as detailed in the Site GCN HMMP. This approach effectively delivers in-perpetuity funding for a Site and avoids / minimises the need for a developer to provide a significant up-front lump sum payment.

Legal agreement with local conservation organisation: A developer may choose to enter into a legally binding agreement and set up a specific funding arrangement with a local conservation organisation for the named organisation to undertake an agreed programme of works to be delivered over an agreed period, as detailed in the Site GCN HMMP. This approach may be acceptable to the GCN licensing authorities albeit if the agreement is not also covered by a planning approval condition it may prove difficult to enforce should issues arise for example: disagreements regarding the works schedule, required price increases and/or delays with payments.

Agreement under Section 20 of the Local Government (Scotland) Act 2003: A developer in Scotland may choose to enter into a legally binding agreement with a Local Authority where the Authority has an interest in a Site or the Site is due to come into Local Authority ownership. The developer will pay agreed sums in instalments to a Local Authority to fund an agreed programme of works to be delivered over an agreed period as detailed in the Site GCN HMMP. This approach is deemed to be more likely to be enforceable should disputes arise in the future.

Section 75 Agreement under Town and Country Planning (Scotland) Act 1997 as amended: A developer in Scotland may choose to provide a payment/s to fund an agreed programme of works to be delivered over an agreed period as detailed in the Site GCN HMMP. Such agreements will often involve the developer commissioning a specialist ecological contractor with the appropriate level of expertise to undertake such works. This approach should be linked / tied to a planning approval through a legal agreement with the Local Planning Authority and landowner/s and is deemed to be more likely to be enforceable should disputes arise in the future.

Bonds: While not commonly used in relation to GCN related development funds may be provided / secured by a developer in the form of a bond. Such bonds potentially provide a financial resource / contingency that could be used in the event that the agreed programme of works to be delivered over an agreed period, as detailed in the Site GCN HMMP are not being carried out by a Site owner, occupier, or specialist ecological contractor. The requirement for provision of a bond, the sum involved and where / how it is to be secured / invested may be defined within the provisions of a Section 106 or other agreement. This approach may be used to provide a degree of certainty should there be deemed a risk that GCN HMMP funding issues may arise in the future. The bond funds should be accessible to and may be used by regulatory or interested parties to facilitate / fund the implementation of

outstanding or required conservation works or actions at a Site. Difficulties may arise in the event of changes in Site ownership / tenure and/or the transfer of legal responsibilities to other independent organisations or land management companies or a local authority, or third sector body and/or other transfer of legal interest in a Site.

Community Infrastructure Levy: The Community Infrastructure Levy (CIL) is a planning charge, introduced by the Planning Act 2008 as a tool for LPA in England and Wales to help deliver infrastructure to support the development of their area. This levy can be used to fund a range of facilities including parks and green spaces. CIL offers a potential alternative to a Section 106 Agreement where the GCN mitigation strategy proposals dovetail or are directly linked with the creation of accessible green spaces or parks to be used by the public. This approach may be used to fund the agreed programme of works to be delivered over an agreed period, as detailed in the Site GCN HMMP. However, its use is unlikely to be appropriate at a Site and in situations where the GCN mitigation strategy proposed requires public access to be significantly restricted to prevent potential disturbance, by the public, of new or enhanced aquatic and/or terrestrial habitats created specifically for GCN.

Wildlife and Countryside Act 1981 (as amended) Section 39 Agreements: Such Section 39 Agreements enable the LPA or a statutory nature conservation body to enter into an agreement to manage land in a particular way. The agreement should detail the funding provision / mechanism and the agreed programme of works to be delivered over an agreed period, as detailed in the Site GCN HMMP. The requirement for a Section 39 Agreement may be included in the provisions of a Section 106 Agreement.

Conservation Covenants: A Conservation Covenant is generally a private and voluntary arrangement made in the public interest between a landowner and a conservation body which is intended to safeguard the maintenance of conservation value or specific natural or heritage features at a Site. A Conservation Covenant is intended to continue to be effective even after a change in Site ownership or a transfer of legal interest. If a Conservation Covenant is proposed in regard to a Site GCN mitigation strategy it should detail the funding provision / mechanism contingency measures and the agreed programme of works to be delivered over an agreed period, as detailed in the Site GCN HMMP. As a voluntary arrangement difficulties and issues relating to the funding and delivery of the GCN HMMP works may arise in the future.

Restrictive Covenant: a Restrictive Covenant proposed in the context of a GCN mitigation strategy aims to restrict the use of a Site and is intended to be binding upon the current owner and any future owners of a Site. Such Restrictive Covenants are mainly used to prevent / restrict damaging activities, including potential future development at a Site and/or the destruction of specific habitat features that have been incorporated into the gardens of new residential properties and/or areas of landscaped and/or public open spaces associated with residential, commercial, industrial or infrastructure developments. Restrictive Covenants have historically created issues, particularly with the owners of new properties, who object to or are unaware of the covenant restrictions placed on them and may undertake activities that are not permitted. In such circumstances significant time, effort and cost may be incurred to appropriately resolve such issue/s as they arise (repeatedly) at a Site.

A novel Restrictive Covenant was put in place by the developer at a new 350 property residential development Site in England. It has proved to be particularly effective and has ensured that the annual funds required to undertake the agreed programme of works as detailed in the Site GCN HMMP have been made available from 2012 to date.

In summary the Restrictive Covenant in place at the Site prevents the legal completion of the sale of any property at the Site unless or until the current owner of a property provides the prospective buyer and/or their legal representative with evidence, in the form of historic paid invoice/s or a written statement from the company appointed to collect such payments, that the annual service charge / ground rent linked to the property has been fully paid up-to-date.

This approach has ensured that although the annual service charge / ground rent linked to a property may not always be paid on time, it will always be paid eventually and funding for the annual delivery of the GCN HMMP works has been consistently delivered. The provision for proportionate charges i.e. interest and fines for late payment (to recompense the management company for costs incurred) have been included as part of the Restrictive Covenant and provides an incentive for timely payment and is likely to assist with any required future enforcement.

Link: Section 106 Agreement in England and Wales

Link: Section 75 Agreement in Scotland

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Animal Biology and Genetics, University of Florence, via Romana 17, I-50125 Florence, Italy 2 Istituto Ricerche Cliniche Prof. Fanfani SpA, piazza Indipendenza 18, I-50129 Florence, Italy. © Frangioni et al.; Licensee Bentham Open. This is an open access article licensed under the terms of the Creative Commons Attribution Non-Commercial License (http://creativecommons.org/licenses/by-nc/3.0/) which permits unrestricted, non-commercial use, distribution and reproduction in any medium, provided the work is properly cited. https://img1.wsimg.com/blobby/go/16cbc21b-e74b-4442-9465-d2e986160b14/downloads/Oxygenisis%20-%20Zoology%20Journal.pdf?ver=1720962725668

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