Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A

2019-2024

Conservation status assessment for the species:

S1166 - Great crested newt

(*Triturus cristatus*)

Wales

Cyfoeth Naturiol Cymru
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JNCC

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Important note - Please read

- The information in this document represents the Wales Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural Resources Wales, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 National Site Network coverage for Annex II species).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.

Assessment Summary: Great crested newt

Distribution Map

Range Map

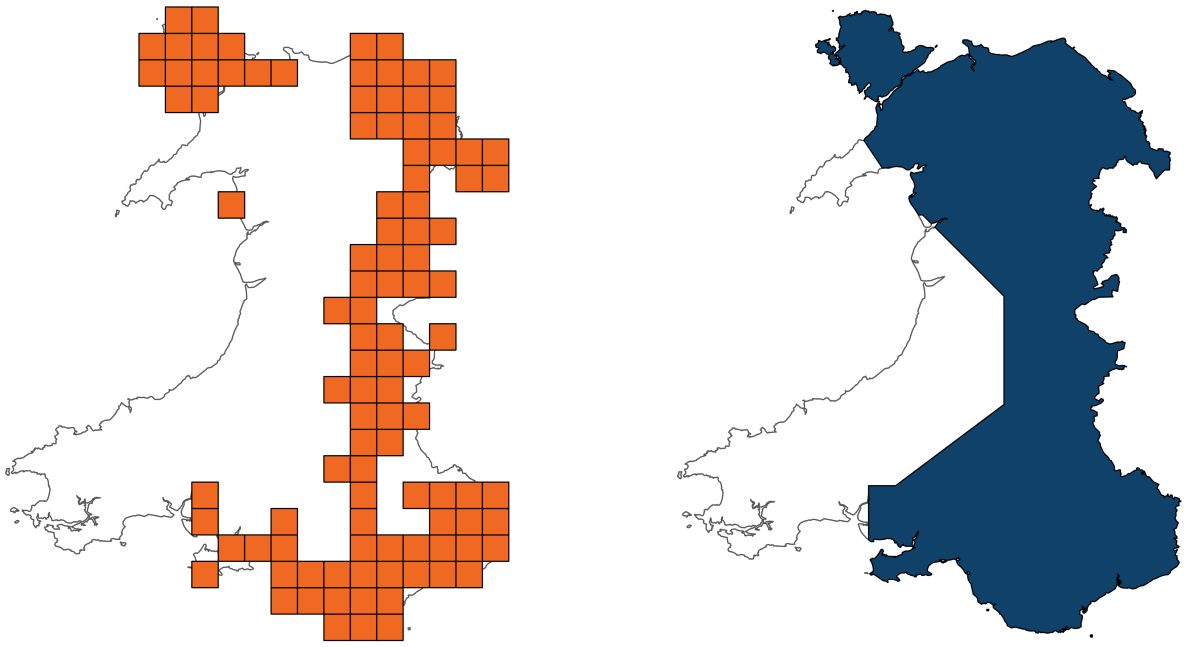

Figure 1: Wales distribution and range map for S1166 - Great crested newt (*Triturus cristatus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available species records within the current reporting period.

Table 1: Table summarising the conservation status for S1166 - Great crested newt (*Triturus cristatus*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

Overall Conservation Status (see section 11)

Unfavourable-inadequate (U1)

Breakdown of Overall Conservation Status

Range (see section 5)	**Favourable (FV)**
Population (see section 6)	**Unfavourable-inadequate (U1)**
Habitat for the species (see section 7)	**Unknown (XX)**
Future prospects (see section 10)	**Unknown (XX)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Species code	S1166
1.3 Species scientific name	*Triturus cristatus*
1.4 Alternative species scientific name	
1.5 Common name	Great crested newt
Annex(es)	II, IV

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2019-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

2.5 Additional information

No additional information

3. Information related to Annex V Species

3.1 Is the species taken in the wild / exploited?

3.2 What measures have been taken?

a) Regulations regarding access to property
b) Temporary or local prohibition on the taking of specimens in the wild and exploitation
c) Regulation of the periods and/or methods of taking specimens
d) Application of hunting and fishing rules which take account of the conservation of such populations

e) Establishment of a system of licences for taking specimens or of quotas

f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens

g) Breeding in captivity of animal species as well as artificial propagation of plant species

Other measures

Other measures description

3.3: Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

Table 2: Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
b) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	-	-	-	-	-	-

3.4: Hunting bag or quantity taken in the wild; Method used

3.5: Additional information

No additional information

Biogeographical Level

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs	ATL

4.2 Sources of information

See section 14 References

5. Range

5.1 Surface area (km²)	14,993.06
5.2 Short-term trend; Period	2019-2024
5.3 Short-term trend; Direction	Stable
5.4 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.5 Short-term trend; Method used	Based mainly on extrapolation from a limited amount of data
5.6 Long-term trend; Period	
5.7 Long-term trend; Direction	
5.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	

5.9 Long-term trend; Method used	

5.10 Favourable Reference Range (FRR)

a) Area (km²)	
b) Pre-defined increment	Current range is less than 2% smaller than the FRR
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

5.11 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	No
c) Improved knowledge or more accurate data	Yes
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Improved knowledge/more accurate data

5.12 Additional information

No additional information

6. Population

6.1 Year or period	1989-2024

6.2 Population size (in reporting unit)

a) Unit	number of map 1x1 km grid cells
b) Minimum	
c) Maximum	

d) Best single value	331
6.3 Type of estimate	Minimum
6.4 Quality of extrapolation to reporting unit	

6.5 Additional population size (using population unit other than reporting unit)

a) Unit	number of localities
b) Minimum	
c) Maximum	
d) Best single value	3,271
e) Type of estimate	Best estimate
6.6 Population size; Method used	Based mainly on extrapolation from a limited amount of data
6.7 Short-term trend; Period	2007-2024
6.8 Short-term trend; Direction	Decreasing
6.9 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	Decreasing 0 - 12%
d) Unknown	No
e) Type of estimate	Pre-defined range
f) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
6.10 Short-term trend; Method used	Based mainly on expert opinion with very limited data
6.11 Long-term trend; Period	1994-2024
6.12 Long-term trend; Direction	Decreasing

6.13 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
6.14 Long-term trend; Method used	Based mainly on expert opinion with very limited data

6.15 Favourable Reference Population (FRP)

ai) Population size	
aii) Unit	
b) Pre-defined increment	Current population is between 5% and 25% smaller than the FRP
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

6.16 Change and reason for change in population size

a) Change	Yes
b) Genuine change	No
c) Improved knowledge or more accurate data	Yes
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Improved knowledge/more accurate data

6.17 Additional information

No additional information

6.18 Age structure, mortality and reproduction deviation	No deviation from normal

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient?	Yes
b) Is quality of occupied habitat sufficient?	Unknown
c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality?	Unknown

7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used	Based mainly on extrapolation from a limited amount of data
b) Sufficiency of quality of occupied habitat; Method used	Insufficient or no data available

7.3 Short-term trend; Period	2007-2024
7.4 Short-term trend; Direction	Unknown
7.5 Short-term trend; Method used	Insufficient or no data available
7.6 Long-term trend; Period	
7.7 Long-term trend; Direction	
7.8 Long-term trend; Method used	

7.9 Additional information

No additional information

8. Main pressures

8.1 Characterisation of pressures

Table 3: Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.)	Ongoing and likely to be in the future	High (H)
PA14: Use of plant protection chemicals in agriculture	Ongoing and likely to be in the future	High (H)
PB01: Conversion to forest from other land uses, or afforestation (excluding drainage)	Only in future	Medium (M)
PC01: Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell)	Ongoing and likely to be in the future	High (H)
PE01: Roads, paths, railroads and related infrastructure	Ongoing and likely to be in the future	Medium (M)
PF01: Conversion from other land uses to built-up areas	Ongoing and likely to be in the future	High (H)
PF17: Active abstraction of water for built-up areas	Ongoing	Medium (M)
PI02: Other invasive alien species (other than species of Union concern)	Ongoing and likely to be in the future	Medium (M)
PK01: Mixed source pollution to surface and ground waters (limnic and terrestrial)	Ongoing and likely to be in the future	Medium (M)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing and likely to be in the future	High (H)

8.2 Sources of information

See section 14 References

8.3 Additional information

No additional information

9. Conservation measures

9.1: Status of measures

a) Are measures needed?	Yes
b) Indicate the status of measures	Measures identified and taken
9.2 Main purpose of the measures taken	Expand the current range of the species (related to 'Range')
9.3 Location of the measures taken	Both inside and outside National Site Network
9.4 Response to measures	Medium-term results (within the next two reporting periods, 2025–2036)

9.5 List of main conservation measures

Table 4: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land	High (H)
MA02: Restore small landscape features on agricultural land	High (H)
MA10: Reduce/eliminate point or diffuse source pollution to surface or ground waters (including marine) from agricultural activities	High (H)
MB01: Prevent conversion of (semi-) natural habitats into forests and of (semi-) natural forests into intensive forest plantation	Medium (M)
MC07: Habitat restoration/creation from resources, exploitation areas or areas damaged due to installation of renewable energy infrastructure	Medium (M)
ME01: Reduce impact of transport operation and infrastructure	Medium (M)
MF02: Habitat restoration of areas impacted by residential, commercial, industrial and recreational infrastructure, operations and activities	High (H)
MI03: Management, control or eradication of other invasive alien species	Medium (M)

MM01: Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes that occur without direct or indirect influence from human activities or climate change	Medium (M)

9.6 Additional information

No additional information

10. Future prospects

10.1a Future trends of parameters

ai) Range	Unknown
bi) Population	Unknown
ci) Habitat for the species	Unknown

10.1b Future prospects of parameters

aii) Range	Unknown
bii) Population	Unknown
cii) Habitat for the species	Unknown

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Favourable (FV)
11.2 Population	Unfavourable-inadequate (U1)
11.3 Habitat for the species	Unknown (XX)
11.4 Future prospects	Unknown (XX)
11.5 Overall assessment of Conservation Status	Unfavourable-inadequate (U1)
11.6 Overall trend in Conservation Status	Deteriorating

11.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

11.8 Additional information

No additional information

12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network

a) Unit	number of map 1x1 km grid cells
b) Minimum	62
c) Maximum	
d) Best single value	62
12.2 Type of estimate	Minimum
12.3 Population size inside the network; Method used	Based mainly on extrapolation from a limited amount of data
12.4 Short-term trend of population size within the network; Direction	Unknown
12.5 Short-term trend of population size within the network; Method used	Based mainly on extrapolation from a limited amount of data

12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction	Stable
12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used	Based mainly on expert opinion with very limited data

12.8 Additional information

No additional information

13. Complementary information

13.1 Justification of percentage thresholds for trends

No justification information

13.2 Trans-boundary assessment

No trans-boundary assessment information

13.2 Other relevant information

No other relevant information

14. References

Biogeographical and marine regions

4.2 Sources of information

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Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
2.4: Distribution map; Method used	Up to date and comprehensive locality data is not available for this widespread species. Blanket surveys have been very restricted and negative survey results are not properly reported. New data points come from licence returns relating to development led surveys (often eDNA) which may bias the distribution of records to the edge of urban areas, post-industrial activity, road schemes, pipelines and utility improvement schemes, where populations are being lost or moved. Occupancy data is based on data held internally by Amphibian and Reptile Conservation, combining a variety of data sources (ARC, 2010; Haysom et al, 2018; Wilkinson and Arnell, 2011; Wilkinson et al, 2011), with additional data for the reporting period taken from Aderyn.
5.3: Short-term trend; Direction	Whilst local loss and gain may be apparent, the overall short-term trend in range is assumed to be stable.
5.11: Change and reason for change in surface area of range	The range has not changed substantially but there are a few 'new' 10km square records in Wales due to recent development-led survey data. The species is still present across the parts of Wales previously reported where there is suitable habitat. Local losses may have occurred as well as gains, but the general pattern of distribution across Wales remains the same. To update Range values and mapping for this report, JNCC were provided with any additional 10km x 10km grid squares where GCN records were located between 2018 and 2024, along with the 2019 Article 17 report data. No grid squares have been removed as there have not been any widespread surveys that could indicate loss of a species from any area.
6.2: Population size	Unit = 1 x 1 KM Best Single Value = 331 1km squares minimum in Wales

	This is a minimum because there may be ponds in adjacent 1km squares that do not currently have records. It is not possible to give any confidence limits. This figure is based on mapping 1km records (Occupancy data for herpetofauna is based on data held internally by Amphibian and Reptile Conservation, combining a variety of data sources and data from Aderyn).
6.5: Additional population size	Unit = Number of localities Best Single Value =3271 The 2013 report used 'localities' as a population measure- this was interpreted as 'occupied ponds' with a minimum of 3,161 and a maximum of 29,275. This was re-modelled for Wales and a figure of 3,271 occupied ponds estimated (French et al., 2014, Haysom et al., 2018) based on a 11% pond occupancy rate. This modelling has not been updated since the last report and so the best single value remains the same.
6.8: Short-term trend; Direction	The 1x1 km square population values show an increase to 331 compared to 244 in the 2019 report. However, this is most likely to be the result of new records of great crest newts arising from development-led surveys. The loss of populations is not so easily recorded without systematic repeat surveys and so it is not possible to monitor population loss through records in 1x1km squares. However, results from SAC monitoring in Wales suggest that the populations at four out of the five SACs are declining, whilst at the fifth SAC the picture is less clear with the SAC component sites being either stable or showing declines (Cofnod GCN Monitoring database). The sites were reported as unfavourable when last assessed. The SAC populations trends are likely to be reflective of

	wider population trends in Wales. An updated analysis of short-term trends of GCN populations in Wales is needed to fully understand population status in Wales.
6.11: Long-term trend; Period	The long term trend period suggested (1994-2024) comes well after what is considered to be the period of major losses to great crested newt populations, i.e. during the time of greatest agricultural intensification in the post war years. See Langton et al., 2001; Nicholson and Oldham, 1986, for comments on historical status and Gleed-Owen, 2007 for a study of historic pond losses in part of north east Wales.
6.12: Long-term trend; Direction	Decreasing. Changes in populations at the local level generally take place over short time periods when pond and terrestrial habitat loss occurs. In addition, this species operates in a metapopulation structure and populations can 'naturally' rise and fall as pond habitats become suitable and fall into senescence. Positive conservation management over the period has resulted in some local gains in population size, which may parallel losses to development and pond senescence for example. Positive habitat management through agri-environment schemes in the wider countryside should also increase population sizes, but data on the effectiveness of such schemes is not available for Wales. Information from the last Countryside Survey (Carey et al., 2008) revealed that despite a 12.5% increase in the number of ponds in GB between 1998 and 2007, the plant species richness within them had declined with only 8% in good condition and their ecological quality showed significant declines from moderate to good condition from 40 to 28% and an increase in poor or very poor condition

	from 60 to 72%. The Environment and Rural Affairs Monitoring and Modelling Programme (ERAMMP) found that pond condition between 2013-16 and 2021-23 had declined with 46% of ponds now in poor or very poor condition (Emmett et al. 2025). Without long term and statistically robust sampling schemes, it is not possible to accurately determine the trend in population numbers with any certainty, but there does appear to have been a decrease. The Pondnet project in England (Ewald, et al. 2018) used eDNA sampling in a stratified sample of squares to generate 1km square estimates (Wilkinson et al., 2011 and Arnell & Wilkinson, 2011a, French et al., 2014, Haysom et al., 2018).
6.18: Age structure, mortality and reproduction	There is no evidence of any change to reproductive behaviour, age structure or mortality. However the recent spread of Batrachochytrium salamandrivorans (commonly known as “Bsal”) in newts in western continental Europe is of great concern (see section 8). It has not yet been found in the wild in the UK, but is present in captive amphibians in the UK. It has killed 99% of the Netherlands population of fire salamnder Salamandra salamandra, and crested newts are known to be susceptible to succumbing to infection by Bsal (Martel et al., 2013).
7.1: Sufficiency of area and quality of occupied habitat	Area Modelling projects have given us estimated values for the amount of suitable habitat for crested newts in Wales. Wilkinson et al. (2011) modelled 1989km2 (95% limits are 1,322 to 12,247km2). This was refined by French et al. (2014) to 2170km2 which is approximately 10.5% of the total area of Wales and 29.7% of the species' range (Haysom et al., 2018). On this basis there is thought to be a sufficient amount of habitat in Wales to support a viable population of the species. Quality There is no comprehensive data on the quality of crested

	newt habitat in Wales. Habitat Suitability Index scores exist for a very few populations and any SAC monitoring reports (all unfavourable) relate to a very small part of the species range in Wales. The most recent Countryside Survey (Carey et al., 2008) revealed that despite a 12.5% increase in the number of ponds in GB between 1998 and 2007, the plant species richness within them had declined with only 8% in good condition and their ecological quality showed significant declines from moderate to good condition from 40 to 28% and an increase in poor or very poor condition from 60 to 72%. However, the sample size of ponds in Wales which contributed to this study was small, so we can only report unknown for this attribute. The Environment and Rural Affairs Monitoring and Modelling Programme (ERAMMP) found that in Wales pond condition between 2013-16 and 2021-23 had declined with 46% of ponds now in poor or very poor condition compared with the previous figure of 37% (Emmett et al. 2025). They also found a two-fold increase in the percentage of ponds with invasive species from 9% to 19% and a seven-fold increase in dry ponds. Overall Overall despite the area being thought to be sufficient, this is reported as unknown because we have limited information on whether habitat quality in great crested newt ponds is sufficient, although condition is likely to be declining (see above). This could result in a gradual decline in populations as ponds become unsuitable or terrestrial habitat becomes more fragmented.
7.2: Sufficiency of area and quality of occupied habitat; Methods used	Area estimated using MaxEnt modelling at 25m resolution which takes account of presence and absence data, pond density, precipitation, soils, habitat, topography and climate (Haysom et al., 2018).

7.4: Short-term trend; Direction	Using the guidance supplied - area is adequate but quality is unknown, but with some evidence of decline (Carey et al., 2008, Emmett et al. 2025).
8.1: Characterisation of pressures	These pressures and threats all relate to great crested newt in Wales and can be generally referenced to Baker et al., 2011; Glazon, 2010; Gleed-Owen, 2007; Langton et al., 1993, 2001; Nicholson and Oldham, 1996; Nicolet et al., 2007; Williams and Biggs, 2012. It should be noted that such a geographically and ecologically widespread animal is going to be subject to a wide range of pressures and threats by that very reason. Pressures PA04: Restructuring farmland includes the removal of field boundaries, scrub, draining ponds and culverting open ditches, all of which impact on newt habitat causing direct losses and also reduce connectivity of breeding and non-breeding habitats and increases fragmentation of suitable habitat. PA14: Biocides affect the aquatic environment causing direct impacts on tadpoles or aquatic invertebrates and also on terrestrial prey items (Baker et al., 2011). PC01: Many crested newts occupy post-industrial sites such as flooded quarries and coal subsidence areas, particularly in north-east and south Wales. These sites are the locations for many developments or are often associated with further extraction of materials and then subsequent restoration and housing development which impact on the newt population either directly (requiring translocations) or by changing/reducing the habitat available. Opencast mining has impacted on several populations in the south Wales coalfield. PF01: Urbanisation (both housing and industrial) encroach on semi-natural and other ecosystems, thus directly reducing available habitats for newts and traditional surface

water management systems cause incidental capture/killing of amphibians. There is also the impact of fragmentation, water quality and quantity issues and pressures from recreation (and see L06).

PM07: Succession of breeding ponds reduces habitat quality and availability and may change the functionality of a pond from a site suitable for breeding purposes to a resting place. It generally arises from abandonment of active pond management for agricultural purposes, or overgrowth on peri-urban sites. Siltation or drying out results in the loss of the pond.

PE01: Roads and other linear transport features cause severance and fragmentation of breeding and terrestrial habitat areas and if newly located next to breeding ponds cause direct mortality during the migrating seasons. Additional problems can be caused by run off from road surfaces into ponds and ditches and the impact of road salt has been noted (Baker et al., 2011). Road drainage systems- gully pots- act as traps for newts (subject to monitoring at Johnstown SAC) whilst SUDS schemes can provide additional habitat (reed beds).

PK01: Pollution to surface and ground waters from adjacent land affects aquatic habitat causing enrichment and more rapid succession of vegetation in the ponds and direct addition of toxic pollutants which impact on both newts and their prey.

PI02: this broad category includes interspecific predation and disease and has been used in this report for both pressures and threats from these sectors.

This includes direct and indirect predation of crested newt eggs and larvae by fish. The latter has been a pressure at Johnstown SAC. There are a number of factors which increase the likelihood of illegal fish introduction including, proximity to human population centres, proximity to roads,

footpaths, car parks, proximity to commercial sources of fish (fish farms, garden centres and pet shops), larger ponds (especially for non-native fish species) and ponds subject to recent restoration (Copp et al., 2010, Gozlan et al., 2010).

The presence of amphibian chytrid fungus Batrachochytrium dendrobatidis has been confirmed at Welsh amphibian sites (Cunningham & Minting, 2008), but as yet detrimental effects on any populations have not been detected. The salamander chytrid fungus B. salamandrivorans has yet to spread to wild newts in Great Britain fom the pet trade, but is likely to be far more detrimental to newts than Bd. This pressure best aligns to the recently established I05 category (plant and animal diseases, pathogens and pests) however this category isn't currently available for internal UK reporting purposes.Invasive non-native plants (Crassula, in particular) have contributed to the physical reduction of aquatic habitat by overgrowth, but also impacts habitat management schemes, due to the biosecurity risks it raises (Baker et al., 2011).

PF17: Human induced changes to water levels in ponds and terrestrial habitat due to development can be due to many factors, so I have chosen this general one. Water bodies can be deliberately infilled for health and safety reasons or to provide building sites. Reduction in the water table or surface water inputs can be due to domestic or agricultural drainage or infrastructure construction (Gleed-Owen, 2007).

Threats

PA04: There is an ongoing threat from changing agricultural practices in the form of intensification, habitat modification, structural change which causes terrestrial and aquatic habitat loss, degradation and connectivity loss. This could accelerate due to future demands for increased food

production or other changes to the current agri-environment regime.

PA14: The continuing threat from biocides is especially relevant in the aquatic environment causing direct impacts on tadpoles or aquatic invertebrates but also on terrestrial prey items (Baker et al., 2011).

PC01: The increasing use of brownfield sites for development make this a continuing and high threat. Crested newts occupy post-industrial sites such as flooded quarries and coal subsidence areas, particularly in north-east and south Wales. These sites are the locations for many developments, often associated with further extraction of materials then subsequent restoration or housing which threaten the newt population either directly (requiring translocations) or by changing/reducing the habitat available.

PF01: The threat of urbanisation (both housing and industrial units) is likely to increase due to new targets for housing and associated services encroaching on rural habitats directly reducing available habitats for newts. There is also the impact of fragmentation and water quality issues that arise from such development.

PM07: The threat of succession continues in the current agricultural climate and indeed can increase with continued nitrogen enrichment promoting vegetation growth in aquatic and terrestrial habitats. This leads to siltation and drying out and ultimately loss of the pond.

PE01: Roads continue to threaten newt populations by causing severance of breeding and terrestrial habitat areas and if newly located next to breeding ponds can cause direct mortality during the migrating seasons. Additional problems can be caused by run off from road surfaces into ponds and ditches and the impact of road salt has been noted (Baker et al., 2011). Road drainage systems- gully

pots- act as traps for newts whilst SUDS schemes can provide additional habitat (reed beds).

PF17: The threat from pollution of surface and ground water from adjacent land remains significant in some areas causing enrichment and more rapid succession of vegetation in the ponds and direct addition of toxic pollutants which impact on both newts and their prey.

PI02: Invasive non-natives, both plants and animals, threaten crested newt populations by direct predation by aliens, competition for food and egg laying sites, or modification of the aquatic environment. Transmission of the devastating new disease, Batrachochytrium salamandrivorans which is present in newts in western Europe is a high threat as it has been found in captive amphibians in Britain (see section 6). There is currently no plan of action to protect native amphibians if this disease spreads to the wild. The presence of another chytrid fungus (B. dendrobatidis) has been confirmed at Welsh amphibian sites and is known to infect crested newts (Baker et al., 2011), it may have arrived in the UK via non-native species. This pressure best aligns to the recently established I05 category (plant and animal diseases, pathogens and pests) however this category isn't currently available for internal UK reporting purposes.

There is also a continued and increased threat to crested newt populations from deliberate fish introduction as ponds become more urban and part of recreational areas within large scale developments (see pressures above).

There are some invasive non-native plant species which are currently limited by winter temperatures. Climatic changes could result in an increased threat to breeding ponds from species such as Azolla and water hyacinth Eichhornia crassipes.

PB01: This is a new threat in Wales arising from the target

	for increasing woodland cover by 100,000 ha. Open habitats used by crested newts, particularly in the farmed landscape, are often targeted for tree planting which could result in shaded ponds and thus a decline in the suitability of breeding sites.
9.2: Main purpose of the measures taken	Indicate the main purpose of measures taken: a) Maintain the current range, population and/or habitat for the species or b) Expand the current range of the species (related to 'Range') or c) Increase the population size and/or improve population dynamics (improve reproduction success, reduce mortality, improve age/sex structure) (related to 'Population') or d) Restore the habitat of the species (related to 'Habitat for the species') b is the main measure, but c and d are also purposes of measures undertaken.
9.5: List of main conservation measures	MC01, MC02: Targeted agri-environment prescriptions for semi-natural habitat, boundary features and pond management (including restoration as well as creation of new ponds) are needed in areas where crested newts are present and in the surrounding areas, both within and outside SACs, in Wales. These should maintain and enhance FCS and would require long term application and surveillance. It is very important to ensure that any agri-environment scheme has the capacity to ensure habitat management of newly created or restored ponds in the long term. MB01: For ponds that lie within afforested areas, the thinning or removal of trees adjacent to ponds would improve their status for newt breeding. Current tree planting

schemes require technical screening to prevent inappropriate locations including habitats supporting crested newt ponds due to the need to prevent shading of ponds, however this needs to be monitored for compliance.

MC10, MC11: Good water quality (as well as quantity) is essential for improving crested newt status in SACs and the wider countryside. Run-off from agricultural land and development/housing areas can accelerate successional change in breeding ponds as well as impacting directly on prey items and newt tadpole survival.

MM01: Habitat management of both terrestrial and pond habitats outside agricultural situations is important for those parts of the population that occupy other habitats such as sand dunes or post-industrial sites. Successional change, in the absence of grazing or cutting results in pond shading and senescence and thus a decline in the FCS of the population.

MI03: Invasive non-native species, plant and animal, can impact crested newt populations via direct competition (goldfish), damaging or reducing habitat suitability (Crassula) or spreading disease. Note that native fish species such as sticklebacks introduced to ponds also predate newt eggs. Measures to control or limit the impacts of these species include biosecurity protocols for surveyors and monitoring.

MC07: There are a large number of crested newt populations that inhabit 'quarry' locations across a wide range of substrate types. Restoration of such sites after extraction or consequential land fill and restoration needs to take into account crested newt and other amphibian requirements by provision of suitable habitat along with adequately funded long term habitat management.

MF02, ME01: Roads and development can particularly impact crested newt populations in the urban fringe,

	severing connectivity of metapopulations as well as causing habitat loss, increased recreation pressure and the threat of INNS releases (including fish, plants and diseases). Drains associated with roads also result in direct death of trapped amphibians. Better planning of locations, design and green infrastructure through the use of spatial conservation plans should minimise the impacts and provide positive benefits for crested newts.
10.1: Future trends and prospects of parameters	Future prospects of range. As noted in section 5.11, the values for this metric have changed between reporting periods due to some changes in distribution data. However, it is not possible to reliably report on definitive changes due to the lack of a comprehensive survey or monitoring scheme at the Welsh level. Future prospects of population As noted in section 6, we are not certain of the population size of crested newts. Due to the lack of a comprehensive survey and monitoring system, we only have scattered and sporadic information on individual occupied ponds/1km squares. 1km squares can have 1 crested newt pond, or many, so the loss of one pond could be reflected by a whole 1km square loss, or there could be no change. Some information of new localities is provided through pre-development survey requirements, but as noted, this is often geographically biased and does not provided information on pond loss. We do have some records from monitoring long-term mitigation and designated sites where species specific, funded habitat management is undertaken. However, Lewis et al. (2007) have noted that mitigation schemes can often fail to maintain or improve population numbers. The vast majority of crested newt populations are sited in the wider countryside, where agri-environment measures are relied on to deliver crested newt FCS. Welsh Government's Sustainable Farming Scheme is

	planned to include pond restoration measures in the Universal Actions. However, uncertainty around effectiveness of this action and take up of the scheme, along with the inability to target action mean that the future prospects for population should be reported as unknown. Protected sites also require active conservation management if their populations are to be maintained. In addition, the threat now posed from B. salamandrivorans (see 6.18) is such that the future prospects for population could be considered to be at risk of being negative. Future prospects of habitat of the species As noted in section 7, whilst it is felt that there is generally sufficient potential habitat for crested newts from habitat modelling techniques, the important issue of the quality of that habitat is unknown, so an overall allocation of unknown is provided for this section.
11.1: Range	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.
11.2: Population	Conclusion on Population reached because:(i) the short-term trend direction in Population size is decreasing by 1% per year or less; (ii) the current Population size is not more than 25% below the Favourable Reference Population and iii) reproduction, mortality and age structure not deviating from normal.
11.3: Habitat for the species	Conclusion on Habitat for the species reached because: i) the area of occupied habitat is sufficiently large for the long-term survival of the species (ii) it is unknown whether the quality of occupied habitat is suitable for the long-term survival of the species; and iii) it is unknown whether there is a sufficiently large area of occupied and unoccupied habitat of suitable quality for long term survival (iv) the short-term trend in area of habitat is unknown.

11.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Population are unknown; and (iii) the Future prospects for Habitat for the species are unknown.
11.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-inadequate because one of the conclusions is Unfavourable-inadequate.
12.1: Population size inside the pSCIs, SCIs and SACs network	a) Unit = 1 km squares Number of 1km squares with great crested newt records that intersect with SACs where great crested newt is a feature: Deeside and Buckley Newt Sites: 15 Johnstown Newt Sites: 7 Halkyn Mountain: 6 Granllyn: 1 Glantraeth: 1 Total 30 1km squares. On SACs where great crested newt occurs but is not a feature, there are a further 59 1km squares with records NB Some of these 1km squares will intersect with only a part of the SAC and these may not actually contain any crested newt ponds or terrestrial habitat. Therefore: b) Minimum = 62 1km squares (best single value) c) Maximum = unknown

	d) Best single value = Records of 1km squares have come from ARC database (see section 4.2). Note that this is a minimum value because there is not comprehensive coverage of crested newt surveys. It should also be noted that using the 1km square as a measure of population, rather than occupied ponds, will underestimate the actual population as each 1km square may have one pond or many.
12.4: Short-term trend of the population size within the network; Direction	Whilst we have annual torch counts for parts of each great crested newt SAC (Cofnod database, see section 4.2), there is no comprehensive coverage. In addition, crested newt populations will occupy some ponds every year, whilst others are used intermittently as the number of water bodies available changes depending on water supplies. Haysom et al (2018) commented on the differences in methodology used at SACs. The number of ponds available to crested newts on several of the SACs has increased due to pond creation/ restoration. However, on other sites, ponds have become unsuitable due to fish introduction, vegetation growth or changes in water availability, so the number of occupied ponds has gone down. Thus it is not possible to make a definitive statement about trends (based on Cofnod database).
6.15: Favourable Reference Population (FRP)	The UK-level FRV for population was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current population trends and abundance.

5.10: Favourable Reference Range (FRR)	The UK-level FRV for range was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current distribution and trends.