



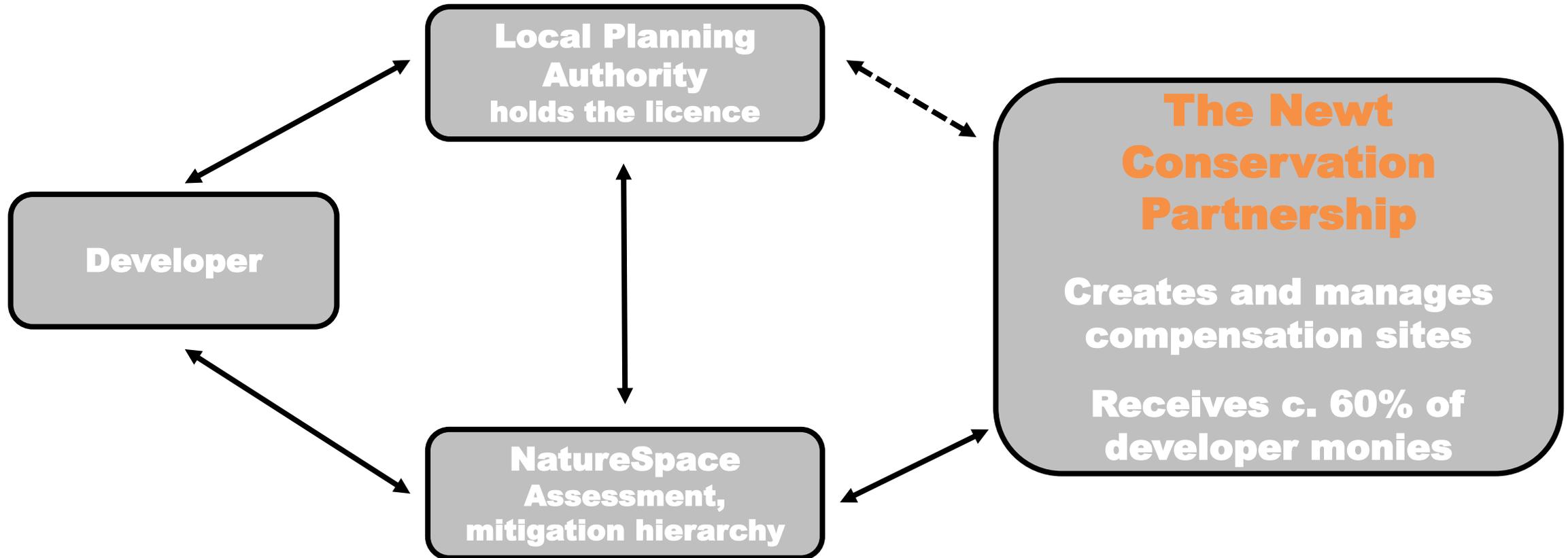
Great crested newt District Licencing scheme: habitat creation and management

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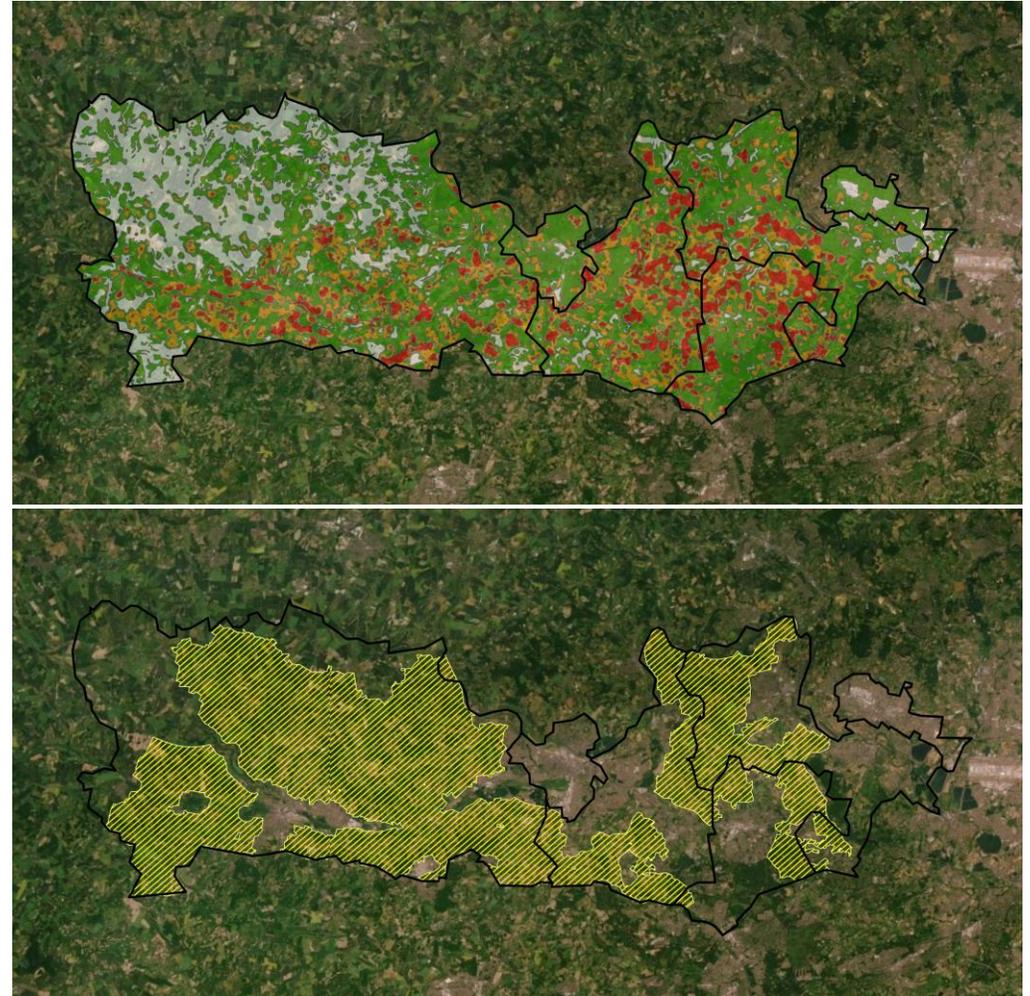


Great crested newt District Licensing scheme:

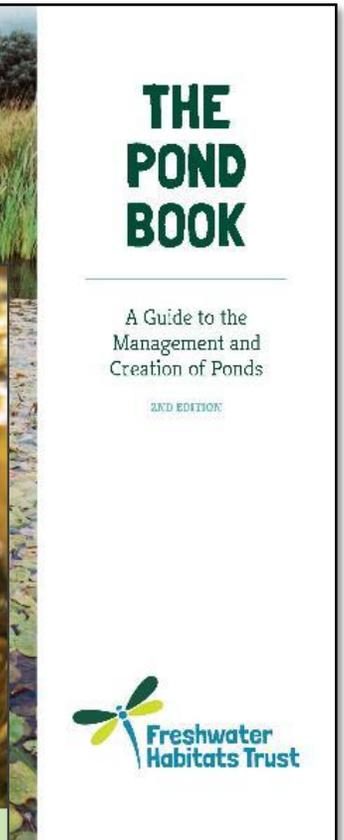
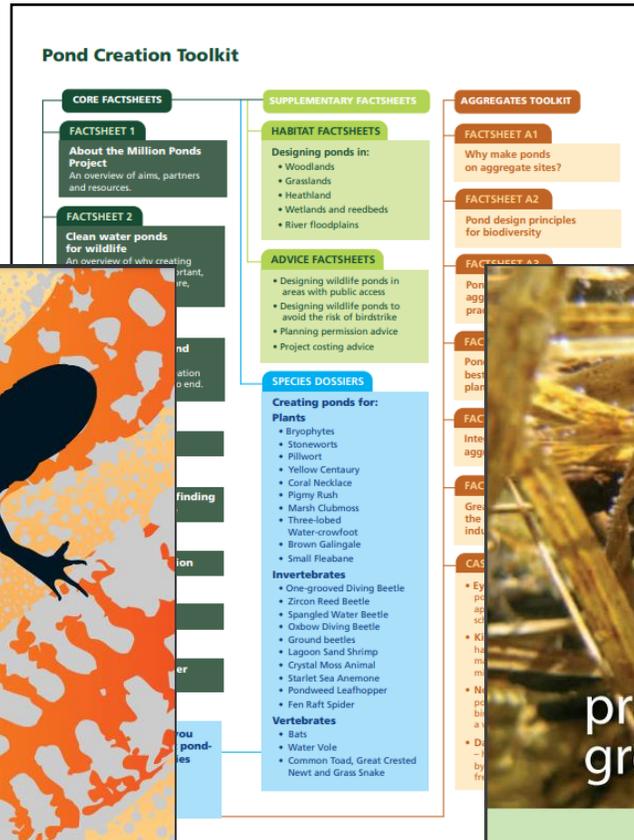
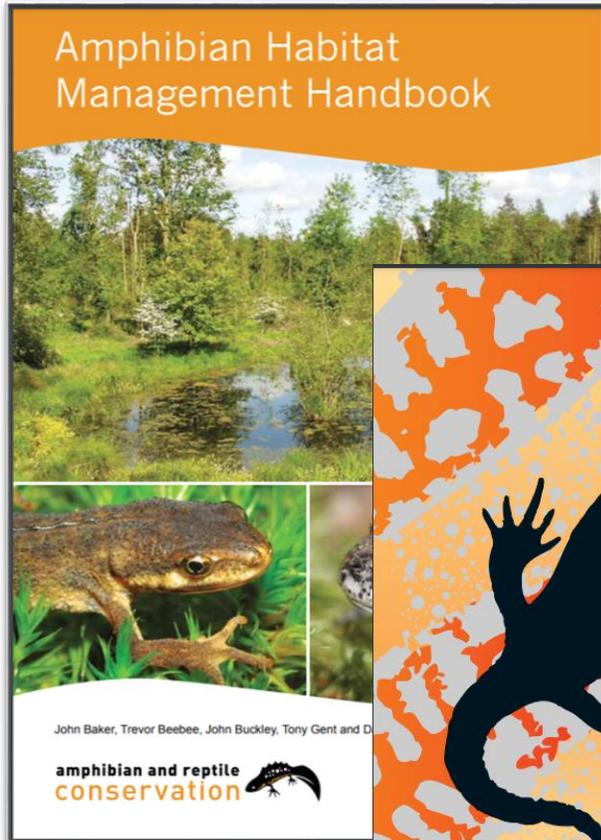


Our objectives – focus on landscape scale

- Lawton principle of **bigger, better, more and joined**
- Maintaining and extending great crested newt **range** – **Strategic Opportunity Areas**
- Improving **connectivity** by adding stepping stones and connectivity features
- Increasing **numbers** of high quality occupied ponds
- Increasing **extent** of suitable terrestrial habitat



Habitat delivery: best practice resources



What we do – compensation sites

- Pond creation and restoration
- Terrestrial habitat creation or restoration:
 - Hedges
 - Woodland
 - Arable reversion and grassland restoration
 - Re-wilding
 - Etc – a lot of flexibility!
- Monitoring (25 years)



Practical work programme

- Ratio of ponds lost/created:
 - Licence 1:4 (+ terrestrial habitat, compensation by districts)
 - Our aim 1:8
- Strategic, long-term work programmes at larger sites
- All cost of work covered by the scheme including pre-investigations
- Clear criteria for site selection and delivery by freshwater and newt experts
- Collaboration with local groups and organisations for both landowner engagement and site delivery (e.g. WTs, AONB etc)



Long-term management

- Cover cost of management/compensation for income loss for at least 25 years
- **Annual** compensation rate:
 - £200-£300 per new or restored pond
 - £500-£1,000 per hectare (incl. 2 breeding ponds)
- Management agreements (5 or 25 years for larger sites) reviewed every 5 years
- Annual site visits and GCN monitoring – funded via the scheme (also wider benefits monitoring at selected sites)
- Ongoing technical support for compensation site landowners



GCN habitat/selection criteria

Landscape/terrestrial:

- High pond density
- Linking habitat features, e.g. hedges
- Low flood risk
- Ground and below ground structure

Ponds:

- Clean Water
- Permanent or semi-permanent
- Fish free
- Low disturbance (livestock, dogs, wildfowl, people)
- Open/mosaic of habitat
- Good design, including plenty of shallows
- Surface area c. 200-600+m², max depth 1-1.5m
- Natural plant colonisation

Every site is
different!



Also considering at the outset:

- Archaeology
- Impact on other species and habitats
- Long-term viability/threats
- Landowners and long-term management

Legal requirement:

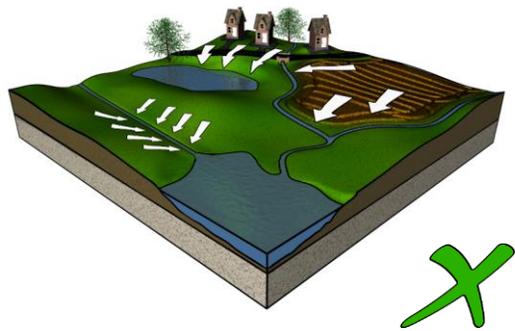
- 500m from existing pond

Self-imposed criteria:

- 1km to GCN record

'Clean water'

- Shorthand for unpolluted water – very rare in lowland England!
- Key for most freshwater plants and animals – for amphibians particularly at larval stage
- Rapid field testing kits for nitrate and phosphate – used as a *proxy* for pollution



	No evidence of nitrate or phosphate pollution ☺			High levels of pollution ☹			
Phosphate (ppm)	<0.02	0.02	0.05	0.1	0.2	0.5	1+
Nitrate (ppm)	<0.2	0.2	0.5	1	2	5	10+
	☺			Some nitrate or phosphate ☹		Very high levels of pollution ☹	



Reversing the decline: New clean-water ponds increase landscape species diversity

- Annual wetland plant surveys (8 years) have shown internationally-significant results (published 2020)
- Creating clean ponds reversed the decline, delivering a **25% increase in wetland plant diversity** across the catchment (gamma diversity)

<https://freshwaterhabitats.org.uk/research/water-friendly-farming/>

Key

- Plant species added by the new measures
- Plant species in all pre-existing waterbodies (streams, ditches, ponds)

Nature based measures increase freshwater biodiversity in agricultural catchments

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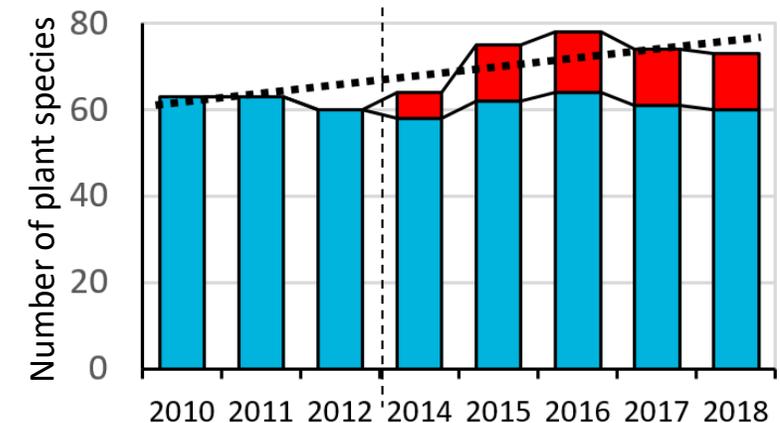
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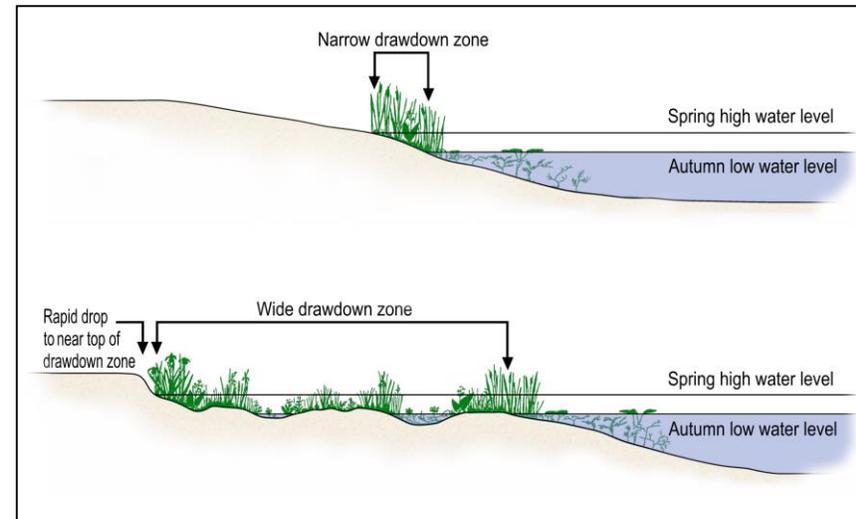
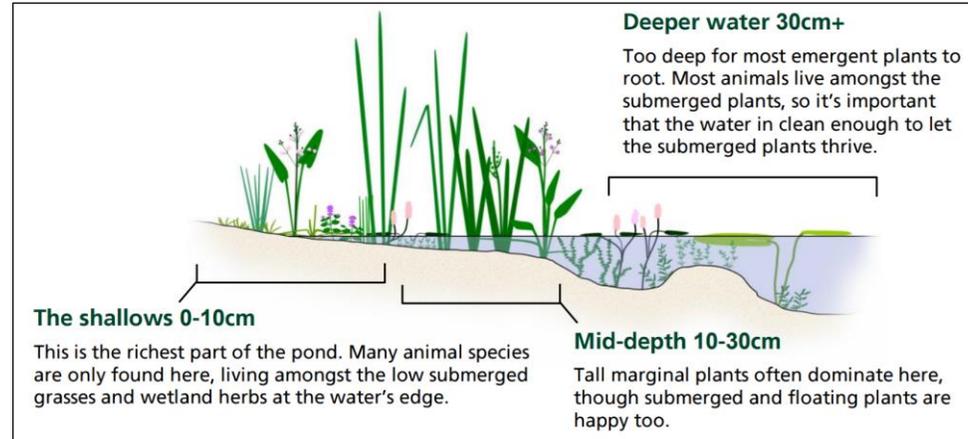
ABSTRACT

This is the first study that describes the effect of adding mitigation measures on the freshwater biodiversity of all waterbody types in agricultural catchments. We measured alpha (site) and gamma (catchment) richness annually over a nine-year period in all the streams, ponds and ditches in three upper-catchments in the English lowlands, and investigated whether freshwater plant biodiversity could be increased by adding: (i) multi-functional ecosystem services measures to intercept pollutants, store water and promote biodiversity, and, (ii) biodiversity-only protection measures. In the absence of measures, all catchments saw a decline in macrophyte richness during the survey (mean species loss of 1% pa, rare species loss of 2% pa). Ponds were a key habitat with a disproportionate influence on catchment trends. Five years after introducing measures, natural colonisation of ecosystem services waterbodies (dammed streams and ditches, runoff ponds, flood storage ponds) largely cancelled-out the background loss of plant species but, importantly, did not restore the loss of rare plants. Adding clean water ponds as a biodiversity-only enhancement measure brought substantial benefits: increasing total-catchment richness by 26%, and the number of rare plant species by 181%. Populations of spatially restricted species also increased. Adding stream debris-dams as a biodiversity measure did not affect plant richness or rarity. The findings suggest that ecosystem services measures could bring some biodiversity benefits to agricultural catchments. However, creating clean-water ponds specifically targeted for biodiversity could hold considerable potential as a tool to help stem, and even reverse, ongoing declines in freshwater plant biodiversity across farming landscapes.

Effect of adding clean water ponds on wetland plant diversity



Pond design: the shallows and the drawdown zone



Restoration (not management)

- Managing trees and shade
- De-silting
- Managing vegetation
- Controlling pollution – taking ponds off line
- Managing large populations of ducks and fish
- Re-profiling to improve or create new habitats



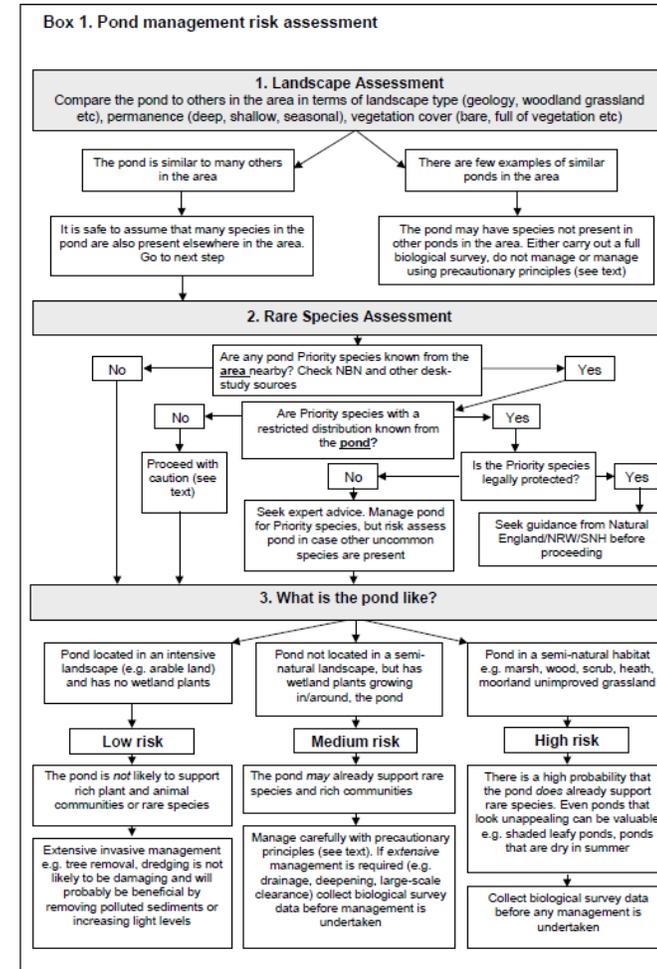
Site specific – assess risk to other species of plants and animals

More expensive and, often, trickier than creation

Pond restoration and management best practice

Assess risk of damaging existing wildlife

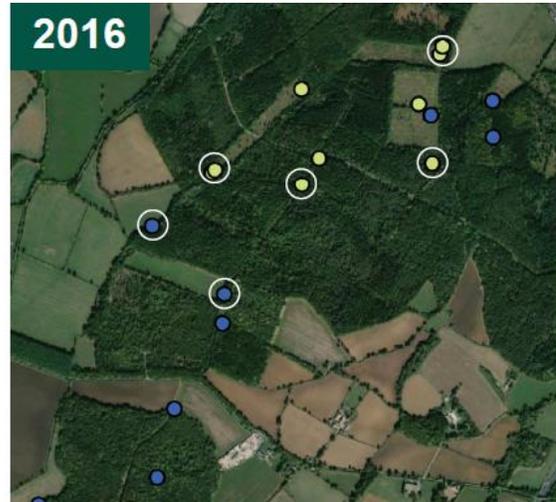
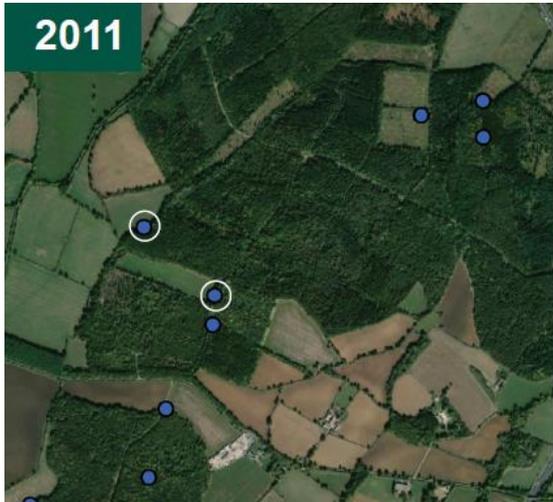
- Landscape scale perspective?
- Pre-survey of aquatic plants and animals?
- Water quality – sources of pollution?
Implication for long-term management and habitat quality



10 Acre Field (Northamptonshire)



Pond network: Shabbington Wood SSSI (Buckinghamshire)



Pond occupied by great crested newt
 Pond created: ● prior to 2011
● by the Million Ponds Project in 2011
● by Newt Conservation Partnership in 2018



From 2 to 16 ponds occupied by GCN in c. 10 years!

All new ponds support breeding population of common toad, Priority species

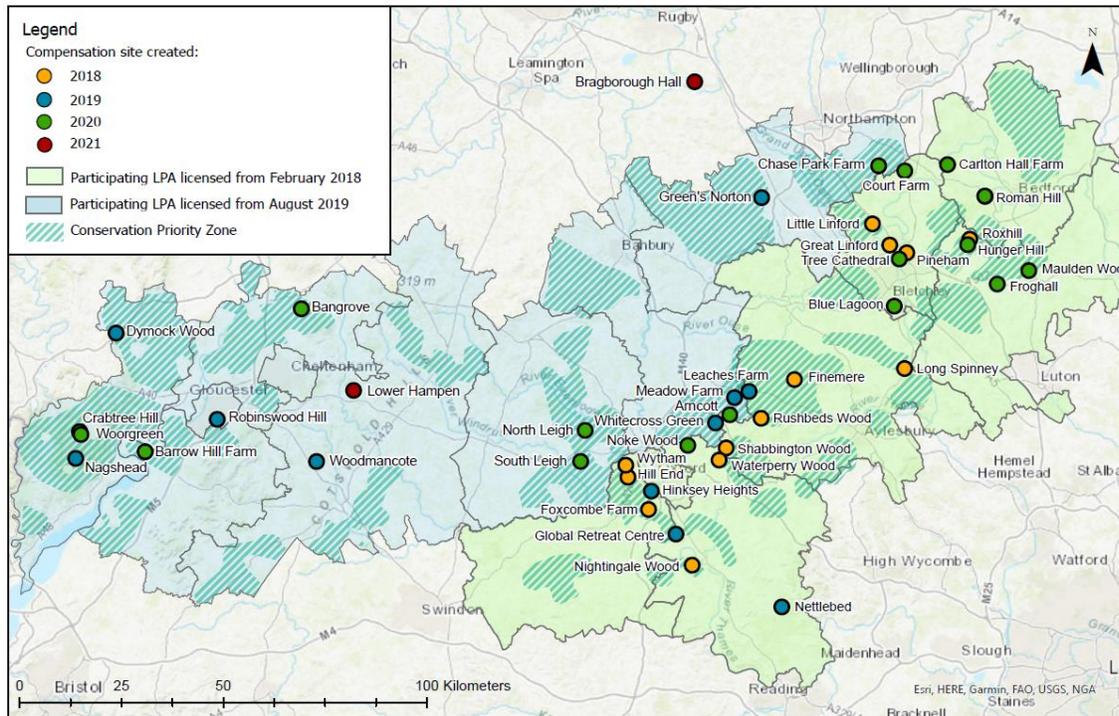
Urban site: Millennium Woodland (Milton Keynes)



- Urban park – 2 phases (2018, 2020)
- Site colonised 1 year after creation
- Rough grassland and scrub
- Fencing to manage dog access
- Surface area of ponds 200-600 m²

Monitoring

60% of sites colonised by great crested newt
 37% of ponds colonised by great crested newt



The benefits of the scheme for conservation

- New and enhanced habitats for great crested newt, and many other plants and animals
- Creation and restoration of Priority Ponds
- All habitat and monitoring work funded by developers monies, including the long-term management
- Supports the delivery of other landscape-scale conservation initiatives and policies – including Nature Recovery Network and the 25 Year Plan for the Environment
- Potential for NCP sites to be receptors (e.g. plant re-introductions) or support other species of conservation concern (e.g. rare plants or invertebrates)

