

Landscape level assessments: new approaches for herpetofauna conservation in the south midlands of England.

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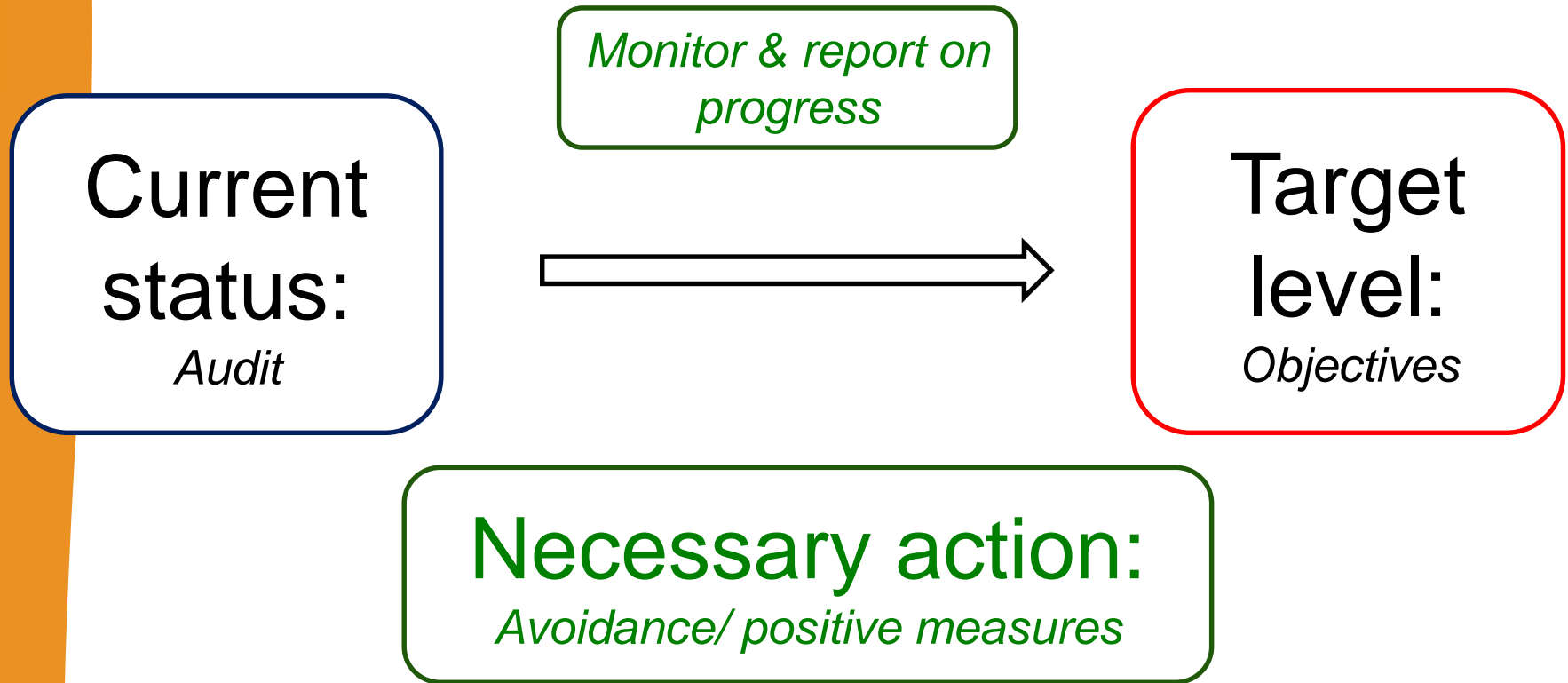
11th October 2018



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conservation**



Framework for considering species conservation



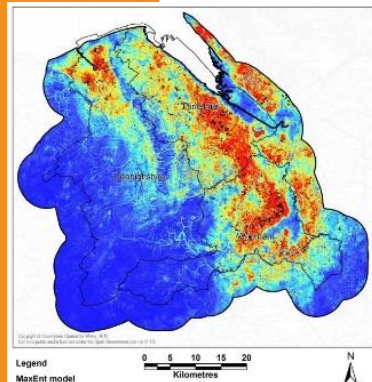
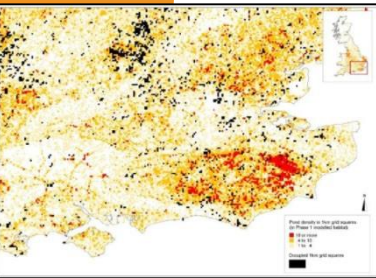
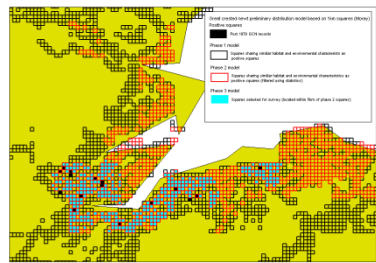
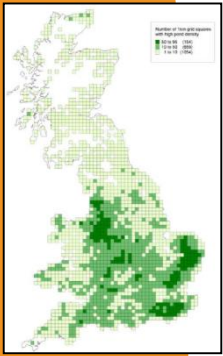
Status

- Survey & monitoring information
 - Historically survey infrastructure poorly funded/ supported
 - Ad hoc
 - Site specific
 - Incomplete
- Appropriate metrics
 - Range
 - Population
 - Habitats
 - Prospects
- Not addressing all the data needs
 - Quantitative/ trend (Context, reporting & policy)
 - Spatial (Conservation action)



Species distribution modelling

- Data availability: 'fills gaps in knowledge'
 - Able to support metrics – but note some limitations
 - Able to support structured survey
 - Provide spatial context
 - Able to identify areas and target actions
- Choice of model depends on data
 - 'Removal modelling'
 - MaxEnt: 'presence only' data (held by recorders/ data centres)
 - GLM: 'presence/ absence' data (massively supported by eDNA survey)
- Significant effort recently on modelling distribution of great crested newts in UK



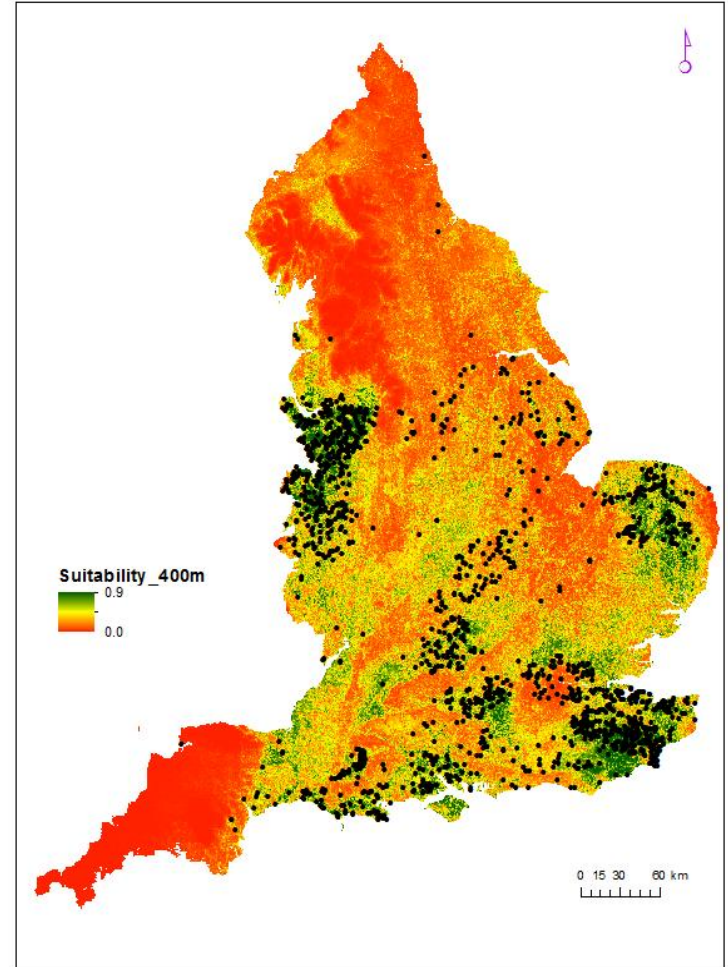
Defining outcomes/ goals/ targets

- 'BAP targets'
- Site targets
 - Favourable Condition Tables (SACs/ SSSIs)
- Favourable conservation status
 - Bonn Convention (CMS) 1979
 - Habitats Directive 1992
- Appropriate metrics for different spatial scales
 - Site
 - District/ Landscape
 - National



Great Crested Newts (England - estimates)

- Population
 - No. occupied ponds = 53,719 (43,995-66,719)
 - Breeding ponds [Occupied & HSI > 0.7] = 12,610 (10,320-66,678)
- Suitable habitat
 - 26,128 km² (est. 15,385 km² occupied)
- Range
 - 750 occupied 10 km squares
- Widespread ≠ Without problems
 - Massive historic declines
 - On-going decline
 - Conservation dependent
 - International obligations
 - Strict legal protection 'EPS'



Habitat suitability: MaxEnt 400x400m cells.
Bourmpoudakis *et al* 2015

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How newts cost Durham police £134,000

n railway station: Newts cause
r delays

Fifteen great crested newts
added £315,000 to the cost of
a road-widening project in
North Wales

Rare newts 'planted' at development
sites to stop the bulldozers

Breeding newts delay York Monks Cross
shop development

Peter Smith, planning manager at
developer Rydon Homes "A survey
found a single, great crested newt
on our site at Headcorn, in Kent, but
Natural England insisted we'd
looked at the wrong time of year," he
says. "We were told to survey again
and were forced to spend £200,000
trans-locating the handful of newts
we did eventually find."

Contractor fined for dumping in newt habitat

No newts is bad news as council spends £1m
A council spent £1 million protecting a colony of rare newts on a building site
only to discover that none lived there.

Around 150 great crested newts have had to be relocated from land set aside for
new homes, costing developers Gallagher Estates an average of £6,700 per
creature.

The newts were in the way of building work on a 900-acre site in Milton Keynes.

Context for District Licensing

- NE response to the 'Red Tape Challenge' & 'Better Regulation'
- EU 'Refit' of Habitats Directive
 - Habitats Directive Implementation Action Plan
- Four new NE policies relating to European Protected Species (2016)
 - Excluding & relocating/ Location of compensation sites/ Temporary habitats/ Survey
- Housing White Paper (Feb 17)
 - identified district licensing as one of the tools for speeding up sustainable housing delivery
- Defra 25 year plan (Jan 18)
 - notes district species licensing as an 'innovative strategic approach' and part of 'embedding biodiversity net gain through planning'
- Strategic planning
 - integrating licensing with local planning and development control, giving more power to LPAs
- NE survey found >80% of developers support the approach
- Revised NPPF (July 18)
 - e.g. timely delivery, avoiding unnecessary delays, maintaining sustainable housing supply, net gain



GCN Pilots

- NE
 - Woking
 - Kent
 - Cheshire
- LPA
 - Warwickshire
- Private sector/ NGO partnership ****Focus of this talk**
 - Oxfordshire, Berkshire, Buckinghamshire (“South Midlands”)
 - Environment Bank
 - NatureMetrics
 - Freshwater Habitats Trust
 - Amphibian & Reptile Conservation Trust
 - Durrell Institute of Conservation & Ecology

Success criteria

- Meets the '3 tests' (licensable purpose, no satisfactory alternatives no detriment to 'GCN Favourable Conservation Status').
- Deliver clear benefit (net gain)
 - Survey and modelling to show current status
 - Spatial plan for identifying conservation objectives ('newt future status' map), and a map to identify risks and impacts of development ('a guide for developers' map)
 - Monitoring/ surveillance programme that provides sustainable long term monitoring and transparent reporting of status
 - Costed programme of good quality, functional habitat creation and good quality habitat management,
 - A business model to demonstrate with some certainty how the necessary conservation measures above will be
- Provide administrative and socioeconomic benefits:
 - Increased transparency of process and outcomes
 - Reduced burdens on administrative authorities and those engaged with them
 - Economic benefits to developers and the public

The South Midlands scheme



NATURESPACE
P A R T N E R S H I P



SMNCP
SOUTH MIDLANDS NEWT
CONSERVATION PARTNERSHIP

Central Bedfordshire

Bedford Borough

Milton Keynes

Aylesbury Vale

South Oxfordshire

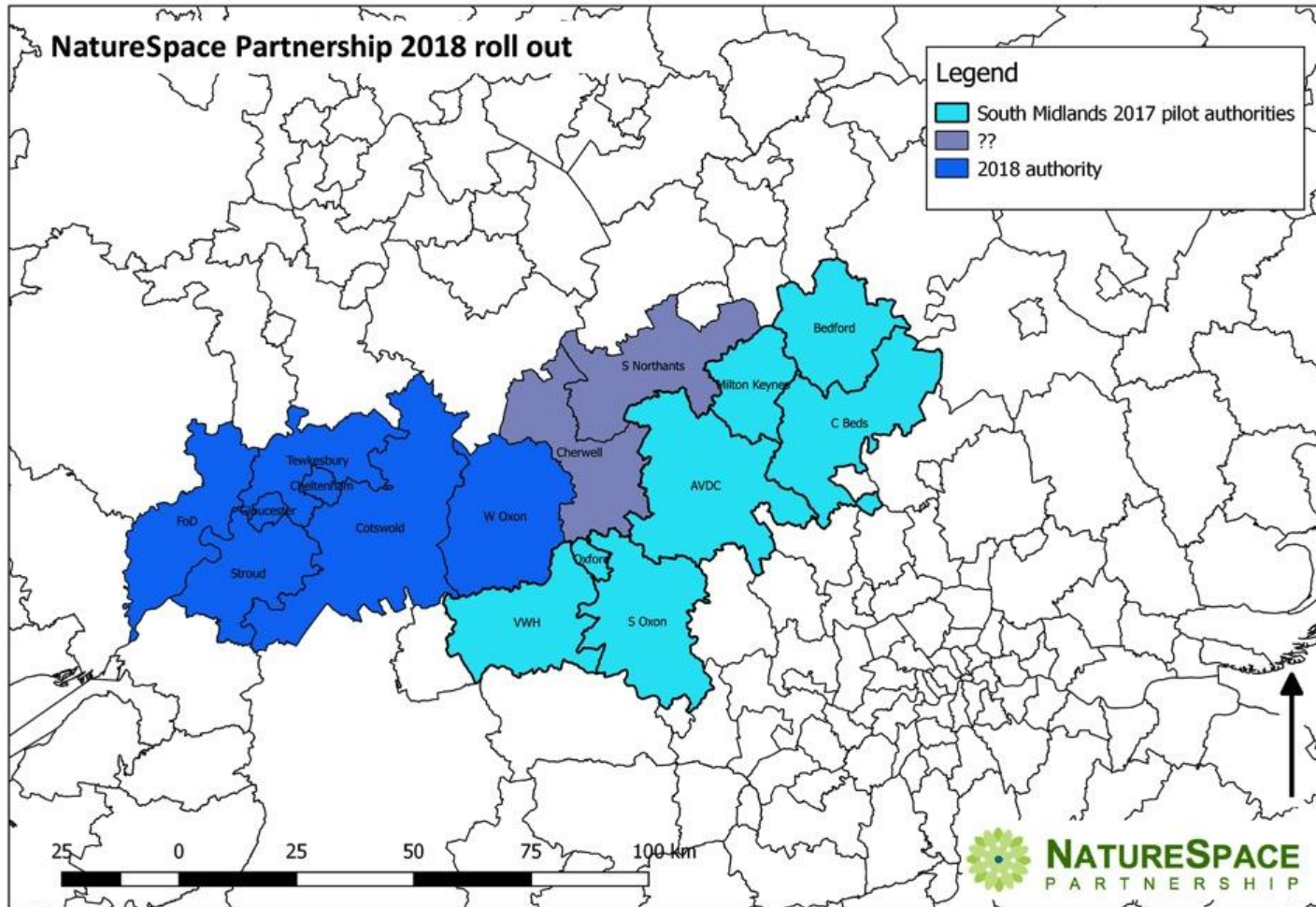
Vale of the White
Horse

Oxford City

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Scheme coverage 2018/19



Light blue: current from 2017

Dark blue: potential explored in 2018

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The scheme in a nutshell

- **Licence is held by LPA**
 - Once Planning permission is granted, developer are covered by the licence if they meet the conditions
 - These may include planning conditions
 - Newt Officers funded via NSP
- **Nature Space partnership (NSP)**
 - Manage negotiations with developers & handle the money
 - Fund preparation of survey/ distribution mapping/ conservation plan
 - Impacts are assessed
 - Approval (or not to enter the scheme is given)
 - Price and conditions are agreed as part of the planning application
- **South Mids Newt Conservation Partnership (SMNCP)**
 - Identify compensation habitats
 - Create & manage habitats – upfront & long term commitment
 - Undertake survey & monitoring



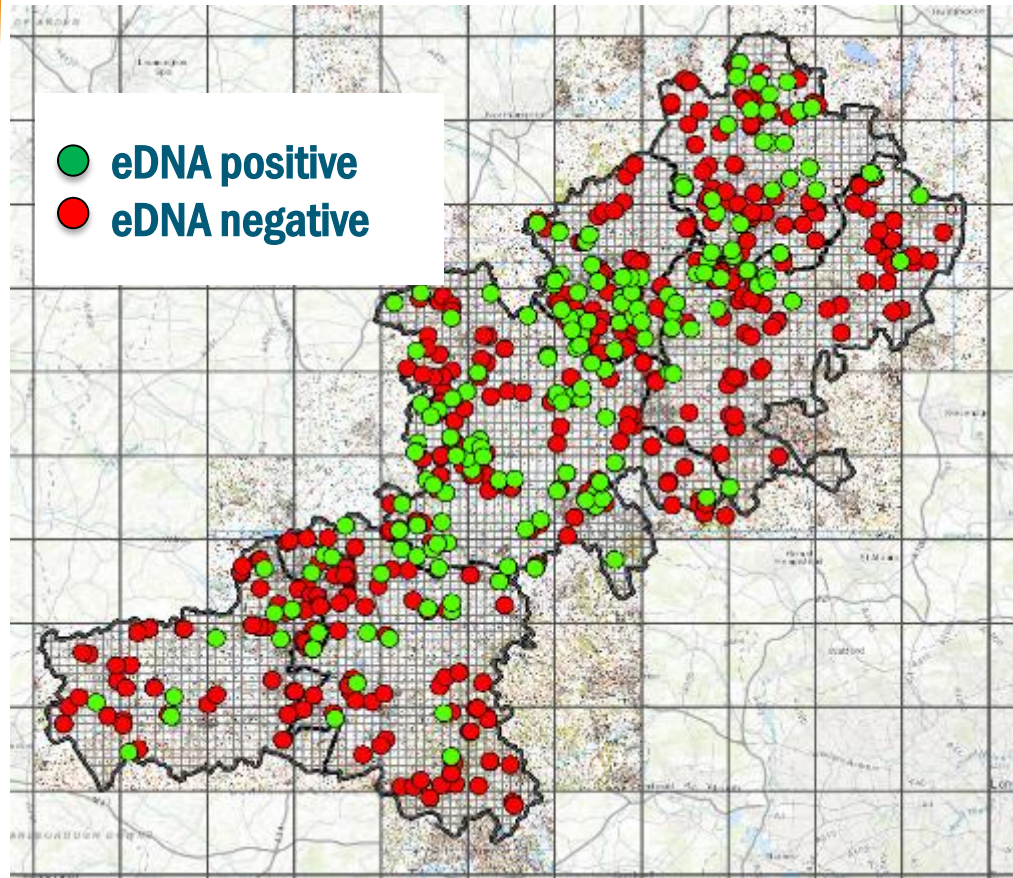
Developing the maps

- Status & Distribution
- Extant data (LERCs, etc)
- New survey eDNA
 - (stratified sampling)
- Modelling
 - Environmental data sets (climatic/ land cover)
 - MaxEnt (presence only data)
 - GLM (presence/ absence data)
 - Ensemble modelling
 - Model takes a precautionary approach: predicted correctly 95% of all the positive records from the eDNA survey and the LRC data
- Ground-truthing/ sense checking



Survey results....

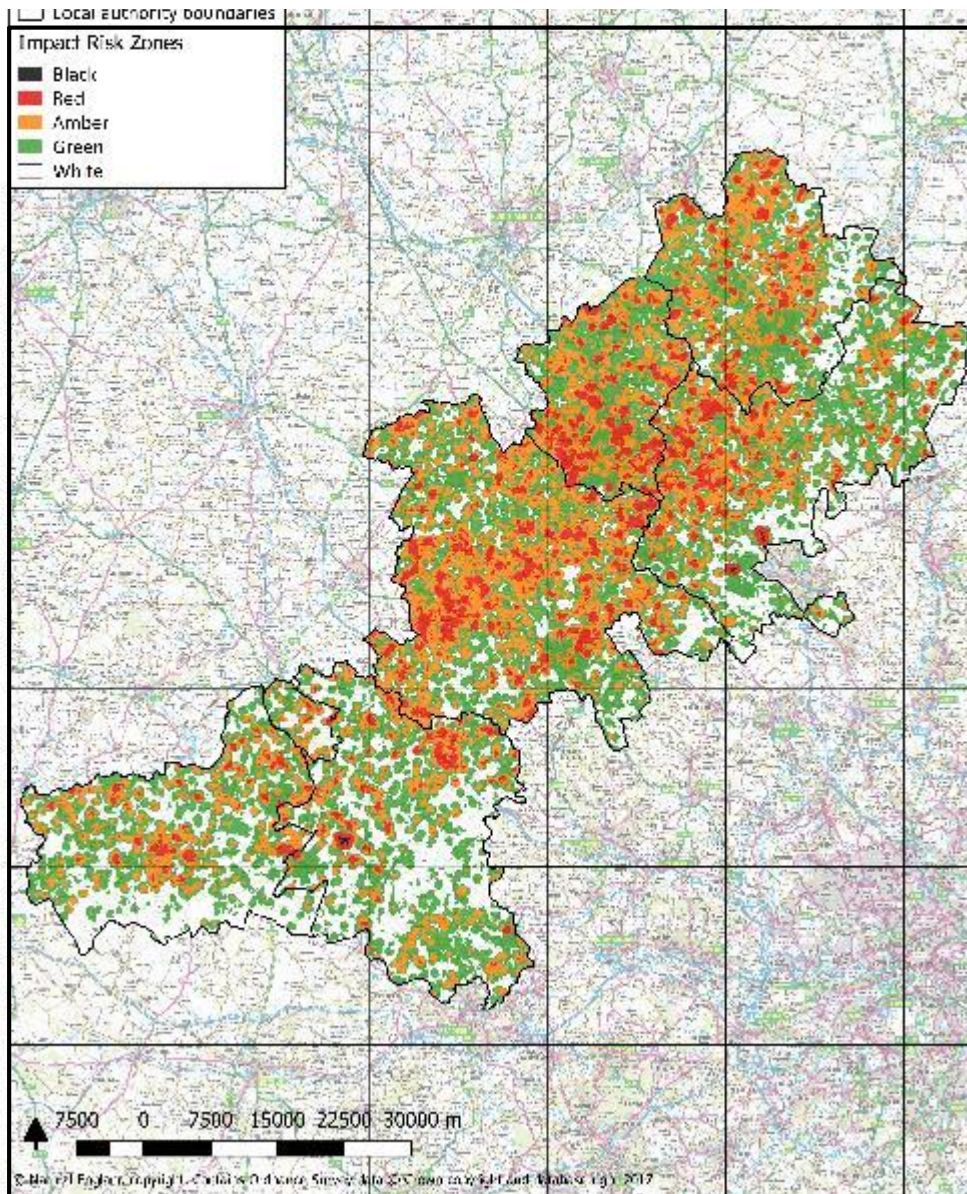
- South Midlands is a pretty important area for Great Crested Newt as shown by eDNA



- Stratified sample of ponds
- 30% of all sites positive
- South Midlands is a bit of newt hotspot
- We knew there were newts around but maybe not clear it was so many



Model used to create Impact Risk Map for planners and developers



Habitat suitability:

- SSSI, SAC: No development**
- Very suitable**
- Suitable**
- Moderately suitable**
- Least suitable**

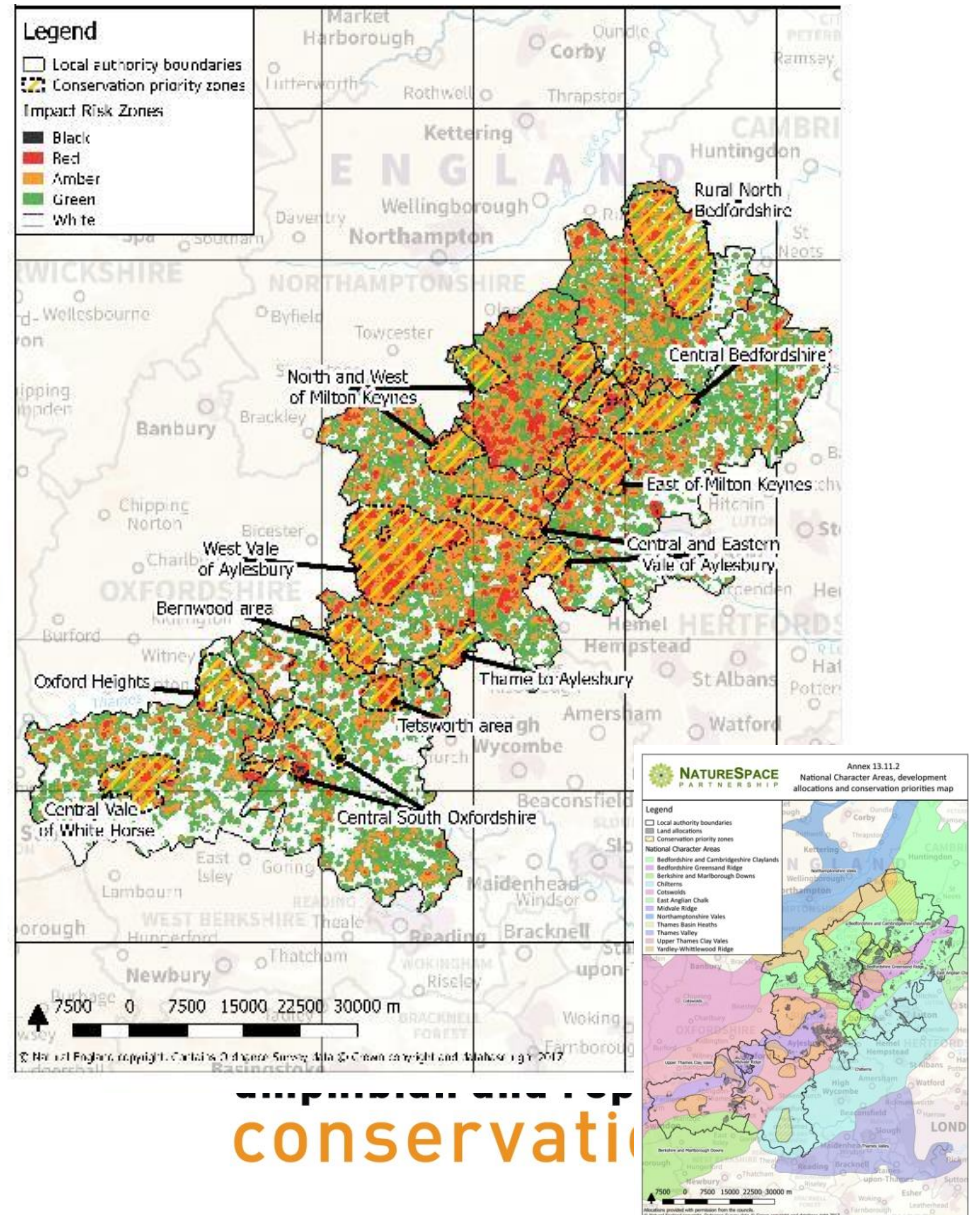
- Shows areas most likely to support newts
- Correctly predicts 95% of eDNA and traditional records
- In practice, strongly driven by pond density (itself a reflection of geology)

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Conservation Priority Zone Map

- Same as 'risk' map, but with conservation areas overlaid where resources focused, and outside development areas
- Shows areas we have prioritised to protect newts by habitat creation and management
- Objective: to ensure core zones are protected and improved
- LPA strategic planning/development control
- Ensuring net gain in each of the different NCAs
- Favourable Conservation Status (Region/ District wide)



Delivering the new system

- NSP manage process with developers
- Regional map - gives firm indication of costs
- Developers charged to act under licence – one or two stage payments that remove delays, reduce costs and give legal certainty
- Developer charges fund the scheme operations and long-term newt conservation
- Emphasis moves from on-site mitigation to off-site landscape scale conservation
- Long term management, monitoring & reporting all paid for under scheme
- First payment – set by zone and development size
- Second payment – calculated according to impact

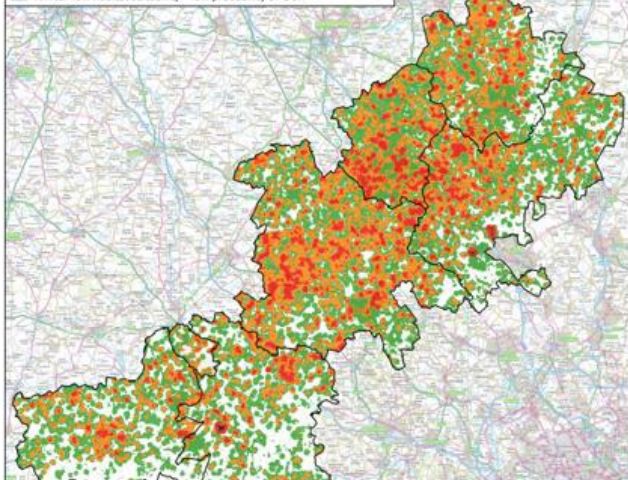


Legend

Local authority boundaries

Impact risk zones:

- Black: nationally designated sites for GCN – excluded from the scheme
- Red: highly suitable habitat – the most important areas for GCN
- Amber: suitable habitat – GCN likely to be present
- Green: moderate habitat suitability – GCN may be present
- White: low habitat suitability – low probability of GCN

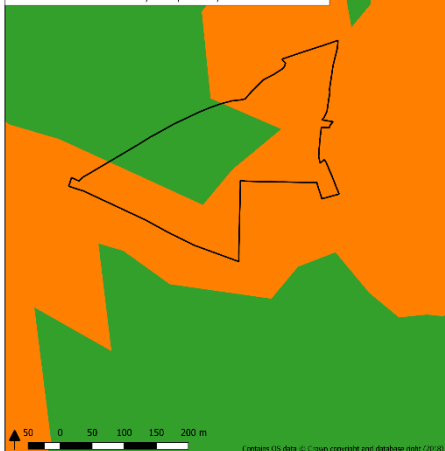


Legend

Site boundaries

Impact Risk Zones

- Black: nationally designated sites for GCN – excluded from the scheme
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Map 'Zone'	Development scale	
	Minor	Major
White	Single charge £1k	Single charge £1k
Green	Single charge £1k	First charge £10k Second charge £0-50k
Amber	First charge £5k Second charge £0-20k	First charge £10k Second charge £0-90k
Red	First charge £5k Second charge £0-50k	<div>Small scale</div> <div>First charge £10k Second charge £0-90k</div> <div>Large scale</div> <div>First charge £10k Second charge not capped</div>

Other categories

Infill residential (≤2 houses): standard single charge of £1k in all zones.

Householder applications: if a householder applicant wishes to opt in and have their householder development covered by the district licence (rather than having to follow the standard survey and licensing process), there is a standard fee of £500.



Impact assessment metric

- Assesses impact of development on GCN
- Based around zone
- Requires developer/ consultant generated data (HSIs/ survey data)
- Rejects schemes that will cause significant impact on FCS
- Provides evaluation of mitigation hierarchy
- Looks at terrestrial and aquatic habitats
- Defines mitigation need
 - Cost
 - Conditions, including need for best practice



Habitat creation



© SMNCP

SMNCP

- Locate & negotiate
- Upfront habitat creation (enabled by loan Esmée Fairbairn Foundation)
- Aquatic and terrestrial habitats
- Landscape-scale focus, population connectivity
- 4:1 minimum ratio
- Excellent quality habitat creation and restoration
- Long-term and guaranteed through 25 year contracts with Natural England
- No delivery responsibility for developers



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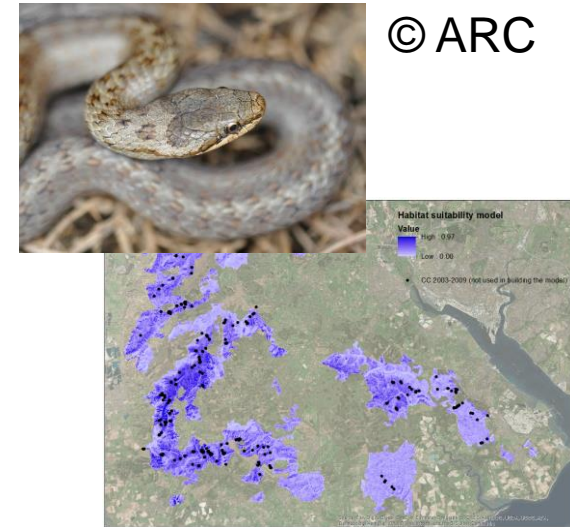
Key messages

- District level licensing offers:
 - Strategic benefits for conservation
 - Socio-economic benefits
- Brings with it significant risks if it isn't done well
 - Work within limitations (ecological knowledge data/ taxonomic, etc)
 - One size won't fit all
- Define success criteria
- Models
 - Valuable but understand limitations
 - You might not met a newt in a red zone
 - Green/ Whites Zones does not mean Absence of newts
 - Models will have inaccuracies; they are not reality
- Effective impact assessment metric - key element for success
- Scope for further development
 - Better integration with national monitoring schemes – understanding stakeholder needs
 - Investment in innovative approaches and shared data products, e.g. remote sensing data
 - Net gain/ Green Infrastructure

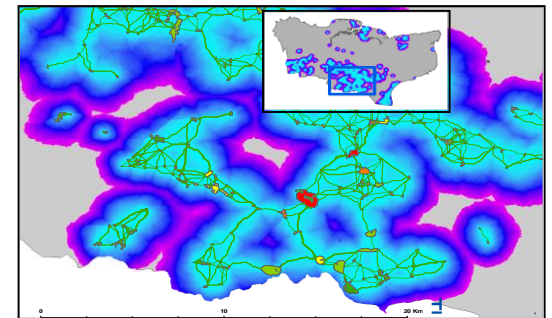


Where next - developing the methods

- Improving data inputs
 - Link to national monitoring programmes
 - Evaluate remote sensing: optimise data inputs (Sentinel/ drones/ Lidar/ aerial photos, etc)
 - Ground truthing
 - Understand stakeholder needs
- Improving analysis
 - Metrics: ensure what you're collecting is fit for purpose
 - Modelling; habitats/ connectivity/ viability, etc
- Wider engagement
 - Common data sources
 - Integrating biodiversity/ socioeconomic considerations



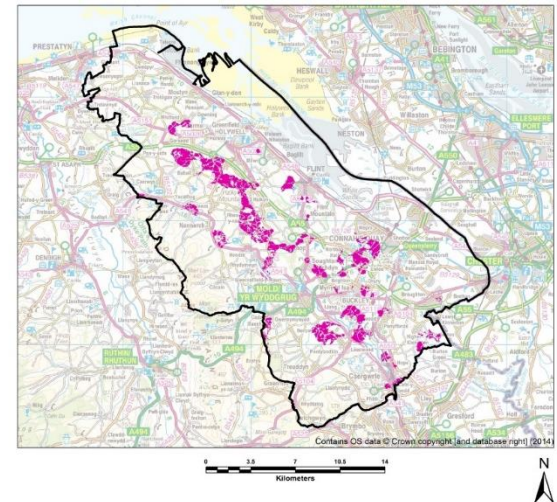
Smooth snake distribution: Lidar data - New Forest
(Bormpoudakis, Tzanopoulos & ARC Trust 2016)



GCN habitat connectivity (ARC/ DICE)

Where next - developing the applications

- Outcome focus – universal application
- Landscape level
- Site level
 - Conservation objectives
 - Targeted AES
- Multi-taxa
 - Standardised approaches
 - ‘Conflict resolution’
- ARC Projects
 - NARRS/ PondNet
 - Back from the Brink
 - Jersey



Legend

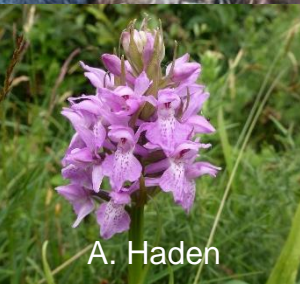
- Flintshire Unitary Authority
- Pond creation target area (in corridor)

Pond creation target areas:
Flintshire

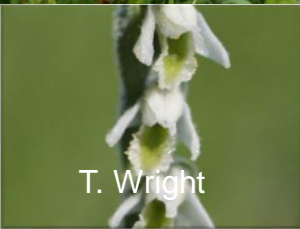




A. Binet



A. Haden



T. Wright



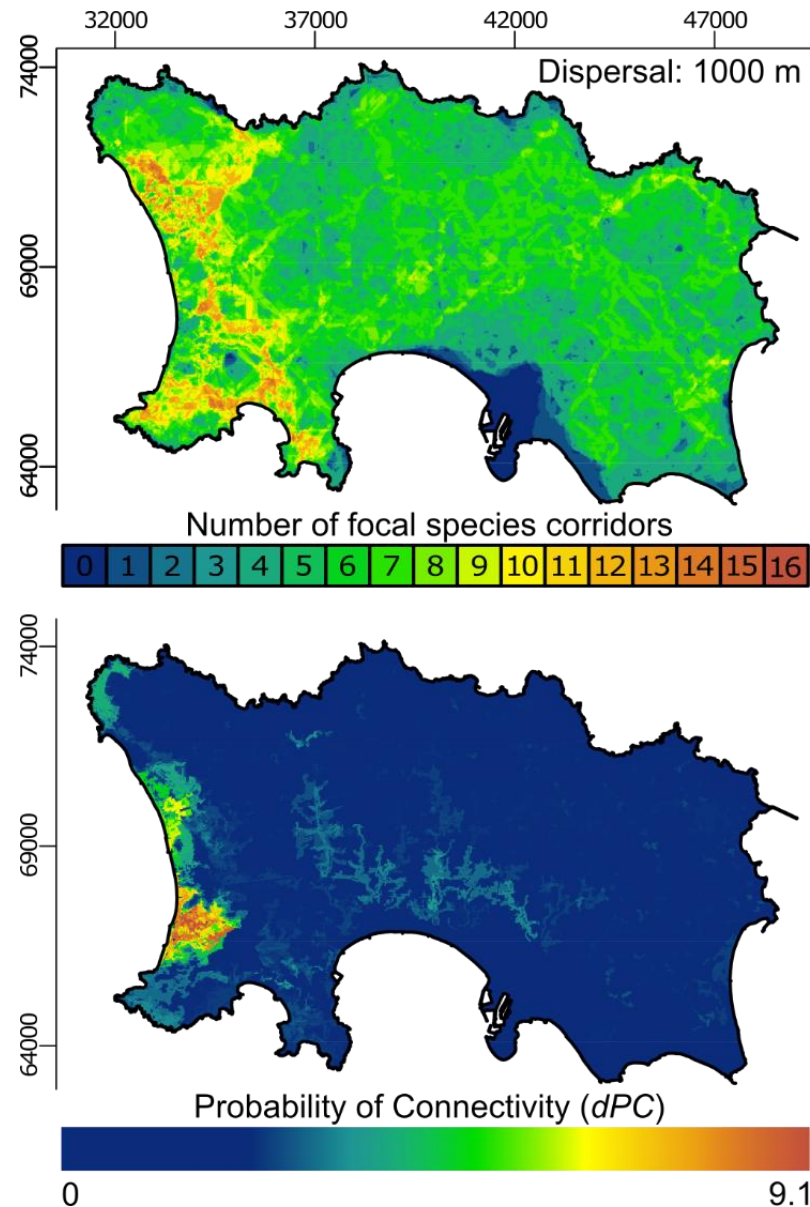
Jersey project: ARC & States of Jersey

17 species used to identify:

- important '*Habitat Concentration Areas*' (HCAs) for each species
- areas with high HCA overlap
- performance and opportunities for improvement of land protection designations
- potential wildlife corridors
- the contribution of HCAs to landscape connectivity

Outcomes:

- Landscape conservation priorities to inform decision-making, policy and conservation management.
- Potential to integrate landscape improvements with emerging countryside and agri-environment strategies.
- Recommendations for future species monitoring.



Coordinates system:
Jersey Transverse Mercator

Acknowledgements

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Thanks for listening

