

# CLIMATE CHANGE AND LOWER VERTEBRATES

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# CLIMATE CHANGE AND LOWER VERTEBRATES

## UK CIP Scenarios

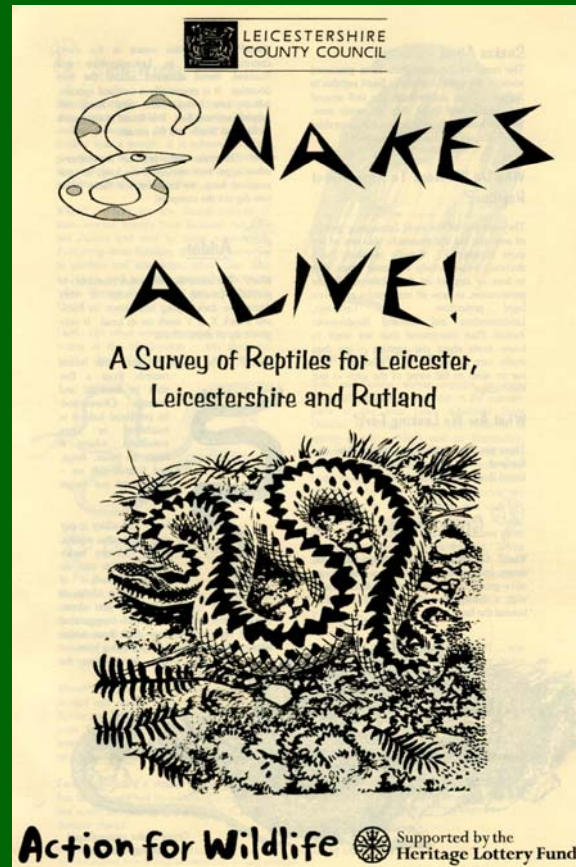
- rise in UK temperature 2-3.5°C by 2080s
- greater warming in SE
- more warming in summer and autumn
- annual average precipitation decreases by 0-15% by 2080s
- wetter winters, drier summers
- periods of heavy winter rainfall become more frequent
- sea level rise 26-28cm in SE by 2080s

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## Likely effects of climate change on biodiversity

- changes in distribution of species
- changes in species composition of habitats
- effects of drier/hotter summers
- effects of wetter/warmer winters
- effects of seasonal/phenological changes
- land use changes
- coastal and marine impacts

# Reptiles



# Reptiles – grass snake



# Reptiles - adder



# Reptiles – slow-worm



# Reptiles – common lizard



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## Impacts on Reptiles: General

- shorter hibernation, longer active season, earlier breeding
- fire threat to drier habitats
- impacts on prey
- impacts on egg development
- benefiting non-natives such as terrapins

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## Impacts on Reptiles: Lizards

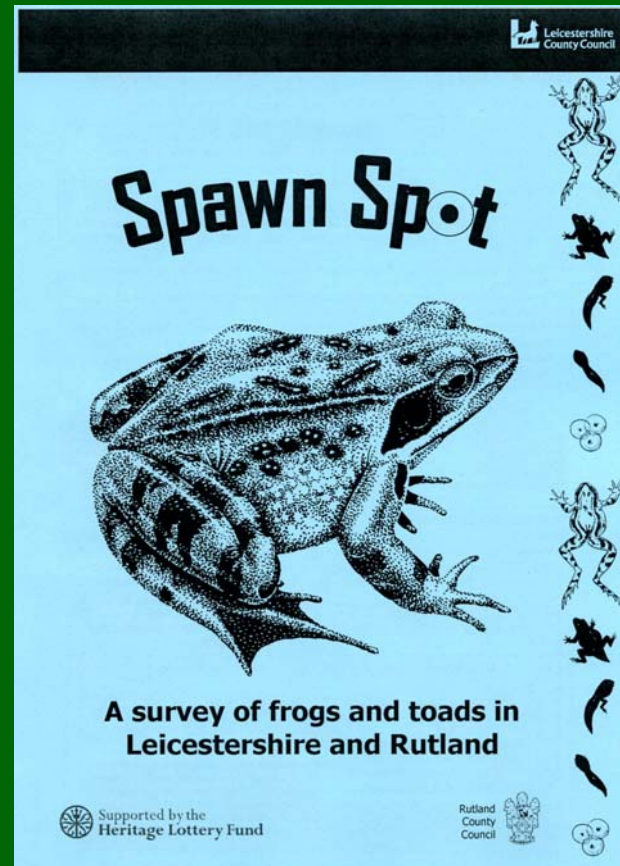
- \*Common Lizard: northern species, loses climate space
- \*Slow-worm: southern species, may benefit from warmer conditions
- Sand lizard: southern species, may benefit from warmer conditions

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## Impacts on Reptiles: Snakes

- \*Grass snake: drought threat to wetland sites; southern species, may benefit from warmer conditions
- \*Adder; northern species, loses climate space
- Smooth snake: southern species, may benefit from warmer conditions

# Amphibians



# Amphibians – common frog



# Amphibians – common toad



# Amphibians – great crested newt



# Amphibians – smooth newt



# Amphibians – palmate newt



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## Impacts on Amphibians: General

- shorter hibernation, longer active season, earlier breeding
- drought threat to breeding ponds
- impacts on prey
- greater incidence of disease/parasites
- benefiting non-natives such as green frogs

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## Impacts on Amphibians: Newts


- \*Great Crested Newt: climate space unchanged through all scenarios; could benefit from warmer temperatures if habitat available
- \*Smooth Newt: earlier return to breeding ponds; middle of range so no climate space implications
- \*Palmate Newt: earlier return to breeding ponds; western species, may benefit from warmer conditions

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## Impacts on Amphibians: Frogs/Toads

- \*Common Toad: middle of range so no climate space implications
- \*Common Frog: no change in spawning; northern species, loses climate space
- Natterjack: spawning earlier; loses climate space in 2020s; new areas of climate space open up in 2050s
- Pool Frog: southern species, may benefit from warmer conditions

# Fish

Community Heritage Initiative  Leicestershire  
County Council

## FISH FINDERS





In rivers, streams, ponds and lakes, fish are widespread and amongst the best-known animal life. Yet, because they are hidden beneath the water, they have been neglected by wildlife enthusiasts.

We know something about their distribution in Leicestershire and Rutland, but there are a lot of gaps that need to be filled.

This is an online survey and is available with details and photographs at:

Paper copies of the survey are available from CHI on 0116 267 1377

[www.leics.gov.uk/  
fish\\_finders](http://www.leics.gov.uk/fish_finders)

 Supported by the  
Heritage Lottery Fund  Rutland  
County  
Council

# Fish – rivers: grayling zone



# Fish – rivers: barbel zone



# Fish – rivers: bream zone



# Fish - stillwaters



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## Impacts on Fish - General:

- decreased summer flows/habitat availability
- increased storm/flood events
- increased water temperatures
- changes in timing of breeding
- changes in timing of prey availability
- land use change in catchments

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## Impacts on Fish - General cont:

- disease
- non-native species
- invasive plants
- blue-green algae

# CLIMATE CHANGE AND LOWER VERTEBRATES

## Impacts on Coldwater Species:

eg trout, grayling

- disruption to breeding

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## Impacts on Warmwater Species:

eg carp, tench

- benefits/extended breeding season

# CLIMATE CHANGE AND LOWER VERTEBRATES

## Impacts on Migratory Species:

eg salmon, lampreys

- changes in ocean currents
- changes in water temperature
- changes in prey populations/distribution
- changes in freshwater discharges

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## Adaptation Principles

- conserve protected areas
- reduce sources of harm not linked to climate change
- develop ecologically resilient landscapes
- establish ecological networks
- use adaptive conservation targets and priorities

# Further information

- [www.ukcip.org.uk](http://www.ukcip.org.uk)
- [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)
- [www.naturalengland.org.uk/campaigns/climatechange](http://www.naturalengland.org.uk/campaigns/climatechange)