Landscape Observatory

For Climate Adaptation and Landscape Monitoring

Climate Smart Adaptive Management Workshop: North Wessex Downs October 2026

Department for Environment Food & Rural Affairs

National Parks England

National Landscapes Association

NATIONAL TRAILS

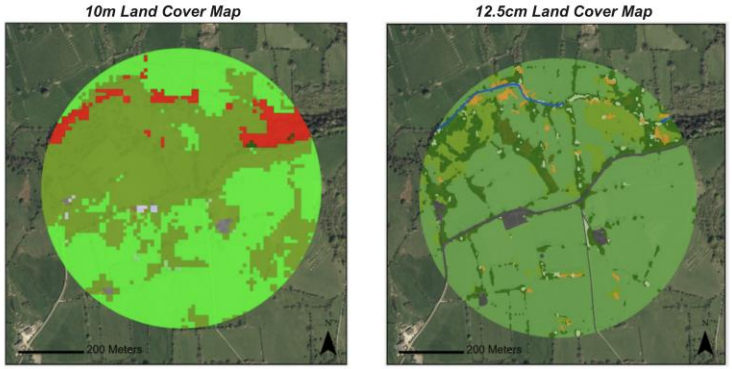
Landscape Observatory programmes

Location and Extent

Mapping Landscapes in Unprecedented Detail for 25% of England

In partnership with Cranfield University, we're creating the first **high-resolution** habitat and land cover maps for all **Protected Landscapes.**

Using AI-powered analysis to detect even the **smallest** and **rarest** habitats, across entire **landscapes:**

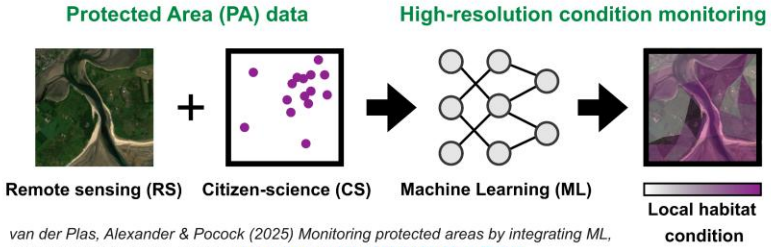


© Bluesky International Limited and Getmapping PLC [2023]

Feature Condition

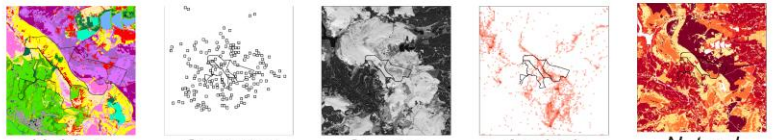
Rapid, Scalable Condition Monitoring

Exploring how **emerging technologies** could support a more **rapid**, **scalable**, and consitent **assessmment** of landscape condition across Protected Landscapes.



van der Plas, Alexander & Pocock (2025) Monitoring protected areas by integrating ML, remote sensing & citizen science https://doi.org/10.1002/2688-8319.70040

Across landscape-scales



Adaptation Strategy

Adapting Management Plans to Climate Change

Climate change is **reshaping landscapes** faster than current management plans can **adapt**.

Protected Landscapes need dynamic, **climate-smart** management **strategies** that go beyond preserving existing conditions.

We're applying the **Resist**–**Accept**–**Direct** (RAD) framework to help managers make proactive, evidence-based decisions.

RESIST

Resist, where managers maintain or restore current or historical ecosystems and ecosystem services.

ACCEPT

Accept, where managers yield to ongoing transformation and accept new ecosystem structure and functions.

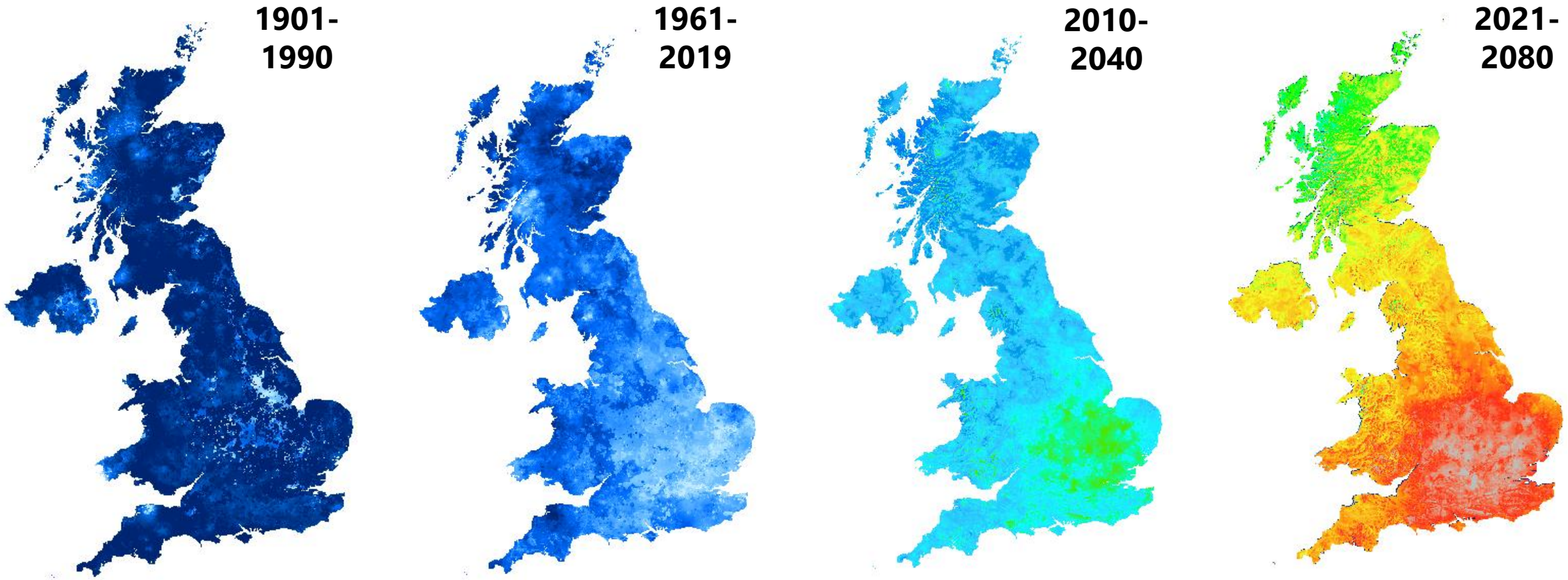
DIRECT

Direct, where managers actively steward changes towards alternative ecosystem structure and functions.

The UK's exposure to climate change from 1901 – 2080

(Unitless)

Spatial distributions of the UK's climate change exposure (unitless) through time based on UKCP18 climate predictions.



GIS data used by permission Wilson & Pescott 2023 CEH (funded by JNCC & NERC)

Data generated by using UK ecological monitoring schemes Environmental Change Network, Long Term Monitoring Network, Countryside Survey and and National Plant Monitoring Scheme. The current GHG pathway will take UK to average temperatures approximating with the Mediterranean conditions away from its classic oceanic/subtropical highland climate.

Note: Shetland excluded as UKCP18 is not a reliable model for this area

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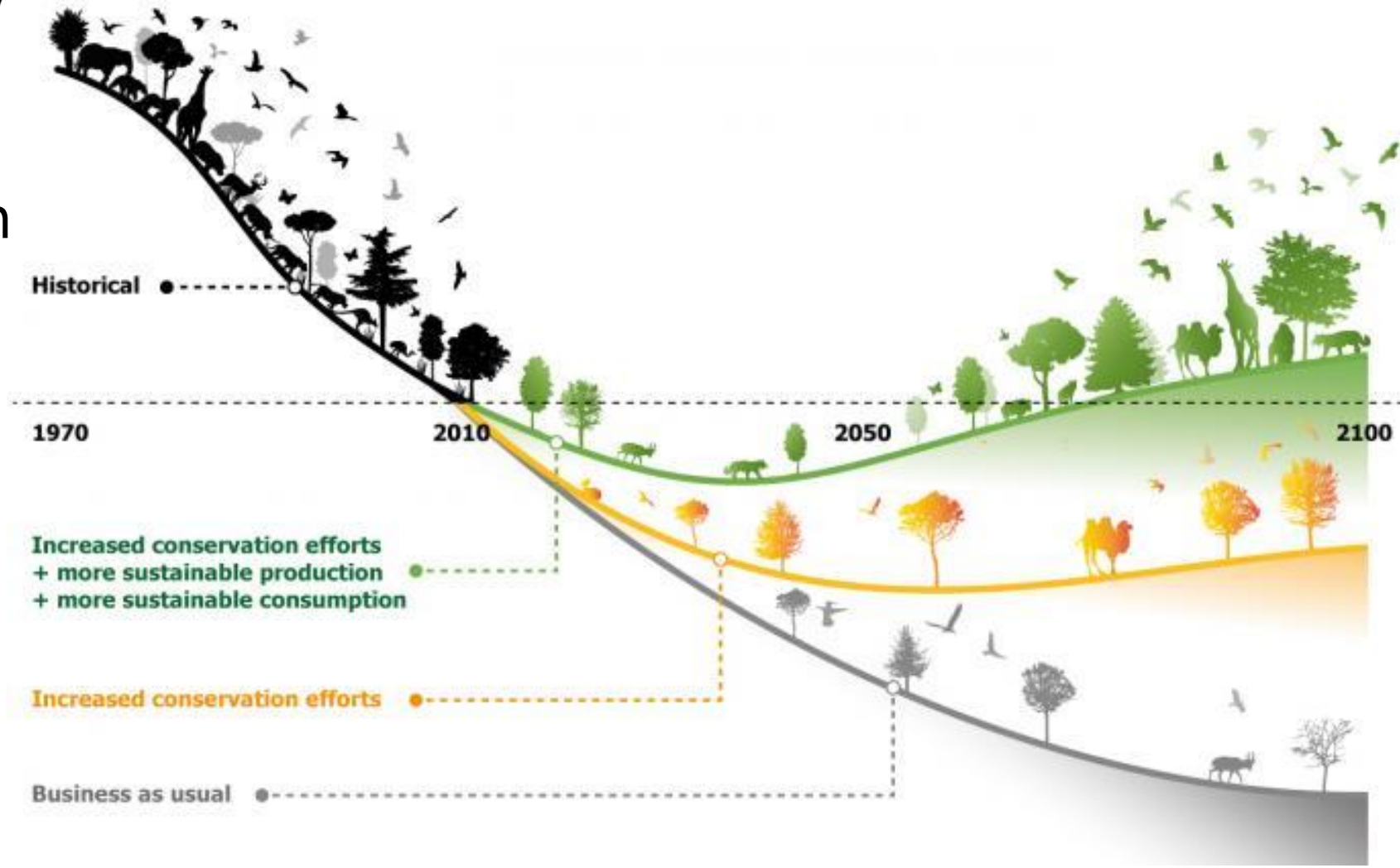
Traditional Conservation and land use management approaches are not adequate in a rapidly changing climate



This artwork illustrates the main findings of the article but does not intend to accurately represent its results (https://doi.org/10.1038/s41586-020-2705-y)

Conservation in a changing climate

- Climate change adaptation may appear to undo the work of the past in preserving ‘important’ or ‘characteristic’ things (features) in situ
- The truth is that relatively soon, along current climate trajectories, this will no longer achievable in many cases
- We may need to facilitate rapid change in the landscape to accommodate new scenarios and recalibrate our notion of acceptable change
- Moving beyond the paradigm of restoring and protecting existing patterns of biodiversity/long established wildlife and heritage conservation targets requires us to question our approach
- More fundamentally it requires us to move away from core ‘protected’ values that have defined our work, and our personal perceptions until now

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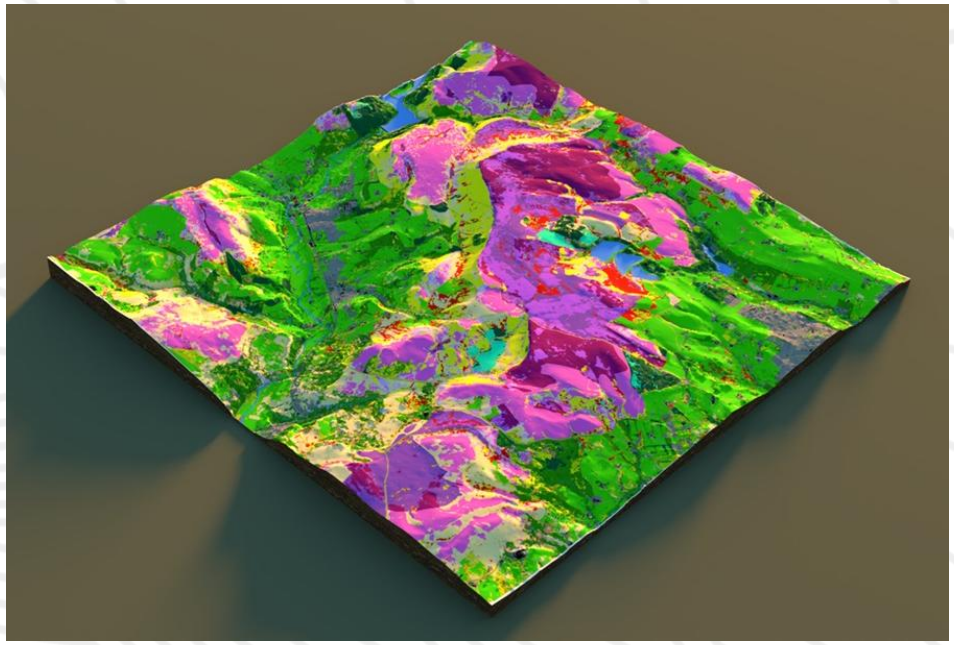
Climate Smart management



Map · Monitor · Manage

The Problem: A dominant assumption

We assume future environments will be the same as past 'ideal' environments

Conserve and enhance, (re)Wilding, Adaptive Management(?)

We manage landscape features to be within some desired range of conditions frequently defined in terms of historical 'ideals':

Recovery, Restoration, Enhancement, Resilience, Favorable Status

Ecological trajectories and ecosystem transformations are now occurring at rates that render this approach less and less relevant as a frame for management targets

Climate Smart Conservation

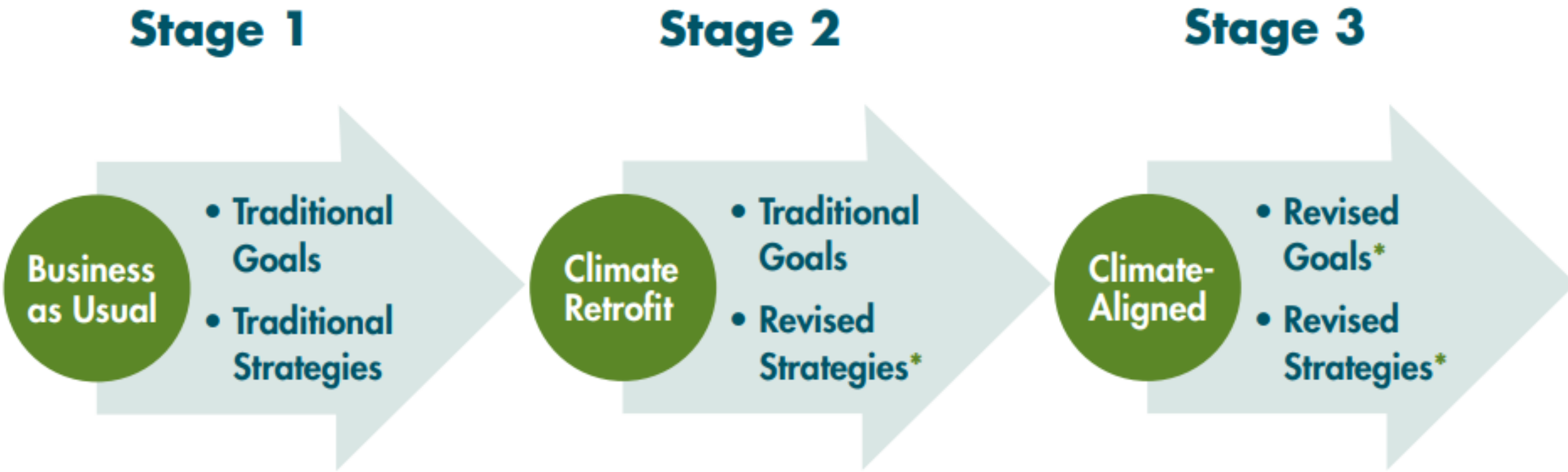
Change is likely to be the only constant. We need to:

1. Manage to facilitate change in features not persistence

2. Current (past) conservation goals and management objectives may no longer be feasible

3. Successful climate adaptation will depend not only on adjusting management strategies, but also on re-evaluating our underlying values and conservation objectives

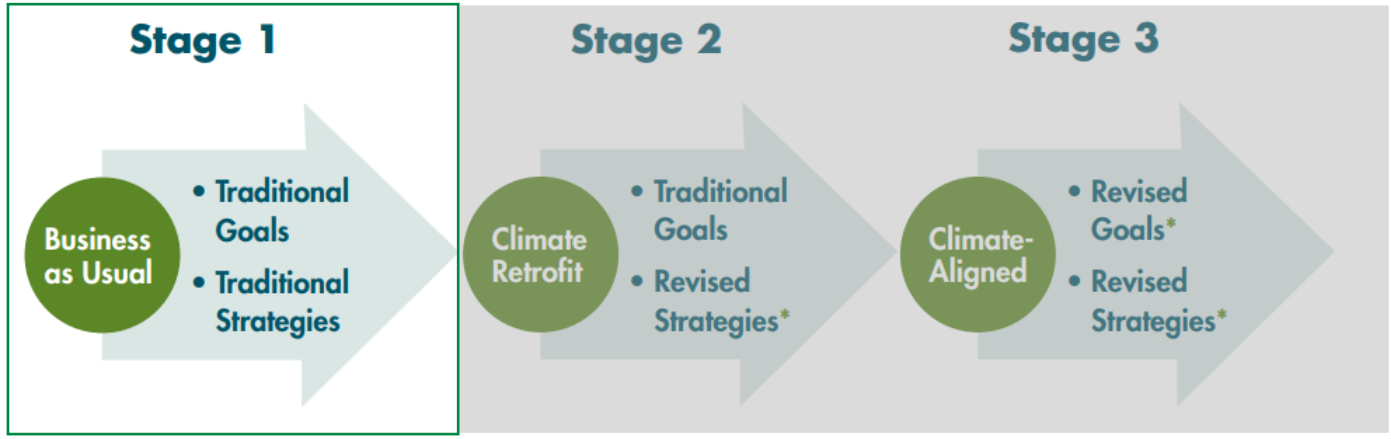
Management approaches



* Review and revised as needed, based on climate change considerations.

Stein et. al 2014

Business as usual



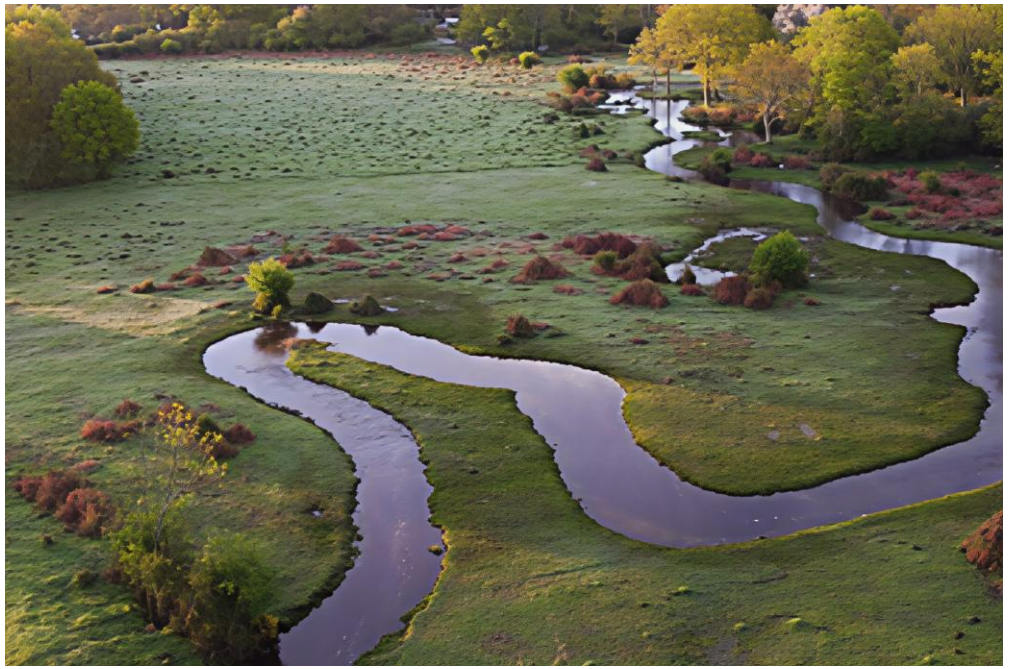
Stein et. al 2014

Traditional Goal

River ecosystem restoration: Focus on characteristic species, landscape features and habitats in 'good condition'

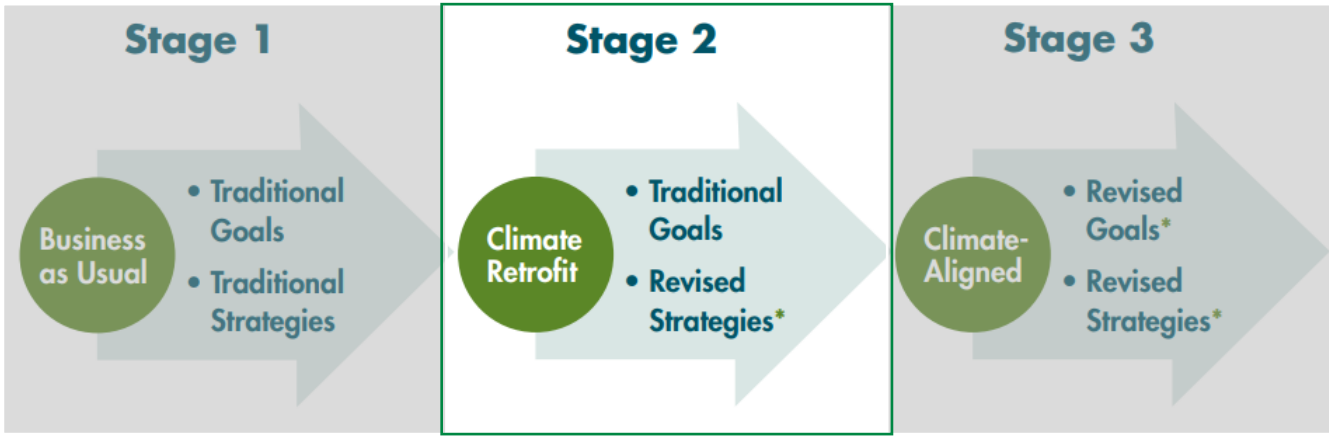
Traditional Strategy

Restore sinuosity, riffle – pool sequence and riparian habitats; control riparian management to allow natural processes and function



NPE 2025

Climate retrofit



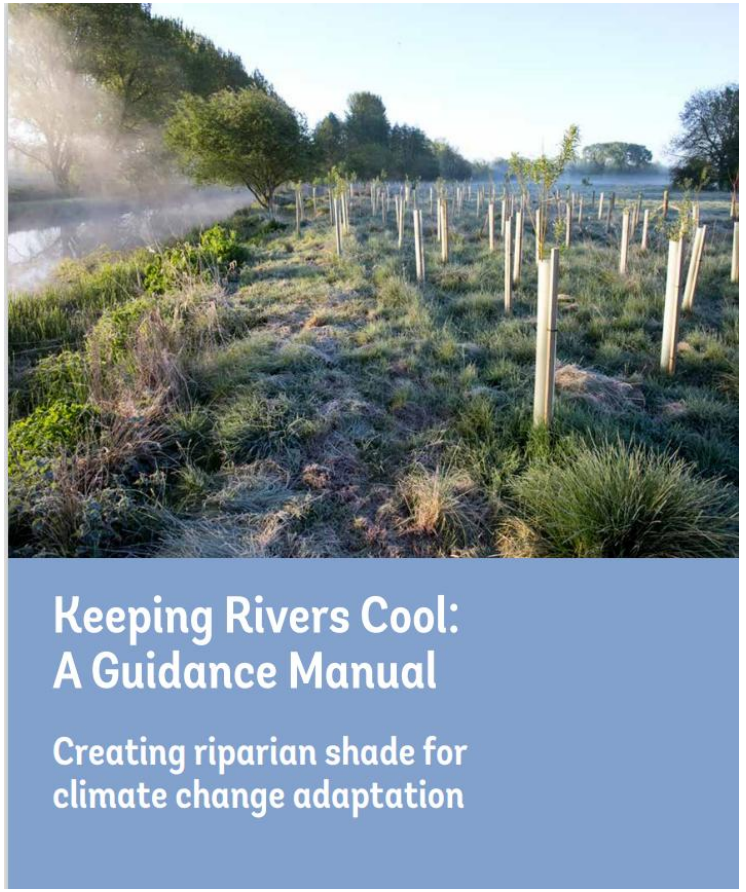
Stein et. al 2014

Traditional Goal

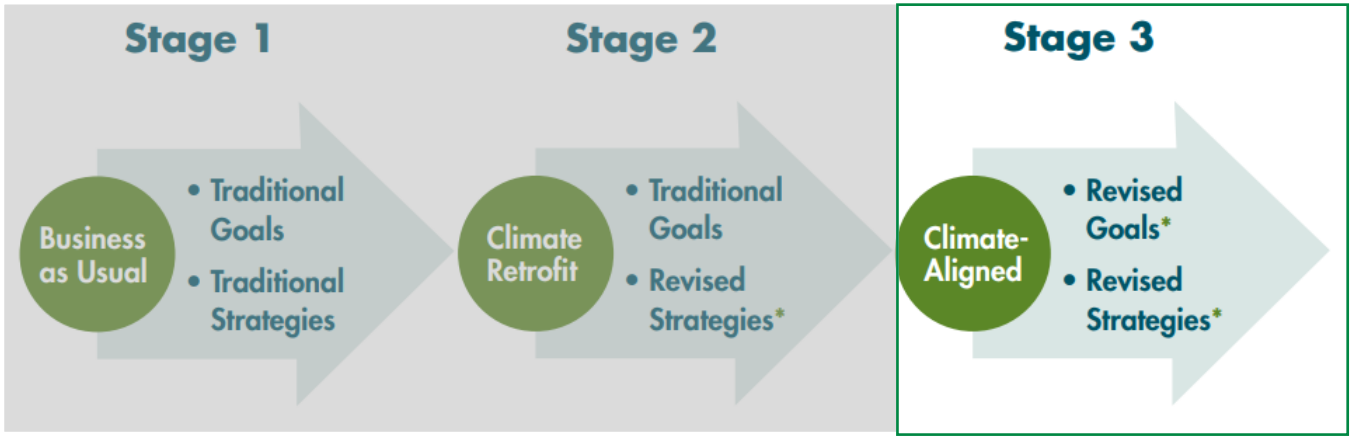
River ecosystem restoration; characteristic species, landscape features and habitats in 'good condition'

Revised Strategy

Plant new trees next to river to reduce temperature spikes and maintain existing species and habitat mix



Climate aligned



Stein et. al 2014

Revised Goal

River ecosystem adaptation where river ecology has the capacity to transition and preserve system function. However landscape features and thus character will change

Revised Strategy

Facilitate plant and animal community transition (feature turnover). Target ecosystem function and complexity as temperature/weather regime changes

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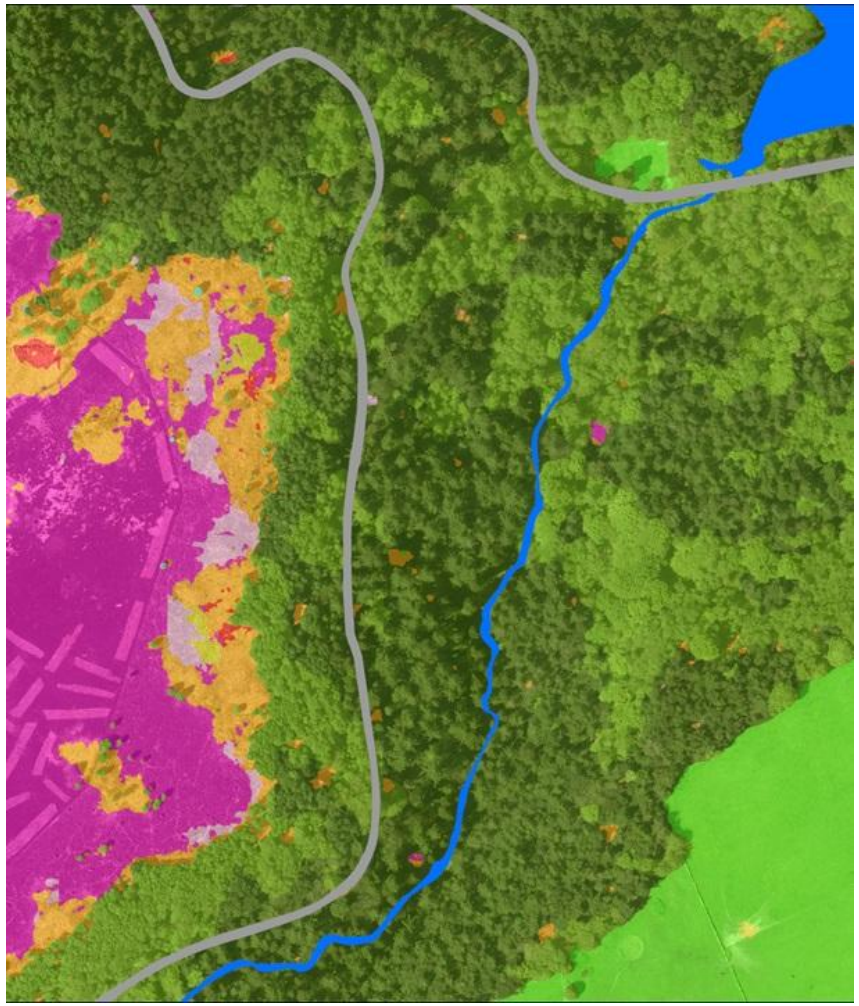
Climate Smart Conservation

- **<u>Does not mean</u>** goals and objectives must be modified in all cases,

but

- **<u>There must be</u>** periodic intentional review and re-evaluation from a climate perspective



Climate Smart Conservation and Resist Accept Direct

Setting goals for the distant future will require a **shift in thinking** to accommodate ecosystem transformation.

We need to **explore multiple, plausible ecological trajectories** as strategies may shift (ecological surprises)

We need to **get better at risk taking**, nimble responses, and a greater commitment to learning through science-based processes.