

Farmland Habitat Mapping



Cian White

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ciwhite@tcd.ie



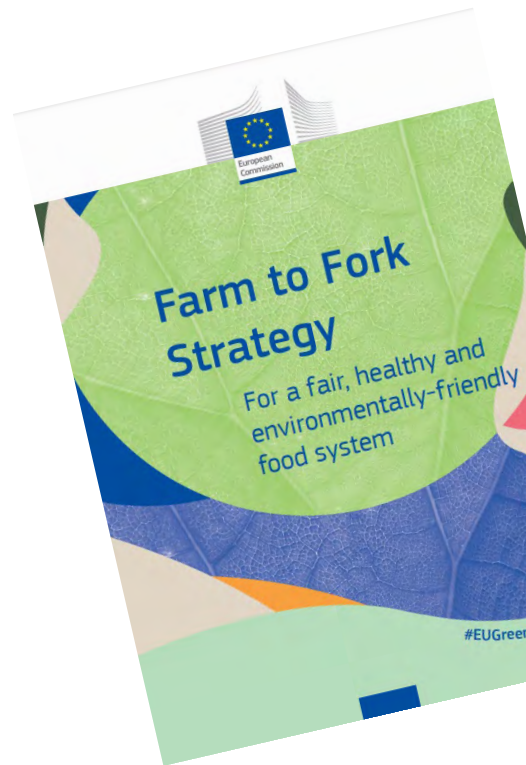
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Trinity College Dublin
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The University of Dublin



EU Policy Landscape



CAP Strategic Plan



EU GREEN DEAL TARGETS



25% agricultural land is organic



Reduce nutrients losses by 50%
• reduce fertilizers by at least 20%



At least 10% agricultural area under
'high diversity landscape features'



Stands



- The EU's response to the 2020 State of Nature report
- Mostly Poor or bad status
- A lot of deterioration

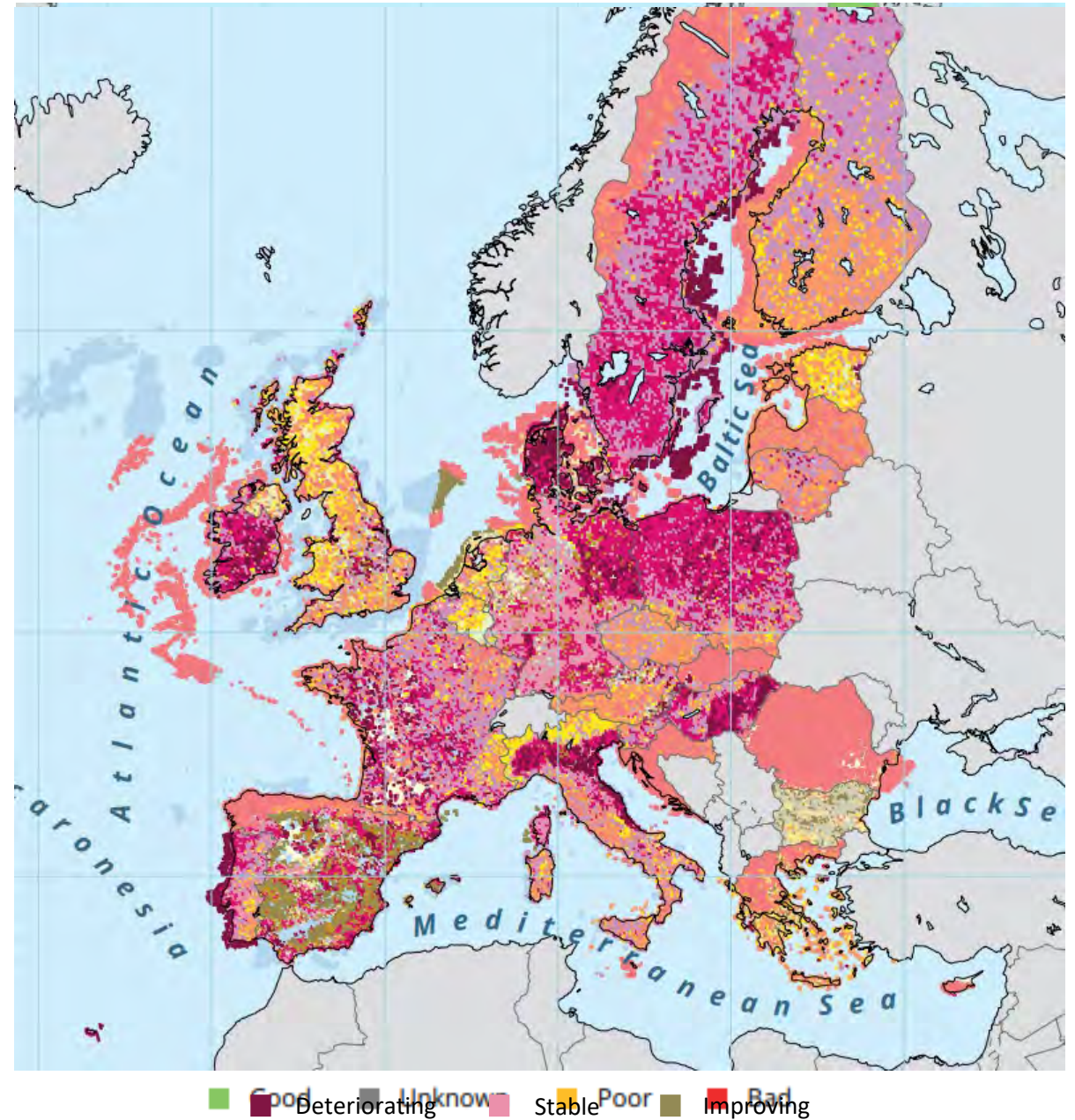
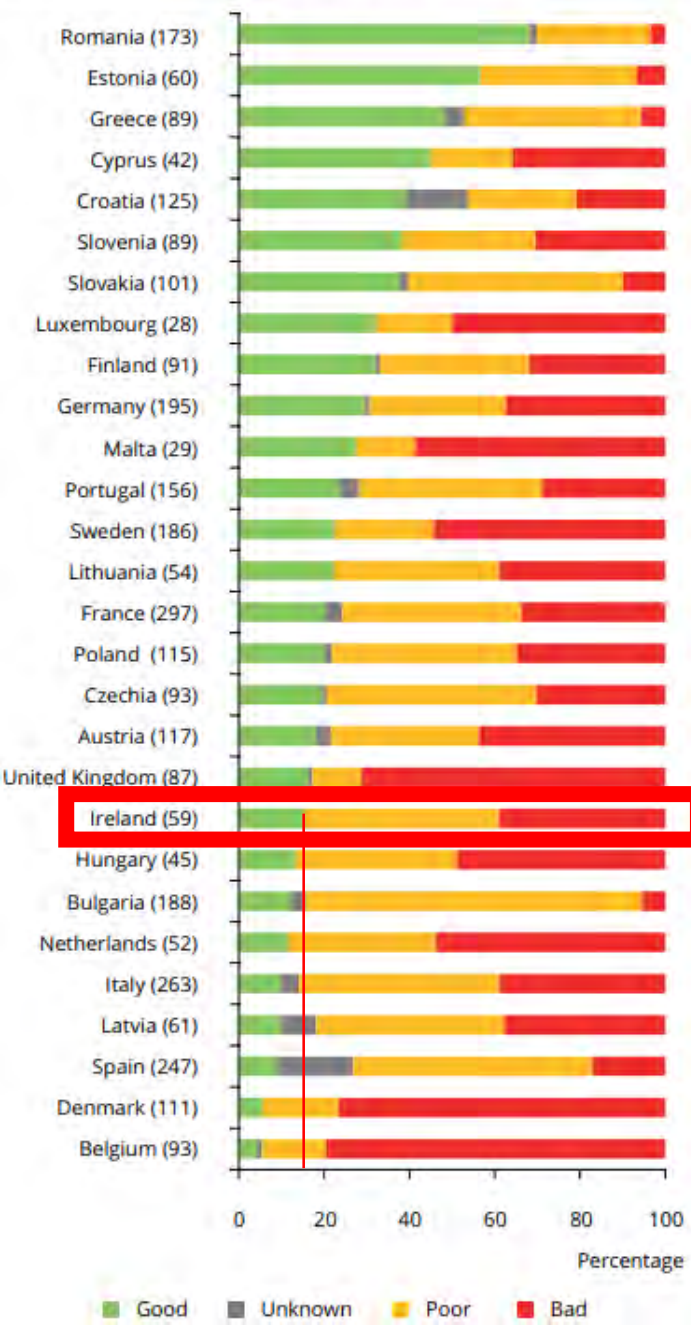


Figure 3.8 Conservation status of habitats at Member State level



With **21%**, agriculture is the most frequently reported pressure for habitats and species

- Abandonment of grasslands
- Intensification

Figure 6.11 EU common birds population index from 1990 to 2016

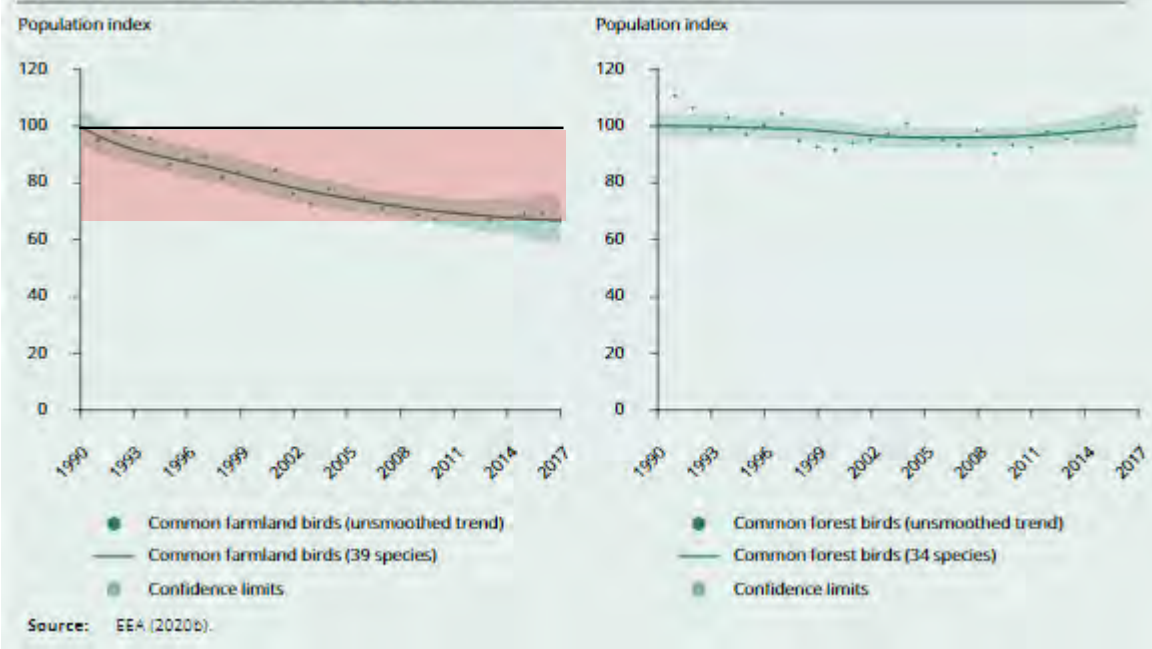
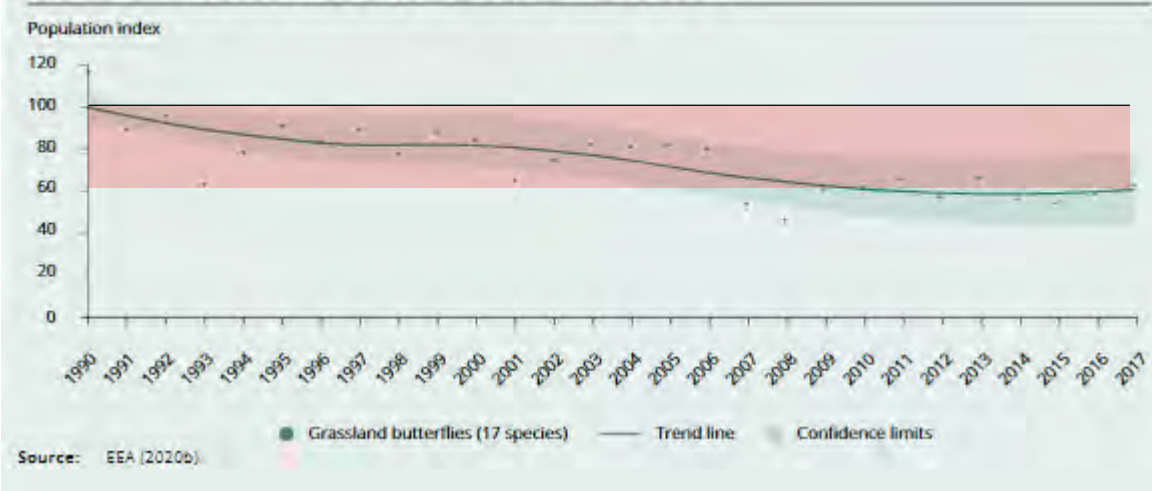


Figure 6.12 Population Index of grassland butterflies 1990-2017





European Green Deal



Increased Integration with CAP
to Achieve 2030 Targets



At least **10%** agricultural area under
'high diversity landscape features'

Signpost Programme

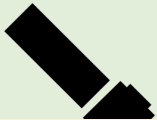
Table 1: Indicative Key Indicators of Success (KIS) for Dairy Signpost Farms

Area1	Target
GHG Emissions	<ul style="list-style-type: none"> GHG emissions per kg milk solids produced
Pasture productivity & stocking rate	<ul style="list-style-type: none"> Identify and reseed unproductive swards – target an increase of 2 tDM/ha utilised over 5 years Stock the farm appropriately: < 250 kg org. N/ Ha (whole farm)
Reduced fertiliser use	<ul style="list-style-type: none"> Reduce chemical N fertiliser usage by 10% over 5 years Increase sward clover content to 20% over 5 years Spread at least 50% of chemical N as protected urea and all slurry using LESS
Optimum soil fertility	<ul style="list-style-type: none"> 90% of soils to have optimum soil fertility status Adhere to NMP to correct soil deficiencies
Adequate slurry storage	<ul style="list-style-type: none"> 16, 20, 22 weeks slurry storage to be available for all livestock, depending on location. No spreading during closed period
Replacement rate	<ul style="list-style-type: none"> Target 18-20% for stable herd Target 5 lactations herd average lactation number Increase EBI by €10 per year
Concentrate CP %	<ul style="list-style-type: none"> Reduce concentrate CP% to 14% (main grazing season)
Biodiversity	<ul style="list-style-type: none"> Target 10% of high value biodiverse area per farm Increase quantity and quality of biodiversity on the farm
Costs & returns	<ul style="list-style-type: none"> Reduce costs/save money Target net profit > €800 per cow or > €2,000 per ha

Habitat Mapping

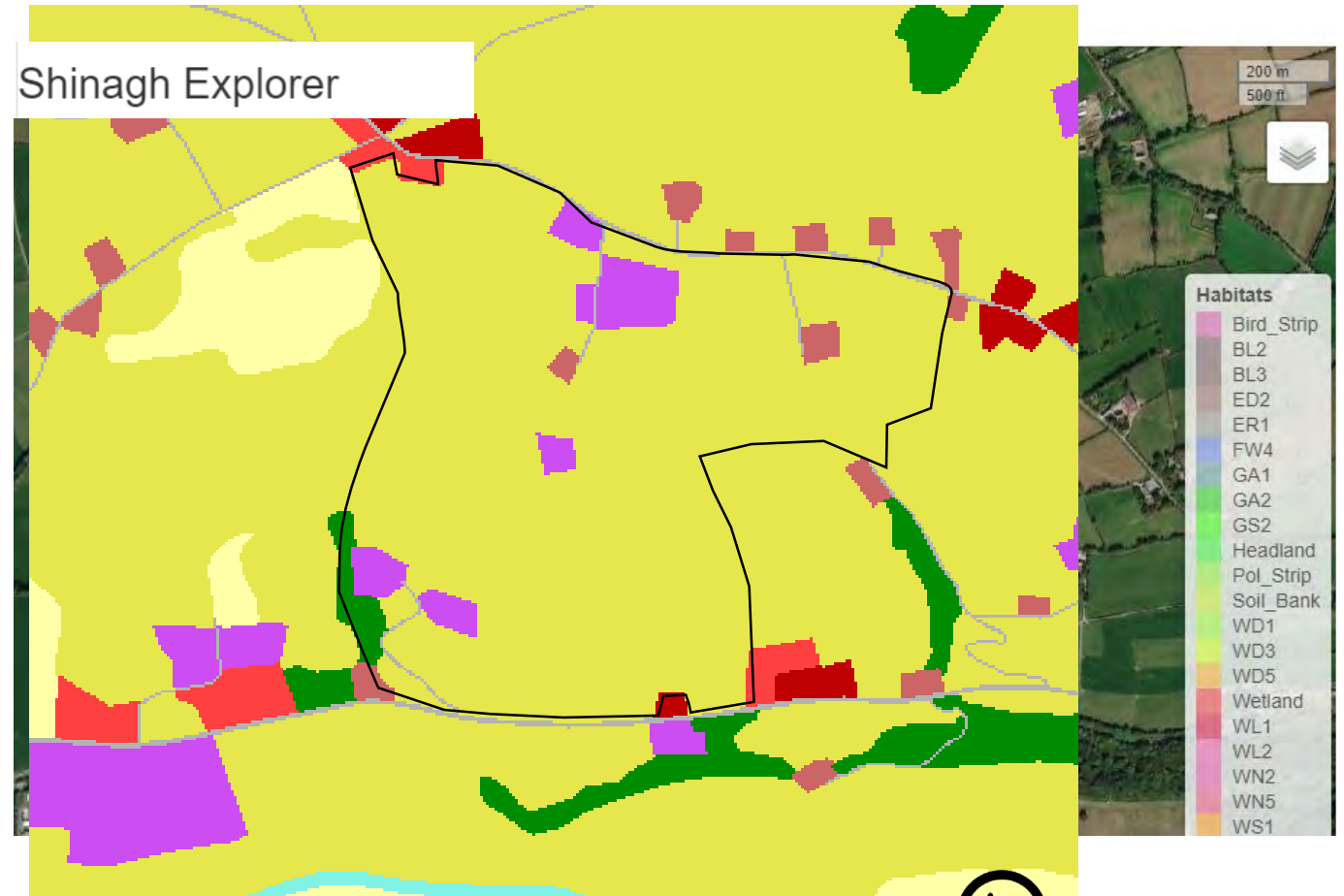
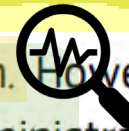
- Current standard
- What is possible

European Space Agency



Ireland has not yet opted to use satellite-based ways to monitor CAP implementation. However, it is involved in EU projects dealing with the uptake of new technologies to modernise CAP administration, CAP controls and interactions with farmers.

Satellite Based
Habitat Mapping
System



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National Habitat Map



Figure SB5.1. Example of the new landcover dataset showing landcover units (in white). © Ordnance Survey Ireland.

Main Data sources

Raster

- OSi 50cm 4-band Orthos
- OSi- 1m DSM
- ESA Sentinel2 Imagery

Vector

- PRIME2
- LPIS
- Forest Service & COILLTE
- Habitat data – NPWS, NBDC, HC, etc.

Reference year of 2018

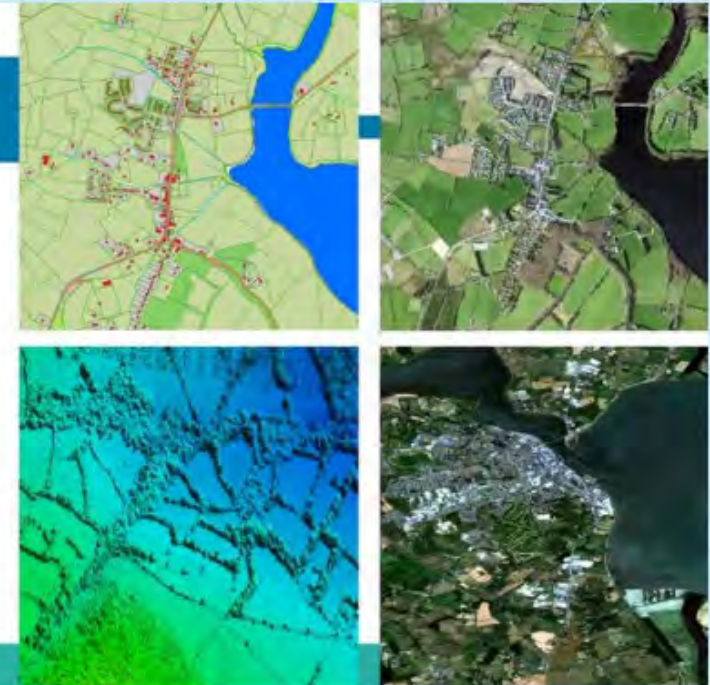
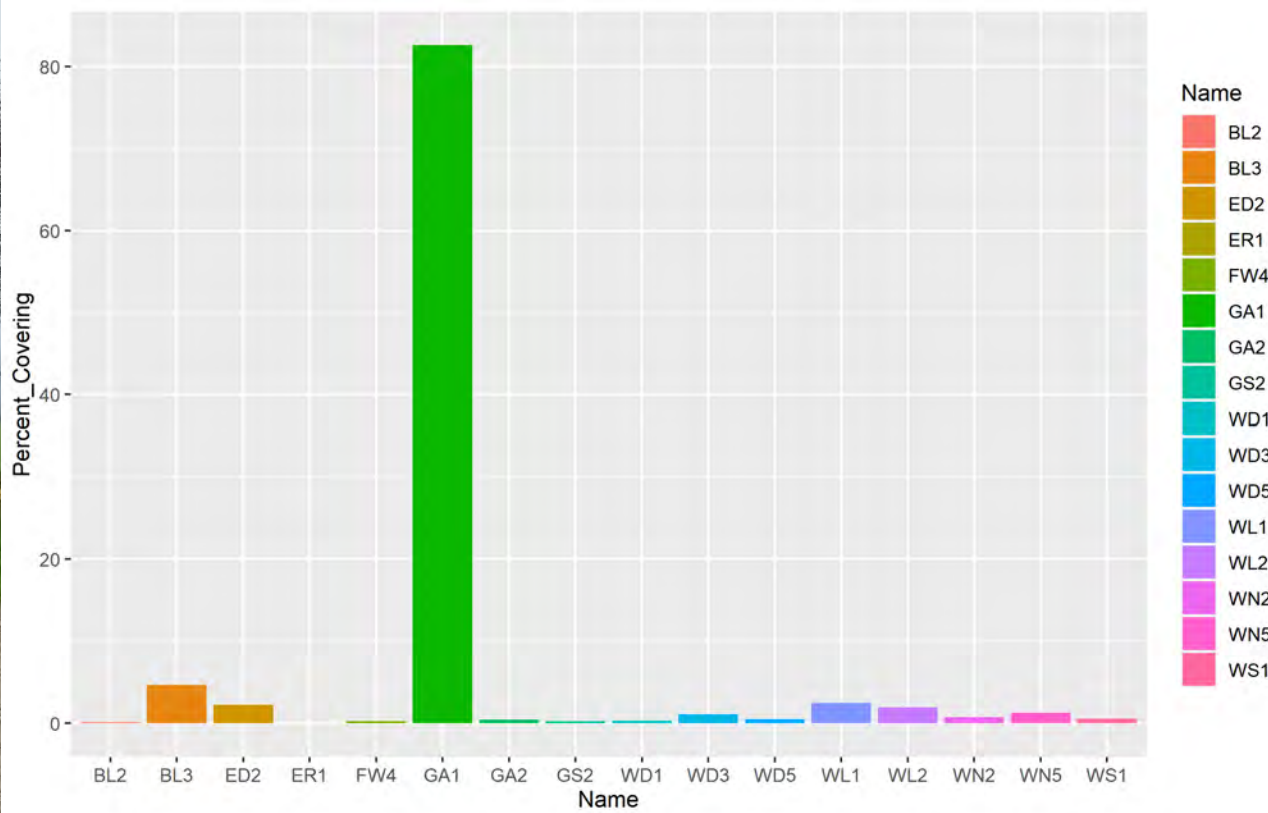
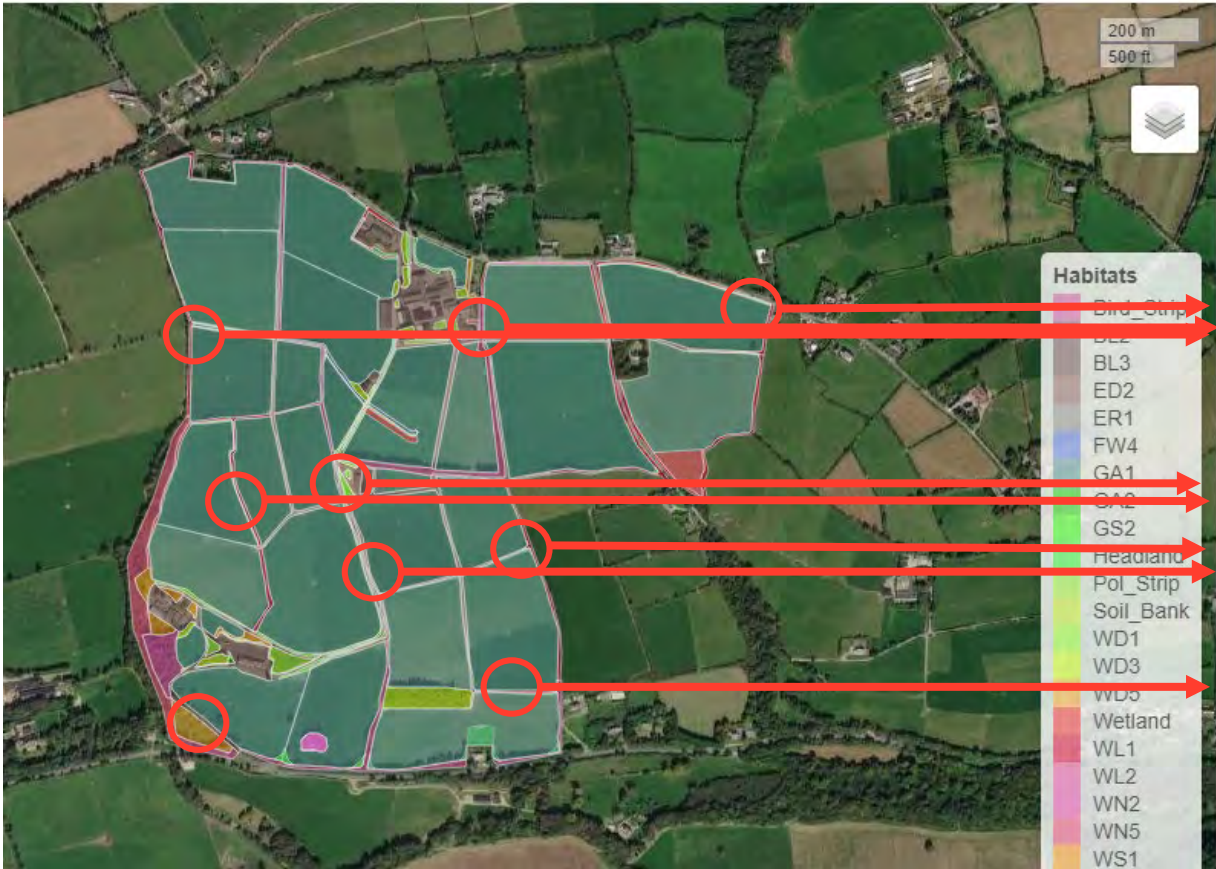


Figure SB5.2. Some of the main data sources used in the production of the new land cover maps. The classification system is compatible with the European Environment Agency's EAGLE classification mode monitoring in Europe, thus ensuring compatibility with European land cover and land use reporting requirements. © Ordnance Survey Ireland.

Getting to 10% Habitat Cover



Can we build an automated recommendation system?



Monitoring Progress

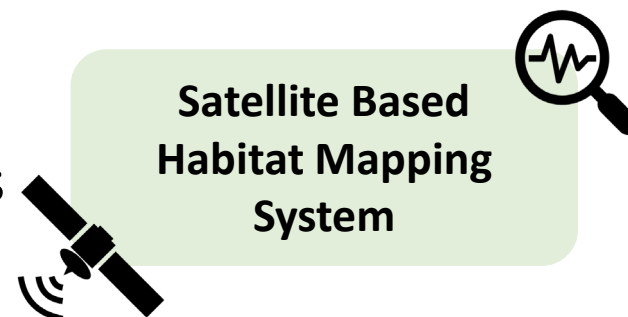


Summary

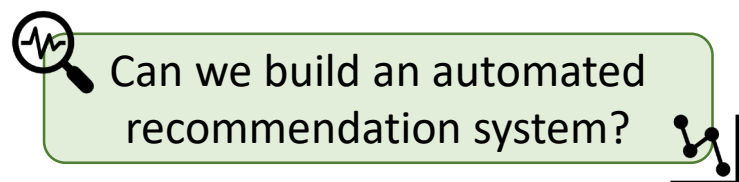


- EU Policy moving towards area based targets on farm

- Satellite-Based Farmland Habitat Mapping
 - Shinagh Demonstrator and 10 Replicator Farms
 - Test recommendation system



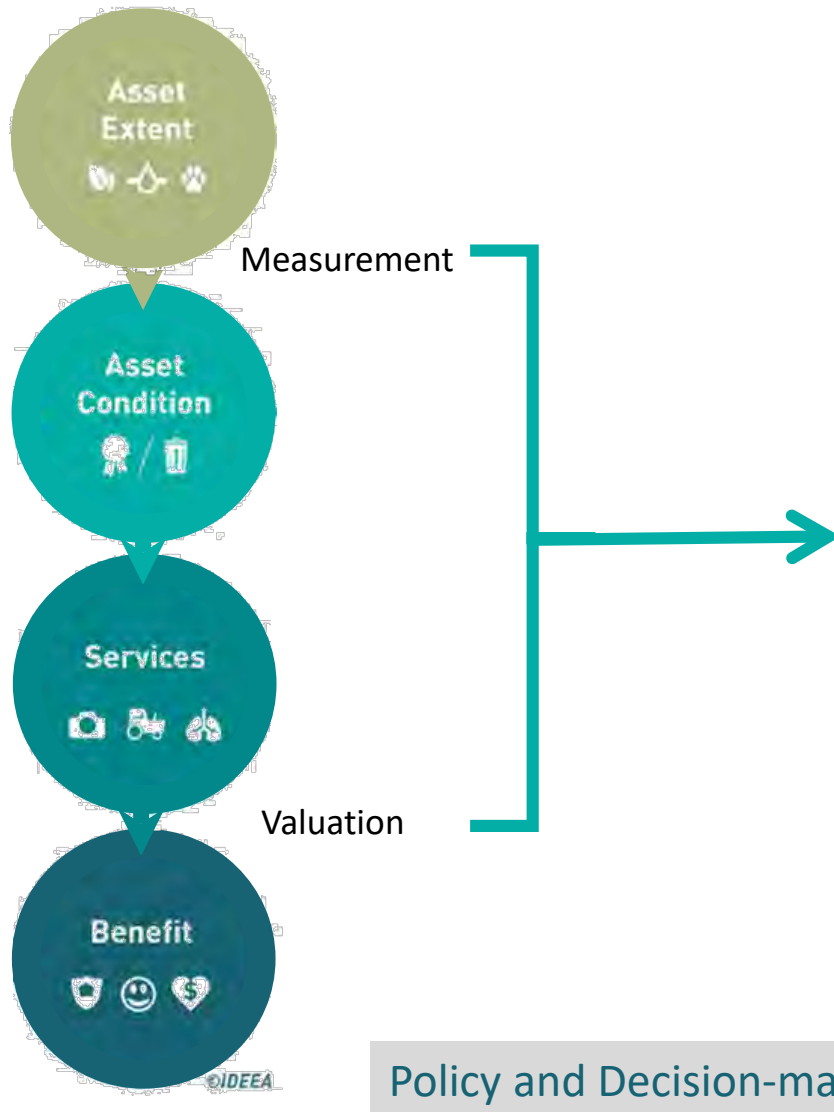
- Habitat Recommendation System for Intensive Farms



Questions?



Natural Capital Accounting



Benefits/services: ecosystem
Extent, amount, quality of different
habitat types on farm
services delivered by different
habitats individually and in
combination
Need indicators, quality scores