



Status quo of LF across the EU and monitoring capabilities through LUCAS

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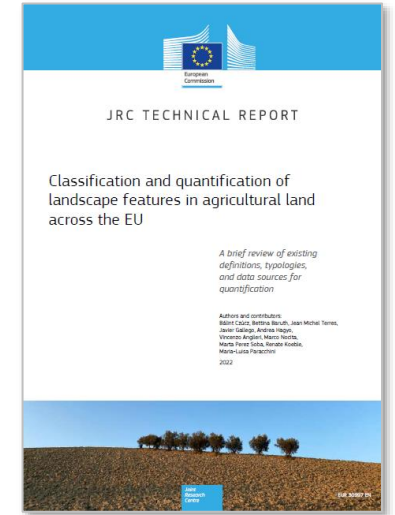
JRC D.5

Thematic Group on Landscape Features & Biodiversity

13 October 2022

Contents

- Two recent JRC reports
 - overview of the overview (of status quo)
 - LF definition & typology
- The most important EU-level data sets
 - Copernicus SWF
 - LUCAS LF
- Key lessons from the LF work



Report #1: **MS-level** data & methods



- State of play of LF in the MS:
 - **MS choices** in CAP implementation
 - Overview of **LF definitions & typologies**
→ Linked to the harmonized typology
 - Constraints and incentives as experienced by the MS
- **Data sources in the MS**
Overview based on INSPIRE
- MS approaches for LF quantification



LF in the MS:

<https://publications.jrc.ec.europa.eu/repository/handle/JRC128876>

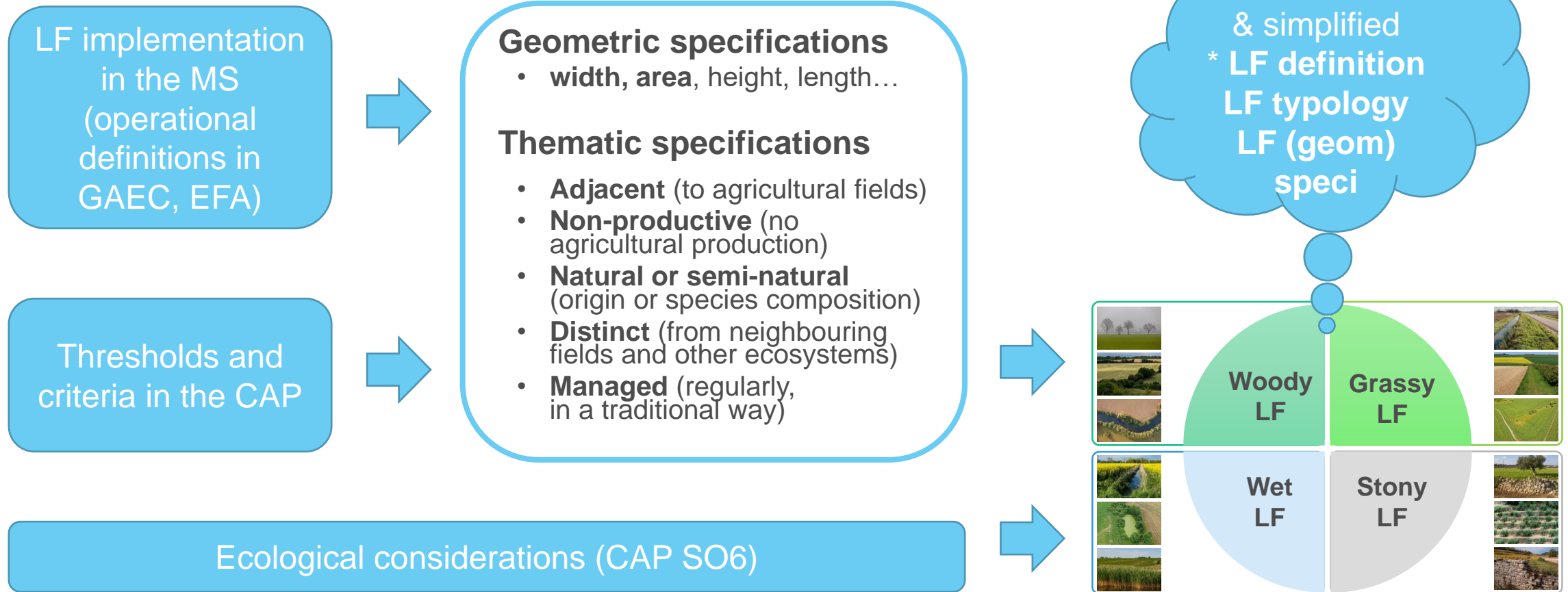


MS-level data & methods

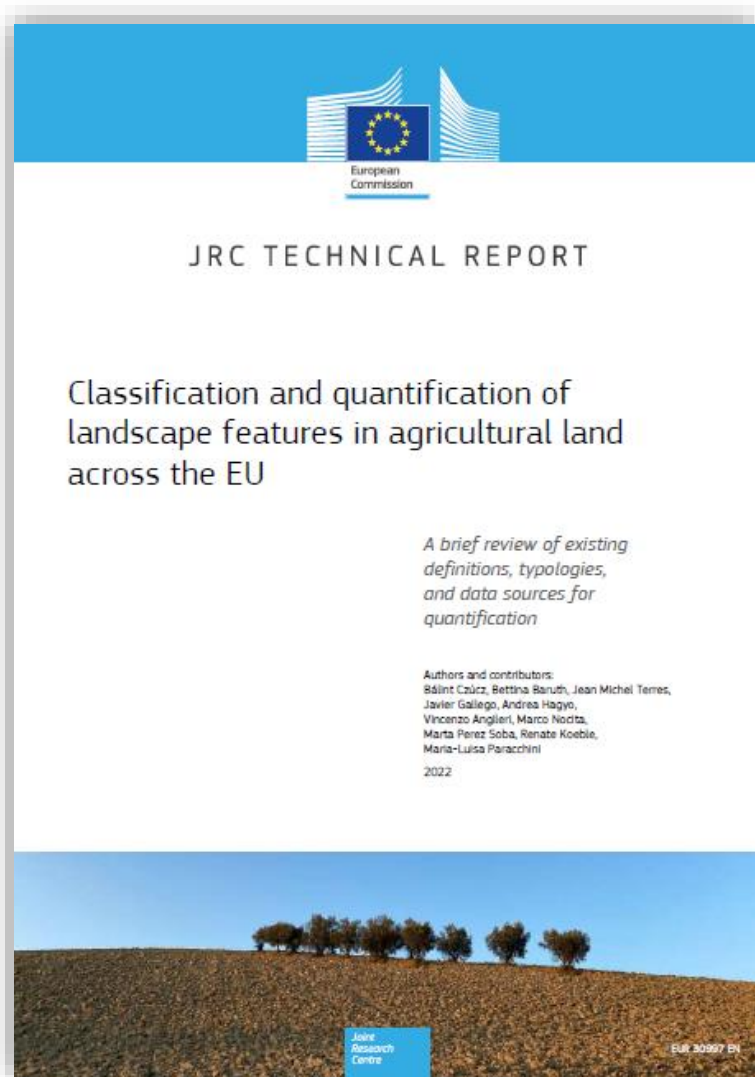


LF in the MS:

<https://publications.jrc.ec.europa.eu/repository/handle/JRC128876>



Report #2: **EU-level** data & methods



- State-of-play of **classification** and **quantification** at the EU level
 - Current and upcoming **data sources**
→ linking them to the simplified (FLF) types
 - Options for an **EU-level quantification**
 - data & methods (towards I.21)



LF in the EU:

<https://publications.jrc.ec.europa.eu/repository/handle/JRC128297>

General LF definition & typology



(Image source: ELN-PAB, 2012: Functional agrobiodiversity: Nature serving Europe's farmers. ECNC, Tilburg -- drawing by Ben Delbaere)

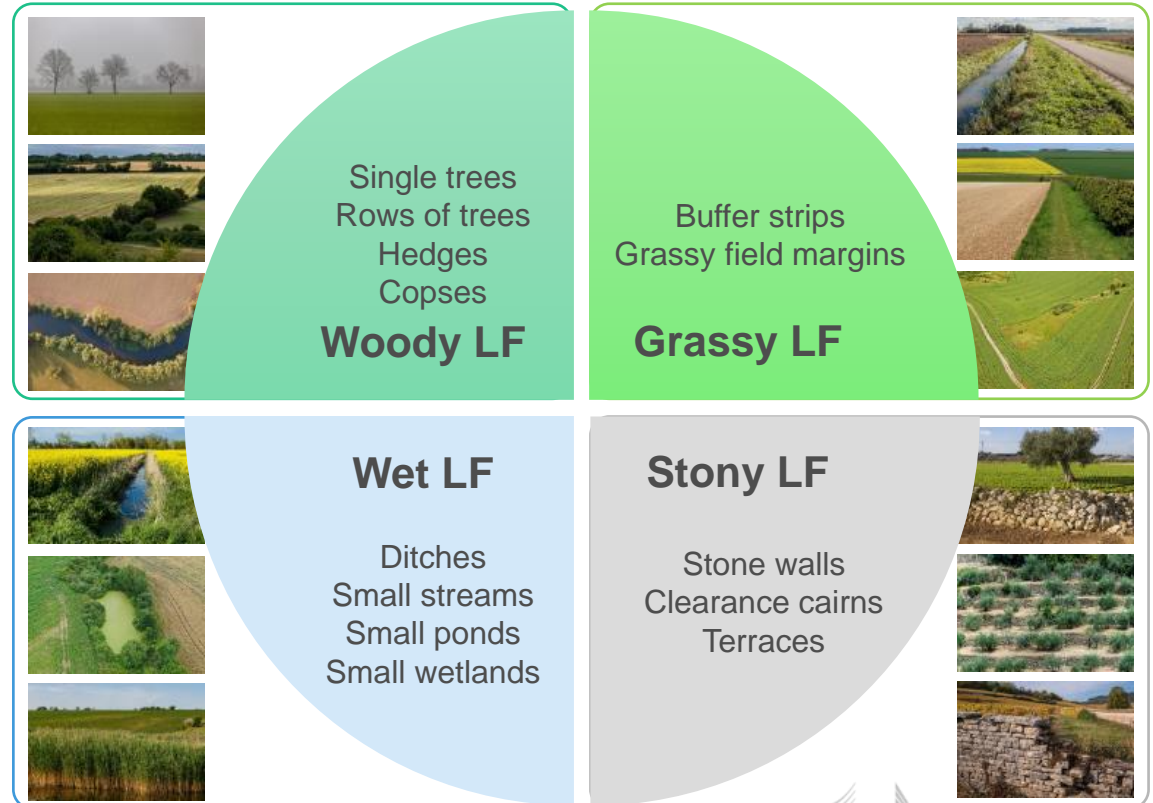
→ Landscape features (LF)
 → are **small** fragments of
 → **non-productive**
 → **permanent** vegetation
 → **in agricultural land** which
 provide ecosystem services and
 support for biodiversity



LF in the MS:
<https://publications.jrc.ec.europa.eu/repository/handle/JRC128876>



LF in the EU:
<https://publications.jrc.ec.europa.eu/repository/handle/JRC128297>



Main data sources



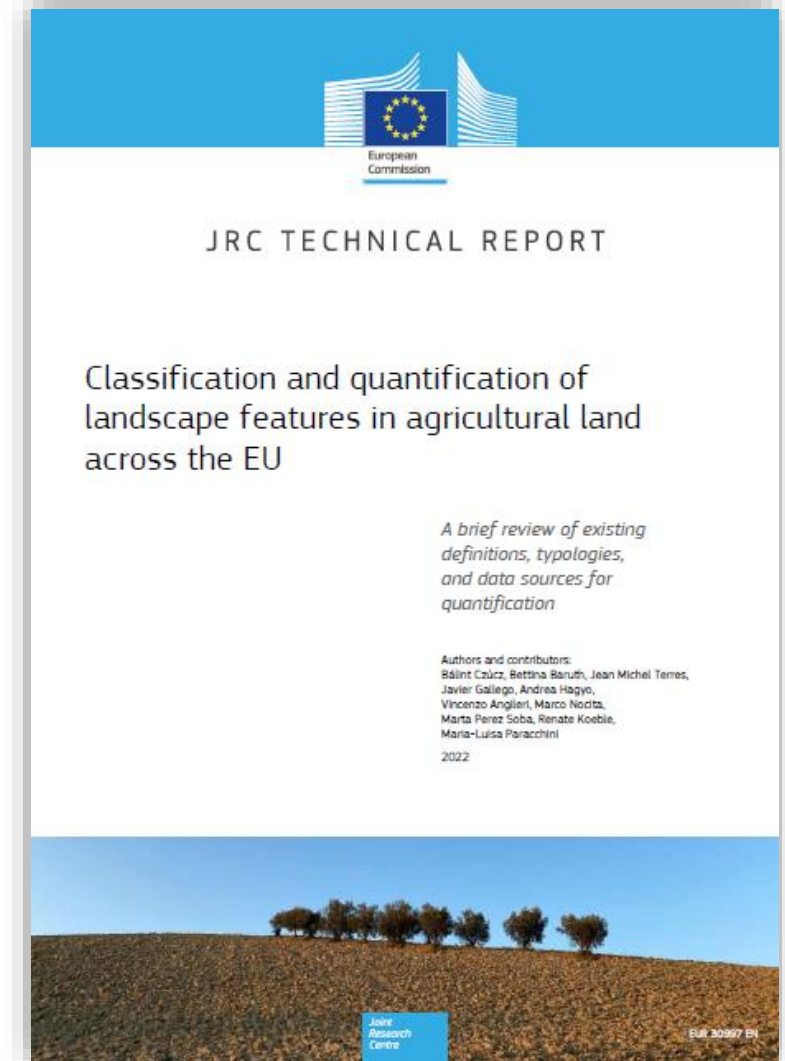
LF in the EU:
<https://publications.jrc.ec.europa.eu/repository/handle/JRC128297>

❖ Mapping products (remote sensing + AI)

- *Wall-to-wall (all locations of Europe)*
- *Fewer types, mapping errors*
- **Copernicus HRL Small Woody Features (SWF) layer**
- other Copernicus products

❖ Statistical samples (CAPI or field surveys)

- *Just for selected locations*
- *More types, higher accuracy*
- LUCAS Transects (2009-15)
- **LUCAS LF module (2022-)**
- EMBAL (European Monitoring of Biodiversity in Agricultural Landscape, 2022-)



Copernicus HRL Small Woody Features



The Copernicus SWF products:

- part of HRL product line by Copernicus (CLMS)
- **wall-to-wall map** based on RS & AI
- spatial coverage: Pan-European (EEA39)
- temporal coverage: 3-yr update cycle
(available: 2015, 2018; planned: 2021, 2024...)
- thematic coverage: **only woody LF!**

SWF 2018:

- **production completed**, ongoing quality checks
- ...will be released soon!
- several changes compared to the 2015 product
- + a dedicated agricultural area mask
(to separate SWF in AL from SWF in non-AL)

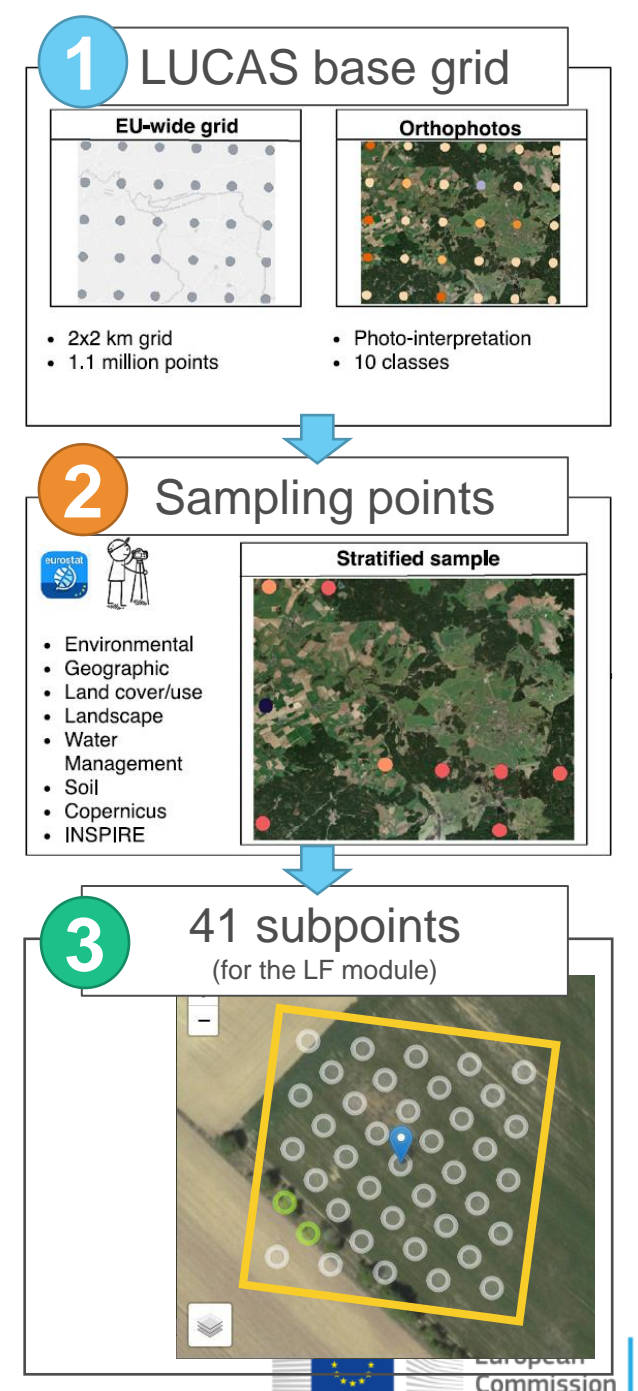
LUCAS LF module

The LUCAS LF module:

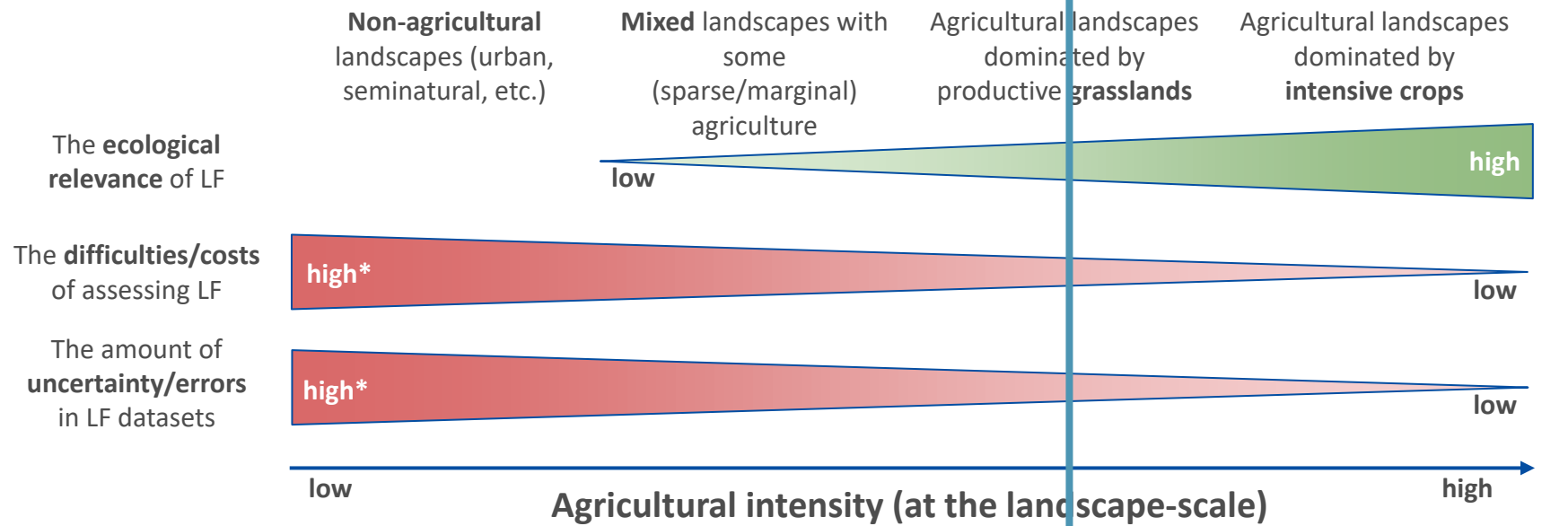
- a module of the LUCAS surveys (the main resource for LU/LC statistics for the EU)
- representative **statistical sample**, based on field survey
- spatial coverage: EU (EU27)
- temporal coverage: 3-yr update cycle (ongoing: 2022, planned: 2025, 2028...)
- thematic coverage: **all main LF types**

LUCAS LF 2022:

- in ~93,000 LUCAS points (and 41 subpoints: 100x100 m quadrat)
- spatial representativeness at MS level (and possibly also NUTS2),
- with a two-stage approach:
 - office-based photo-interpretation (PI, phase 1)
 - field survey (SU, phase 2)
- results by end of 2023



An important lesson



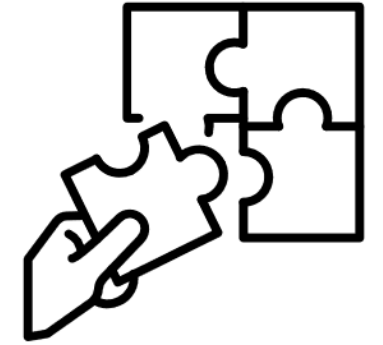
HRL Small Woody Features 2018

Technical and conceptual challenges

- Despite of sophisticated methodology applied, the application of theoretical geometry requirements may lead to inconsistent results in various landscape conditions.
- The concept of landscape features and the product is most meaningful in agricultural landscapes with distinct hedgerows and/or woody vegetation patches, embedded in an agricultural matrix.
- It is technically and conceptually difficult/impossible to map landscape features in other agricultural landscapes.



Take home messages



- 2 new reports:



LF in the EU:

<https://publications.jrc.ec.europa.eu/repository/handle/JRC128297>



LF in the MS:

<https://publications.jrc.ec.europa.eu/repository/handle/JRC128876>

- a comprehensive record of the **state-of-play**
 - harmonized **definitions**, **typologies**, specifications
 - an overview of data sources & quantification methods
-
- Two main data sources at the EU-level:
 - **Copernicus SWF** layers
 - **LUCAS LF** survey



- Less may be more:

- marginal increase in biodiversity is higher if LF is added to intensive agricultural land
- → it might be better to **focus LF efforts on intensive agricultural land**

Thank you!

The two reports:



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LF in the MS:

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Further information:

→ [JRC-wiki-CAP-SP@ec.europa.eu](https://wiki-cap-sp@ec.europa.eu)

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