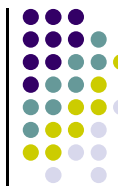


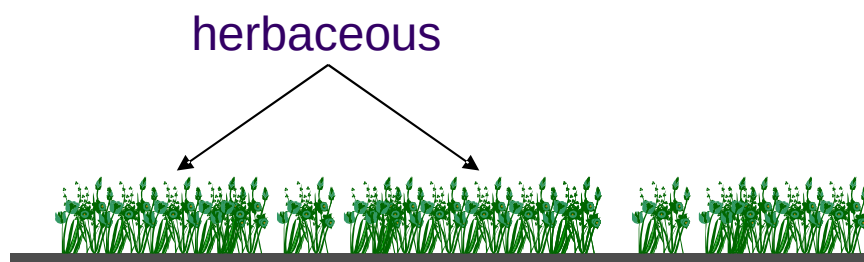
Modeling of natural grassland with FAO LCCS v.2

2015 JRC Workshop
23-25 March, Baveno, Italy





The “grassland” case



Old EU CAP
Permanent pasture



New EU CAP (post-2013)
Permanent grassland with
scattered non-eligible features

Scope of the use case and specifications



Work performed as part of the LPIS project in Turkey

Authors as Short-Term Experts to EQC contract (Agrotec)

In collaboration with experts from MoFAL

Specifications discussed within a dedicated working group

Revision of the grassland types from ToR in line with the new EU CAP requirements

Challenging as novelties has to be applied in the phase of LPIS creation

No continuous EU CAP historical data available

Decisions about applying pro-rata system and PG-ELP under discussion

Valuable input informaton on grassland present in TR

CLC, STATIP, grassland database, cadastre



Key Principles

Define the grassland types with scattered non-agriculture features in a way to:

- Account for the limitation of the up-to-date source data for LPIS creation in TR

 - Mostly one single observation (orthophoto)

 - Grazing cannot be directly detected with remote sensing

- Enable flexibility for MoFAL with respect to decisions on eligibility rules

 - Provide practical approach for LPIS contractors

 - Ensure standardization and quality of digitization

Map land cover while deciding on rules

 - Then apply the rules based on land cover

Land cover semantics based on LCCS

 - Classifiers based on physiognomy and structure



Data content and Structure

Definition in CAP

Proposed generic LC class

Grassland with fruit trees	→	grassland with sparse tree crops
grassland with grazeable sparse trees	→	grassland with sparse natural trees
grassland with non-grazeable sparse trees	→	
grassland with grazeable shrubs and trees, where grassland is predominant	→	grassland with woody vegetation, where grassland is predominant
grassland with grazeable shrubs and trees, where grassland is NOT predominant	→	grassland woody vegetation, where grassland is NOT predominant
grassland with non-grazeable shrubs and trees and other non-agri features, where grassland is predominant	→	grassland with bare area and optional presence woody vegetation, where grassland is predominant
grassland with non-grazeable shrubs and trees and other non-agri features, where grassland is NOT predominant	→	grassland with bare area and optional presence woody vegetation , where grassland is NOT predominant

Grazeable trees



Grassland with sparse natural trees



21672-127116	A6A20B4XXXXXXF 2F5F10G2F2F6F10 G3-A21B15Z8	G2	Grassland with Sparse Trees	Medium To Tall Closed to Open (100-15)% Grassland with Trees	G_Wsp
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Perennial natural herbaceous vegetation with a second layer of sparse (scattered) woody vegetation (trees).

The percentage of the natural trees is in the range of 10-15%. Grassland cover is defined in the broad range of 100-15% (closed to open). Grassland height is “Medium to Tall”.

More specific range for the tree cover can be introduced through user defined modifier



Grassland (predominant) with woody vegetation



20299-Zt1(4)[Z6]	A1A11B1XXXXXXF2F4 F7G4-A13G11-Zt1Z6	G3	Grassland with Very Open (50-10%) Woody Vegetation	Open (50 - 15%) Woody Vegetation with Medium to Tall Herbaceous Layer Floristic Aspect: Graminoids	G_Wvop
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Perennial natural herbaceous vegetation with a presence of second and optionally third layer of woody vegetation (shrubs and/or trees).

The percentage of the woody vegetation is in the range of 40-15%. Grassland cover is defined in the broad range of 100-15% (closed to open). Grassland height is “Medium to Tall”.

More specific range of 50-10% for the woody vegetaton to reflect the regulatory requirement is introduced through user defined modifier



Grassland (not-predominant) with woody vegetation



20299-123815- Zt1(4)[Z7]	A1A11B1XXXXXXF2F4 F7G4-A12G11-Zt1Z7	G4	Grassland with Open (70%- 50%) Woody Vegetation	Open ((70-50%) Woody Vegetation with Medium to Tall Herbaceous Layer Floristic Aspect: Graminoids	G_Wop
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Perennial natural herbaceous vegetation with a presence of second and optionally third layer of open woody vegetation (shrubs and/or trees).

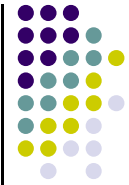
The percentage of the woody vegetation is in the range of 70-40%. Grassland with more than 70% woody vegetation is considered closed woodland.

Grassland cover is defined in the broad range of 100-15% (closed to open). Grassland height is “Medium to Tall”.

More specific range of 70-50% for the woody vegetaton to reflect the regulatory requirement is introduced through user defined modifier



Grassland (predominant) with woody vegetation and bare areas



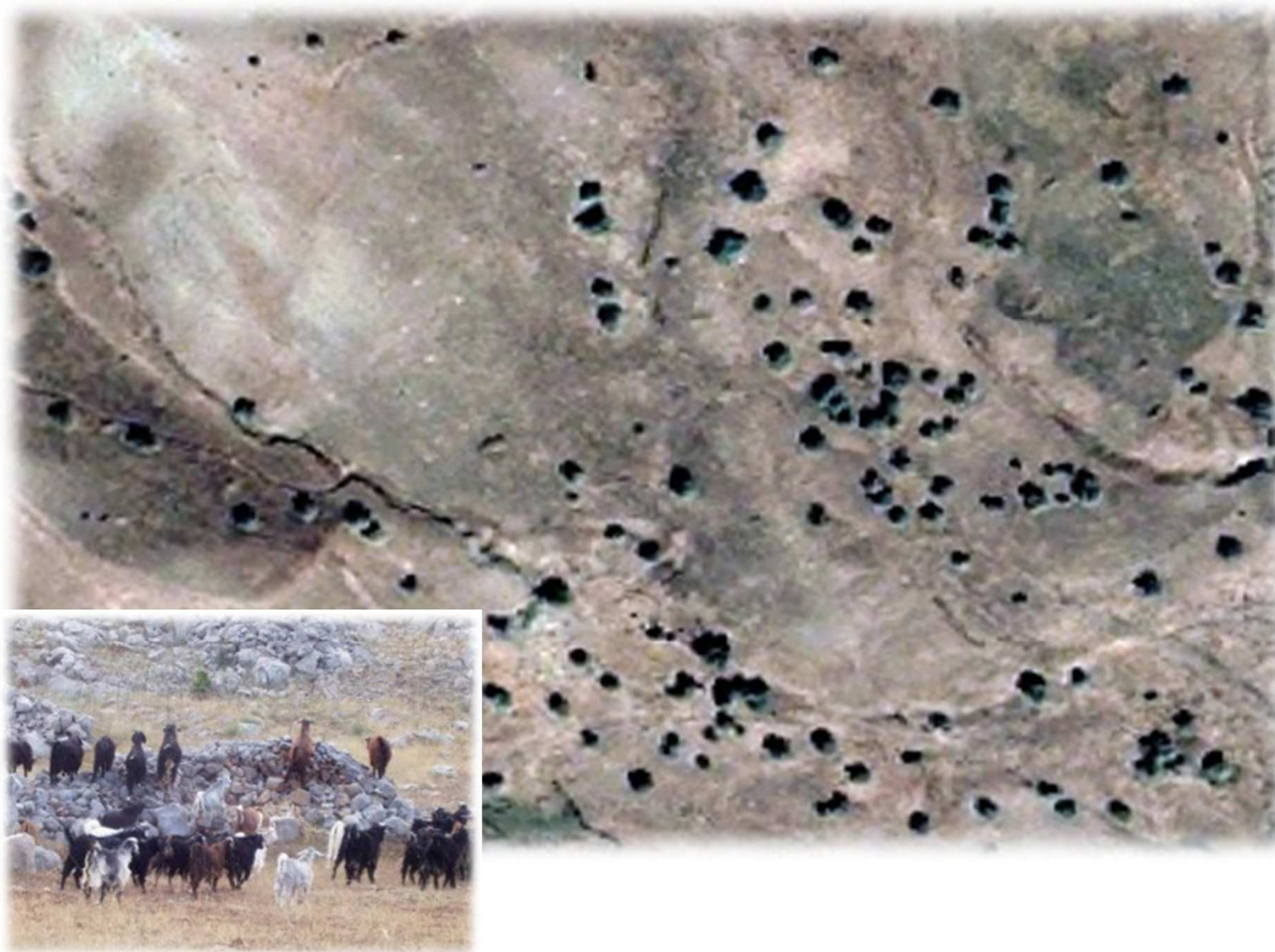
21462-127116(4)[Z8] / 6001	A6A20B4-A21B15Z8 / A1	G5	Grassland with Bare Soil - Grassland is predominant - Woody Vegetation may occur	Closed to Open (100-15)% Medium To Tall Grassland / Consolidated Material(s)	Gr_Bs
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Perennial natural herbaceous vegetation in association with features of different land cover type (grassland + permanent bare soil). Mixed class A/B where an additional layer of woody vegetation can be present.

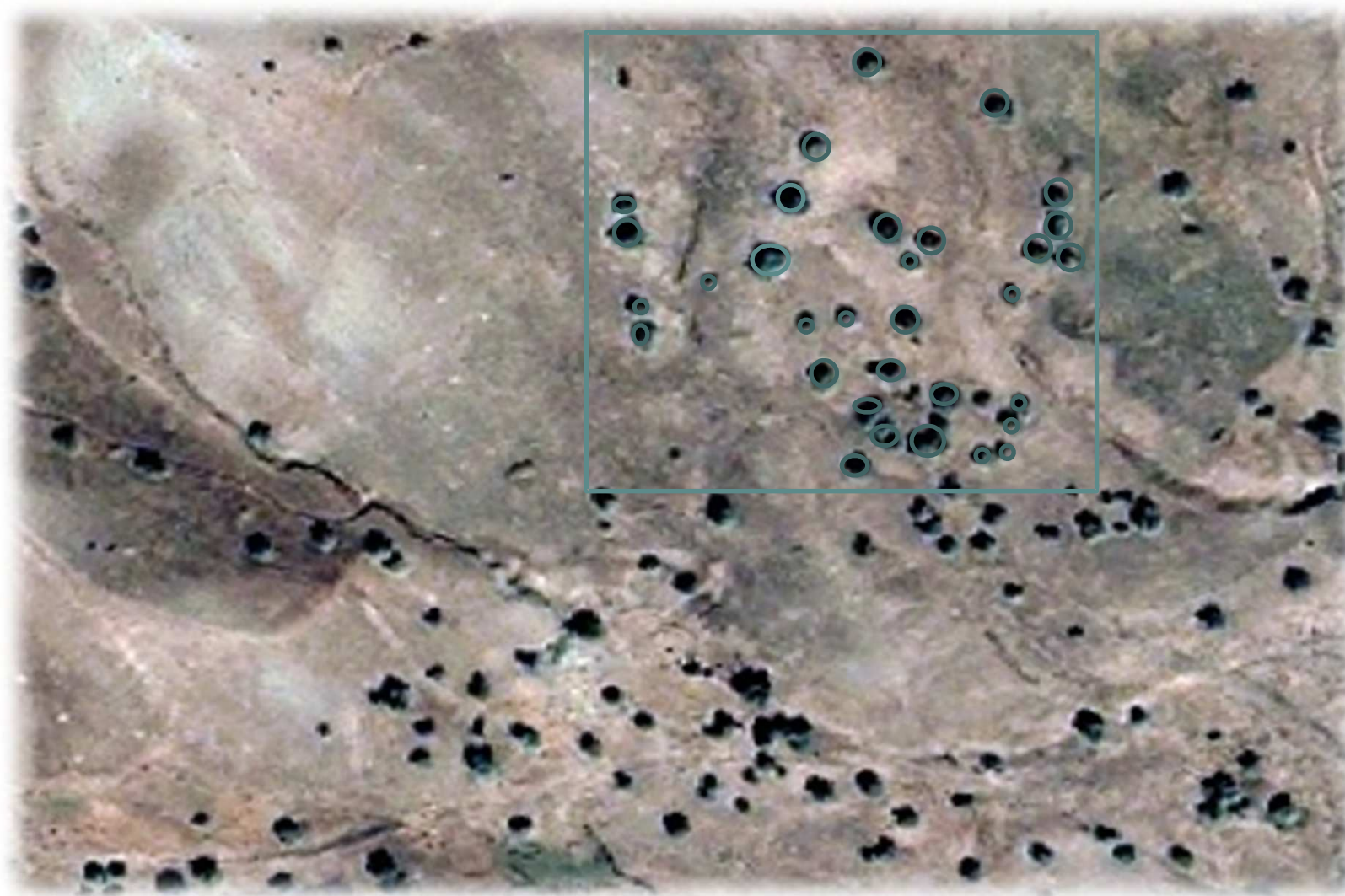
The percentage of the woody vegetation is in the range of 40-15%.

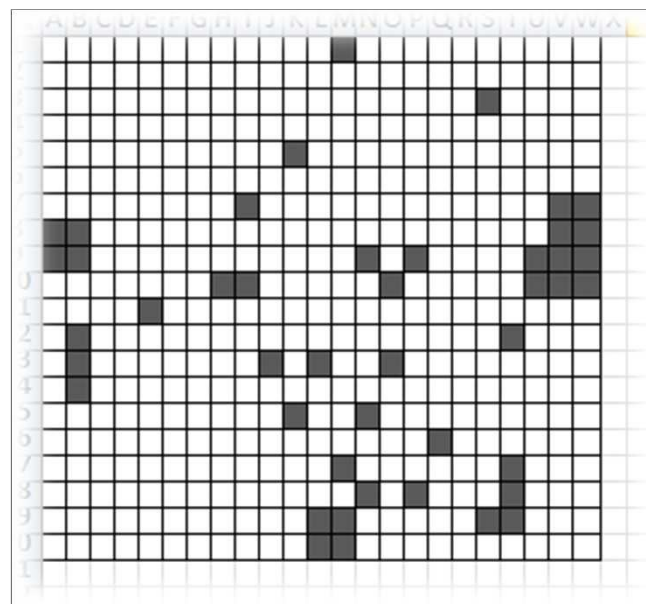
More specific range of 50-10% for the woody vegetaton to reflect the regulatory requirement is introduced through user defined modifier

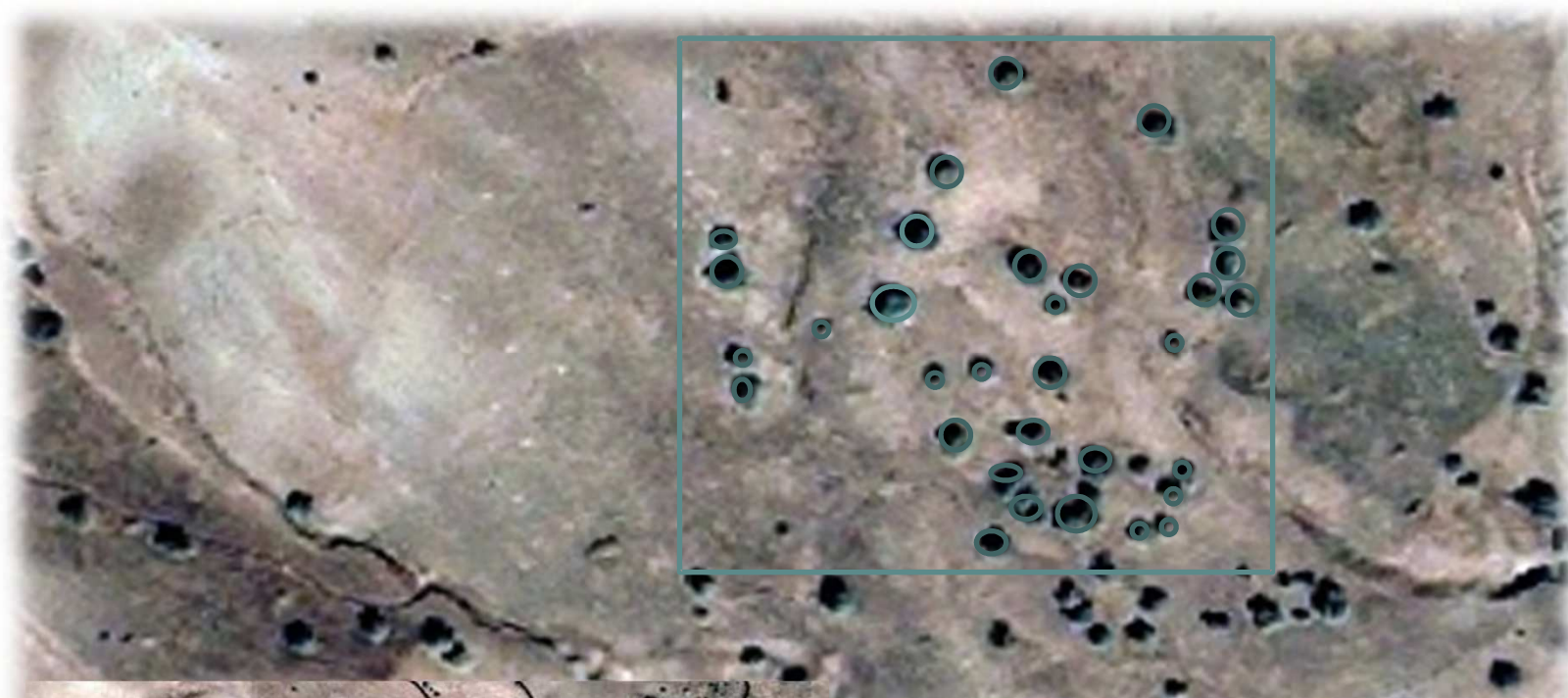




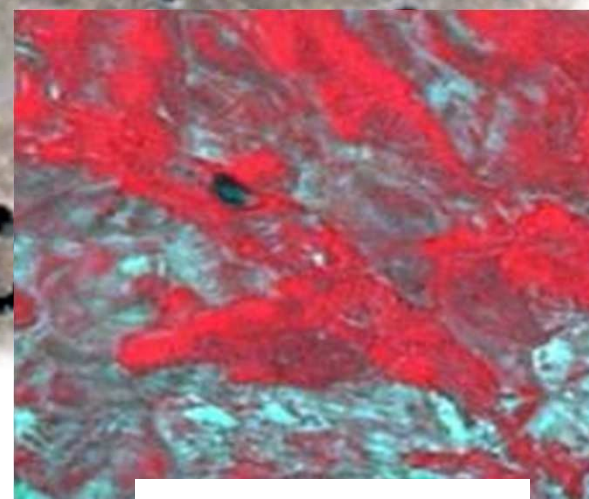
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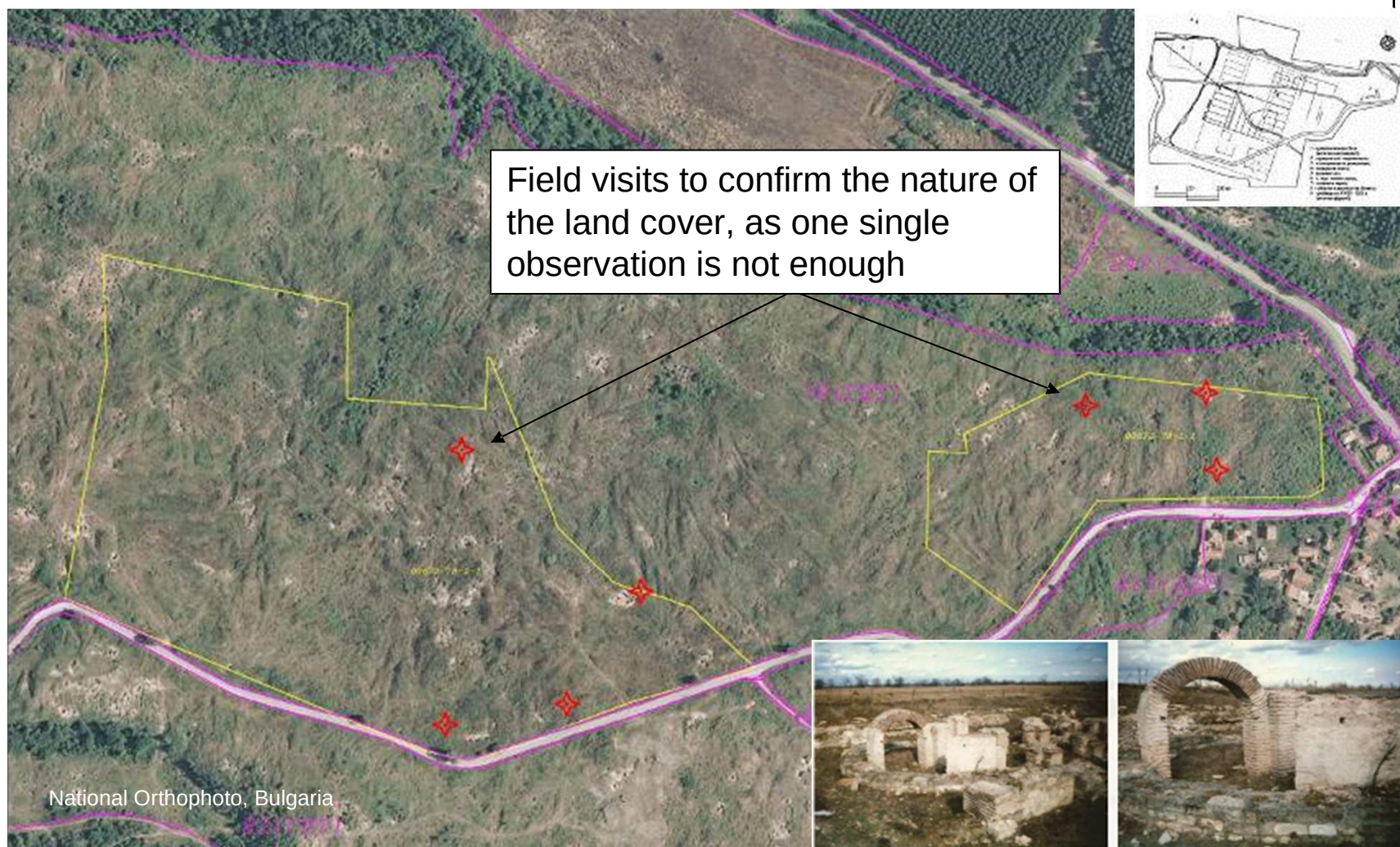
Single orthoimage



Multi-temporal CIR



Data Capture – case from BG





Observations and Conclusions

FAO LCCS v.2 is still capable to model properly the complex grassland with scattered non-agri features

The potential accessibility for grazing beneath trees can be model through the layering (3-D approach)

The dichotomous approach guides during modeling and helps respecting the definition rules

However, it is not flexible enough to serve as standard meta-language

Range values are pre-defined

Too many user-defined attribute required

Concept of dominance based on two condition of top canopy presence and percentage of cover and not always on percentage of cover

Upgrade to ISO 19144-2 (LCML) might be needed

LCCS-TEGON-LCML approach

LCCS v.3 (LCML)



LCCS 3.0 - *New Legend*

File Edit Legend Tools Help

Search

New Legend

- New Legend
- Mixed Classes
- Land Cover Class 1
 - Horizontal Pattern 1
 - Vegetation 1
 - Grassland
 - New Vertical Pattern
 - New Horizontal Pattern
 - New Land Cover Class

Shell

Search

- Vegetation Characteristics
 - Growth Form Characteristics
 - Flowering Aspects
 - Flowering Aspect Species
 - Flowering Aspect Criteria
 - Single Plant Species
 - Group Of Plant Species
 - Altimetric Measurements
 - Growth Form Age
 - Flower Age
 - Unflower Age

Select a node from this tree and drag & drop it over the preferred node in the legend tree or double click a node to add it to the selected element (or one of its parents - if valid) in the legend tree

Properties

(Name)	Trees
Description	Describe a vegetation element of trees type
Presence Type	Optional
Cover %	10.0; 50.0
Depth (meter)	
Height (meter)	
Leaf Phenology	Woody Growth Leaf Phenology
Leaf Type	Woody Growth Leaf Type

Here you can change the properties of the selected element

Legend overview

Vegetation 1

Properties

(Name)	Trees
Description	Describe a vegetation element of trees type
Presence Type	Optional
Cover %	10.0; 50.0
Depth (meter)	
Height (meter)	
Leaf Phenology	Woody Growth Leaf Phenology
Leaf Type	Woody Growth Leaf Type

Sets the range values

From 0 10 20 30 40 50 60 70 80 90 100

To 0 10 20 30 40 50 60 70 80 90 100

Cover %

Sets or gets the Manual LCCS cover ranges element

Messages

Type	Date and time	Object
Warning	21.03.15 09:13:21	Grassland: No valid container is available for the selected element



Thank you for your attention!



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