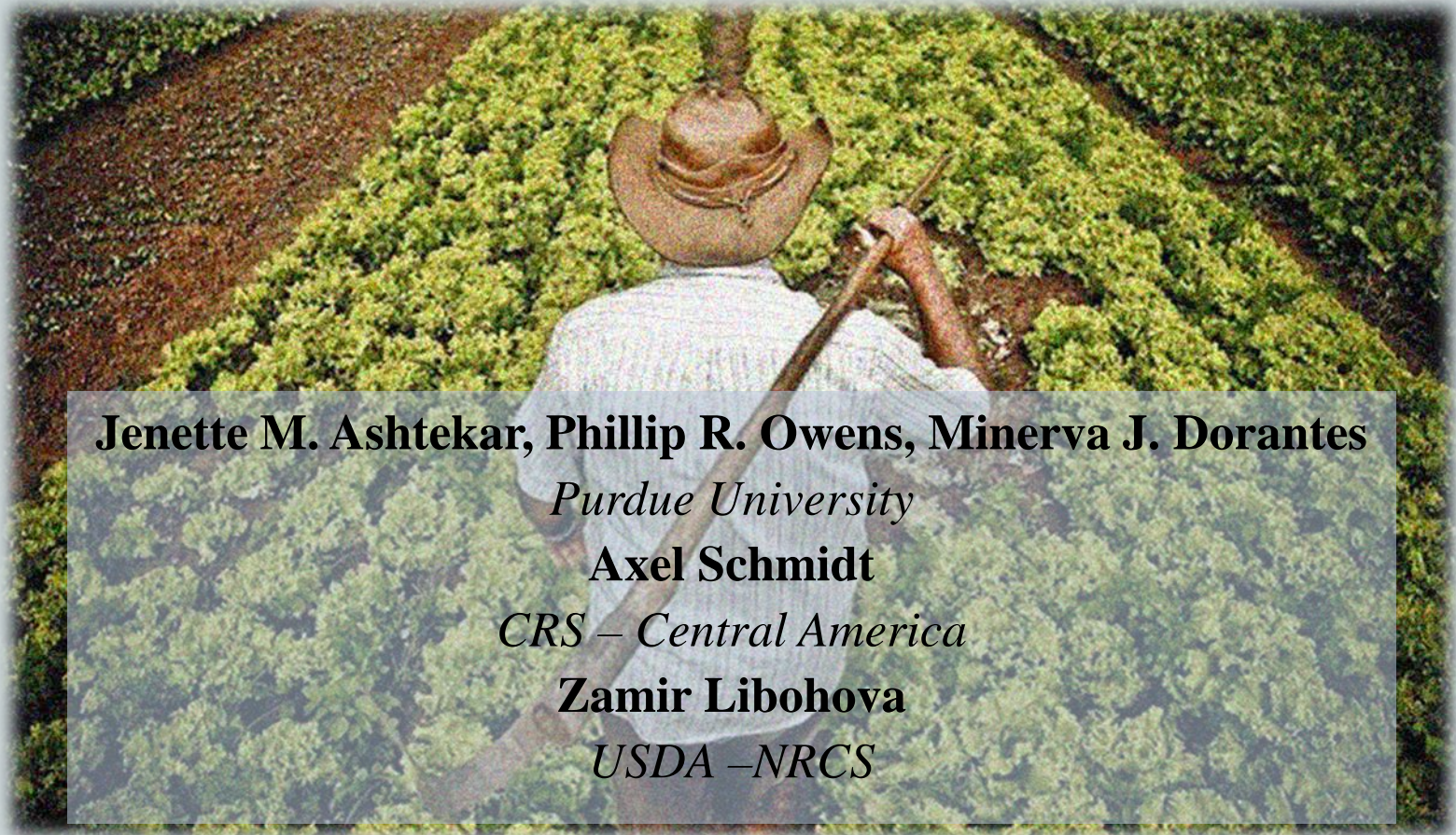


Mapping of Functional Soil Classes Across Scales



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How does SOIL fit into Digital Soil Mapping?



DIGITAL soil Mapping



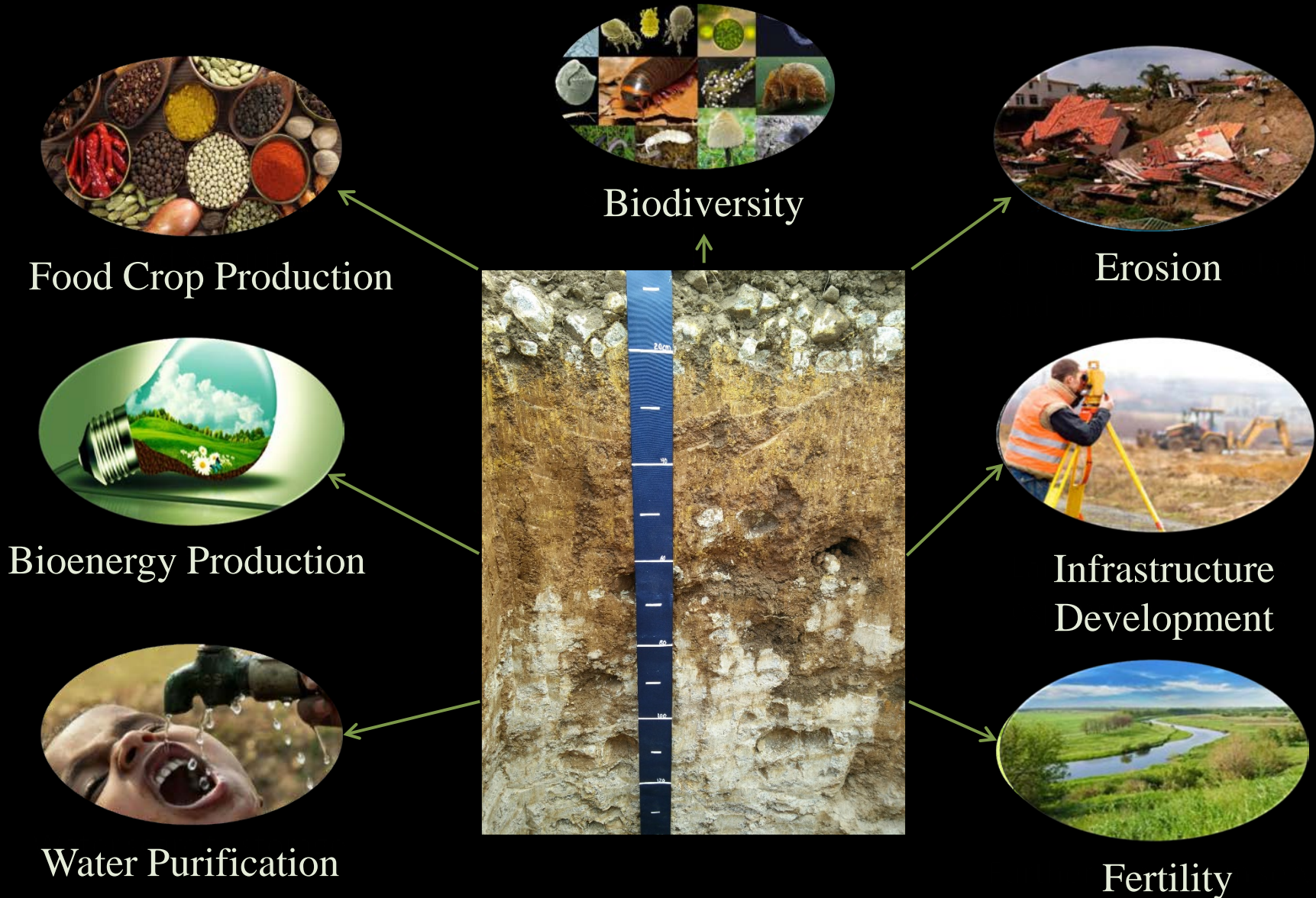
Digital SOIL Mapping



DIGITAL SOIL Mapping



Soil Has Many Functions



What is FUNCTIONAL Soil Mapping?

- Under traditional soil taxonomy and taxonomic mapping soil function is expressed through class interpretation.
- Soils are typically represented as independent units.
- We want to map soils directly for the interpretations, conceptualized as a part of a landscape environment.
- Functional Soil Classification involves mapping soils based on their use, for a purpose beyond soil taxonomy.
- Utilizes pedogenic and DSM concepts (clorpt, scorpan) to map soil forming environments.
- Scale is critical. The scale of the data and the scale of use.
- Can be used in fuzzy logic based property mapping and developing class based sampling strategies.

Functional Soil Mapping in El Salvador

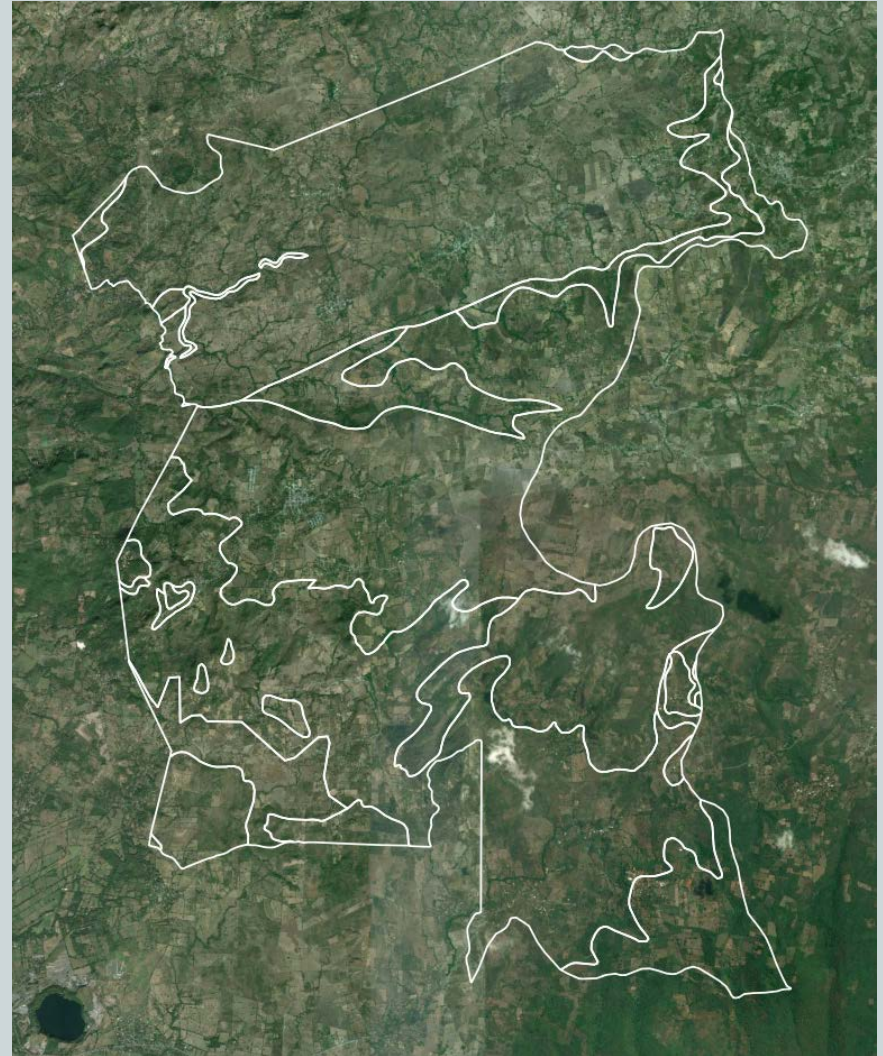
Location: San Miguel region

Area: 126 km².

Description: Mix of forest, grazing, and crop land, semi-arid. Volcanic material and quaternary alluvial PM.

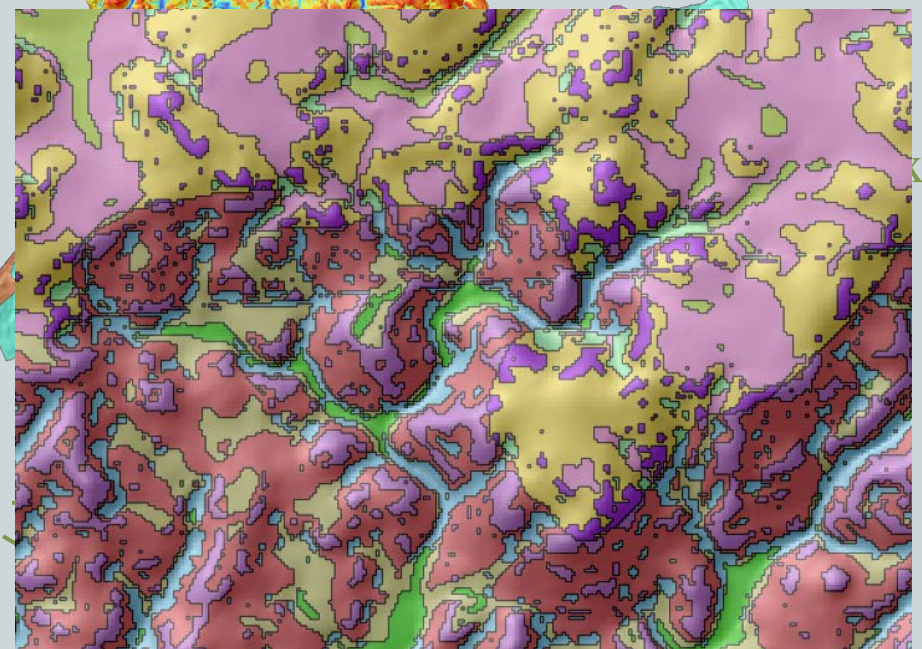
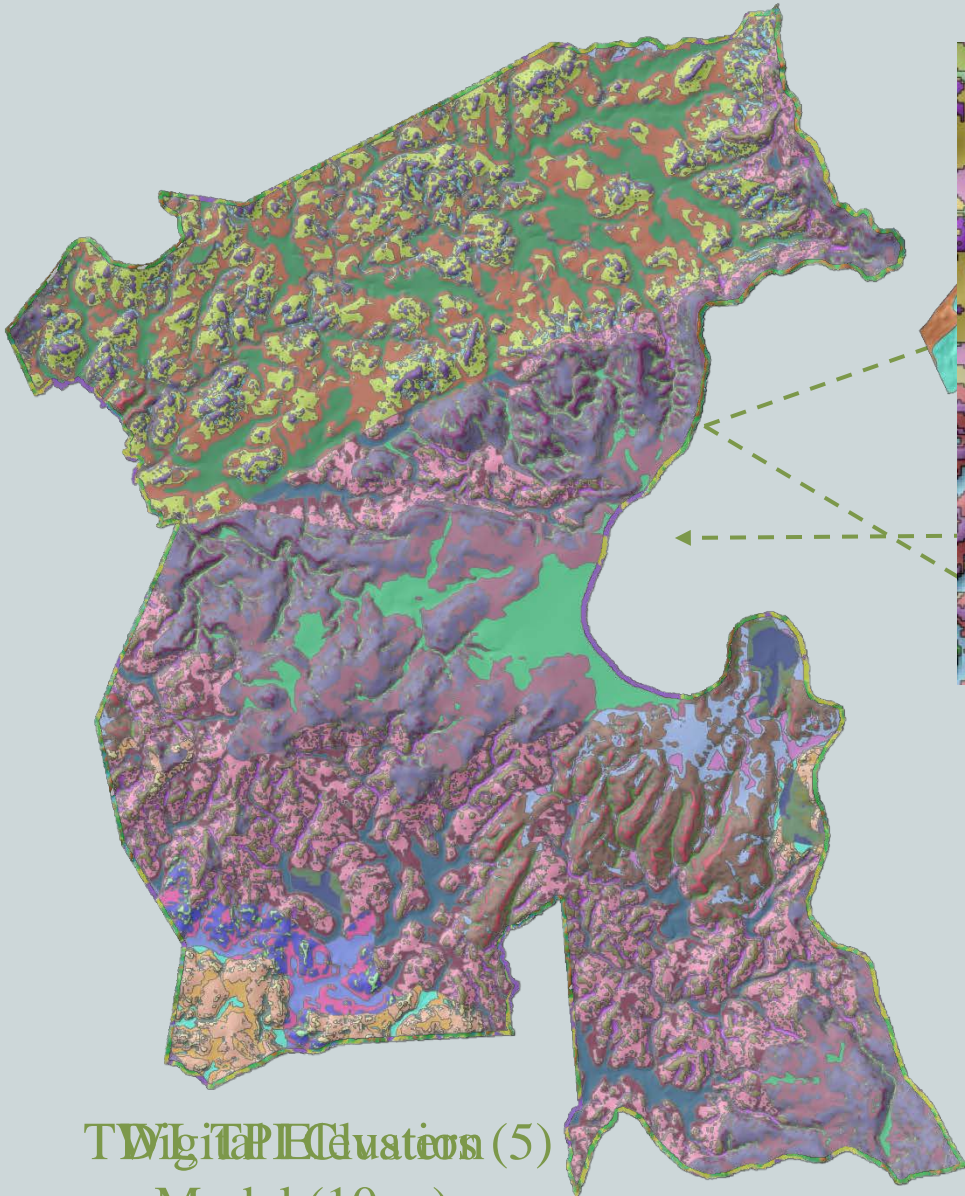
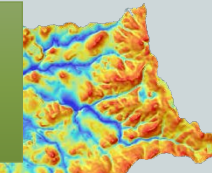
Soils: Vertisols, Alfisols, Entisols, Ultisols.

Available Data: Geology Map, 10m DEM from sub-meter LiDAR.



Functional Soil Classes

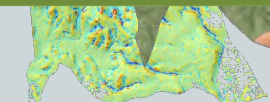
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- Soil class map is made up of 35 classes.
- Classes represent soil forming environments related to water and geology.

TWIgitAPECduations (5)
Model (10 m)

Geology



How do we Validate Functional Classes?



- How to validate a conceptual class?
- Go out and Look!
- Do the classes function differently in nature?
- Are boundaries reflected in the soil landscape?
- Do the classes vary significantly in relation to the function of interest (yield, properties).
- Must keep in mind the resolution of the input data.

Conclusions

- Soil classes are conceived based on use.
- Mapping can be tailored to a specific purpose.
- Mapping must be performed with knowledge, intent, and flexibility (model training).
- Collaboration is crucial.
- Validation is absolutely required and development of an accepted protocol is needed.



Thanks!

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