

THE CONTEXT

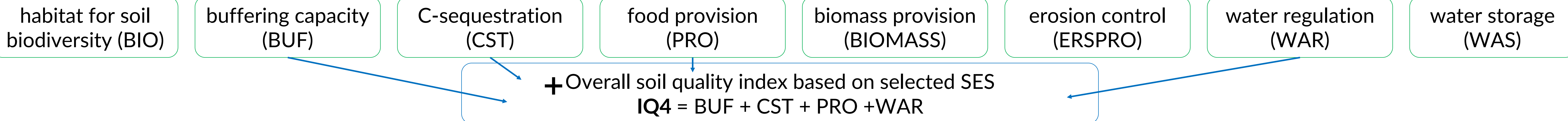
Spatial assessments of soil-based ecosystem services (SES) are useful frameworks providing information on ecosystem multifunctionality and to estimate effects of climate change and land use change on SESs supply.

Since 2015 CNR and RER developed and implemented an indicators-based approach to operationalize the spatial prediction and representation of soil functions contributing to ES provision at different scales to support and inform land planning at different scales from regional to municipality. This contribution presents an indicators-based approach to SES assessment and mapping at different scales in Emilia Romagna (RER, NE Italy)

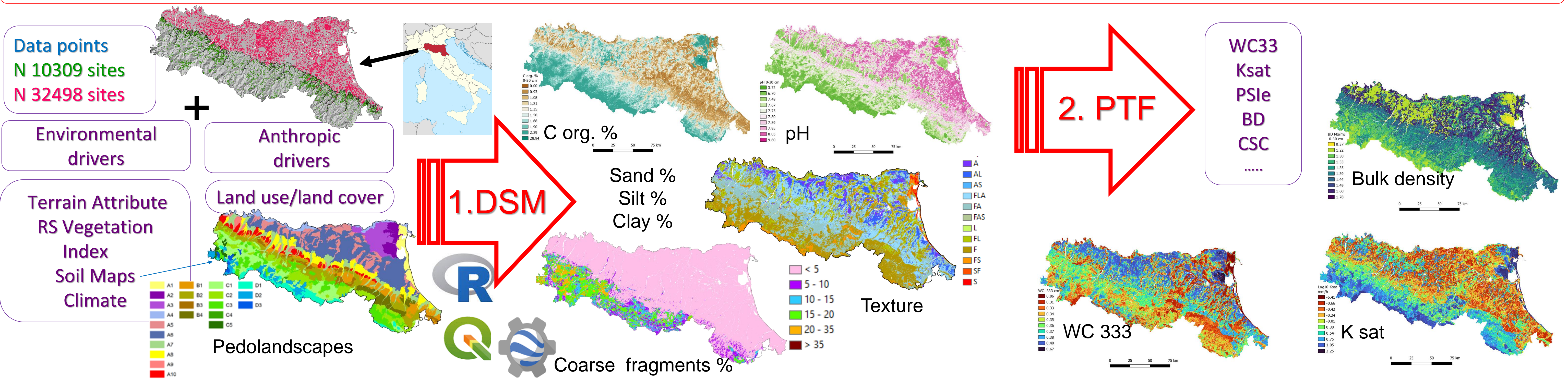
THE METHODOLOGY, scalable at different implementation scale

- (i) definition of soil based eco-system services indicators (SES), based on available soil data and on societal demands, as indicated by local stakeholders;
- (ii) definition of appropriate indicators for SES potential supply based on measured soil data and derived soil properties; and
- (iii) biophysical assessment, computation of 0-1 normalised indicators and mapping of soil based multiple ecosystem services, at a 100 m resolution at regional scale and at 25 m resolution at municipality scale. 0-1 index is conditioned by the observed population. By recalculating the indices in the area of interest it is possible to evaluate the best soils at different levels.

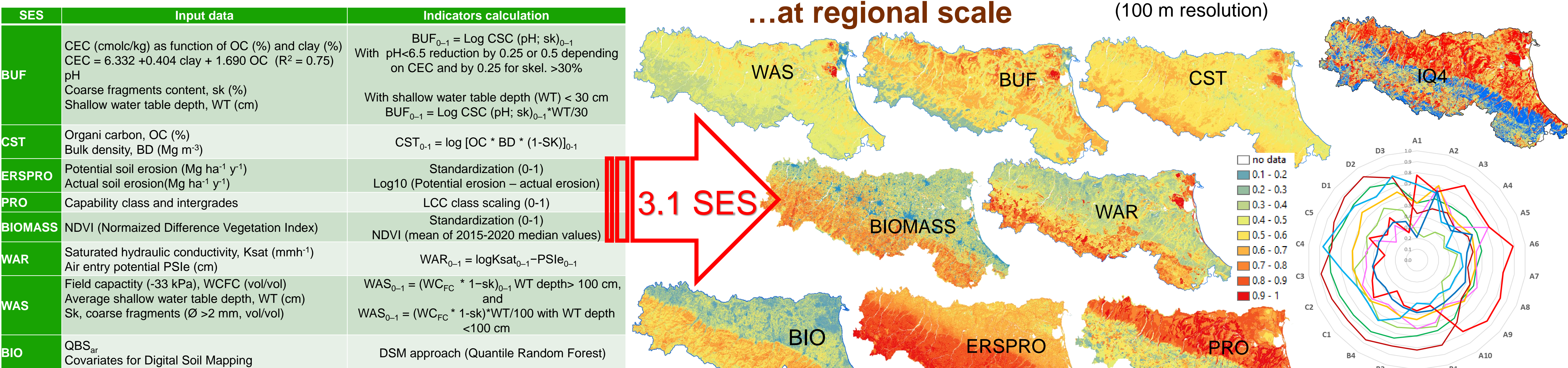
Investigated SESs



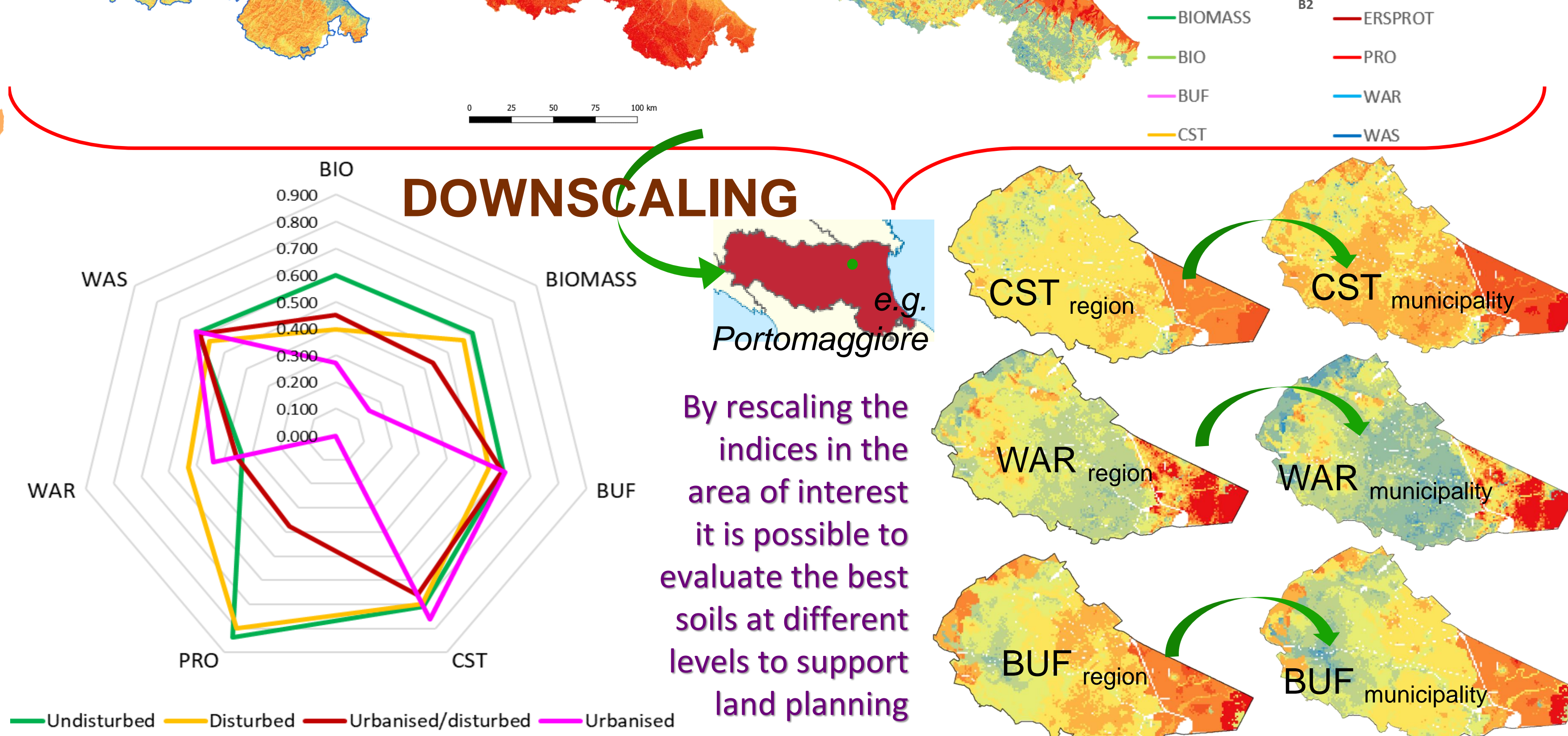
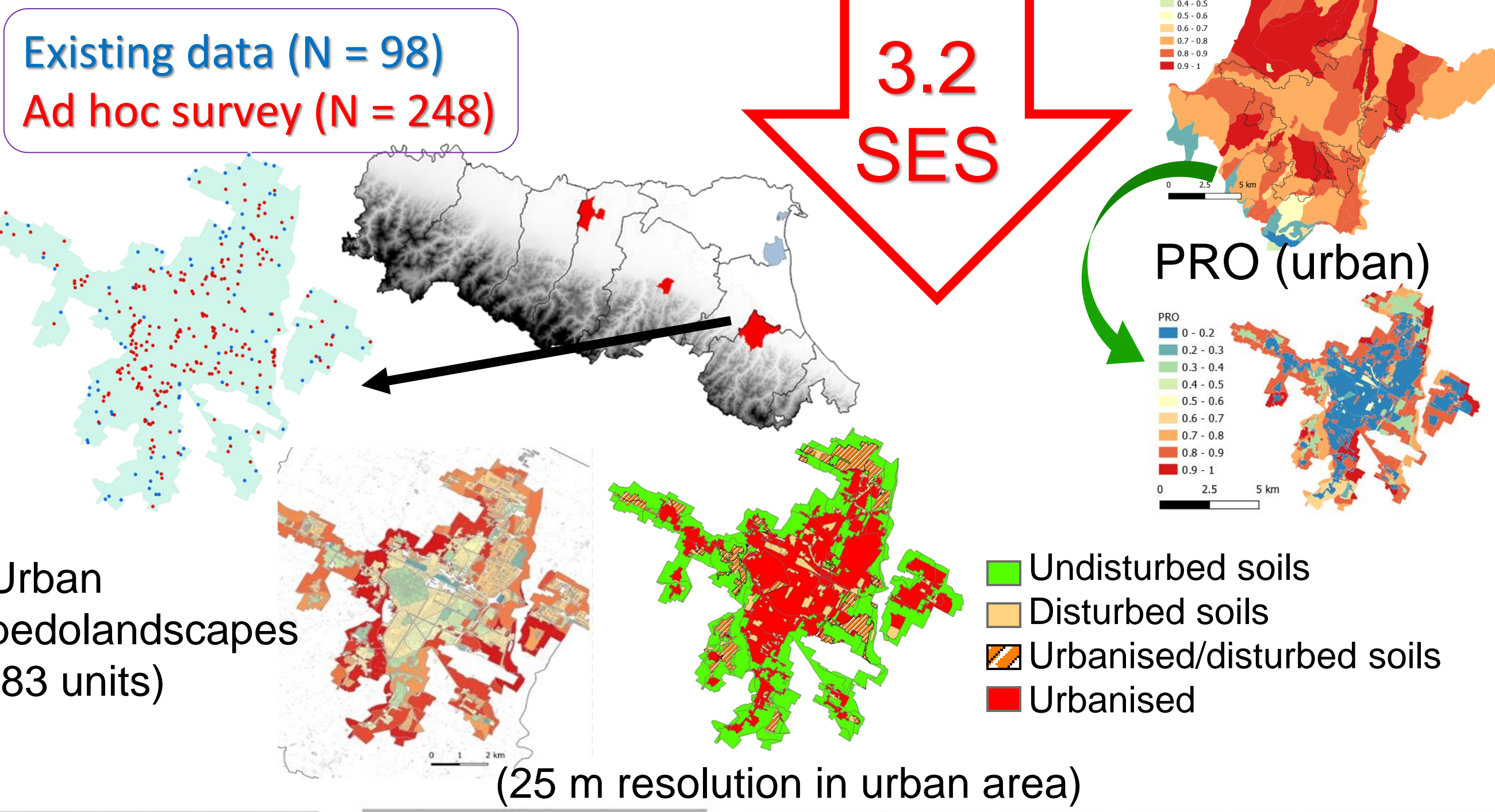
INPUT DATA: DSM OF BASIC AND DERIVED SOIL PROPERTIES (0-30 CM)



SESs ASSESSMENT AND MAPPING...



...at urban scale: FORLÌ



MAIN RESULTS

- ✓ The inherent complexity of the urban soil environment requires ad hoc soil survey to properly quantify the contribution of soil ecosystem services and to identify potential disservices due to mis-use/management
- ✓ Despite embedded within the urban landscape, urban soils provide important SESs to be accounted for in land development and urban design plans.

