QUALITATIVE ASSESSMENT OF THE SUPPLY AND DEMAND OF ECOSYSTEM SERVICES IN THE PANTANO WASH WATERSHED, TUCSON

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BACKGROUND

Since the 1950's, the southwestern US has experienced a severe and extended drought which has a multidimensional natural and social impact. To manage the scarce natural resource water – *"the greatest wealth of the earth"* (Exupéry) in a sustainable way, requires a holistic approach that can bring together manifold factors within an interdisciplinary framework.

Identification, quantification and evaluation of ecosystem services can contribute significantly to a) the design of new policies, and b) the strategic development of a landscape.

Pantano Wash Watershed
Tucson Basin, Arizona

Fig. 1 Map of the investigated area of Pantano Wash Watershed

METHODOLOGY

INVESTIGATION – **ECOSYSTEM SERVICES ASSESSMENT**
METHODS – **ES VALUATION TECHNIQUES**

Expert-based assessment of the provision of ecosystem services through **INTERVIEWS**

S1Q: Which regulating/provisioning/cultural ES do you think are **the most relevant** for the Tucson Basin?

S2Q1: What capacity do you think these land cover classes have **to supply** Regulating/Provisioning/Cultural ES?

S2Q2: What is the **demand for** Regulating/Provisioning/Cultural ES within different land cover classes?

Target groups:
- SWAN members;
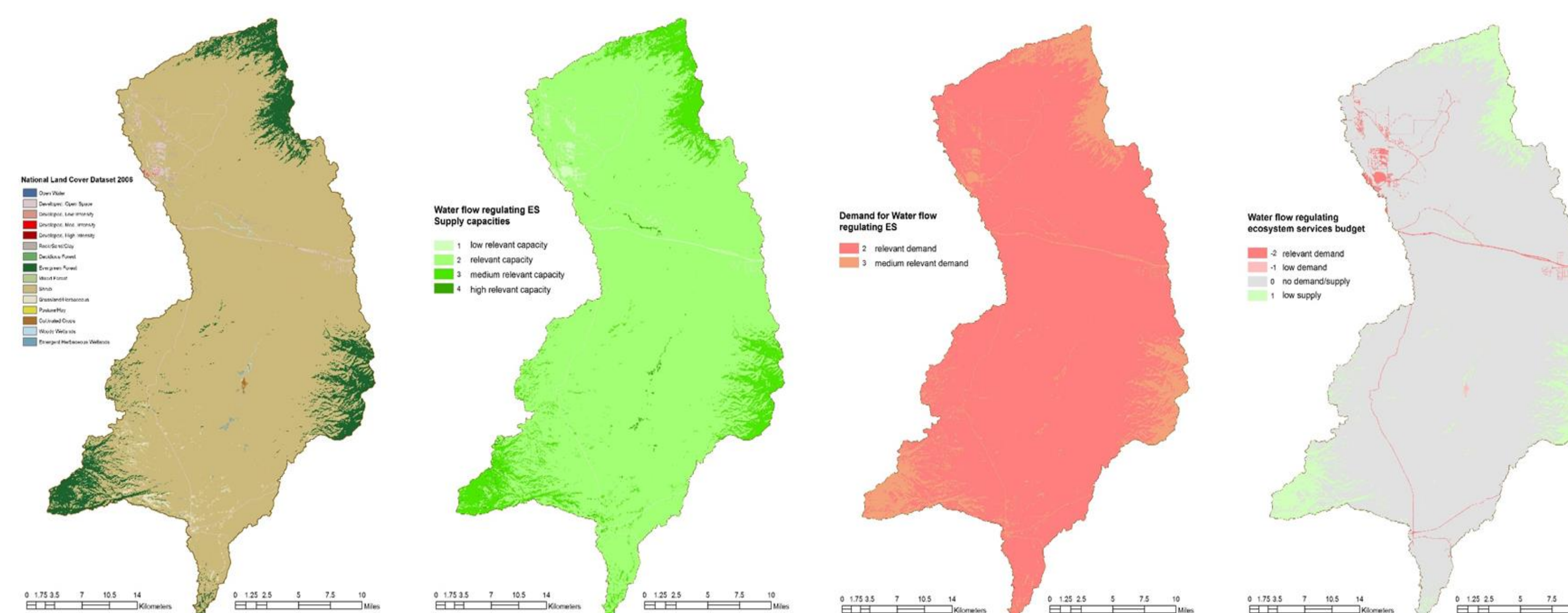- UoA Academia;
- UoA students.

The scale for ES balance (budget) ranges from -5 = demand greatly exceeds supply (strong undersupply) to +5 = supply greatly exceeds demand (strong oversupply). The 0 values indicate a neutral balance (demand is equivalent to supply).

Fig. 2 Assessment budget matrix of ES supply and demand within different NLCD classes

RESULTS

Resulting maps of S&D of ES for the Pantano wash watershed present the information provided by the supply capacity and demand assessment matrixes. The relative scale values (0-5) corresponds to each LULC class, and represents the mean scores derived from the stakeholders evaluation results.
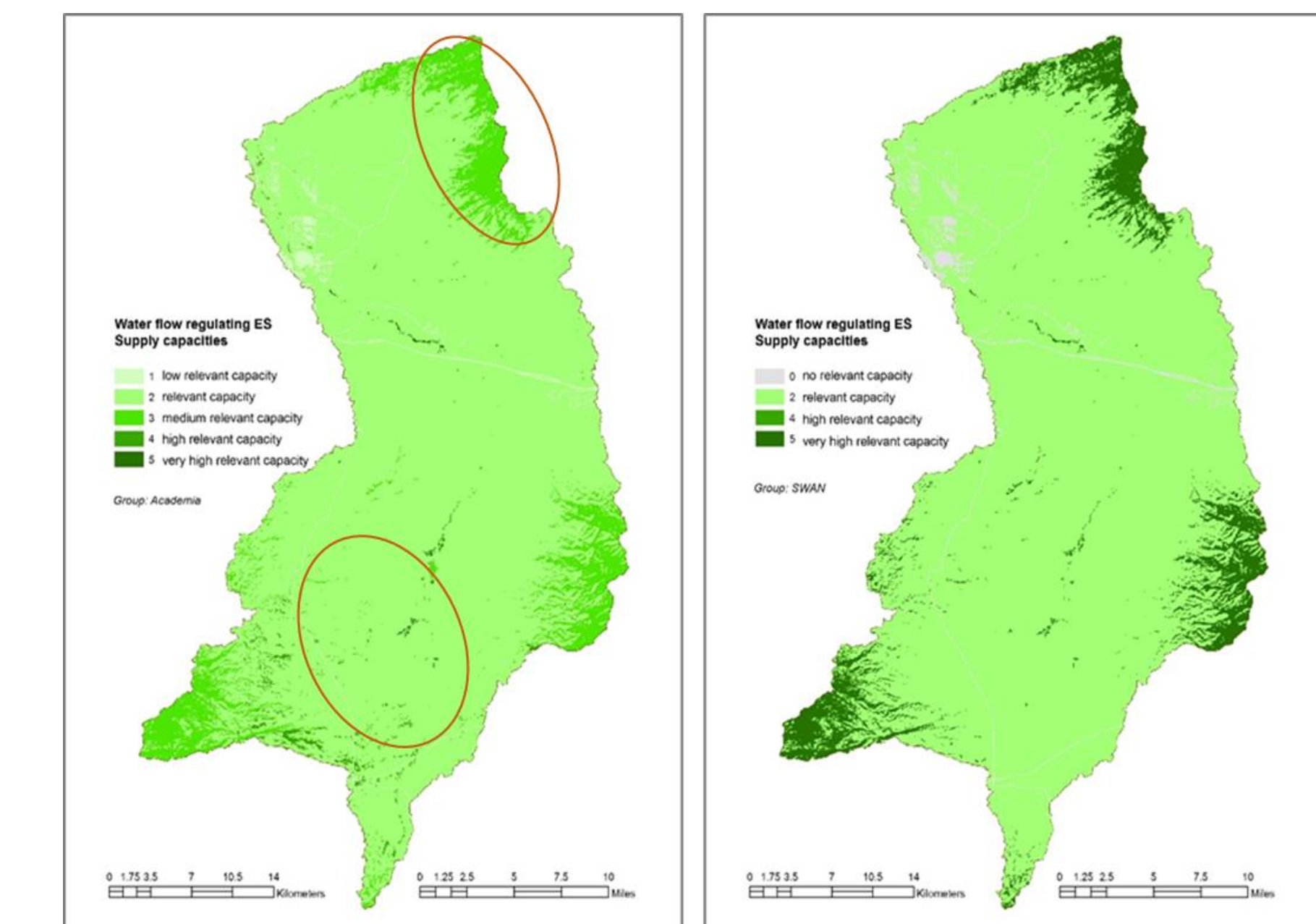

DISCUSSION

Many participants, many opinions!

Evergreen forest
ACADEMIA: 3 SWAN: 5
Grasslands
ACADEMIA: 4 SWAN: 2

Fig. 3 Maps of Water flow regulating ecosystem service supply based on Academia group (left) and SWAN group (right) evaluations

Knowledge = …
… long term experience in the related?
… it is an object of study?

CONCLUSION

Expert-based assessments can be used to obtain qualitative results regarding the capacity of each land cover type to provide ecosystem services. The approach can lead to improved environmental benefits for citizens and help in the establishment of their socio-economic priorities.

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