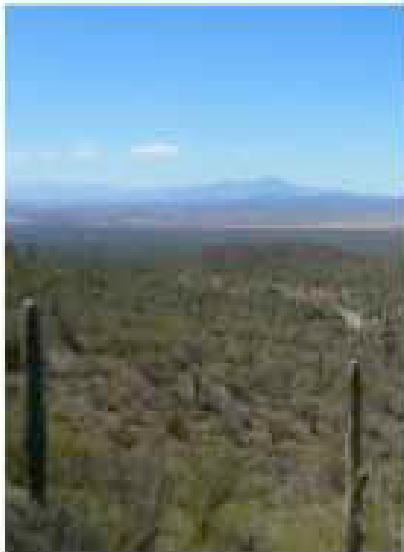


# ECOSYSTEM SERVICES ASSESSMENT IN TUCSON BASIN CASE STUDY

*Research visit: Feb-May 2014*

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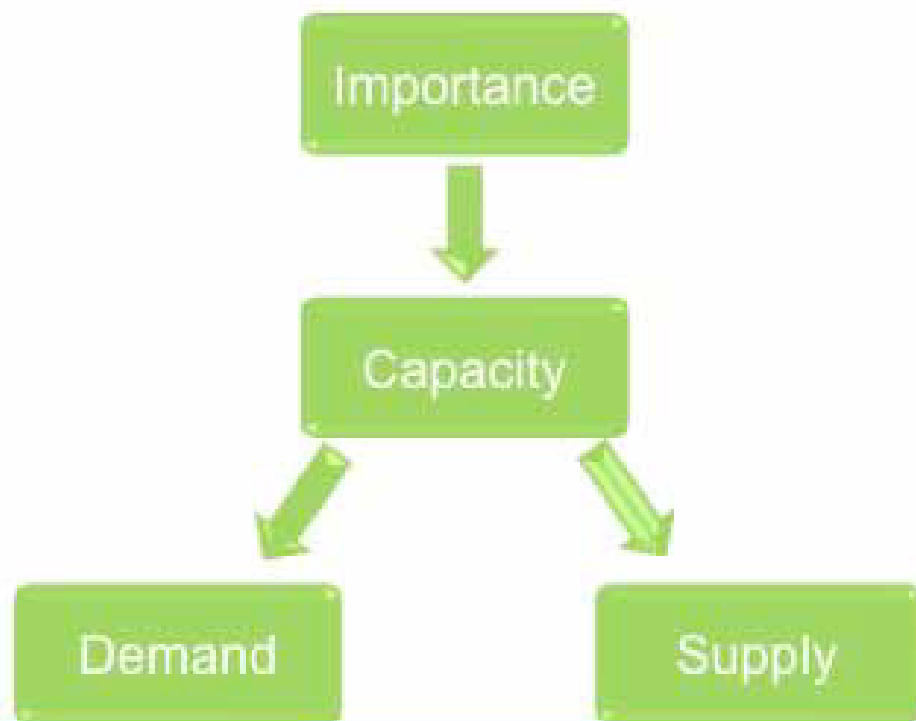


# Today's presentation

- Objectives
  - Methodology
  - Results
  - What's next?
-

## Objectives |

- EXPERT BASED ASSESSMENT;
- Importance of certain ecosystem services and their potential in terms of natural resources;
- Supply&Demand of ES in relation to the land cover <> basic for future sustainable water management actions.



### Major Goals:

1. Investigation
2. Assessment matrix  
capacities supply demand
3. Mapping goods and services

# Methodology |

INVESTIGATION – ECOSYSTEM SERVICES ASSESSMENT  
METHODS – ES VALUATION TECHNIQUES



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

Target groups:

- SWAN members;
- UofA professors (Academia sthd)
- UofA students.

- *Department of Hydrology and Water Resources;*
- *School of Natural resources and the Environment;*
- *Laboratory of Tree-Ring Research;*
- *School of Geography and Development;*
- *Department of Agriculture and Resource Economics;*
- *School of Landscape Architecture and Planning.*

# Methodology | Step 1

The image displays four sequential pages of a questionnaire titled 'ECOSYSTEM SERVICES ASSESSMENT'. The first page is the 'General information' section, which includes a title 'STEP 1 - IMPORTANCE OF ECOSYSTEM SERVICES IN TARRAGONA WATERSHED MANAGEMENT AREA (TAMA)', a date field, and a 'General information' section with a paragraph and a flowchart. The flowchart shows 'Ecosystem Services' leading to 'Regulating Ecosystem Services' and 'Provisioning Ecosystem Services'. The second page is the 'Regulating ecosystem services' section, featuring a table with 10 rows of services and a rating scale from 0 to 5. The third page is the 'Provisioning ecosystem services' section, also with a table of 10 services and a rating scale. The fourth page is the 'Cultural ecosystem services' section, with a table of 10 services and a rating scale. Each page includes a 'SWAN' logo in the top right corner.

**Q:** Which ecosystem services do you think are the most relevant for the TAMA?

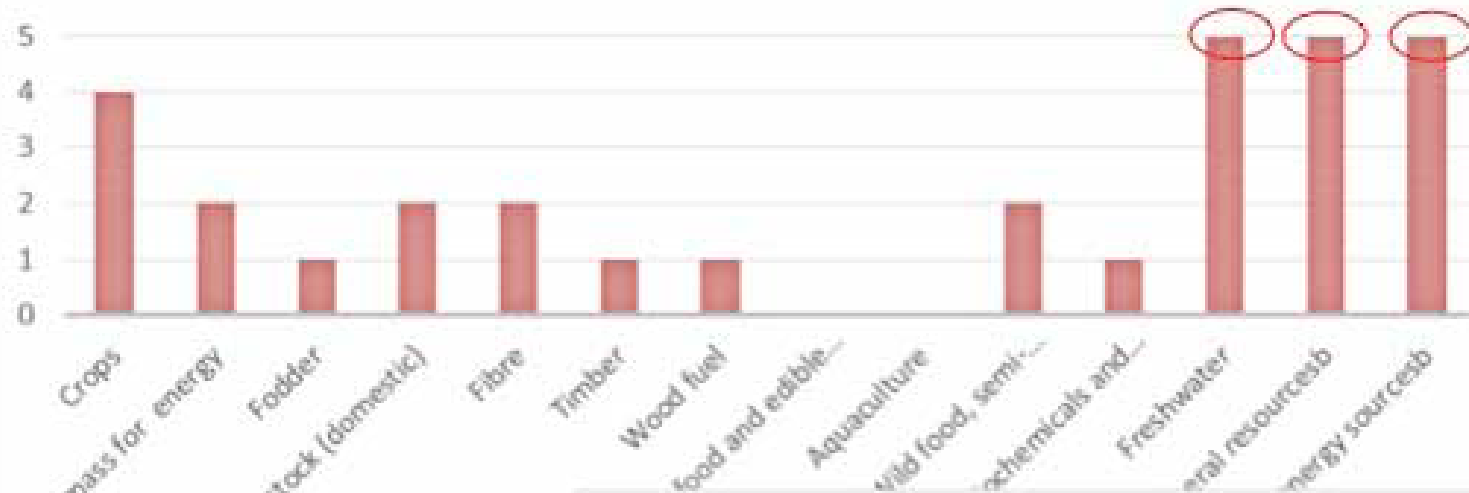
Mark from 0 to 5

- 0 = no relevance
- 1 = low relevance
- 2 = relevance
- 3 = medium relevance
- 4 = high relevance
- 5 = very high relevance

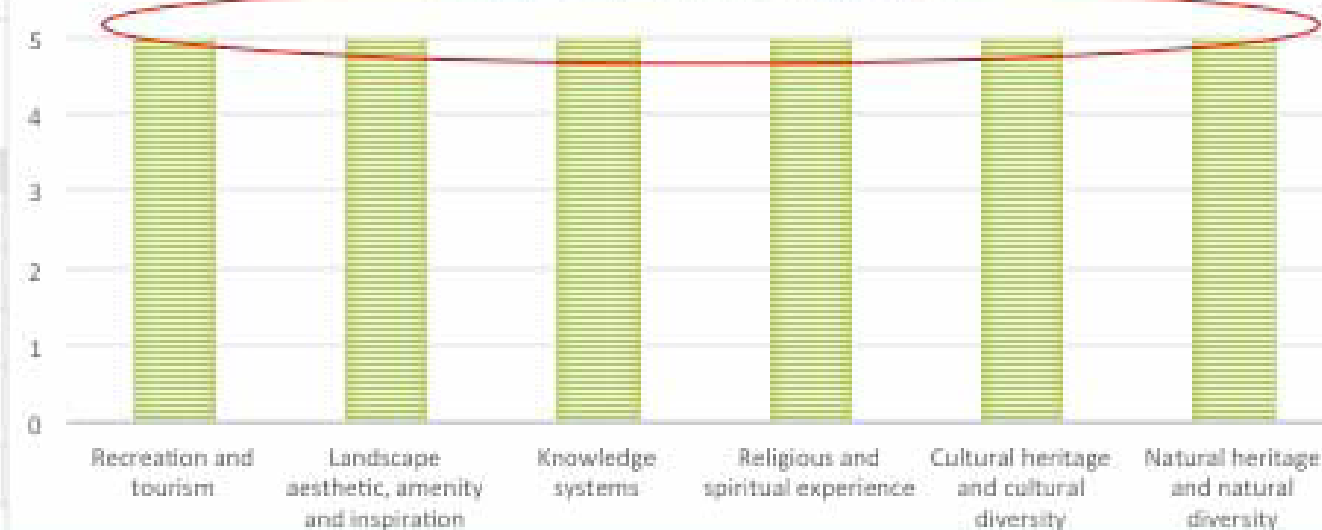


# Results | My results are like...

## PROVISIONING SERVICES



## CULTURAL SERVICES



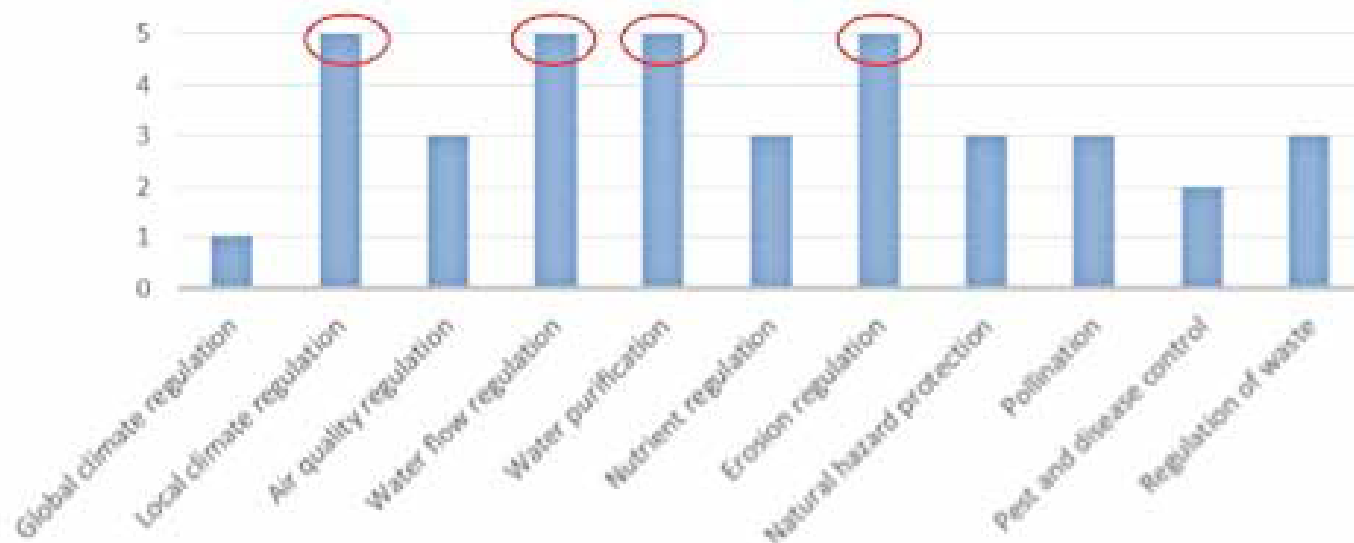
Legend: 0 (yellow), 1 (teal), 2 (orange), 3 (grey), 4 (dark blue), 5 (light grey)

	0	1	2	3	4	5
12 Crops	82.24% 8	14.29% 7	28.4% 10	16.22% 8	24.4% 12	
12 Biomass for energy	21.43% 11	24.4% 12	28.57% 14	16.22% 8	6.12% 3	
14 Fodder	16.29% 8	38.8% 19	24.4% 12	28.4% 14	16.29% 8	
15 Livestock (domestic)	6.12% 3	28.4% 14	22.86% 11	24.4% 12	6.12% 3	
16 Fibre	14.29% 7	28.4% 14	28.4% 14	28.4% 14	6.12% 3	

# Results | My results are like...

regulating services		provisioning services											cultural services																												
1	Global climate regulation	11	Crops	12	Biomass for energy	13	Fodder	14	Livestock (domestic)	15	Fibre	16	Timber	17	Wood fuel	18	Fish, seafood and edible algae	19	Aquaculture	20	Wild food, semi-domestic live stock and ornamental resources	21	Biochemicals and medicine	22	Freshwater	23	Mineral resource sb	24	Abiotic energy source sb	25	Recreation and tourism	26	Landscape aesthetic, amenity and inspiration	27	Knowledge systems	28	Religious and spiritual experience	29	Cultural heritage and cultural diversity	30	Natural heritage and natural diversity
4	Local climate regulation	2		1		2		2		1		1		1		0		0		2		1		5		5		5		5		5		5		5		5		5	
3	Air quality regulation	3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3	
4	Water flow regulation	4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4	
5	Water purification	5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5	
3	Nutrient regulation	3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3	
5	Erosion regulation	5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5		5	
3	Natural hazard protection	3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3	
3	Pollination	3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3	
2	Pest and disease control	2		2		2		2		2		2		2		2		2		2		2		2		2		2		2		2		2		2		2		2	
3	Regulation of waste	3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3		3	

## REGULATING SERVICES



- 0 = no relevance
- 1 = low relevance
- 2 = relevance
- 3 = medium relevance
- 4 = high relevance
- 5 = very high relevance

49/75

65%



# What's next | My results will look like...

Q: What is the supply/demand for ES within different land cover classes?

Step 2 Interviewing + Maps

Local climate regulation	Water flow regulation	Water purification	Erosion regulation
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Freshwater	Mineral resources	Abiotic energy sources
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Recreation and tourism	Landscape aesthetic, amenity and inspiration	Knowledge systems	Religious and spiritual experience
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Cultural heritage and cultural diversity	Natural heritage and natural diversity
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CLASS	LAND COVER AND LAND USE CLASSES	regulating services				provisioning services			cultural services					
		Local climate regulation	Water flow regulation	Water purification	Erosion regulation	Freshwater	Mineral resources	Abiotic energy sources	Recreation and tourism	Landscape aesthetic, amenity and inspiration	Knowledge systems	Religious and spiritual experience	Cultural heritage and cultural diversity	Natural heritage and natural diversity
National Land Cover Dataset														
Water	11 Open Water													
	12 Perennial Ice/Snow													
Developed	21 Developed, Open Space													
	22 Developed, Low Intensity													
	23 Developed, Medium Intensity													
	24 Developed High Intensity													

## What's next |

(?)The agencies/institutions/administrations I plan to engage are: **WRRC, CAP, AZ Dept of Water Resources, Tucson Water, UofA**

(?) My results will be useful for ... and will inform...

provision of ecosystem goods and services  
in relation to the socio-economic benefits

ecosystem services (ES) approach will give  
important information for future strategies  
and actions in environmental management

different target groups' perceptions

decision making process and resource  
management planning



THANK YOU!

