

APPENDIX 5

List of ecosystem services from literature

A5.1 ISI Web of Knowledge data used

To develop this list we searched the Web of Knowledge (ISI), using the words "ecosystem service*" OR "ecosystem goods and services" OR "environmental services" OR "ecological services") AND (agricultur* OR farm*) AND ("South Africa" OR "Southern Africa" OR "South African" OR "Southern African" OR Botswana* or Namibia* or Lesotho* or Swaziland*. In total, 62 papers (as per date October 18, 2012) were found, of which 52 papers were excluded, using the following three criteria: the analysis has to *i*) be performed within the ecosystem service frame work, *ii*) have a connection to specific agricultural area/s in the Southern African countries, thus excluding conceptual papers, and *iii*) include more than one service. Within the remaining ten papers we found a total of 18 different ecosystem services (Table A5.1).

To compile the list of services extracted from the literature search we listed all services mentioned in the ten papers. Some of the services were renamed or grouped for consistency. For example, we used the broad category of water quantity for more specific processes such as water infiltration or runoff. The services got a score for each paper that assessed that service, hence the list consists of the total number of services assessed in the ten papers and ranked according to scores (Table A5.1).

Table A5.1. List of ecosystem services compiled through literature and ranked according to number of papers that assessed each service (score).

Literature search	Total score
Crop production	7
Water quantity	6
Biodiversity	5
Other material	5
Biofuel	4
Flood regulation	3
Livestock production	3
Water quality	3
Erosion regulation	2
Habitat provision	2
Nutrient regulation	2
Wild foods	2
Biological pest control	1
Carbon sequestration	1
Cultural identity	1
Disease control	1
Pollination	1
Tourism	1

A5.2 List of papers

- Child, M. F., G. S. Cumming, and, T. Amano.** 2009. Assessing the broad-scale impact of agriculturally transformed and protected area landscapes on avian taxonomic and functional richness. *Biological Conservation* **142**:2593-2601.
- van Jaarsveld, A. S., R. Biggs, R. J. Scholes, E. Bohensky, B. Reyers, T. Lynam, C. Musvoto, and, C. Fabricius.** 2005. Measuring conditions and trends in ecosystem services at multiple scales: the Southern African Millennium Ecosystem Assessment (SAfMA) experience. *Philosophical Transactions of The Royal Society B* **360**:425-441.
- Jogo, W., and, R. Hassan.** 2010. Balancing the use of wetlands for economic well-being and ecological security: The case of the Limpopo wetland in southern Africa. *Ecological Economics* **69**:1569-1579.
- Lankford, B., C. Pringle, C. Dickens, F. Lewis, M. Mander, V. Chhotray, M. Goulden, Z. Nxele, and, L. Quayle.** 2011. Hydrological modelling of water allocation, ecosystem services and poverty alleviation in the Pongola floodplain, South Africa. *Journal of Environmental Planning and Management* **54**(9):1237-1260.
- Mc Cartney, M., S. Morardet, L-M. Rebelo, C. M. Finlayson, and, M. Masiyandima.** 2012. A study of wetland hydrology and ecosystem service provision: GaMampa wetland, South Africa. *Hydrological Sciences Journal* **56**(8):1452-1466.
- O'Farrell, P. J., J. S. Donaldson, and, M. T. Hoffman.** 2009. Local benefits of retaining natural vegetation for soil retention and hydrological services. *South African Journal of Botany* **75**:573-583.
- O'Farrell, P. J., J. S. Donaldson, and, M. T. Hoffman.** 2007. The influence of ecosystem goods and services on livestock management practices on the Bokkeveld plateau, South Africa. *Agriculture Ecosystems and Environment* **122**:312-324.
- Rockström, J., C. Folke, L. Gordon, N. Hatibu, G. Jewitt, F. Penning de Vries, F. Rwehumbiza, H. Sally, H. Savenije, and, R. Schulze.** 2004. A watershed approach to upgrade rainfed agriculture in water scarce regions through Water System Innovations: an integrated research initiative on water for food and rural livelihoods in balance with ecosystem functions. *Physics and Chemistry of the Earth* **29**:1109-1118.
- Sengo, D. J., A. Kachapila, P. van der Zaag, M. Mul, and, S. Nkomo.** 2005. Valuing environmental water pulses into the Incomati estuary: Key to achieving equitable and sustainable utilization of transboundary waters. *Physics and Chemistry of the Earth* **30**:648-657.
- Walters, D. J. J., D. C. Kotze, and, T. G. O'Connor.** 2006. Impact of land use on vegetation composition, diversity, and selected soil properties of wetlands in the southern Drakensberg mountains, South Africa. *Wetlands Ecology and Management* **14**:329-348.