Strategic Water Source Areas - protecting critical ecological infrastructure for human well-being and biodiversity

David Le Maitre¹, Helen Seyler², Lindie Smith-Adao¹ and Jeanne Nel¹
1: Natural Resources and the Environment, CSIR
2: delta-H
Supported by the WRC
Introduction

- Water Source Areas
  - Areas with high flow production and/or critical for water security
  - Strategic = national importance
- WRC funded study
  - Includes groundwater SWSAs
  - Obtained stakeholder buy-in
  - Linked SWSAs to benefit flows
  - Identified and quantified pressures & threats
  - Develop protection options & management guidelines
Links to beneficiaries

Strategic Water Source Areas

Surface water
7.8% of area, 49.9% of MAR

Supply water to ±60% of population, sustain ±67% of national economic activity & supply ±70% of irrigation water
SWSA protection is vital

- For human well-being and security
  - Water provision – uncertain given climate change
  - Water & food – almost all green vegetables and fruit
  - Water & energy – cooling power stations

- For sustaining:
  - Terrestrial ecosystems that regulate flows and quality
  - Linked aquatic ecosystems that convey & clean the water
  - Nested in living or working landscapes
Current protection

- The SWSAs cover 19.38 million ha of land
- Only 2.17 million ha (11.2%) in formal protected areas
- Include state, tribal trust and privately owned land
- They include a range of land-uses (cover classes)
  - Natural (pristine to invaded)
  - Urban and industrial areas
  - Cultivation dryland and irrigated
  - Forest plantations
  - Mining
- Some examples
A new approach to protection?

- Beyond protected areas
- Beyond CBAs & ESAs
- Not competing but complementing
- Seeing the landscape as a whole:
  - Ecosystems delivering water for people **YES**
  - But ecosystems require appropriate management
  - Impacts of human activities are necessary but must be minimised
- This requires taking a long and wide viewpoint
- Beyond the utilitarian – addressing how humans on the land behave and why:
  - Values, meaning and purpose
  - Developing a land & water ethic and practice
Elements of an approach

- Forward-looking:
  - Complex social-ecological systems
  - Uncertainty and change
  - Building resilience in a changing environment

- Key features:
  - Building relationships and trust
    - Land & water stewardship versus land rights
    - Safe and just sharing of the land’s benefits
  - Co-learning through co-design and implementation
  - Co-operating on governance – top down & bottom up
Conclusions

- These areas are **nationally important**
  - ±50% of MAR from ±8% of the land
  - Vital for people, economy & ecological infrastructure
- Working landscapes
- Land and water stewardship
  - For their own land
  - For the benefit of others
Closing thought

The wise use of all our natural resources, which are our national resources as well, is the great material question of today.

Theodore Roosevelt 1908

Thank you
Leopold

- All the sciences and arts are taught as if they were separate. They are separate only in the classroom. Step out on the campus and they are immediately fused. Land ecology is putting the sciences and arts together for the purpose of understanding (and sustaining) our environment. . . .

- Lop-sided conservation is encouraged by the fact that most Bureaus and Departments are charged with the custody of a single resource, rather than with the custody of the land as a whole. Even when their official titles denote a broader mandate, their actual interests and skills are commonly much narrower