

# Focus on CSIR Research in Water Resources

## Planning and policy for the systematic conservation of freshwater biodiversity

### Key capabilities

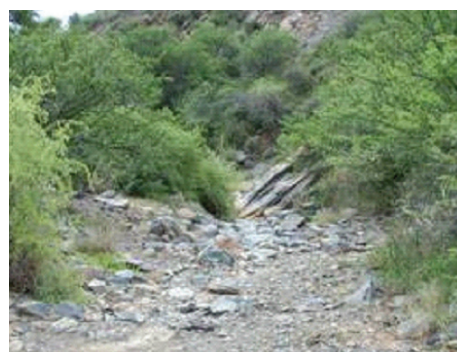
- Cross-sectoral engagement of biodiversity specialists and practitioners in developing policy objectives, setting conservation targets and debating planning options
- Development of spatial data layers to support systematic conservation planning
- Identification of spatial priorities for conservation action
- Development of implementation strategies and action plans
- Integration of aquatic and terrestrial conservation plans, as well as conservation planning with other land-use planning processes

### Systematic approach to conservation planning

Systematic conservation planning is an applied branch of conservation biology that seeks to identify spatially explicit options for the conservation of biodiversity. Its primary focus is to identify priority areas for conserving living landscapes, waters and oceans, with both formally protected areas and off-reserve management as options for achieving conservation goals.

Most conservation exercises are biased towards terrestrial biodiversity features, with rivers and other aquatic ecosystems often receiving secondary attention. Where aquatic systems are included in such planning activities, it is typically to serve terrestrial conservation goals. For example, river corridors may be selected to link inland basins with coastal plains to allow migration and exchange between inland and coastal biota. The lack of primary attention to aquatic biodiversity features has resulted in the selection of sub-optimal aquatic systems as focal points for biodiversity conservation initiatives. A second outcome is the partial inclusion of aquatic systems within conservation designs; typically, this is insufficient to stop ongoing degradation of these ecosystems.

To address the need for a primary focus on aquatic biodiversity, the relatively new discipline of freshwater conservation planning draws from the fields of systematic conservation planning, ecology and conservation biology, aquatic sciences (including aquatic ecology, hydrology, and geomorphology), water resources planning and management, and spatial information technology. In essence, a systematic planning approach is followed to effectively address the variability among living organisms and their habitats and to ensure that a conservation design is representative of the biodiversity of a particular area.



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