Limitations of conservation planning software, perceived and real
Achievements of conservation planning software ...

Results on the ground and the seabed

- Kirkpatrick’s proposals
- Channel Islands marine reserves
- Great Barrier Reef marine reserves
- Eastern forests of New South Wales

Demonstration of ideas and techniques that have influenced policy and legislation

Contributions to many planning processes by government and NGOs

Combining software and experts
Experts - who are they?

- Experts on biodiversity
- Experts on threatening processes
- People with on-the-ground knowledge relevant to planning decisions
- People who understand the social, economic and political context for planning
- People responsible for implementation
Software and experts are complementary, not competing

**EXPERTS**
* information not otherwise available
* inevitable geographic and taxonomic biases

**SOFTWARE**
* unbiased analysis of available data
  * lacks information that resides only in the heads of experts

Various models for combining them
**What about limitations?**

**A software system is like a used car**

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<th>Software system</th>
<th>Capabilities</th>
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Types of limitations of conservation planning software

1. Perceptions of practitioners (correct or incorrect … they are still important)
2. Data structures and algorithms
3. Unresolved conceptual and theoretical issues
Perceptions of practitioners

- Systematics vs opportunism
- Computers vs experts
- Lack of real-world utility
- Data-rich vs data-poor regions
- Reserves vs off-reserve management
- Marine vs terrestrial
- Theory vs application
- Targets vs aesthetic or spiritual values
- Technocrats vs stakeholders
- Black boxes
- Naïve use can be counterproductive
Data structures and algorithms

- Planning units
- Speed of operation (e.g. real-time negotiation of conservation plans)
- Speed of operation (complexity of analyses)
- Optimality and heuristics
- Data structures for connectivity & distance
- Validation
- System testing
- Design of user interfaces
Unresolved conceptual & scientific issues

- Limitations of targets
- Dealing with biophysical processes
- Dealing with anthropogenic dynamics
- Dealing with costs
- Forms of protection (zoning)
- Integrating multiple conservation values
- Cost-benefit analyses
- Moving between scales
- Use for research questions (e.g. surrogates)
- My method is better than your method