

Bringing Science to Management: using Simulation- and Scenario-Based Approaches to Guide Decision Making in Invasive Species Management

one tool which can do both

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Contents

1 Framework for the Drakensberg

2 Optimising in Fynbos

3 How to make it accessible

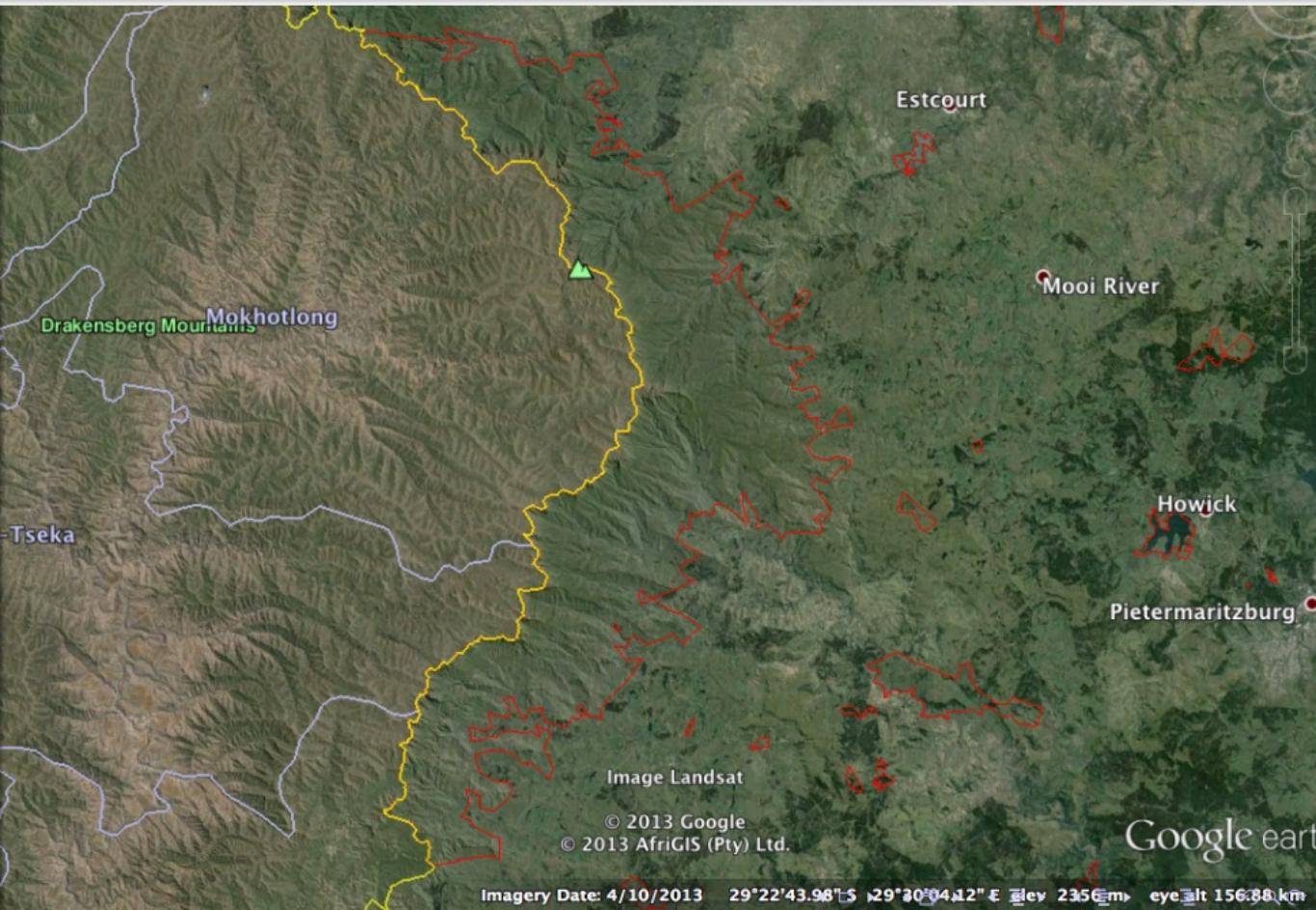
Drakensberg



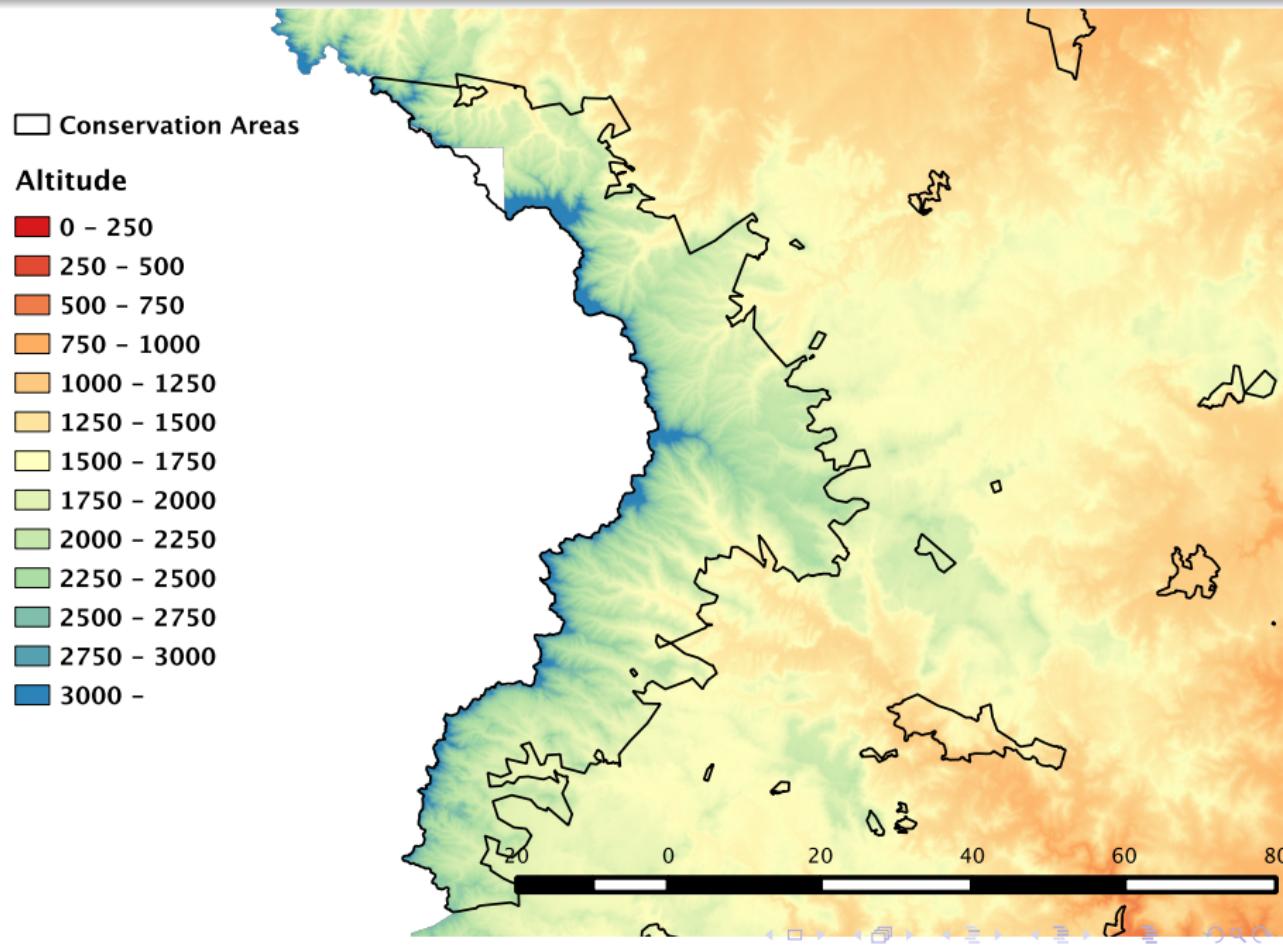
Map SA



Map Drakensberg

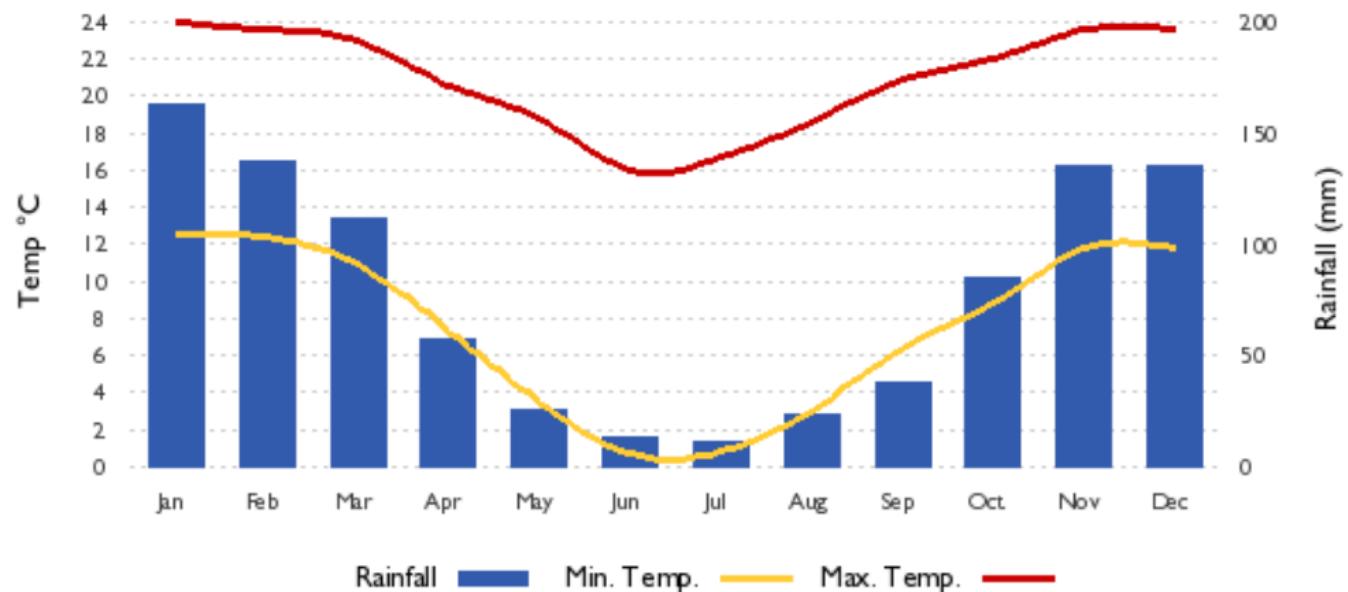


Altitude



Climate

Monthly climate averages for Natal Drakensberg (South Africa)



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Drakensberg



Drakensberg



Trey 2



This is a test!!!

Invasive Alien Plants



Invasive Alien Plants



GOD'S WINDOW
HCVV.BLOGSPOT.COM © 2009

<http://hcvv.blogspot.fr/2012/06/they-call-it-gods-window.html>

Invasive Alien Plants



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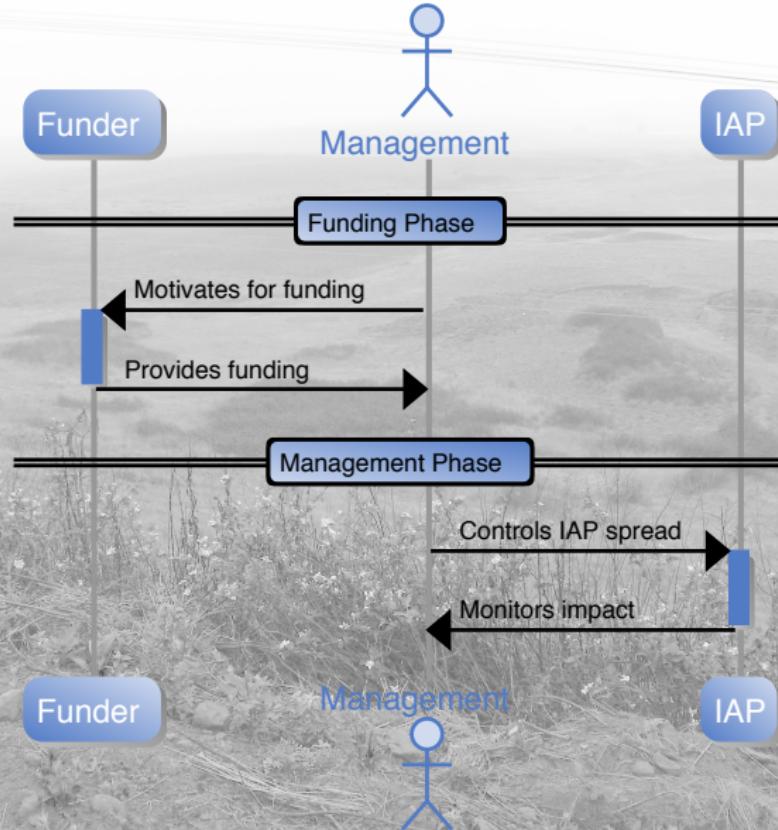
<http://hcvv.blogspot.fr/2012/06/they-call-it-gods-window.html>



<http://www.drak.co.za/news1202.html>



IAP Management II

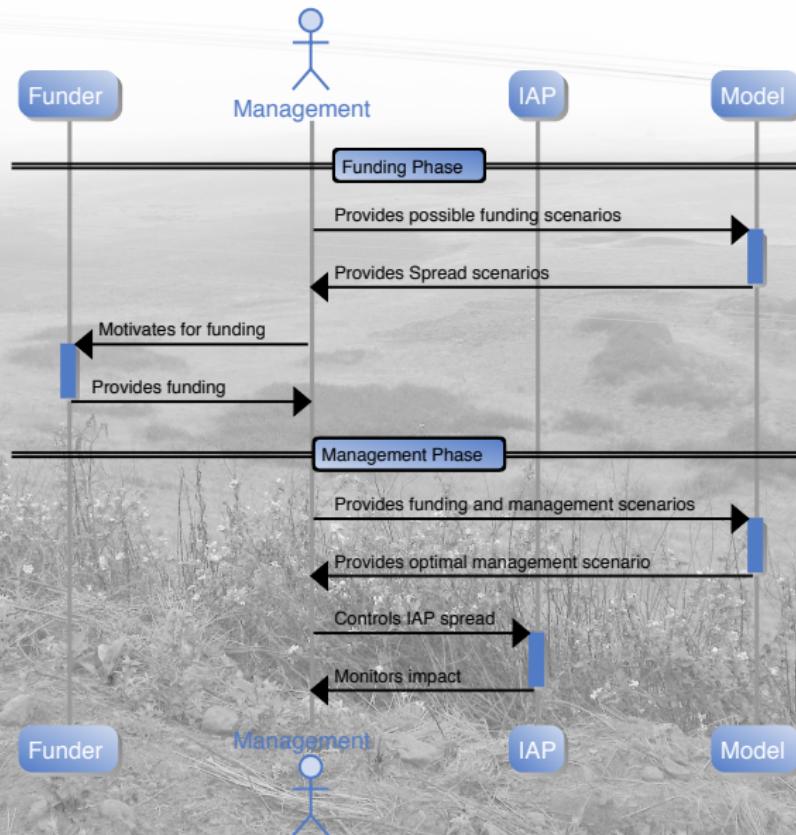


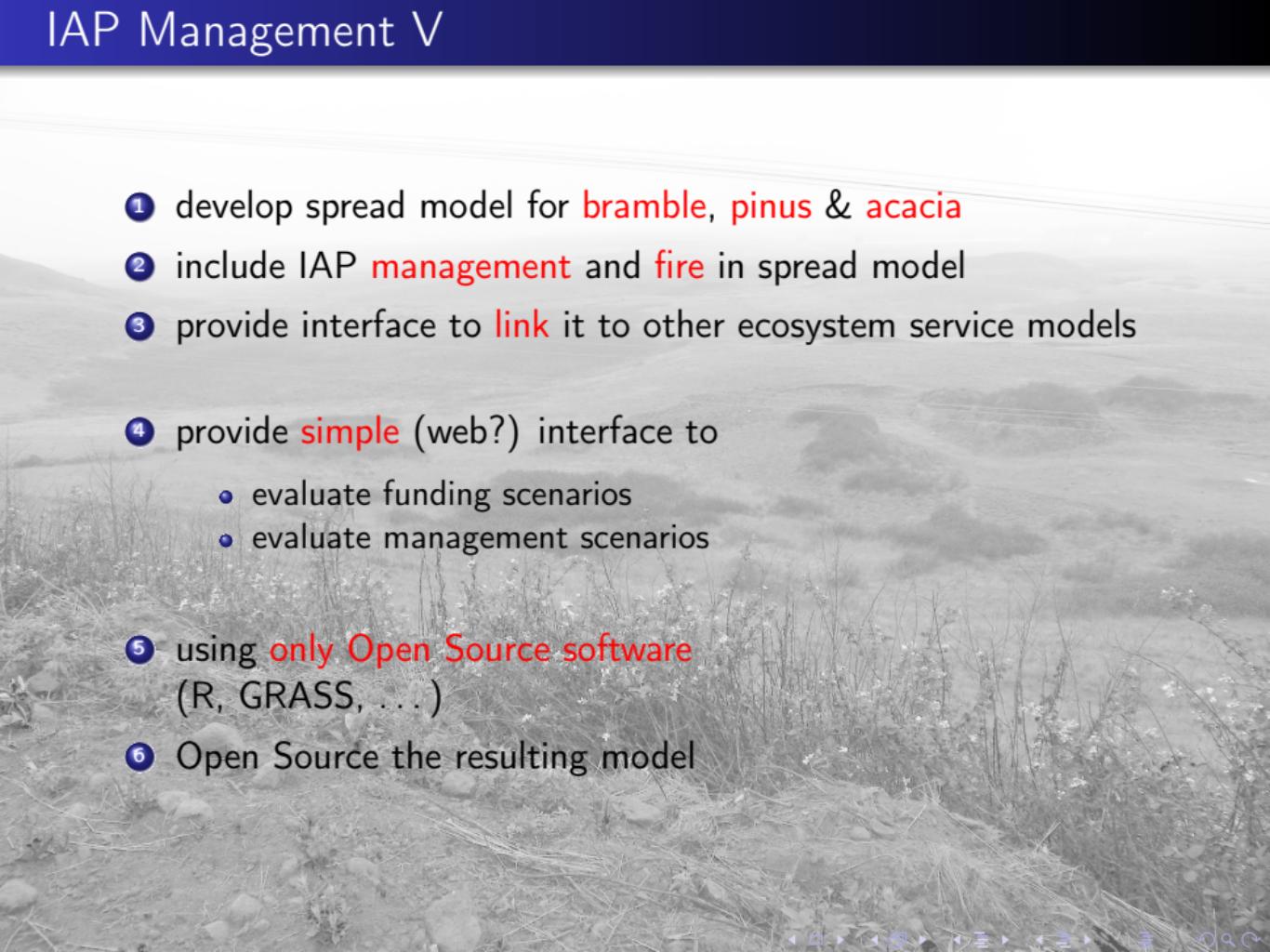
need for

- more objective
- more transparent
- easier to communicate
- more efficient

approach to motivate for & use of funding for IAP control

IAP Management IV



- 
- ① develop spread model for bramble, pinus & acacia
 - ② include IAP management and fire in spread model
 - ③ provide interface to link it to other ecosystem service models
 - ④ provide simple (web?) interface to
 - evaluate funding scenarios
 - evaluate management scenarios
 - ⑤ using only Open Source software
(R, GRASS, ...)
 - ⑥ Open Source the resulting model

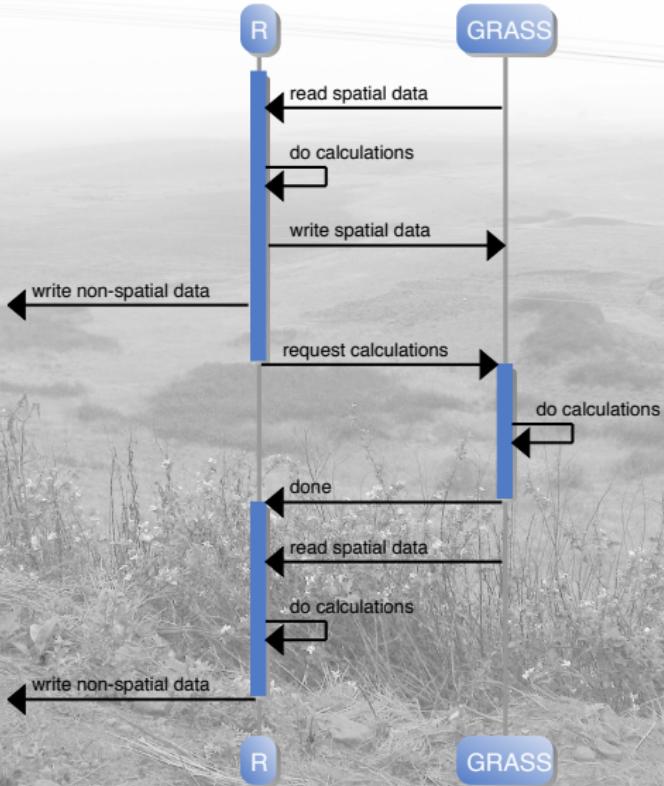


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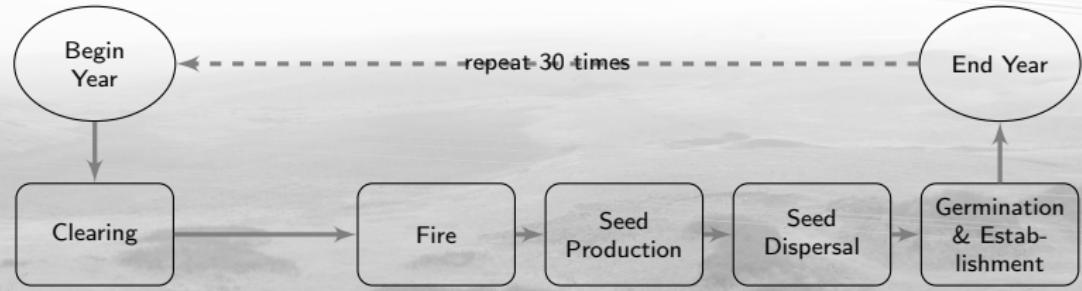


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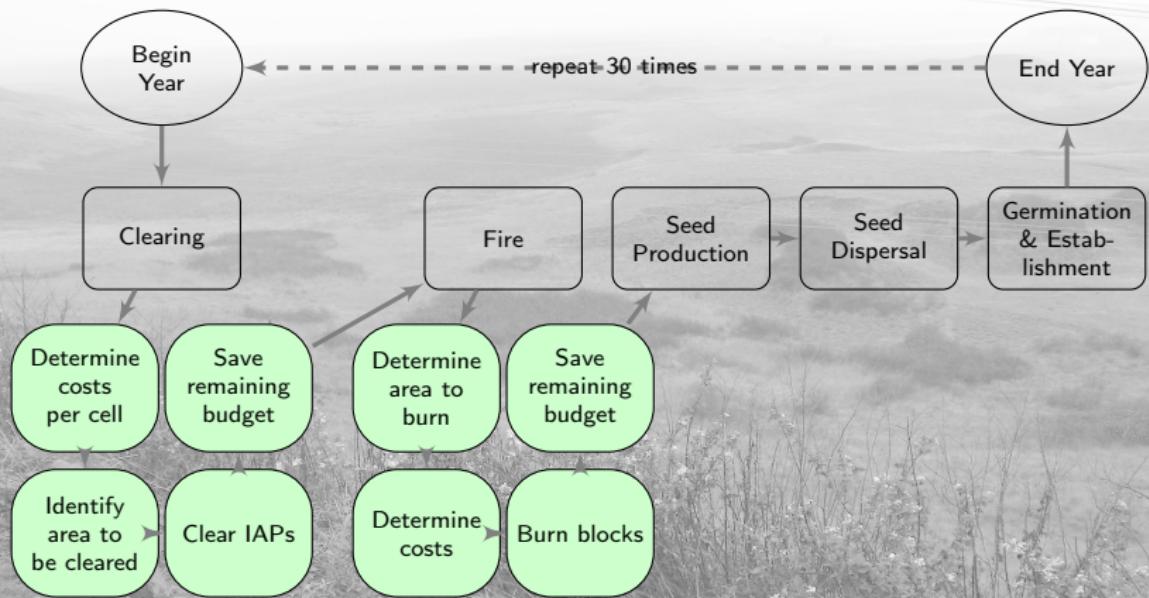
Simulation



The model



The model





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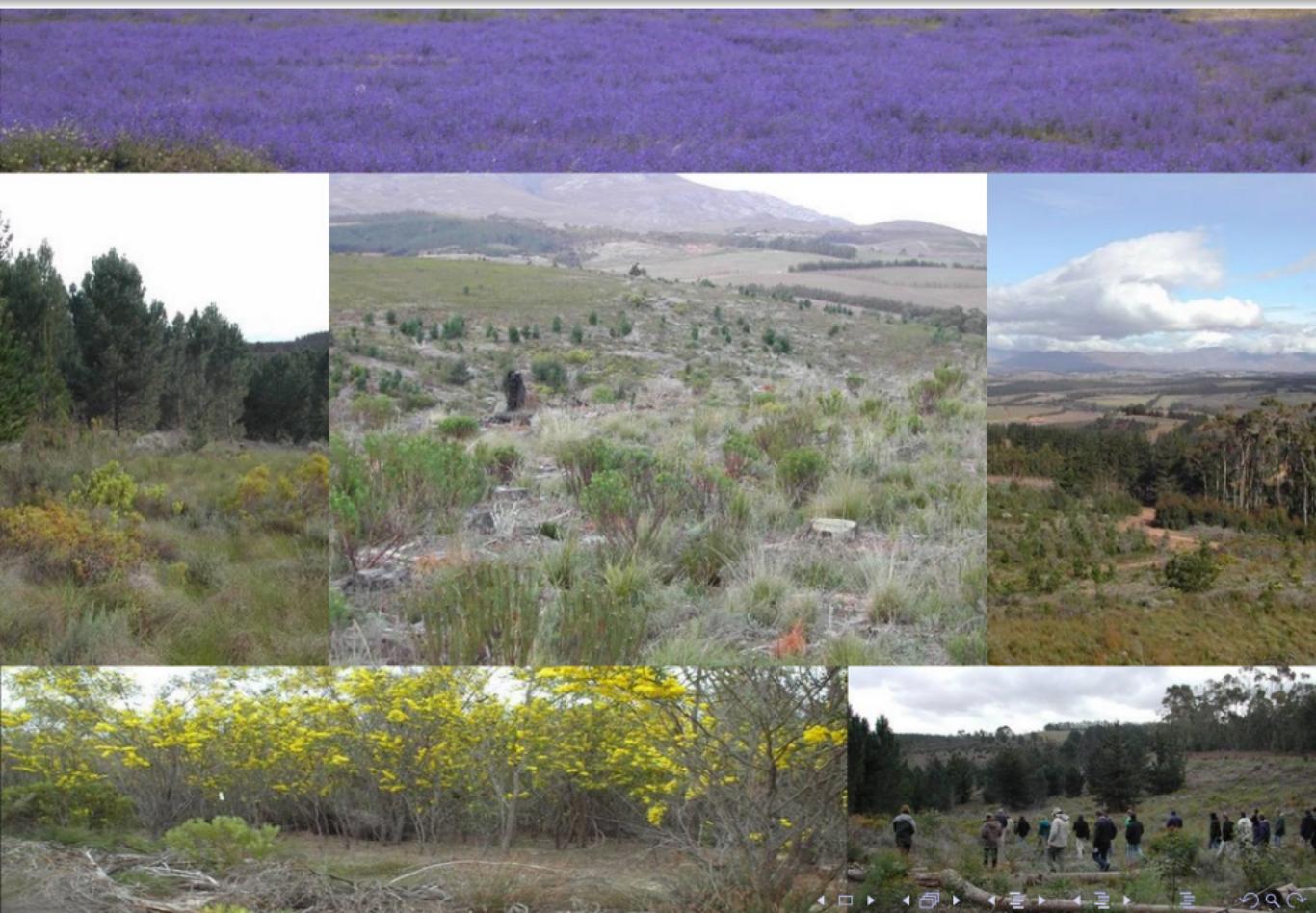
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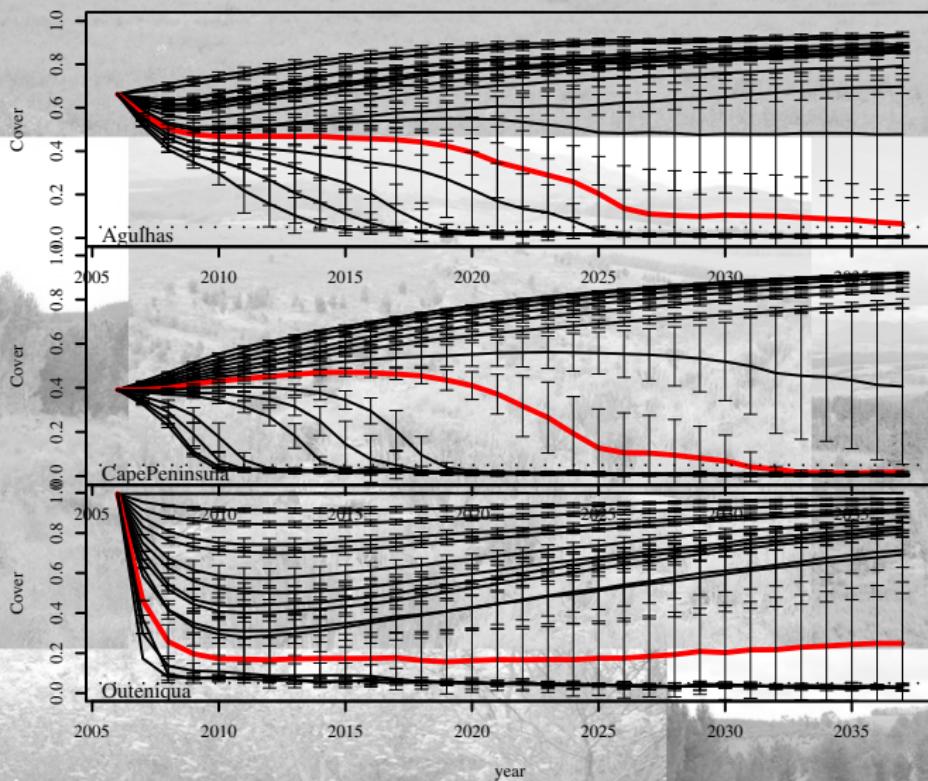
github.com/rkrug



Optimising in Fynbos

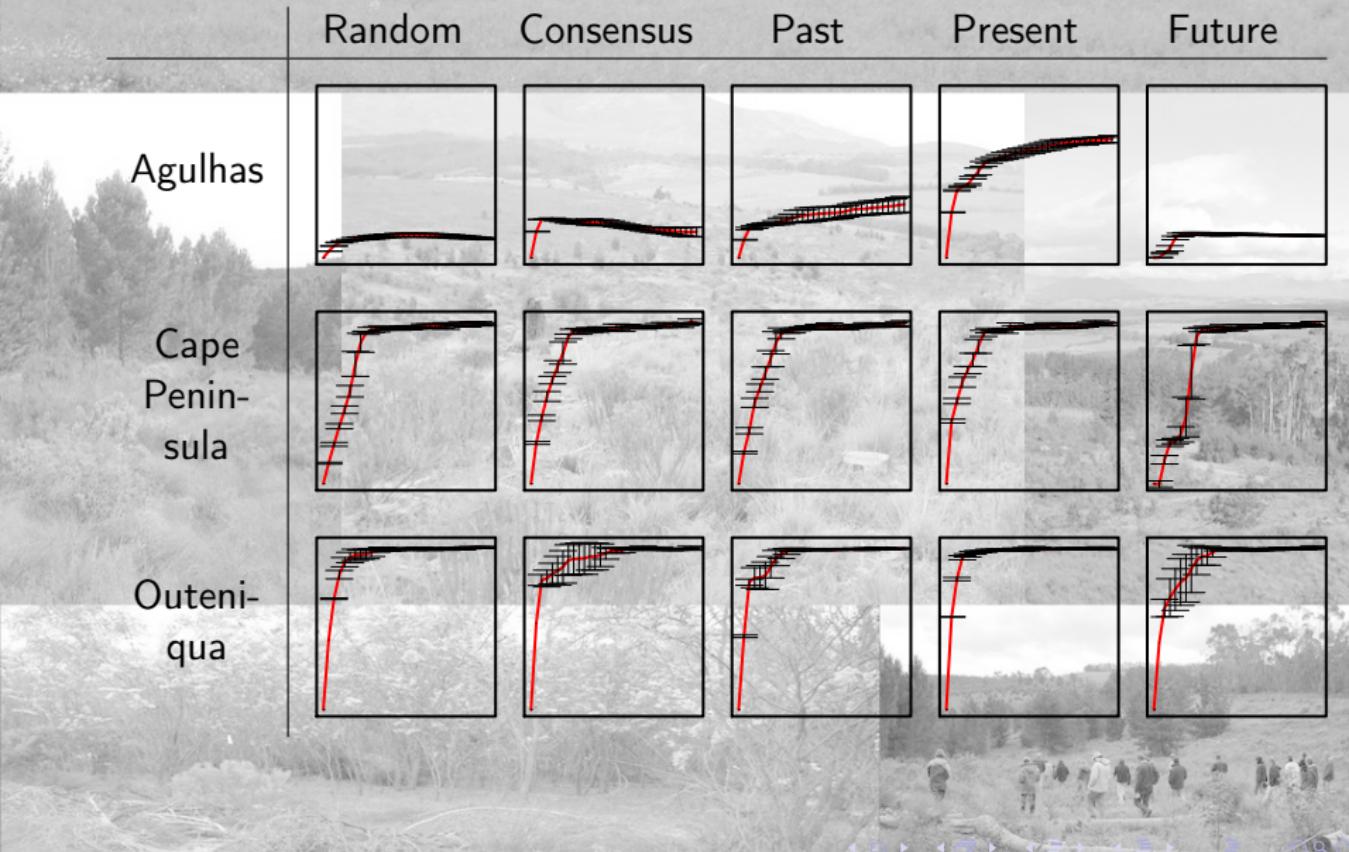


Different Funding Scenarios



Krug, R. M., Roura-Pascual, N., & Richardson, D. M. (2010). Clearing of invasive alien plants under different budget scenarios: using a simulation model to test efficiency. *Biological Invasions*, 12(12), 4099–4112. doi:10.1007/s10530-010-9827-3

Different Management Scenarios





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User Interface II



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User Interface III



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Where we are

- 
- ① Developing generic spread model
 - ② Parametrize spread model
 - ③ Identify ecosystem service models
 - ④ Develop simple interface

Bringing Science and management together?



Bringing Science and management together?



SEVEN
HEPURA

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<https://bitbucket.org/rivanvx/beamer/wiki/Home>
 - Charts
 - PlantUML <http://http://plantuml.sourceforge.net>
 - and others