Scoping the adaptation challenge

What do we need to know to prepare for transformational climate change?

Michael Dunlop, Paul Ryan, Hannah Parris, Russ Wise, Russell Gorddard, Matt Colloff, …

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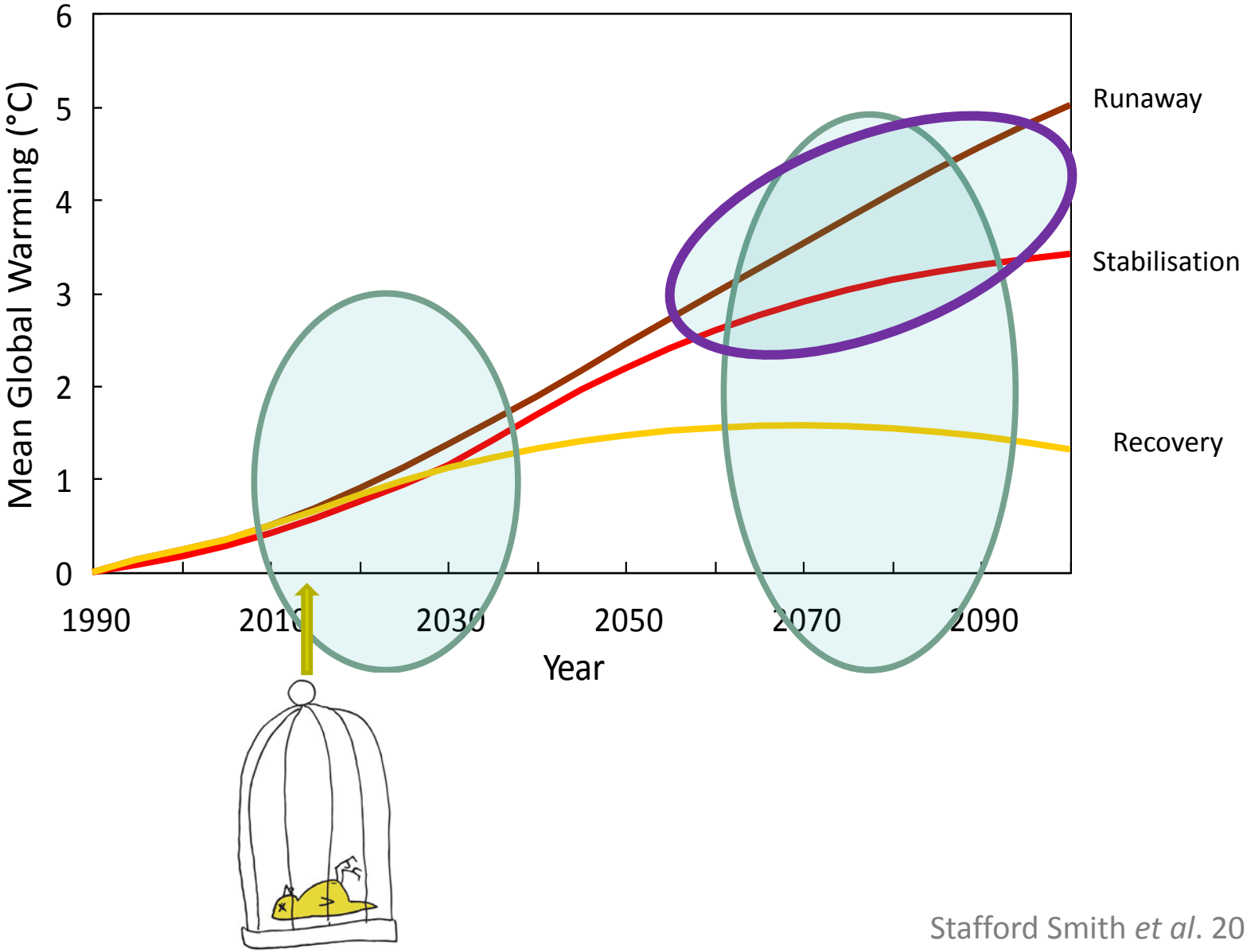
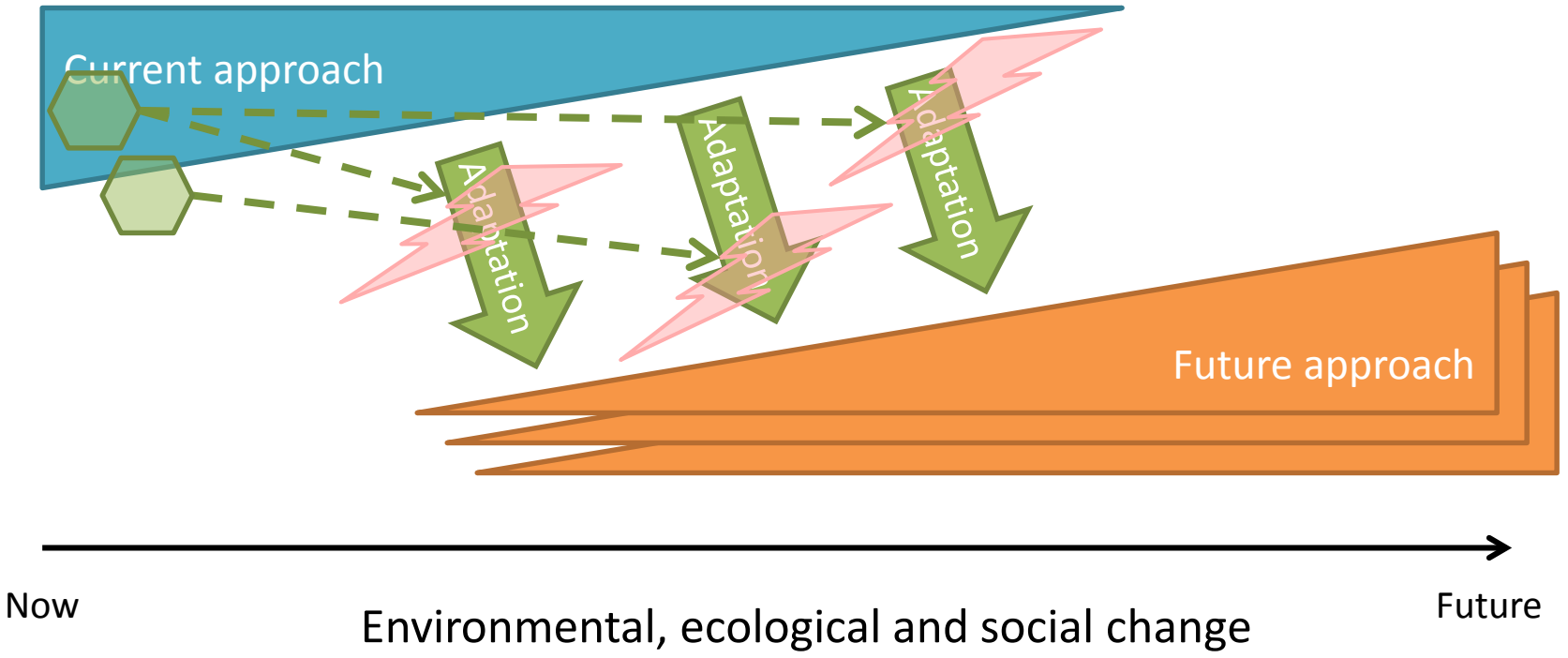
Adaptation = Preparing for transformation



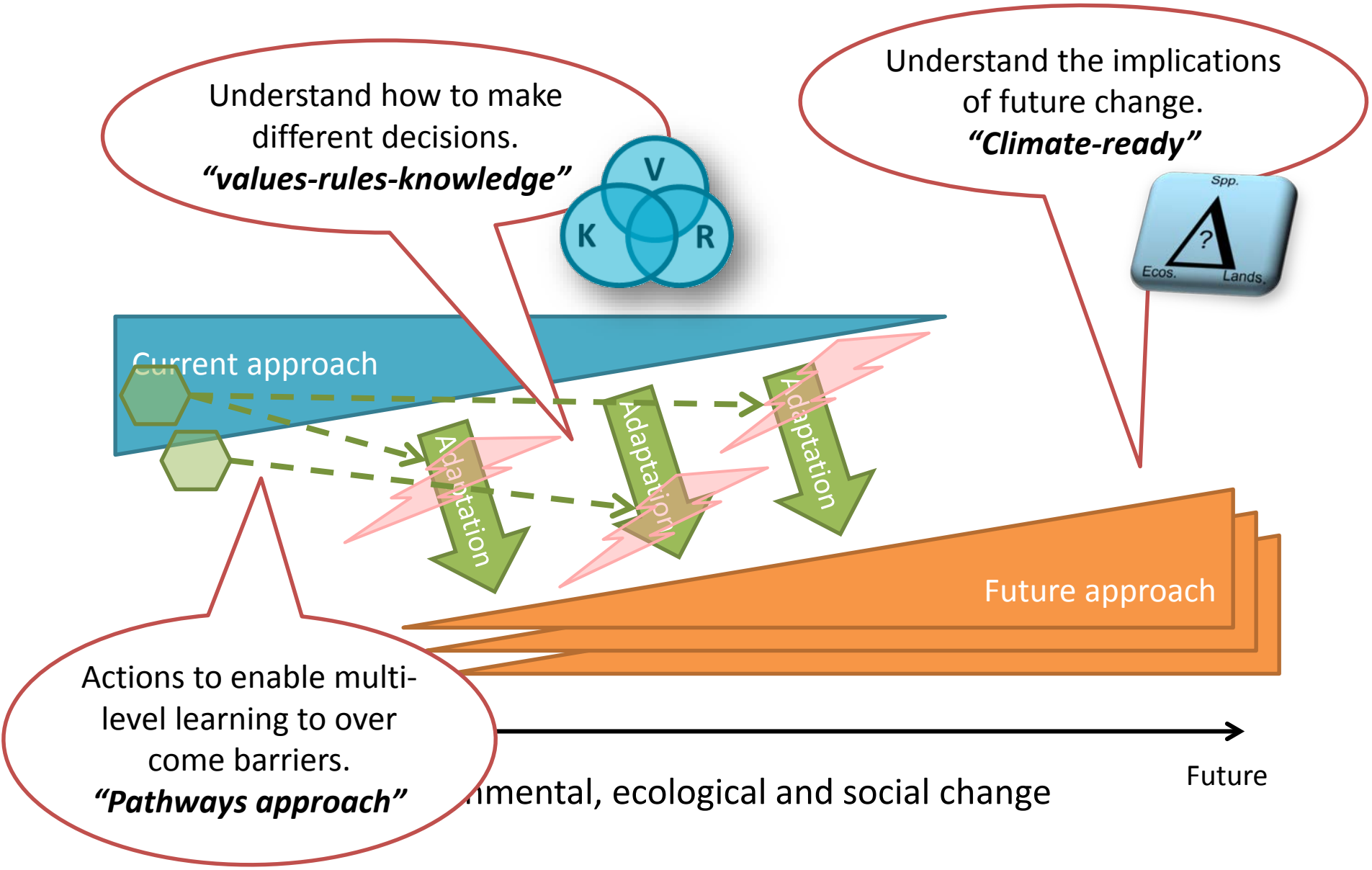
Stafford Smith *et al*. 2011

Adaptation: *Preparing for transformation*



(Wise et al. 2014; Gorddard et al. 2016; Dunlop et al. 2016)

Adaptation pathways: *multi-level learning*



(Wise et al. 2014; Gorddard et al. 2016; Dunlop et al. 2016)

Climate-ready framing

Strategies must accommodate:

1. Large **magnitude** of ecological change, and significant loss.
2. Considerable **uncertainty** in the detail of ecological changes.
3. Different impacts on **multiple valued** aspects of biodiversity.

Climate-ready = accommodate 1, 2, 3 …

and *move away from the static equivalents*

Prototype objectives

Beginning to be implemented!

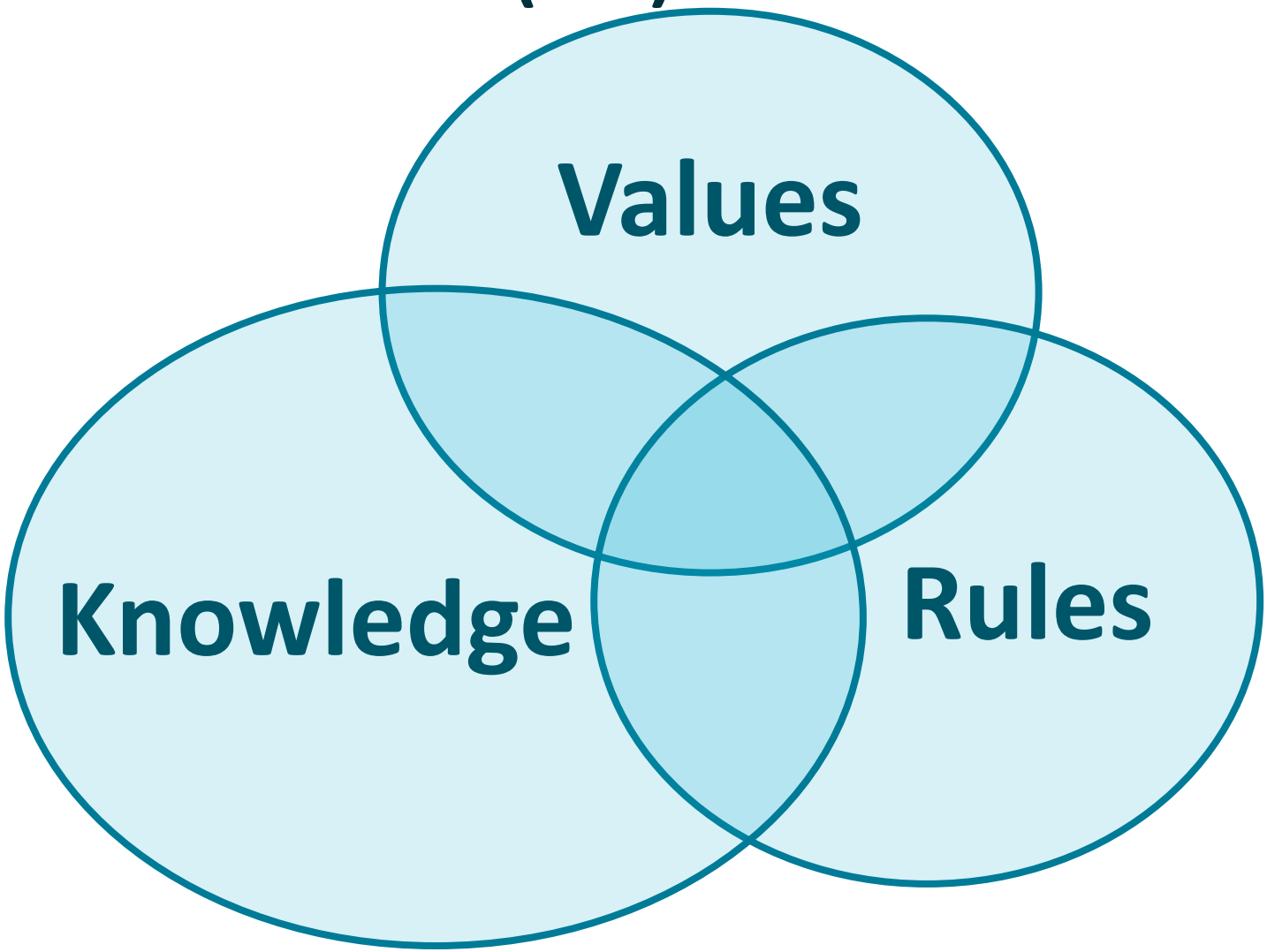
Need refining

1. Reduce **species extinction**, as populations change in abundance and distribution

2. Maintain **ecosystem health**, as they change in type, composition, structure, function

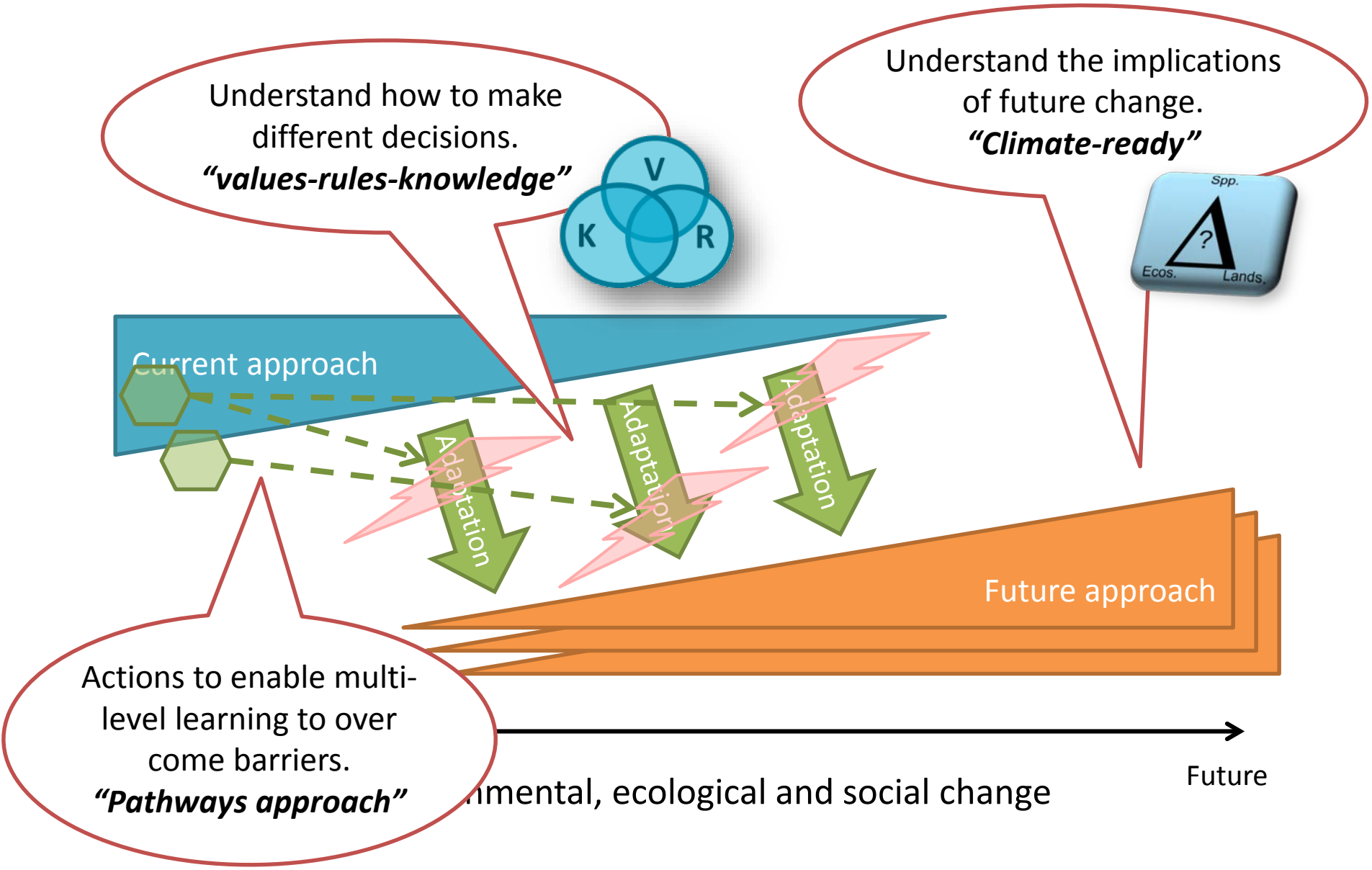
3. Maintain a **balance between human and natural processes in landscapes**, as types of ecosystem and land/water uses change

Decision context (vrk)



Gorddard *et al.* 2016

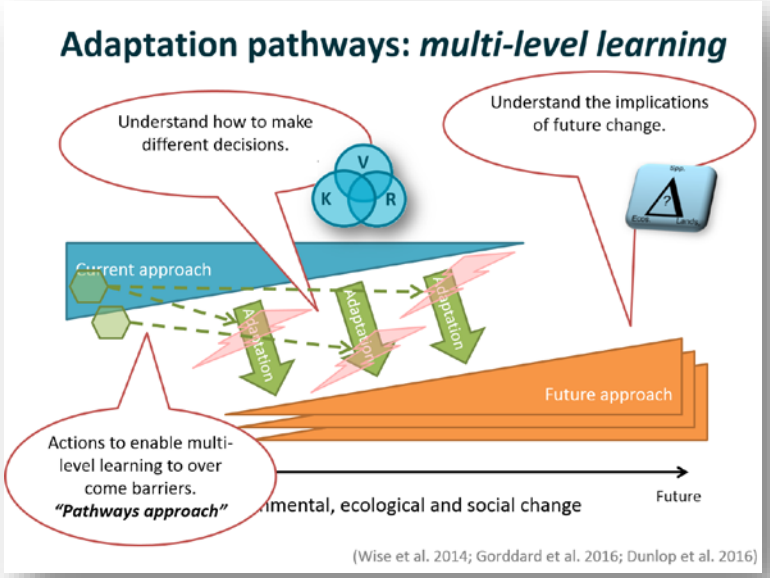
Adaptation pathways: *multi-level learning*



(Wise et al. 2014; Gorddard et al. 2016; Dunlop et al. 2016)

Climate Future Plots …

- Knowledge barriers: anticipating future ecological responses
  - Trial what survives/thrives
  - Examine the dynamics of ecological change, at scale
  - Discover the unexpected
- Social barriers
  - “Local provenance” - dogma, and practice
  - Probe the focus on threatened vs other species
  - Novel communities
  - Species vs ecosystem properties
- Institutional barriers
  - Managing listed communities differently
  - Prioritising ‘ecosystem function’



Thank you

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