

Introduction to Vulnerability Assessments

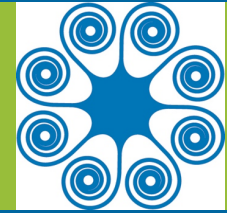
Foundational Elements & Key Steps

André Kuipers

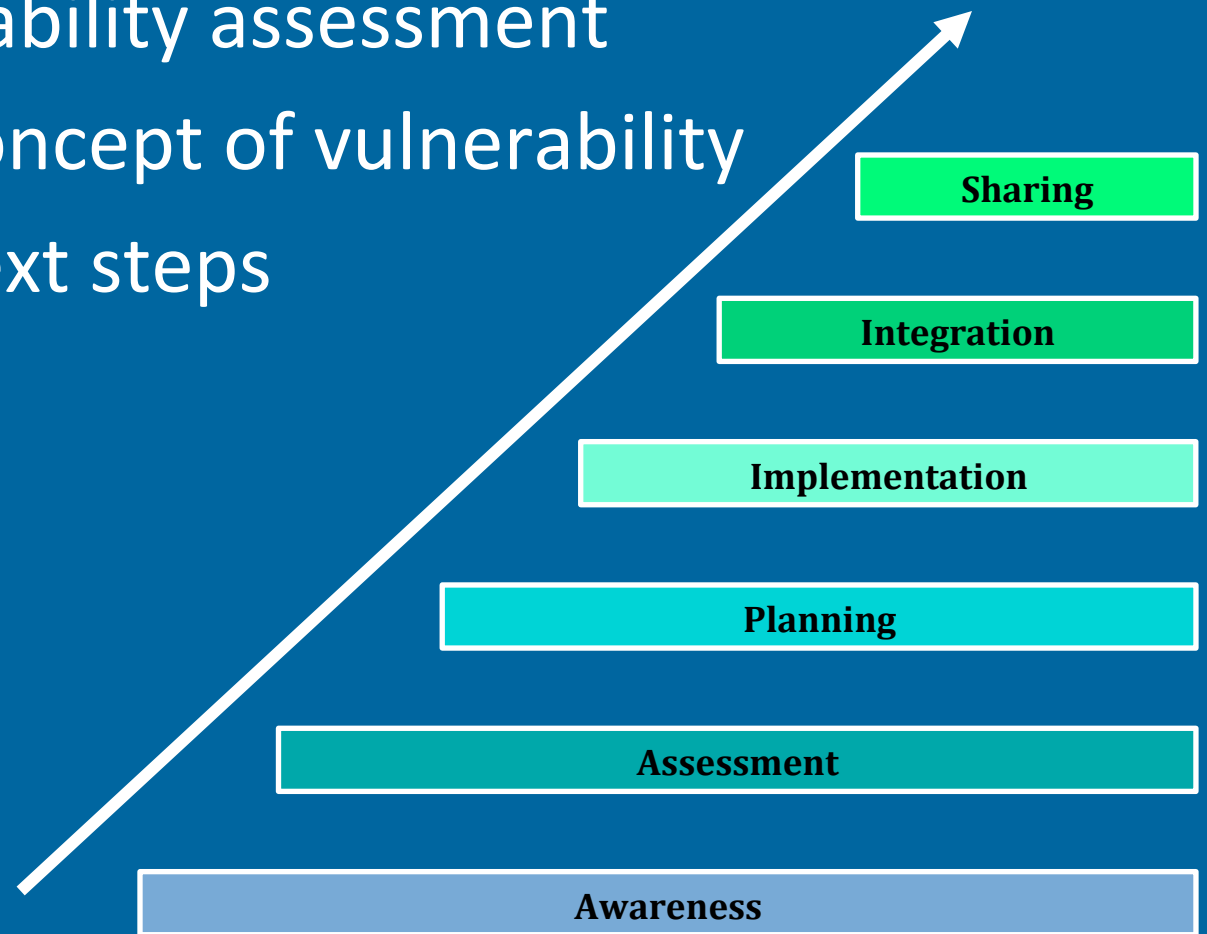
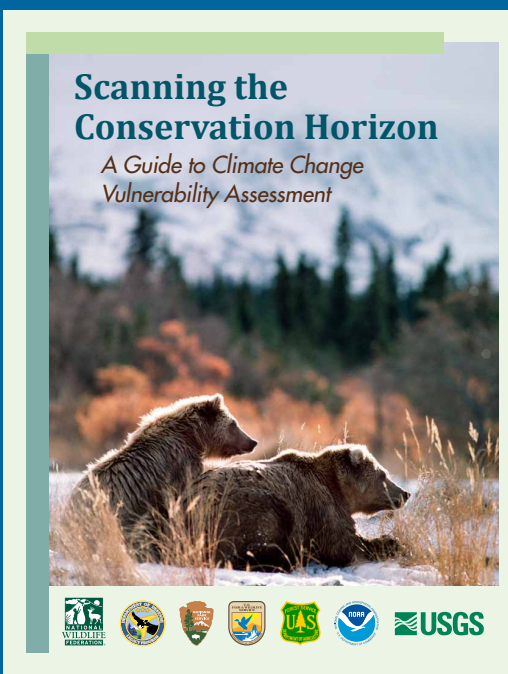
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Talk Goals



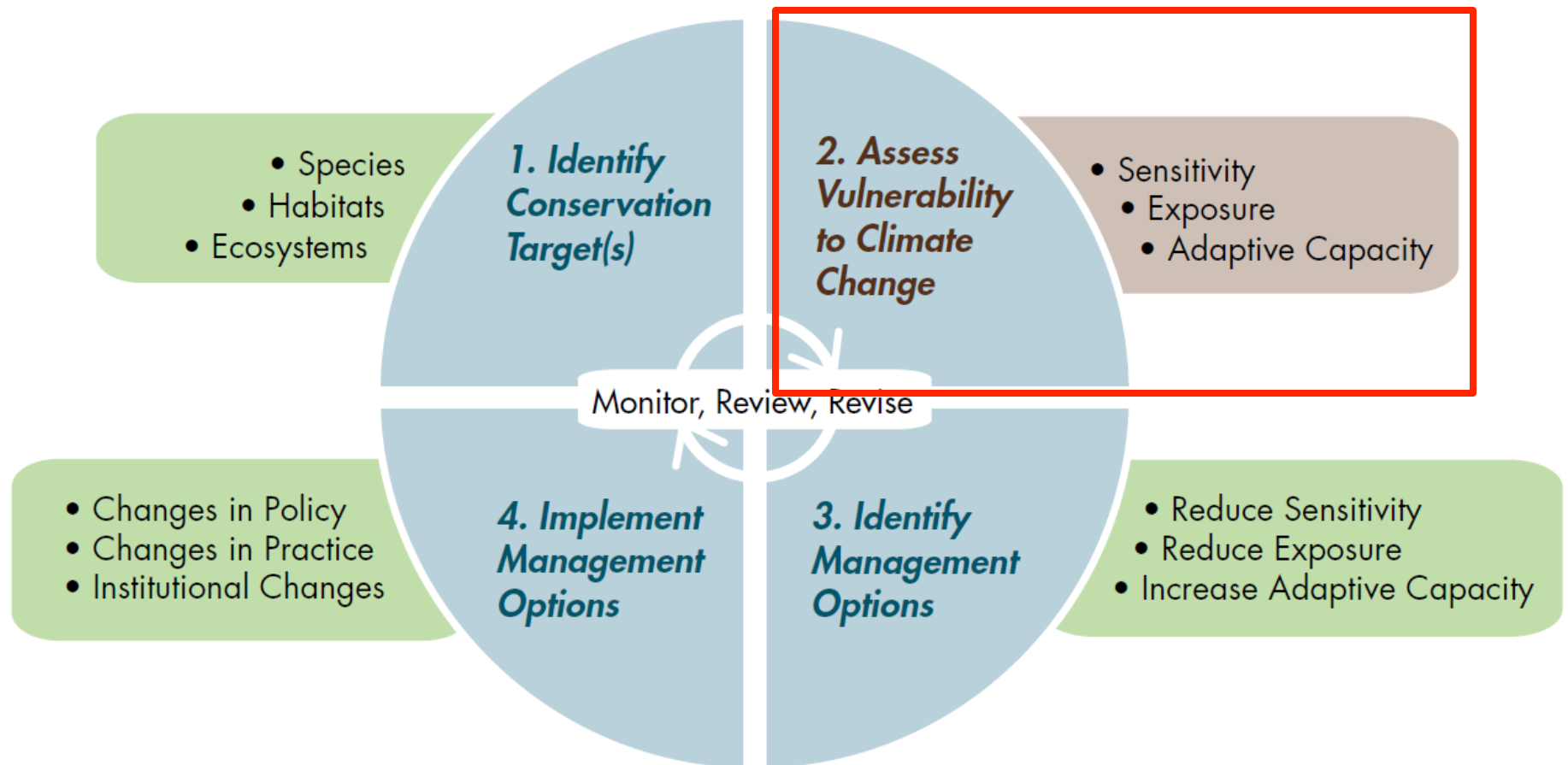
- Introduce climate change adaptation and the role of vulnerability assessment
- Unpack the concept of vulnerability
- Summarize next steps



Adaptation Ladder of Engagement

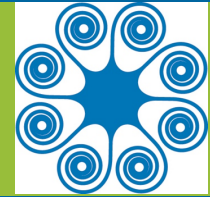
Adaptation Planning Framework

Overarching Conservation Goal(s)



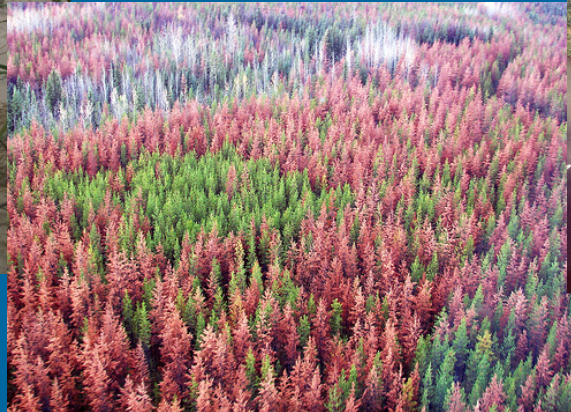
From Glick et al. 2011 *Scanning the Conservation Horizon*

Defining Vulnerability

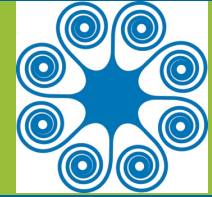


Climate change vulnerability refers to the extent to which a species, habitat, or ecosystem process is susceptible to harm from climate change impacts

- *What* things are most vulnerable
- *Why* they are vulnerable



Why Assess Vulnerability?



Vulnerability assessments **can help:**

- Prioritize species and systems for management actions
- Develop management strategies to address climate change
- Efficiently allocate resources

What vulnerability assessments **cannot do:**

- Make a conservation decision for you

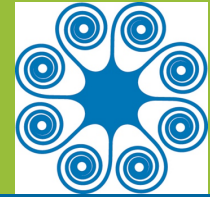


Key Steps for Undertaking a Vulnerability Assessment

1. Determine objectives and scope
2. Gather relevant data and expertise
3. Assess the components of vulnerability
4. Apply assessment results in adaptation planning



Steps 1 and 2



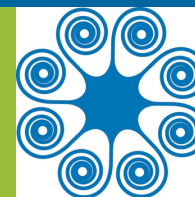
1. Determine objectives and scope

- Clarify user needs
- Define goals and objectives
- **Assessment targets (species, habitats, ecosystems)**
- Scale (temporal and spatial)

2. Gather relevant data and expertise

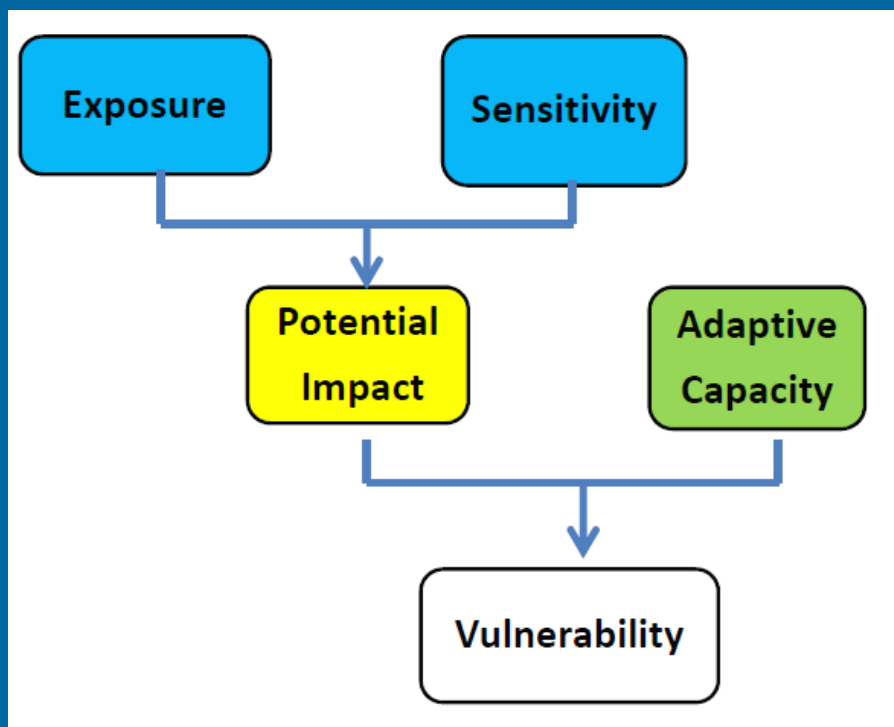
- Review existing literature
- **Reach out to experts**
- Obtain/develop climate and ecological response projections

Step 3



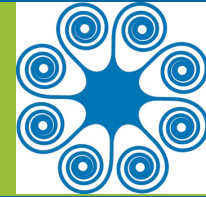
3. Assess components of vulnerability

- Assess sensitivity, exposure, and adaptive capacity
- Estimate overall vulnerability
- Document confidence levels and uncertainties



$$V = \frac{E * S}{AC}$$

Step 4



4. Apply assessment results in adaptation planning

- **Reduce Sensitivity**

Example: Restore with thermally tolerant species in an area projected to get warmer



- **Reduce Exposure**

Example: Identify and protect thermal refugia



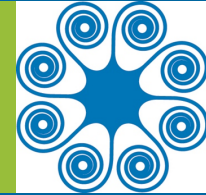
- **Enhance Adaptive Capacity**

Example: Preventing invasive species that outcompete target species



Luis A. Solórzano

This Process



This
workshop

Between
workshops

Next
workshop

Going
forward

Step 1

Step 2

Step 3

Step 4

Determine
Objectives
and Scope

Gather
Relevant Data
and Expertise

Assess
Components
of
Vulnerability

Apply
Assessment
Results in
Adaptation
Planning

Group Activity

Let's map the *informationscape*

- What information do we need to assess the vulnerability of the resources identified here?
- What information is available to inform the vulnerability assessments?

