



Transboundary Madrean Watersheds Landscape Conservation Design

Management Challenges and Actions

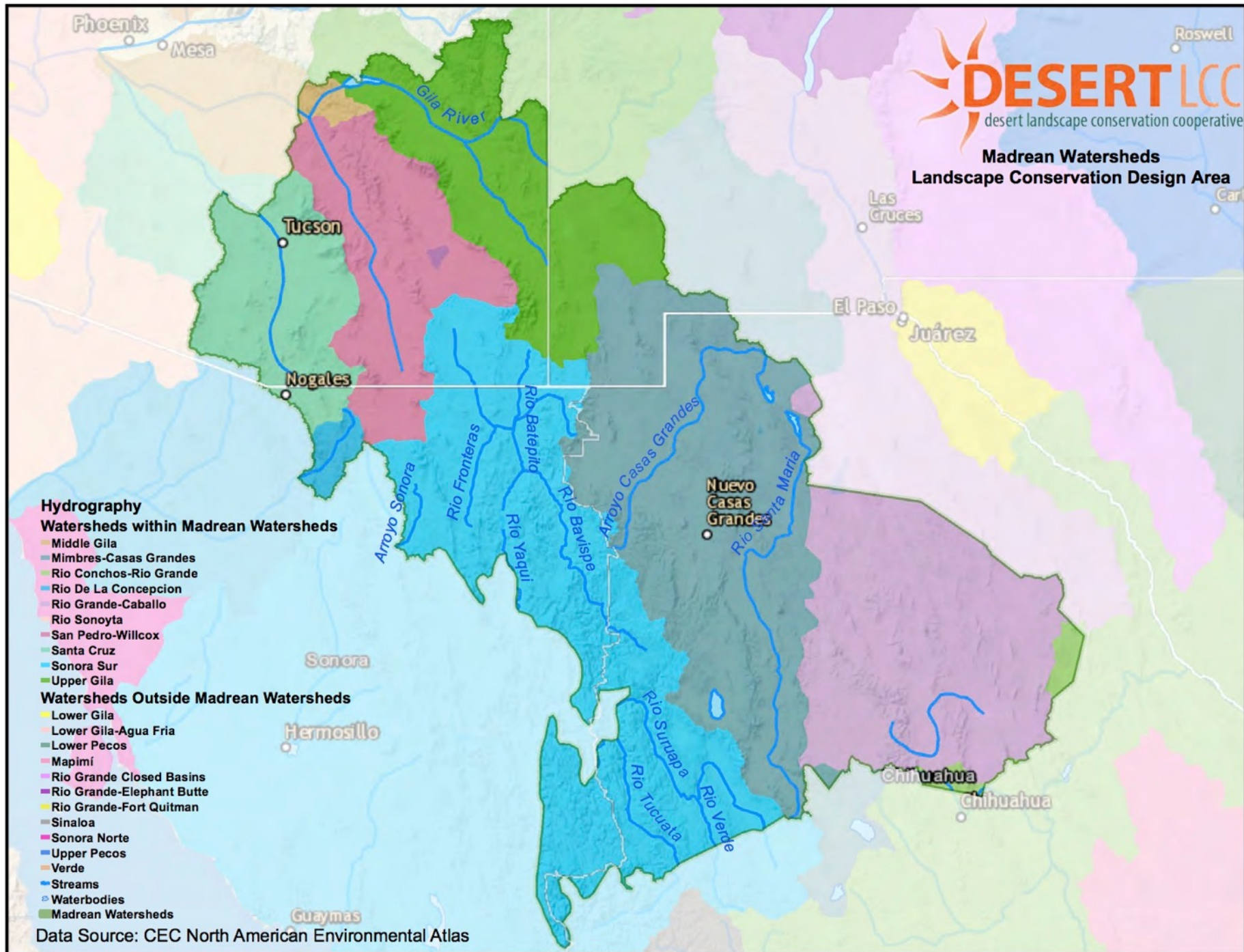
June 17, 2019

Matt Grabau and Amanda Webb

Transboundary Madrean Watersheds Vision

The Madrean Watersheds initiative is a large landscape, international effort to maintain and enhance the interconnected system of mountains, grasslands, deserts, and waters that supports species diversity, promotes healthy watersheds, and maintains the overall ecosystem integrity that enriches the lives of human communities.

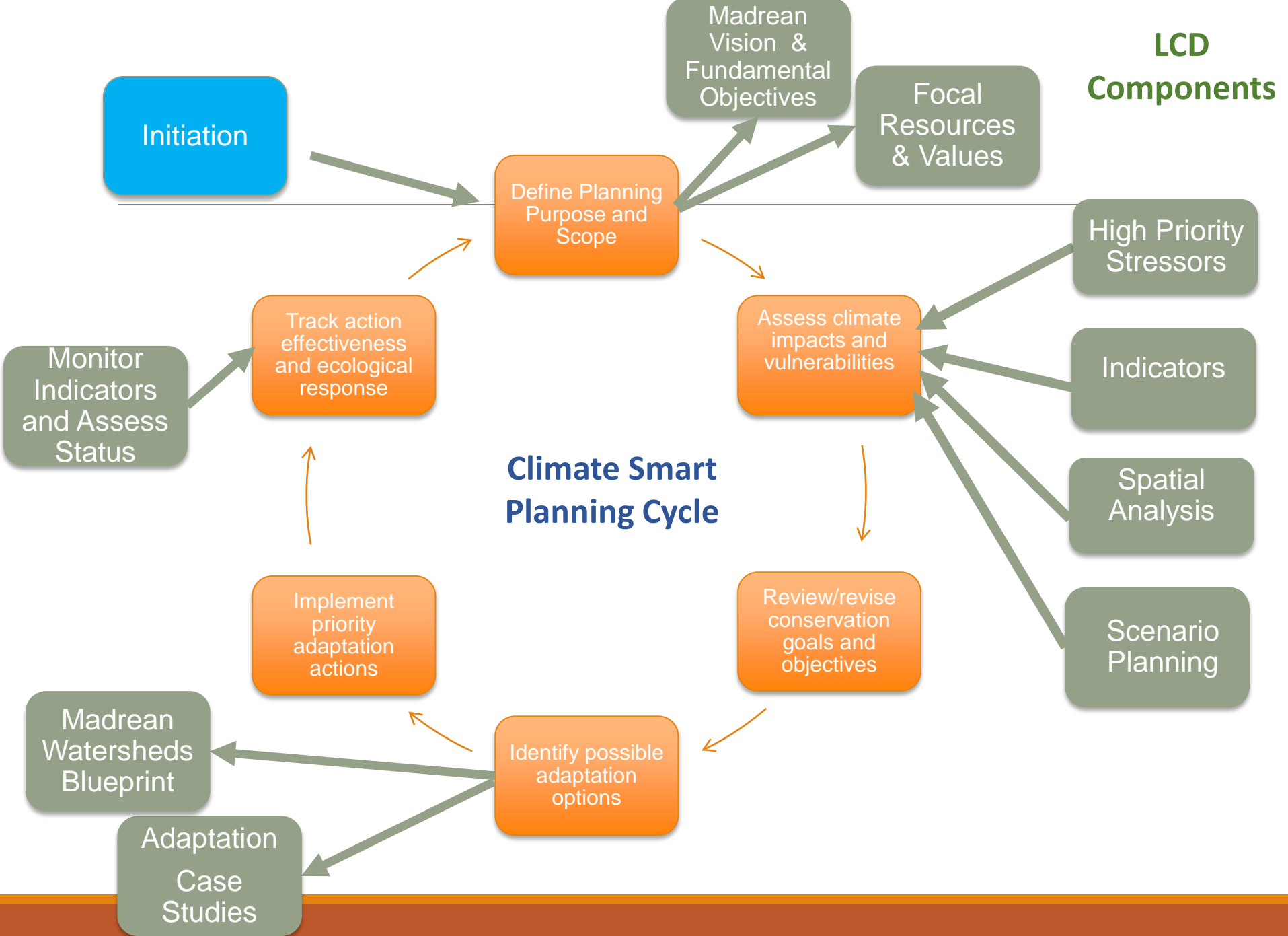


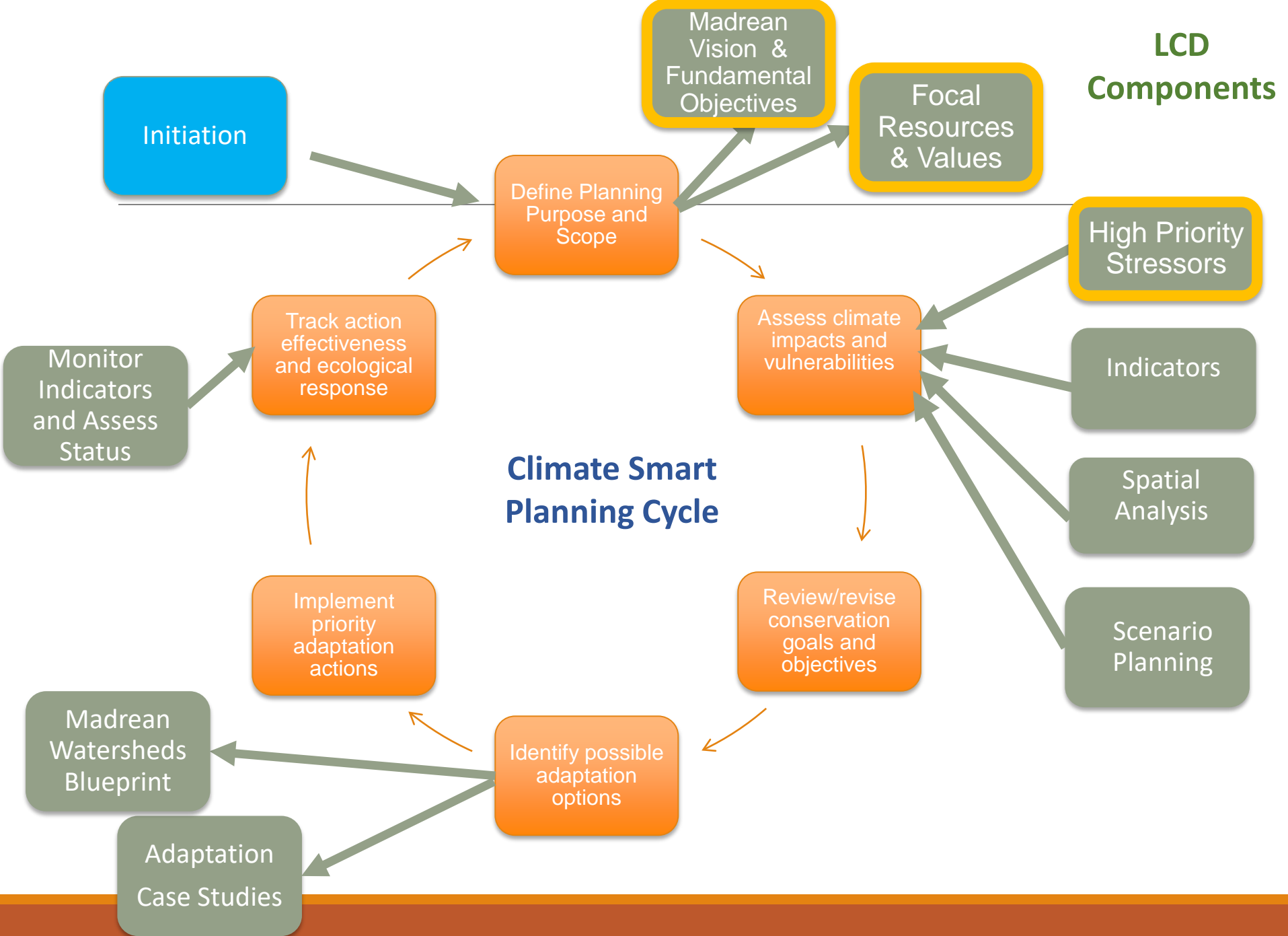


Landscape Conservation (Planning and) Design

- Conservation Planning
 - The “What” and “How Much”
- Conservation Design
 - The “Where” and “How”
- Develop Collaborative Partnership
 - Facilitate long-term implementation and adaptive management

LCD Components





Transboundary Madrean Watersheds Goals

Biodiversity - Transboundary Madrean watersheds are a haven for the unique diversity of native and endemic species.

Fundamental Objectives

- Maintain water and riparian systems
- Maintain and enhance native species and habitat
- Maintain populations of priority species



Transboundary Madrean Watersheds Goals

Connectivity - Enhanced linkages connect the diverse life zones of Sky Island ecosystems, from valley bottoms to mountain tops, from southern Sonora to the Gila River in Arizona, enabling persistence of migratory wildlife and allowing for the possible future shift of species and ecosystems in a changing climate.

Fundamental Objectives

- Maintain/increase linkages for wildlife
- Maintain connected network of water sources for wildlife
- Increase/restore connectivity of habitat

Transboundary Madrean Watersheds Goals

Socio-Ecological Services - Healthy watersheds and functioning ecosystems deliver highly valued services to human communities and essential benefits to wildlife.

Fundamental Objectives

- Optimize watershed benefits for humans, ecosystems, wildlife
- Value ecological services
- Maintain soil function/reduce erosion
- Increase human connection to place
- Support working landscapes for ecological benefit
- Prioritize ecosystem integrity/sustainability

Expert Input Gathered at Workshops

- What stressors and pressures are having the highest impact on this ecosystem?
- What management objectives do you have for this ecosystem?
- How are these high impact stressors and pressures affecting what you are trying to achieve?

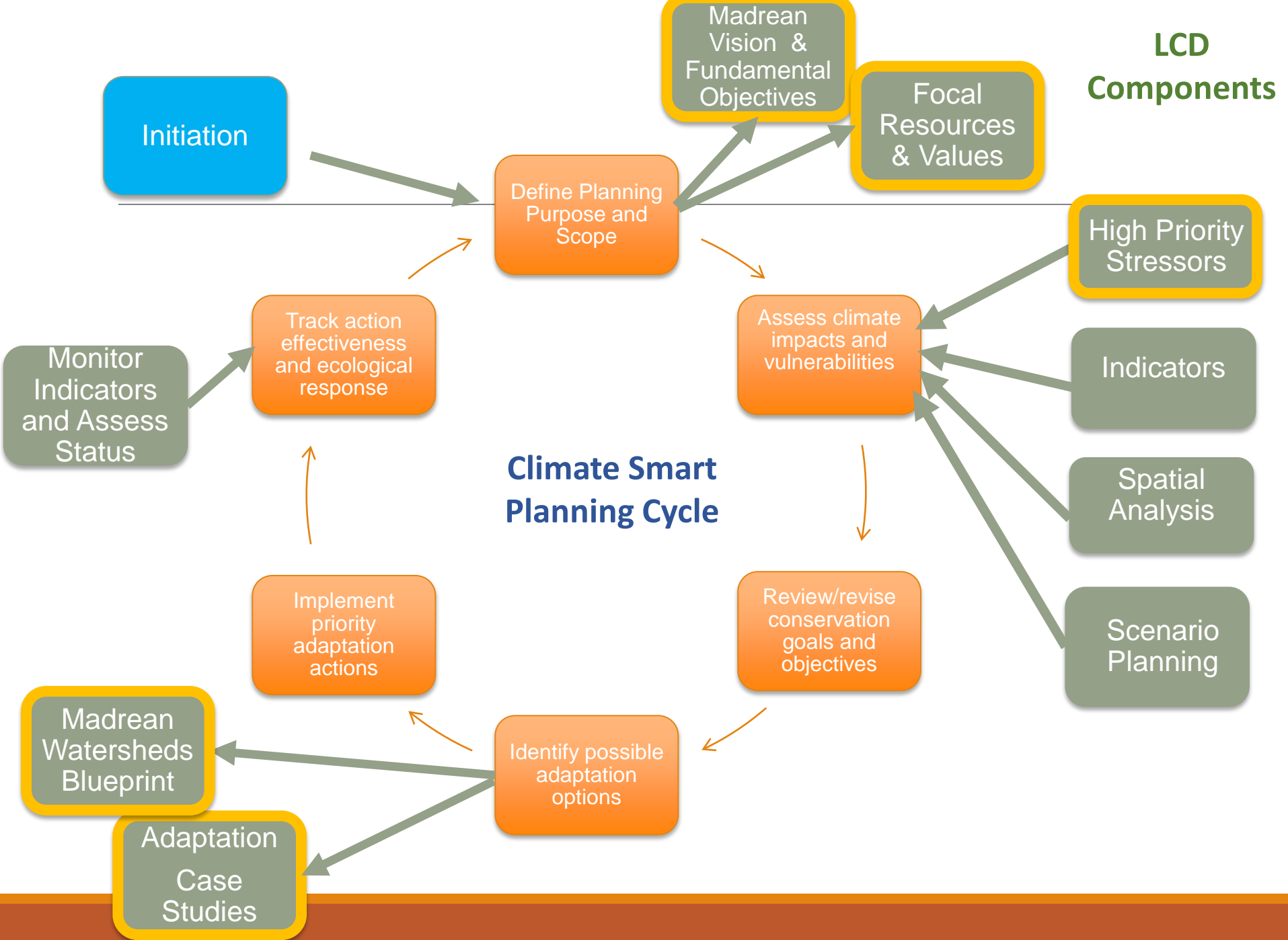


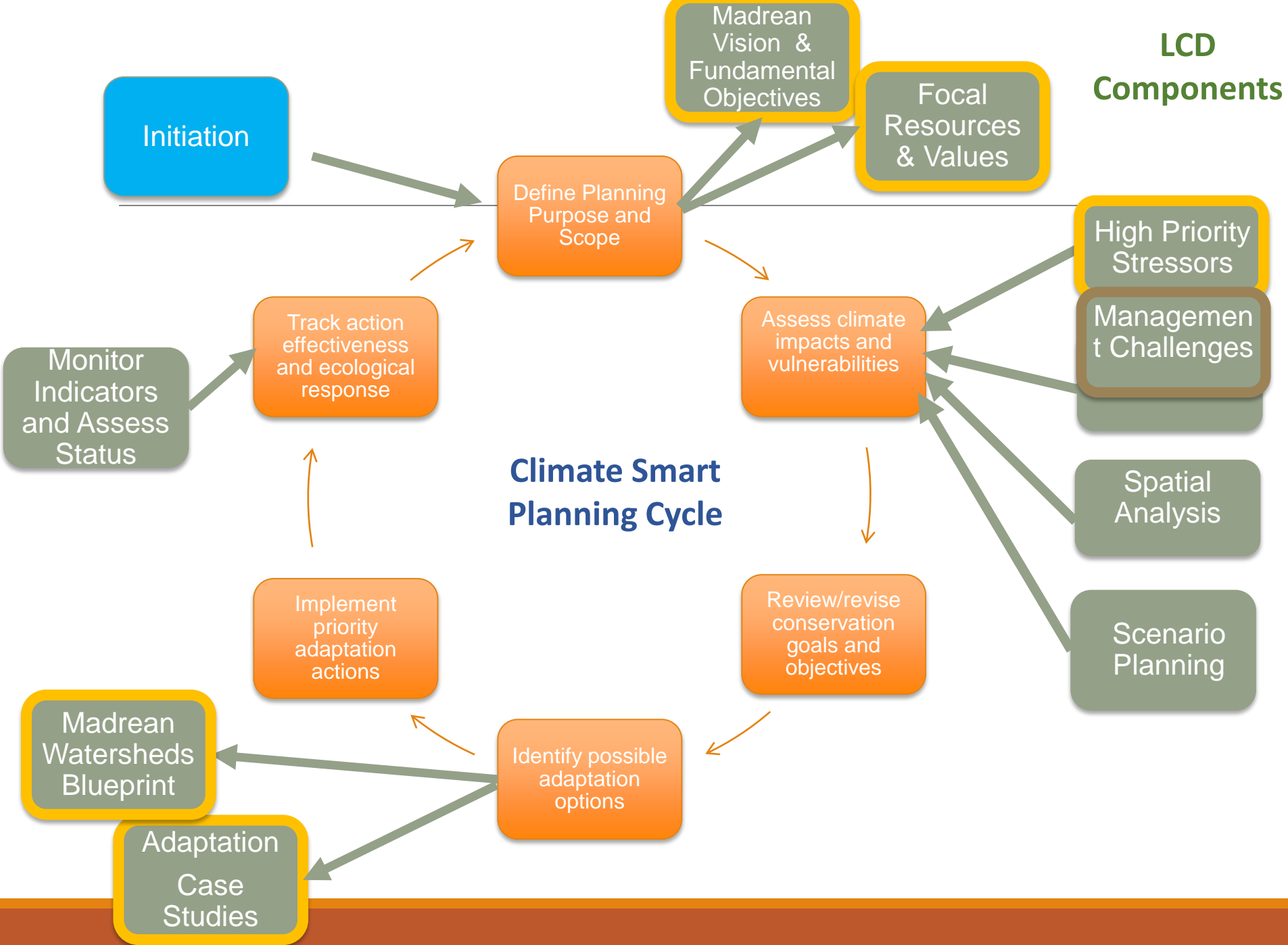
Expert Input Gathered at Workshops

- What adaptation strategies and actions are you already implementing to reduce vulnerability of these resources? What new adaptation strategies and actions could you or your partners implement?
- Values: Why do people care about these resources? How are people using these resources?
- What kind of information would you need to inform management to address this stressor?

Key points from partners

- Develop a framework to prioritize management actions and monitor landscape-scale conditions
 - Focus on *implementation* rather than simply producing more planning documents
- Strengthen and/or develop ongoing forums and partnerships for coordination and collaboration
- Work for shared leadership and the development of shared funding







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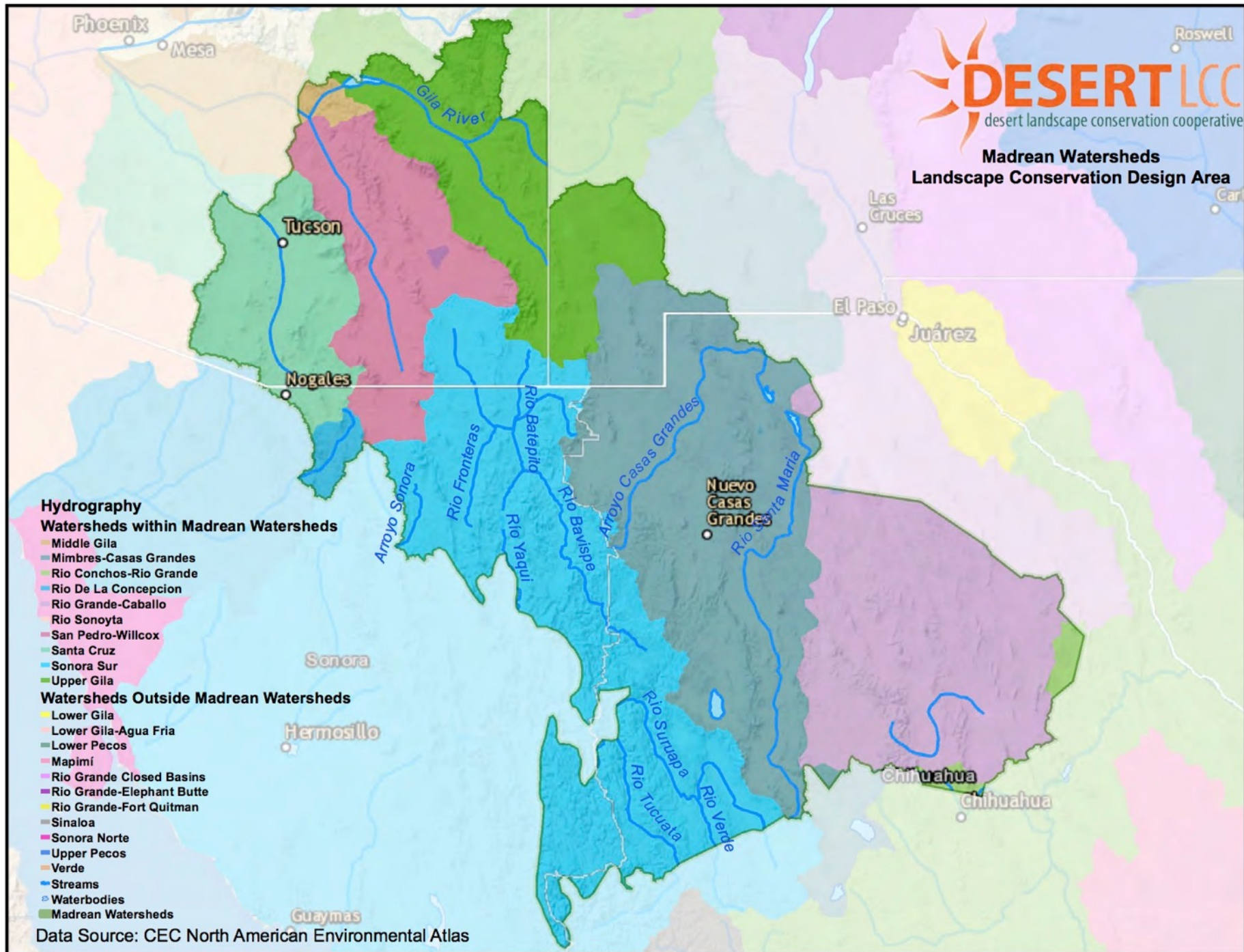
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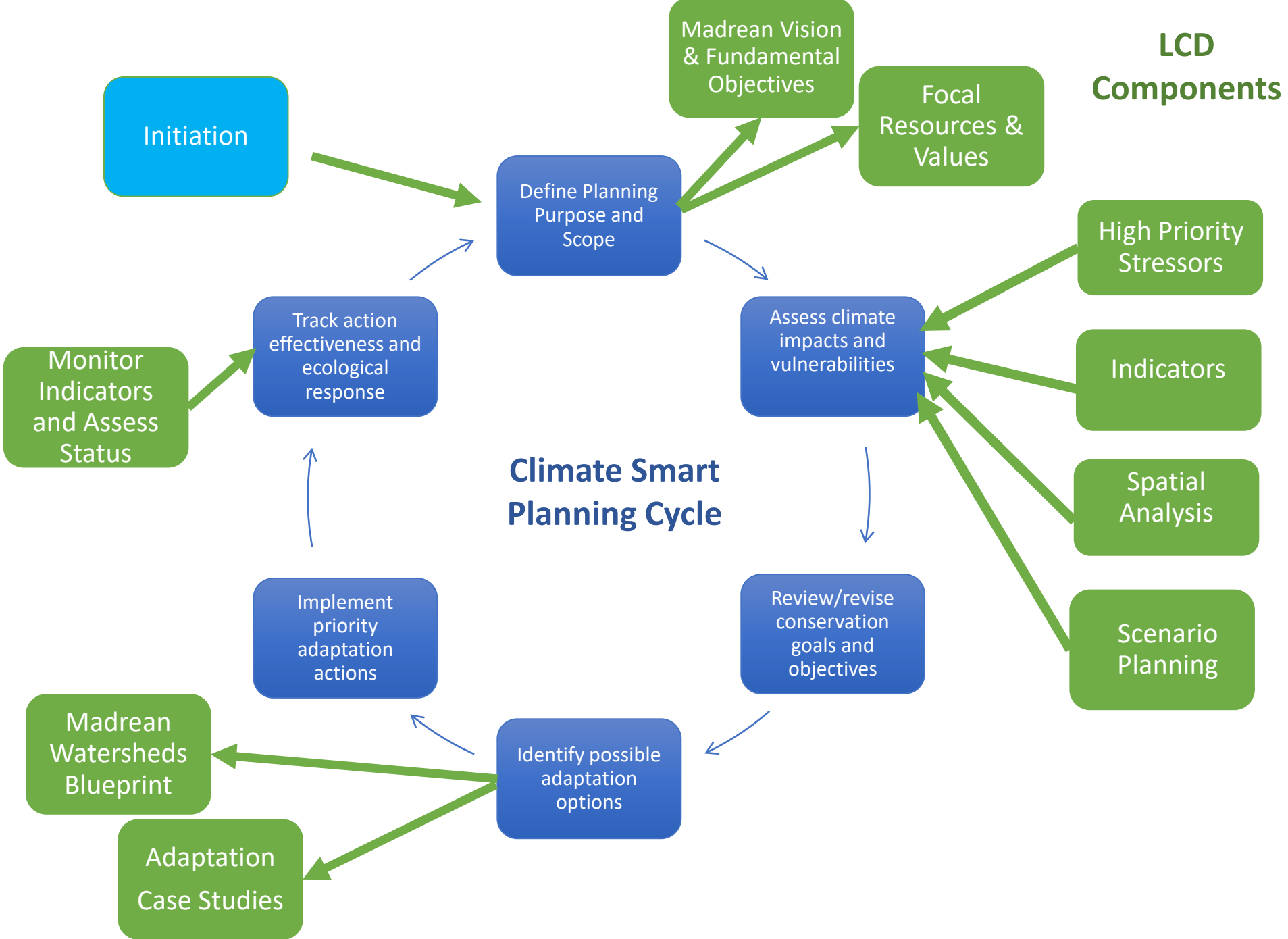
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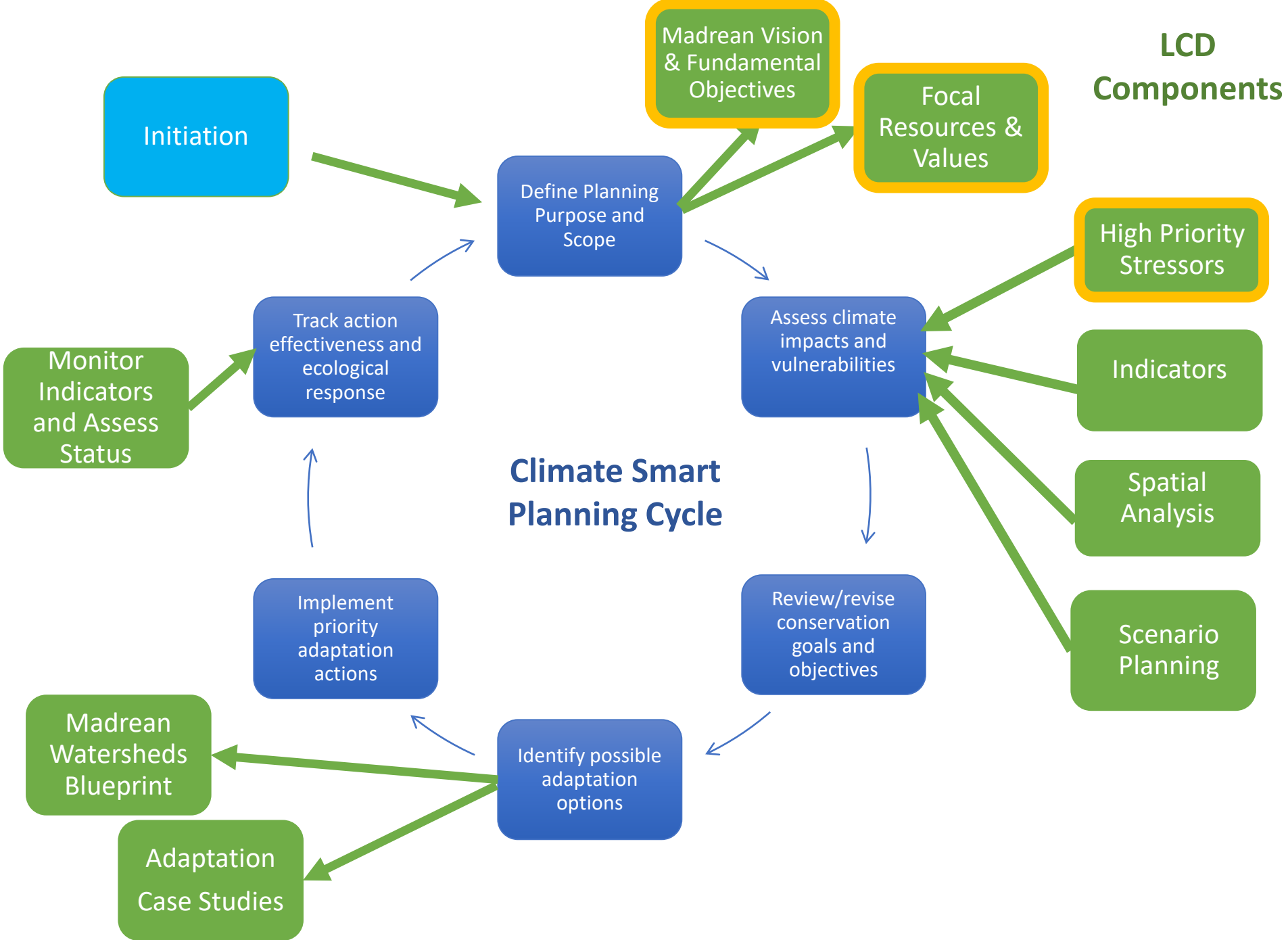




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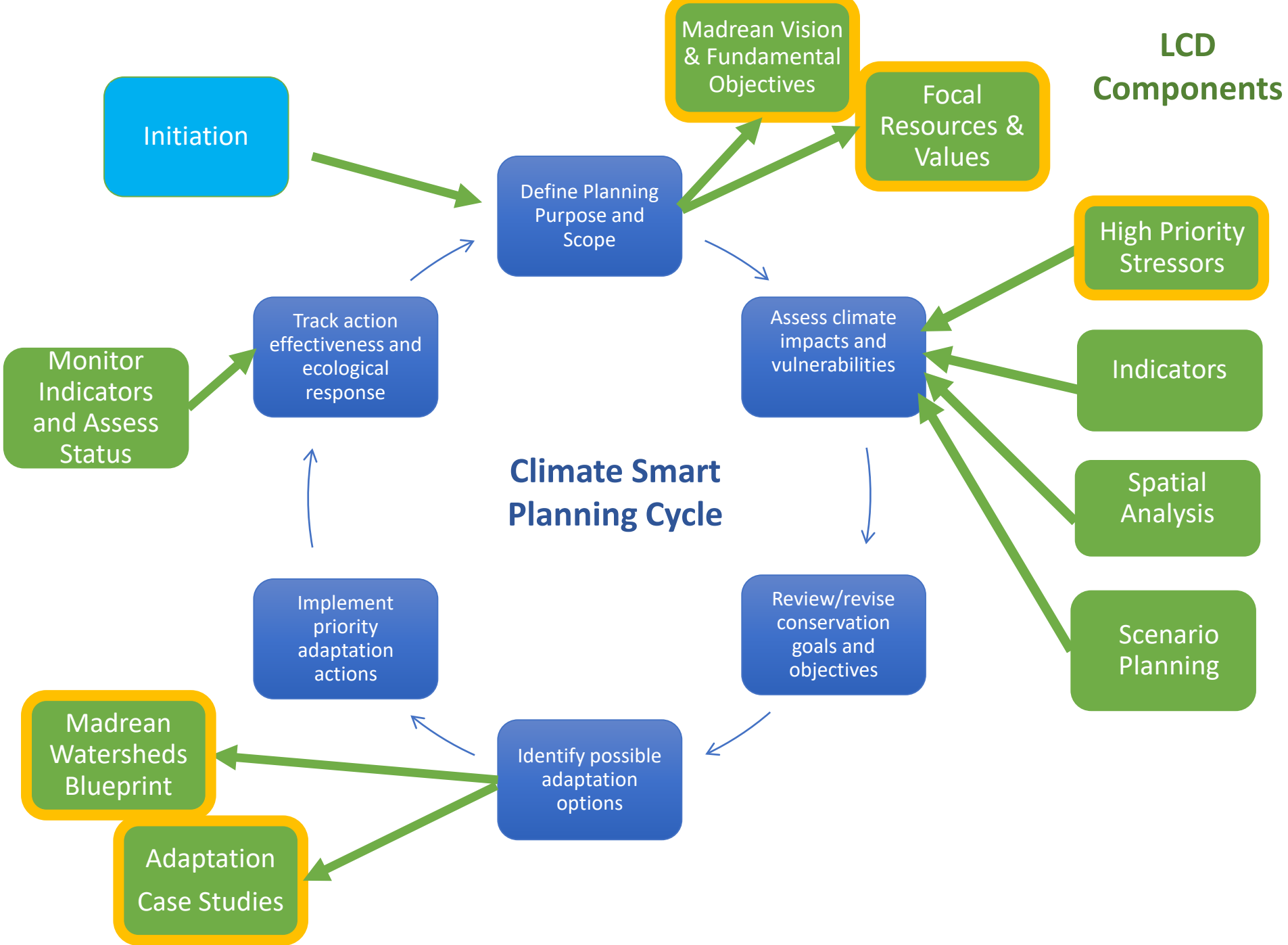


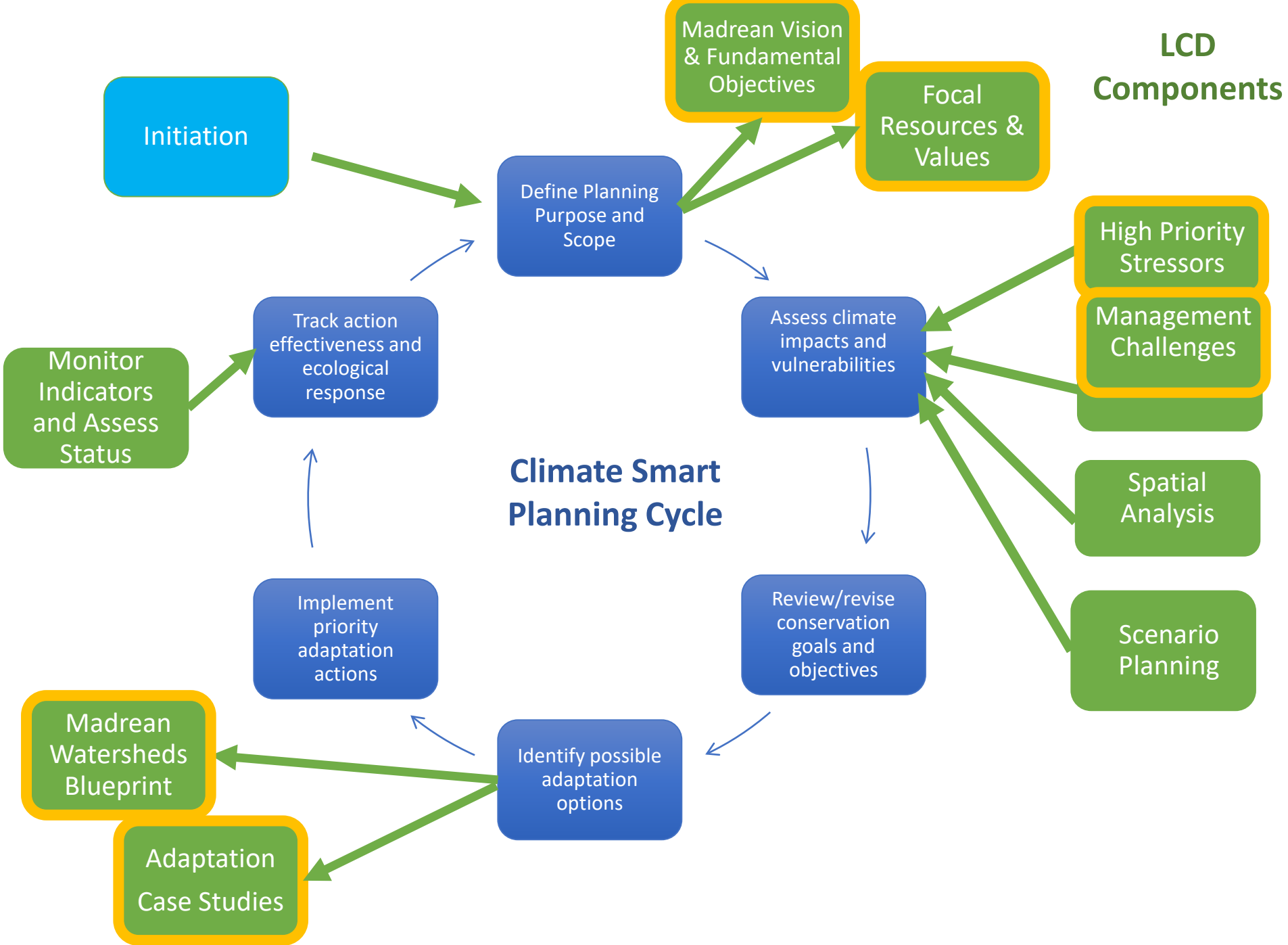
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Current Product

- A catalog of adaptation actions linked to relevant case studies from CCAST (Collaborative Conservation Adaptation Strategy Toolbox)
- Based on partner input from the last 4 years
- Spreadsheet / Google sheet format

[illegible]

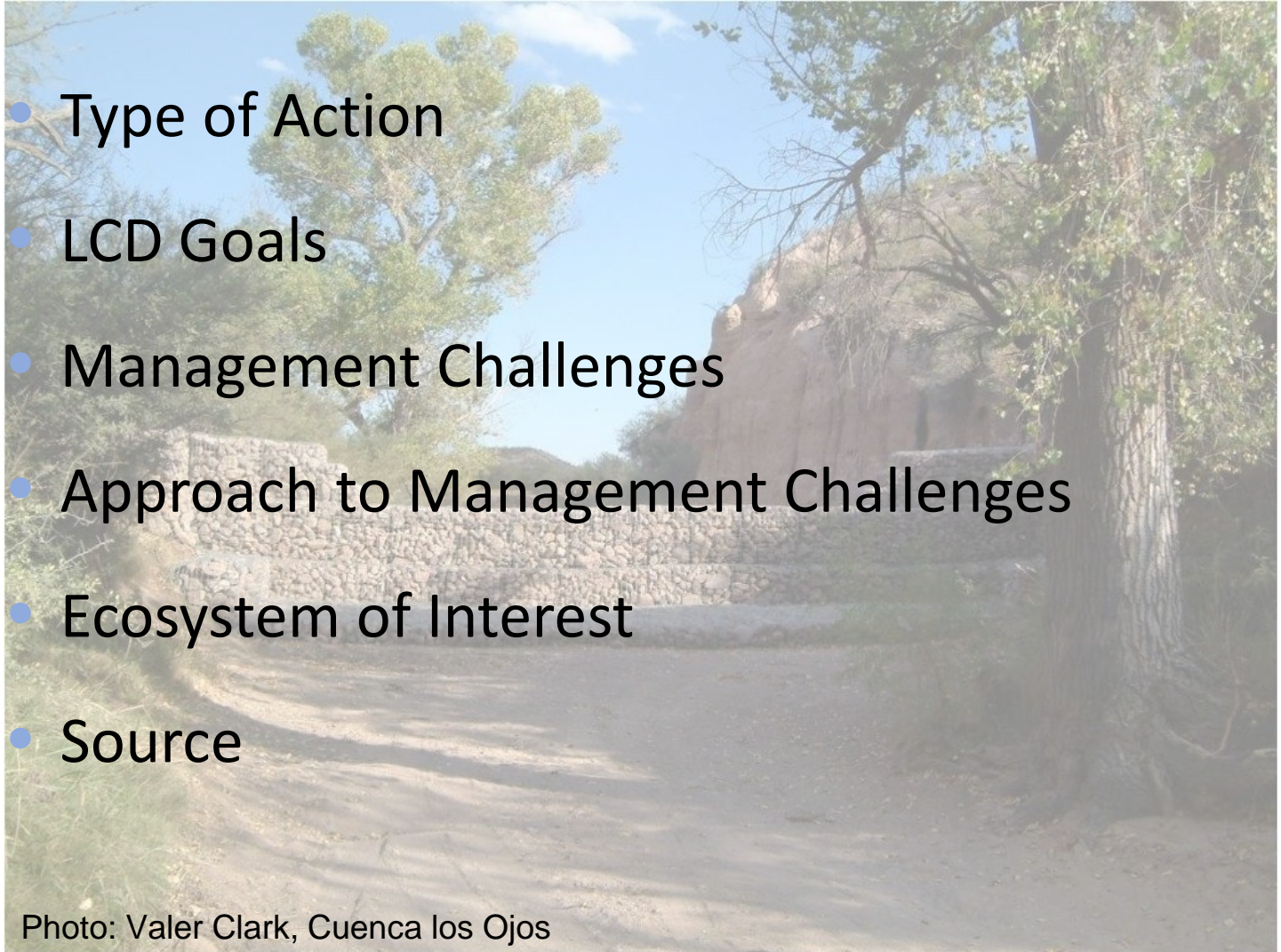
Where Did The Actions Come From?

- Climate Smart Landscape Conservation Planning and Design Workshop Summary
 - August 2015
- Madrean Watersheds Conservation Design Workshop
 - September 2016
- Madrean Watersheds LCD Indicators Workshop
 - November 2017
- Madrean Conference – LCD Session
 - May 2018
- Coordinating Team Meeting Notes
 - Ongoing

Adaptation Actions are Categorized By:

- Type of Action
- LCD Goals
- Management Challenges
- Approach to Management Challenges
- Ecosystem of Interest
- Source

Photo: Valer Clark, Cuenca los Ojos



Categories: Type of Action and LCD Goals

Type of Action

Management strategy ~ 200

Monitoring need ~ 25

Research need ~ 200

Total ~ 425

LCD Goals

Biodiversity

Connectivity

Socio-ecology/economics



Photo: Caleb Weaver, Borderlands Earth Care Youth Institute

Category: Management Challenges

Altered fire regimes
Altered streamflow
Altered springflow
Decreasing water availability
Groundwater pumping
Temperature extremes
Invasive species
Habitat loss and fragmentation
Grazing pressures
Erosion and altered geomorphology
Worsening water quality
Uncoupling of phenological relationships
Changes in community composition
Coordination, collaboration, and communication
Impacts on culture, wellbeing, and livelihoods



Photo: Dan Quintana, BLM



Category: Approaches to Management Challenges

Analysis

Data

Collaboration

Communication

Conservation

Policy

Protection

Restoration



Photo: Carianne Campbell, Sky Island Alliance

Category: Ecosystem of Interest

General or cross-cutting

Farms

Ranches

Springs

Streams

Riparian

Desertscrub

Grassland

Madrean woodlands

Montane forests



Photo: WR Radke, FWS

Category: Source

LCPD_Workshop_Summary.docx (August 4-6, 2015)
Madrean 2016 Notes - Day 2 - Strategies.docx
High Priority Management Questions - Madrean Workshop 2016 Participants (1).xlsx
Madrean Conference - LCD Connectivity Session (5.17.18)
Madrean Conference - Connectivity Session Notes
MadCon-LCD Moving forward afternoon discussion (5.17.18)
Madrean LCD Scenario Planning Meeting (3.2.18)
DLCCMadreanWatersheds-2016WorkshopReportFINAL.pdf
Madrean CT Agendas and Notes.docx
Madrean LCD Indicators Workshop- Nov 2017 - Draft Notes
September 2016 Workshop Action Items Summary
Madrean 2016 Notes - Day 1 - Goals and Fundamental Objectives.docx
Madrean 2016 Notes - Day 1 - Additional Focal Resources .docx

In Addition to Categorization:

- Actions are linked to case studies that show how others have carried out similar actions
 - Within and outside Madrean LCD geography
- Source document is provided
 - Title, name of file, link
- Actions for which potential partners were identified in the source document are flagged

Examples: Management Strategies/Actions

- Conduct workshops on water harvesting for recharge in upper watersheds.
- Create a framework to implement large, landscape-scale fires.
- Create or restore bird habitat in urban areas.
- Match willing landowners in strategic locations for recharge and slowing run-off with mitigation funds as they become available.

Acknowledgement of Case Study Authors

Ashlee Simpson, NAU (formerly UA)

Deanna Morrell, BOR

Matt Grabau, FWS

Amanda Webb, SIA (formerly UA)

Andrea Lopez, UNM

Briana Becerra, UNM

Rae Robinson, XWN

Philip Boyd, Sul Ross University



Tour of the Catalog

<https://docs.google.com/spreadsheets/d/1mc31H2ThyQ0UEtKM1LPhtXm0yx-MswHY9kNOomlPaec/edit?usp=sharing>

Options for Further Development

- **No change**
 - Perhaps this is sufficient for your use or you think you won't use it much
- PDF Tables
- Filter views in Google Drive
- Use an app to create an interactive viewer

Options for Further Development

- No change
- **PDF Tables**
 - Not automatically updated or interactive
 - Greatly reduces the amount of content which may improve readability
 - Straight forward
- Filter views in Google sheets
- Use an app to create an interactive viewer

A Series of PDF Tables Focused on Topics

[illegible]

Options for Further Development

- No change
- PDF Tables
- **Filter views in Google sheets**
 - Automatically updates when edits made to sheet
 - Can be use to share more information than PDF tables but less than the full Google sheet
 - Not interactive but the underlying Google sheet is ([example](#))
- Use an app to create an interactive viewer

Options for Further Development

- No change
- PDF Tables
- Filter views in Google sheets
- **Use an app to create an interactive viewer**
 - Could be updated automatically
 - Filter specific information out from a larger body of information
 - Example using Awesome Table:
 - <https://awesome-table.com/-Lh2FoE8T3rCXehIx0nJ/view>

Back to Matt

Next Steps

Work with partners to determine how LCD products can be most effectively presented/utilized

- Inform how conservation actions should be prioritized



Next Steps

Determine how we best work together to achieve the Transboundary Madrean Conservation vision

- Where to next without the Desert Landscape Conservation Collaborative?



Next Steps

Place-based work in specific watersheds helps ensure the LCD is grounded in issues and priorities on the ground.

a) The Lower San Pedro watershed (AZ)

b) Tucson Basin / Santa Cruz River Watershed (AZ)



Putting the LCD into Action

Implementation and Monitoring

- Identify opportunities for partners to implement management strategies across the landscape
- Use the established spatial analysis and indicator framework to monitor conditions over time
- Revisit the state of the Madrean/indicator status at regional events like the Madrean Conference

SAVE THE DATE: Upcoming Event

Workshop: Tuesday **June 25**, 8:30 – 5:00 PM, Tucson

- Share new data and tools for and gather feedback on them
- Share tools and build capacity to make decisions together as a collaborative
- Explore what we as a collaborative group can do together to advance landscape conservation in the Madrean Watersheds
- Determine how we are going to make needed decisions as a collaborative group over time

Thank you!.....Questions?

Matt Grabau
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matthew_grabau@fws.gov

Amanda Webb
Sky Island Alliance
adwebb@email.arizona.edu



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From Planning to Action

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