



# Applying the Society for Ecological Restoration's Ecological Recovery Wheel to the MRG

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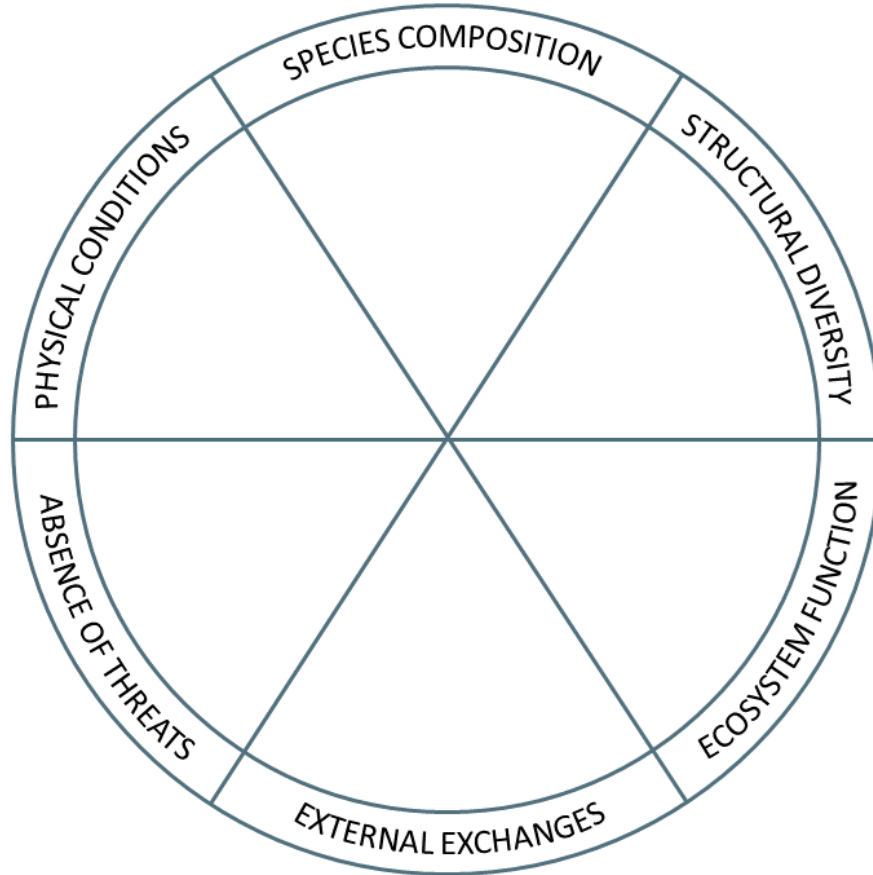


# Background

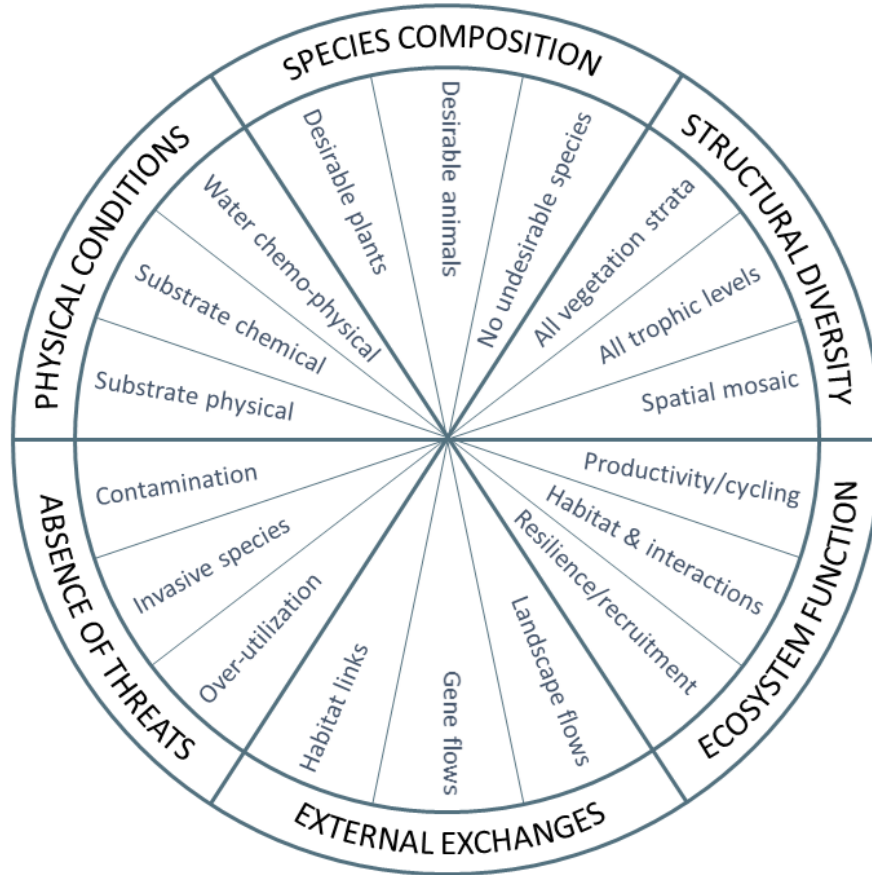
- Habitat Restoration Workshop, August 2021: Need for a better approach to define restoration success in the MRG
- SAMC Meeting, February 2023: Society for Ecological Restoration (SER) Ecological Recovery Wheel is an appropriate and useful tool to assess restoration success at the **ecosystem level** in the MRG



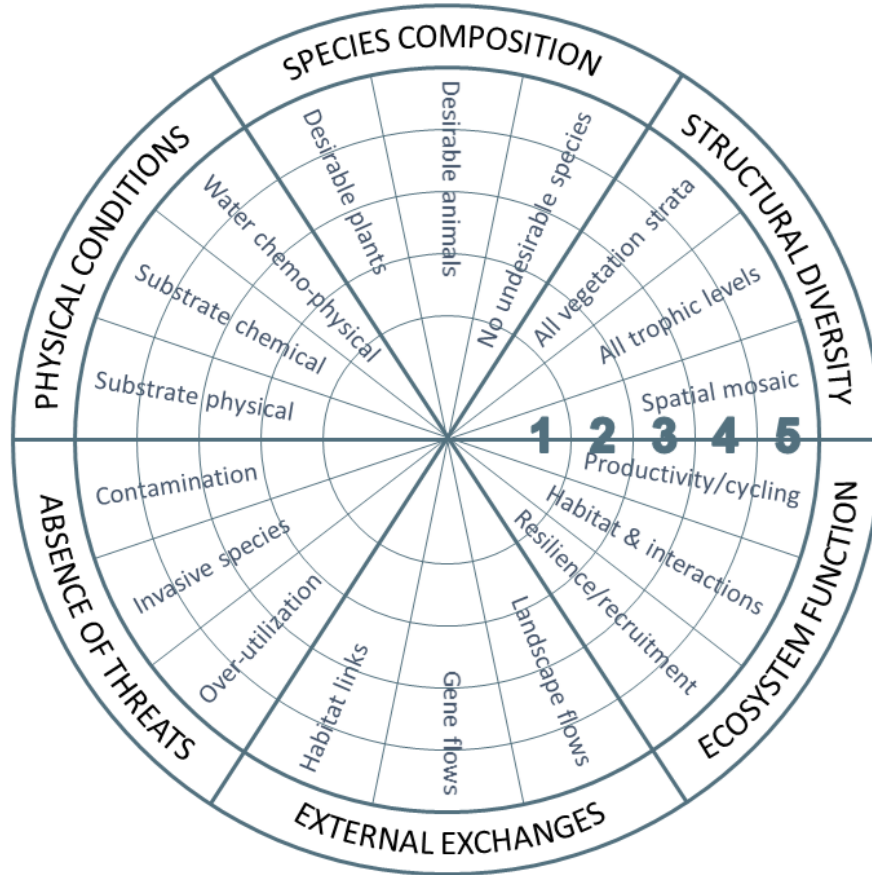
# SER Recovery Wheel: Attributes



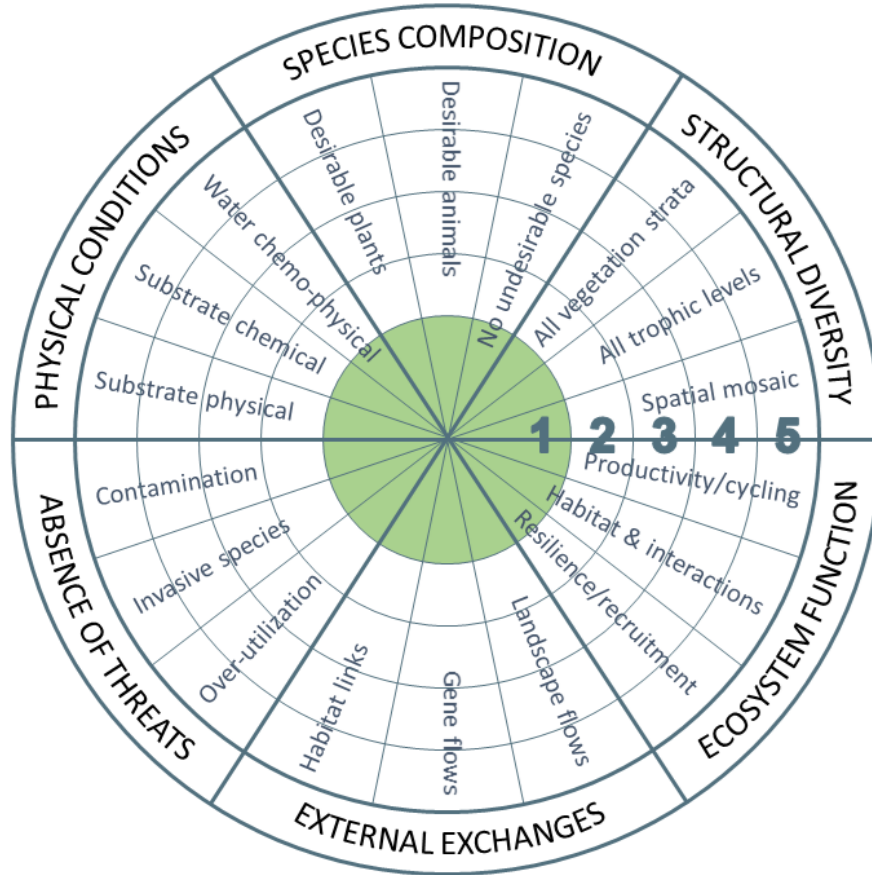
# SER Recovery Wheel: Sub-Attributes



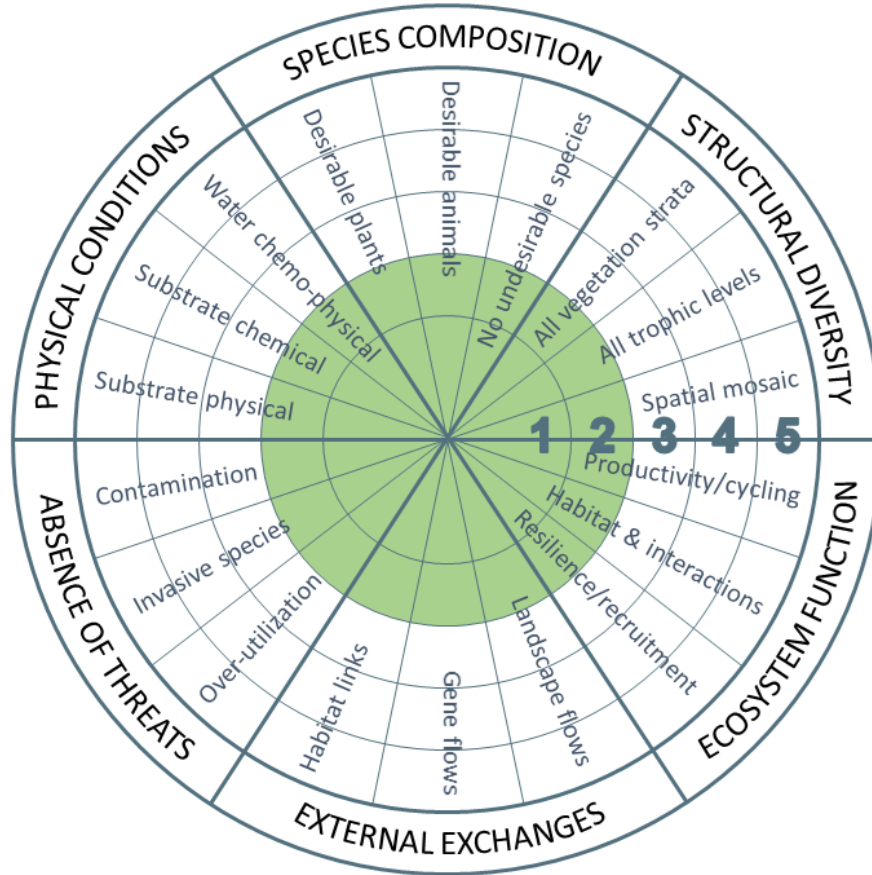
# SER Recovery Wheel: Levels



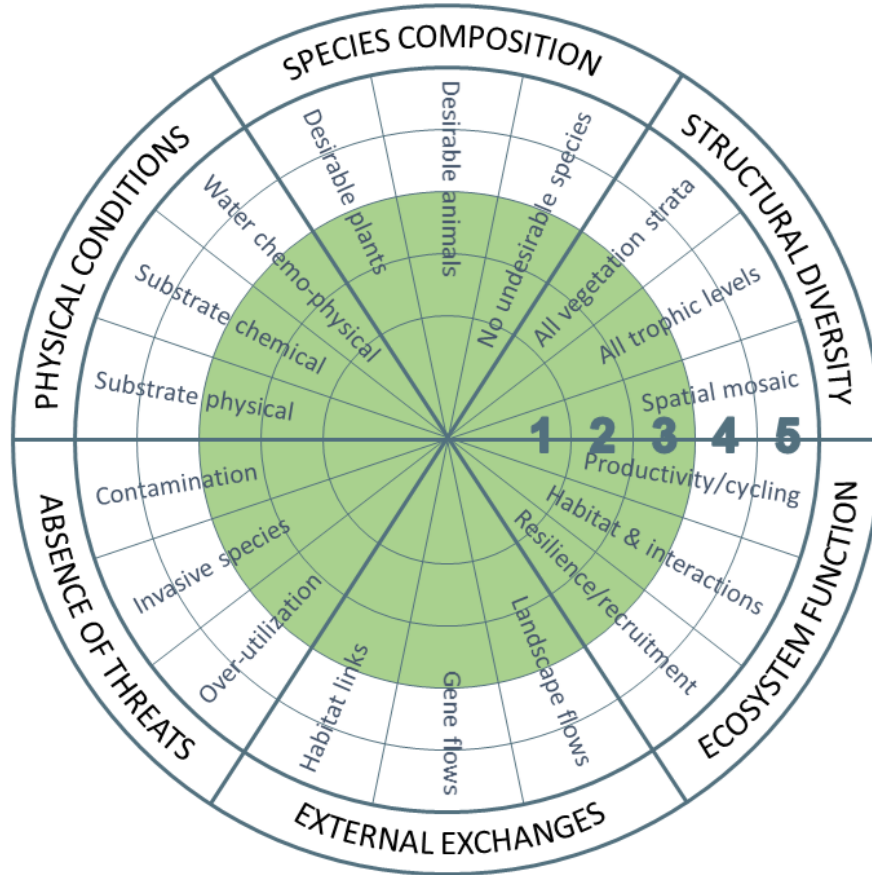
# SER Recovery Wheel: Levels



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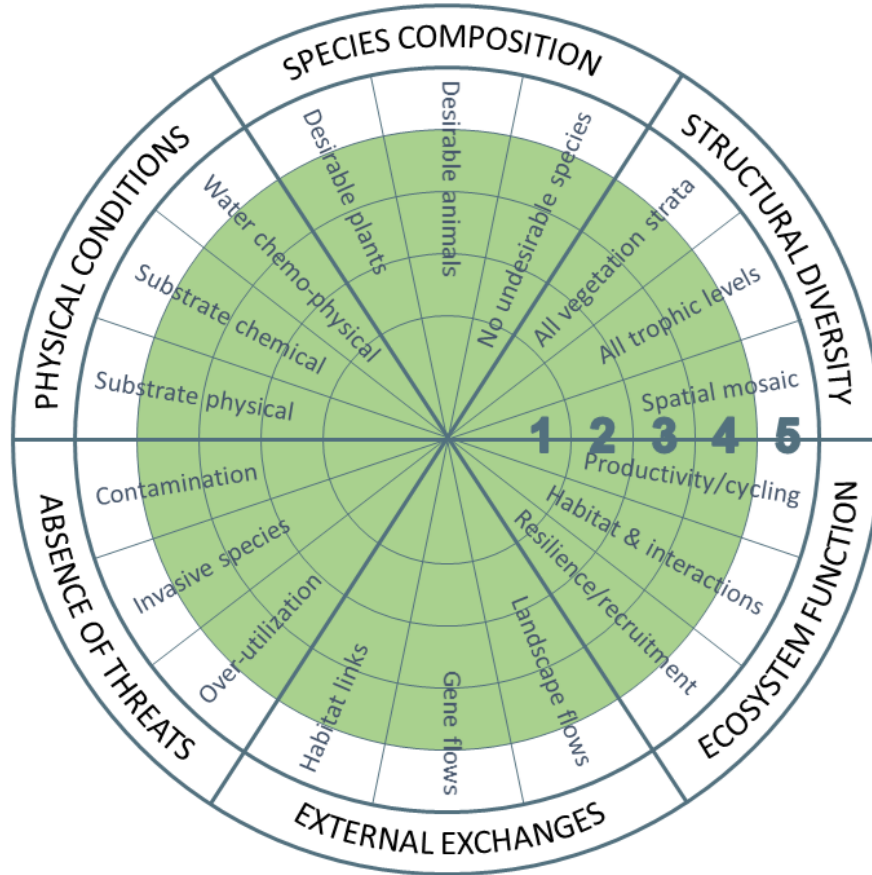


# SER Recovery Wheel: Levels



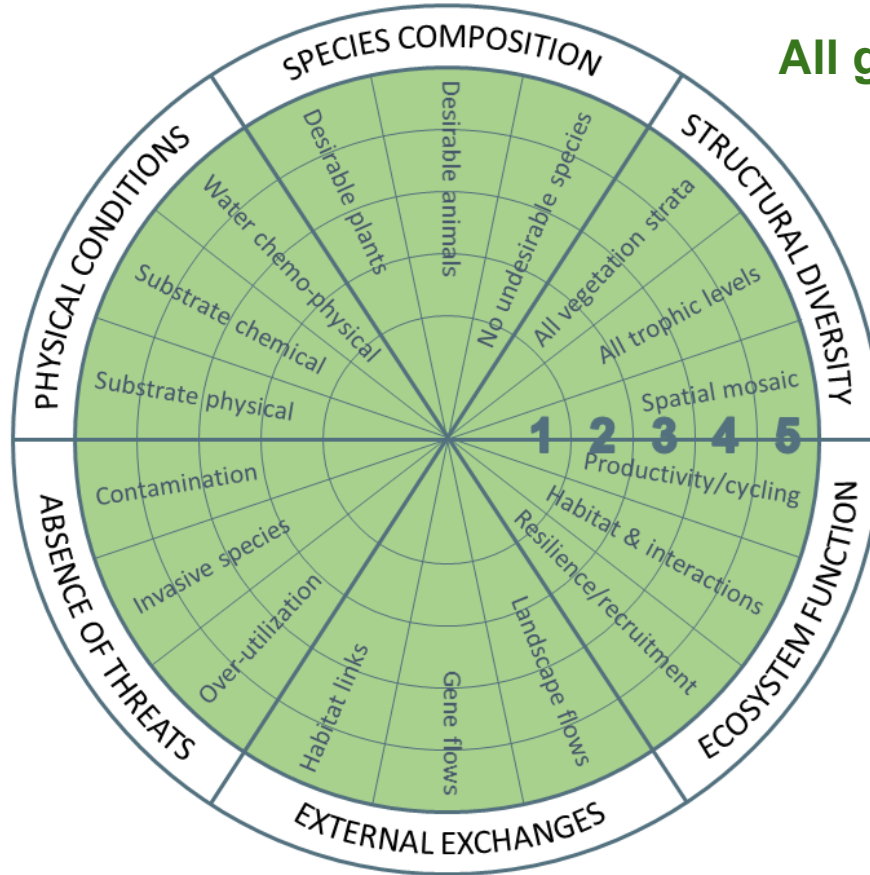


# SER Recovery Wheel: Levels

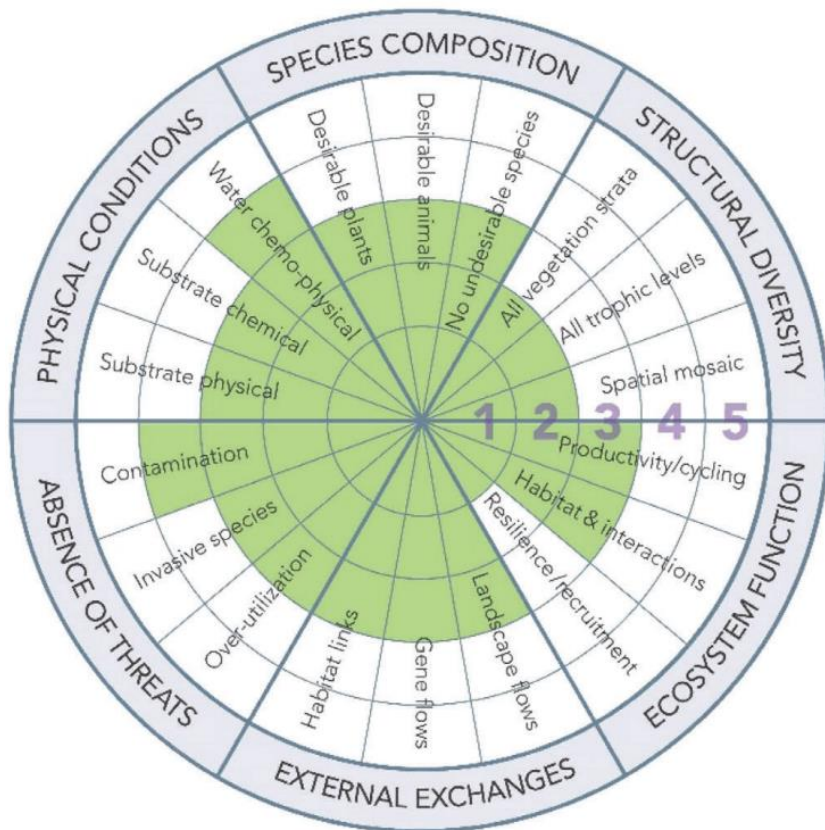


# SER Recovery Wheel: Levels

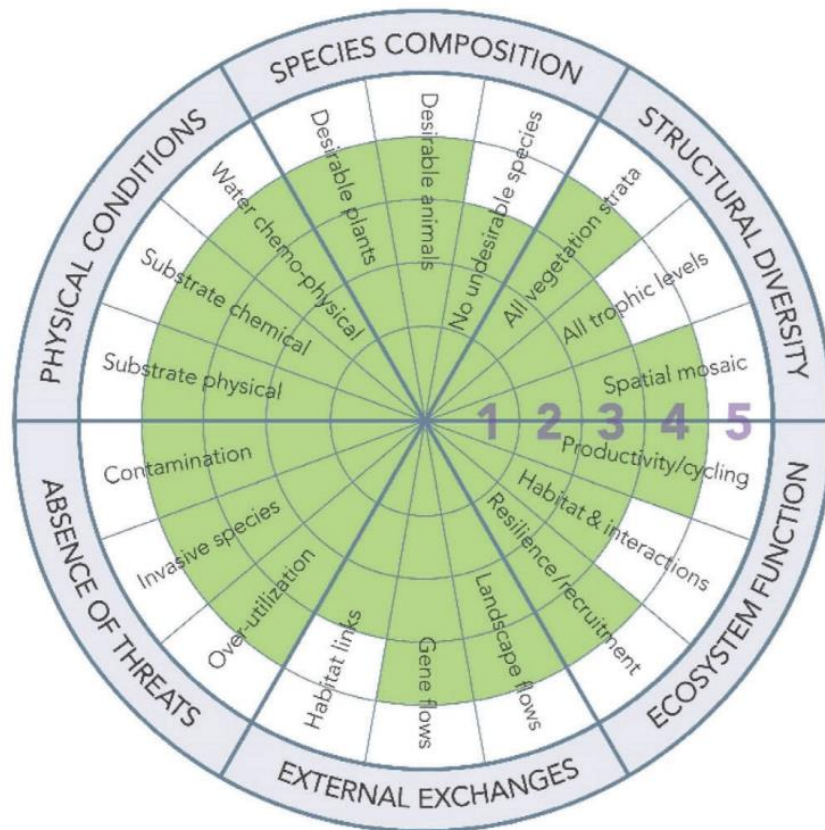
**All green = Full recovery!**



# SER Recovery Wheel



Baseline condition pre-restoration

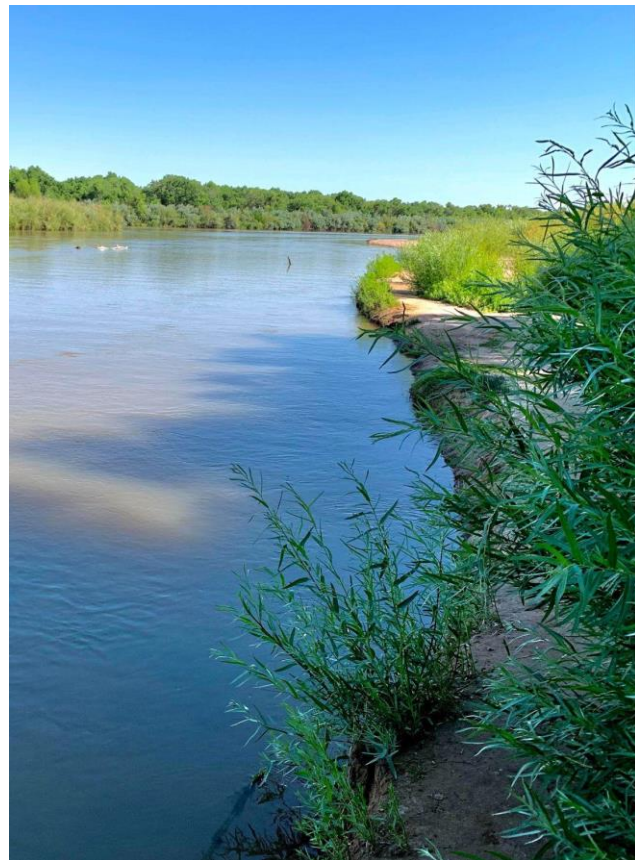


10-years post-treatment

# Relevance to Collaborative Program

## Ties in with what the program is already doing!

- Requires adaptive management
- Engages a variety of interested parties
- Priority areas are extinction risk reduction, single-species recovery programs
- Requires expert opinions
- Ties in with climate futures planning
- Ties in with habitat-level restoration

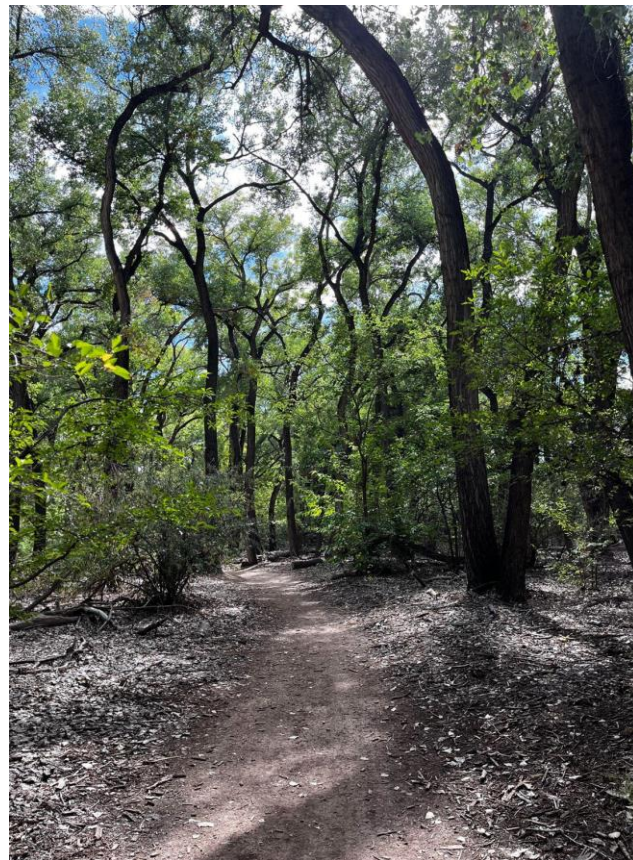




# Relevance to Collaborative Program

## Can help strengthen restoration efforts within the program

- Actively incorporates ecosystem approach
- Provides a tool for long-term monitoring to evaluate restoration progress
- Provides guidance for ongoing maintenance to prevent site regression
- Provides guidance for considering social goals during restoration





# Flatlick Stream Case Study: Ecosystem-Level Restoration



# Flatlick Stream Case Study: Ecosystem-Level Restoration

- Fairfax County VA wanted a tool to “*help evaluate systems, establish goals, direct design and communicate the effect of the restorative actions*”

	Nice to Have	Should Have	Must Have
Simple			X
Visual			X
Adaptable		X	
Science-based/Defensible/Replicable		X	
Holistic/Engineering, Ecology, & Social		X	
Provides more understanding with a deeper dive	X		
Reflects changing priorities from starting point = move beyond stability, improve ecology, do no harm, affect change		X	
Our boss likes it	X	X	X



# Flatlick Stream Case Study: Ecosystem-Level Restoration

- Goal - restore the form and function of the stream by:
  - Connecting floodplain
  - Reducing erosion
  - Planting native vegetation
  - Preserving intact stream segments
- Recovery Wheel customized to this ecosystem to compare pre-restoration and post-restoration conditions



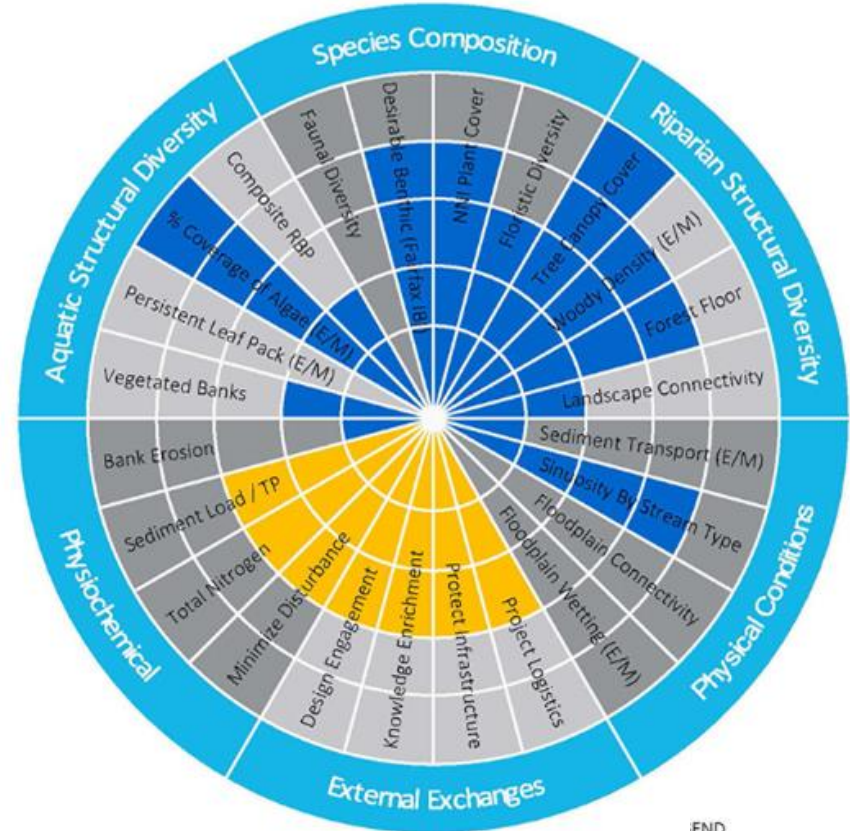
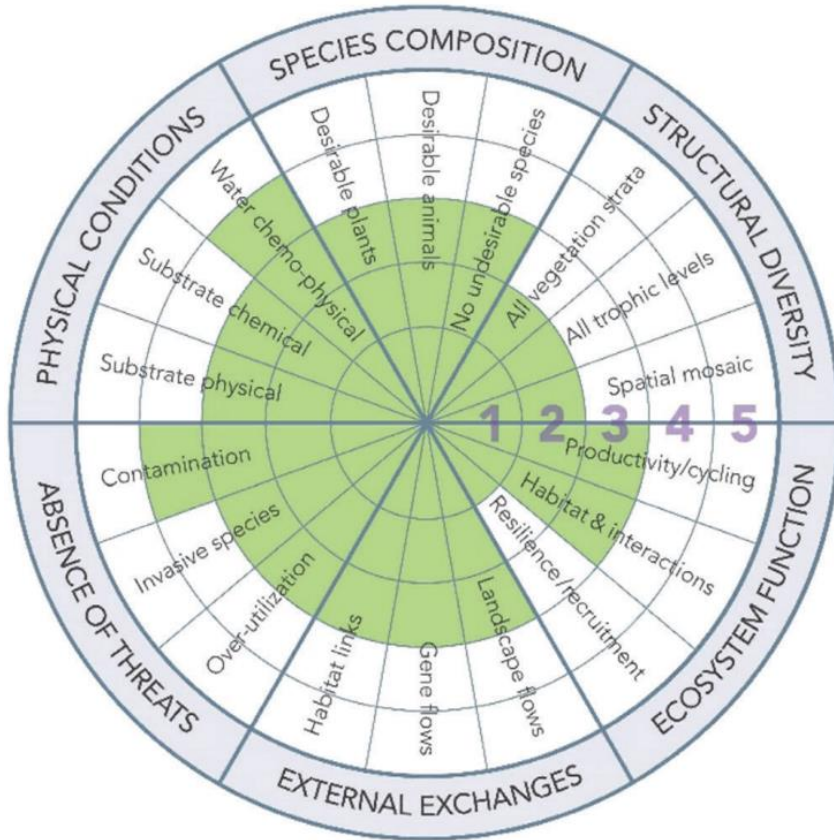


# Flatlick Stream Case Study: Ecosystem-Level Restoration

## THE RECOVERY WHEEL IS APPLIED OVER THE LIFE OF A PROJECT

1. **Pre-assessment:** the project area is surveyed to determine the condition of the resources, identify lower functioning aspects that can be improved, and capture higher functioning components that should be preserved or avoided.
2. **Goal-setting:** The assessment data is used to set restoration goals.
3. **Evaluation:** After restoration is complete, we continue to monitor 24 individual metrics of restoration success to measure the trajectory. Tracking these metrics long-term allows us to learn and improve future projects.

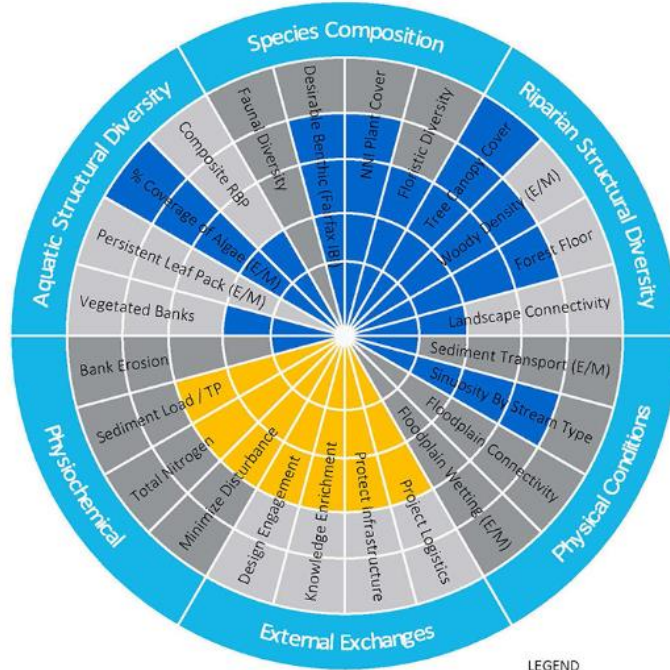
# Flatlick Stream Case Study: Ecosystem-Level Restoration



END

# Flatlick Stream Case Study: Ecosystem-Level Restoration

FLATLICK 2 (PRE)



LEGEND

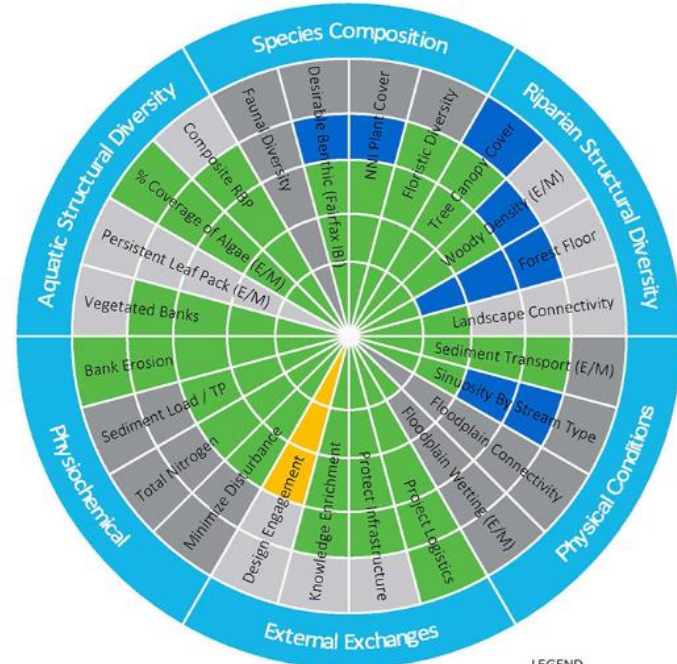
PRE-DESIGN

DESIGN SPECIFICATION

POST-RESTORATION



FLATLICK 2 (POST-3 YEARS)



LEGEND

PRE-DESIGN

DESIGN SPECIFICATION

POST-RESTORATION



# Flatlick Stream Case Study: Ecosystem-Level Restoration

		Levels				
Attribute	Sub-Attribute	1	2	3	4	5
Species Composition	Floristic Diversity	FQI < 11	FQI 11-18.9	FQI 19-21.9	FQI 22-24.9	FQI > 25
	Non-Native Invasive Plant Cover	NNI (total) > 50%	NNI (total) > 35%	NNI (total) > 30%	NNI (total) > 10%	NNI < 10%, HNNI = 0%
Aquatic Structural Diversity	Persistent Leaf Pack	<10% or >80%	10-20% or 70-80%	20-30% or 60-70%	30-40% or 50-60%	50%
Riparian Structural Diversity	Tree Canopy Cover	<40%	40-60%	60-80%	80-90%	90-100%



# Relating habitat-level restoration to ecosystem recovery



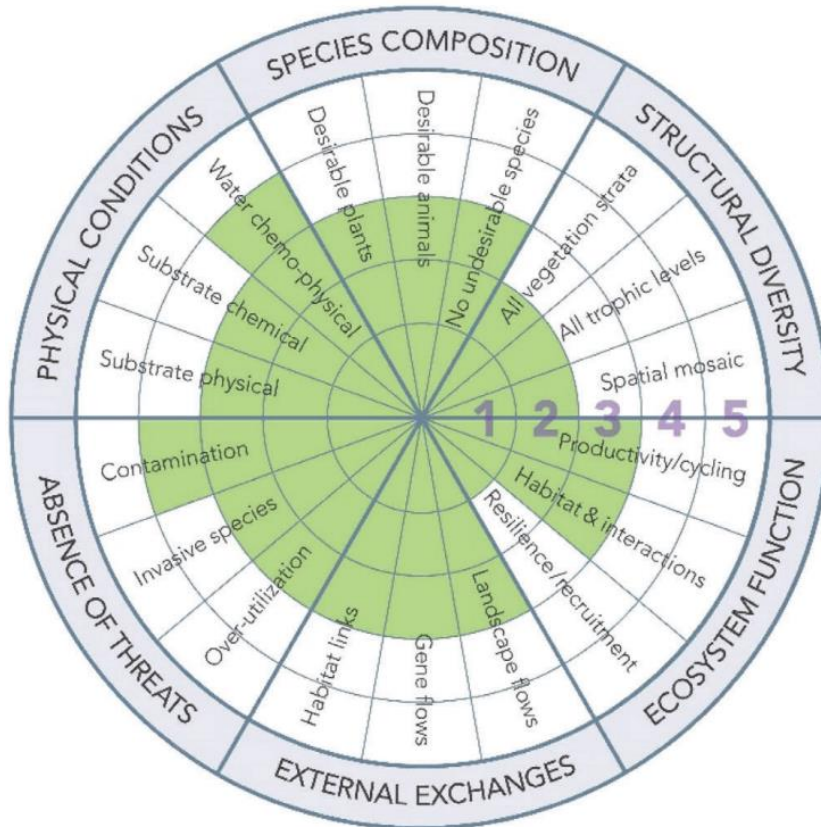
- Recovery wheel can assist in placing habitat-level restoration within the context of ecosystem-scale recovery
- Customizable tool
  - Sub-attributes, and levels can all be adjusted to fit the MRG
  - Habitat-level restoration efforts tie into the wheel through metrics used to assign levels

# Recovery Wheel Customization

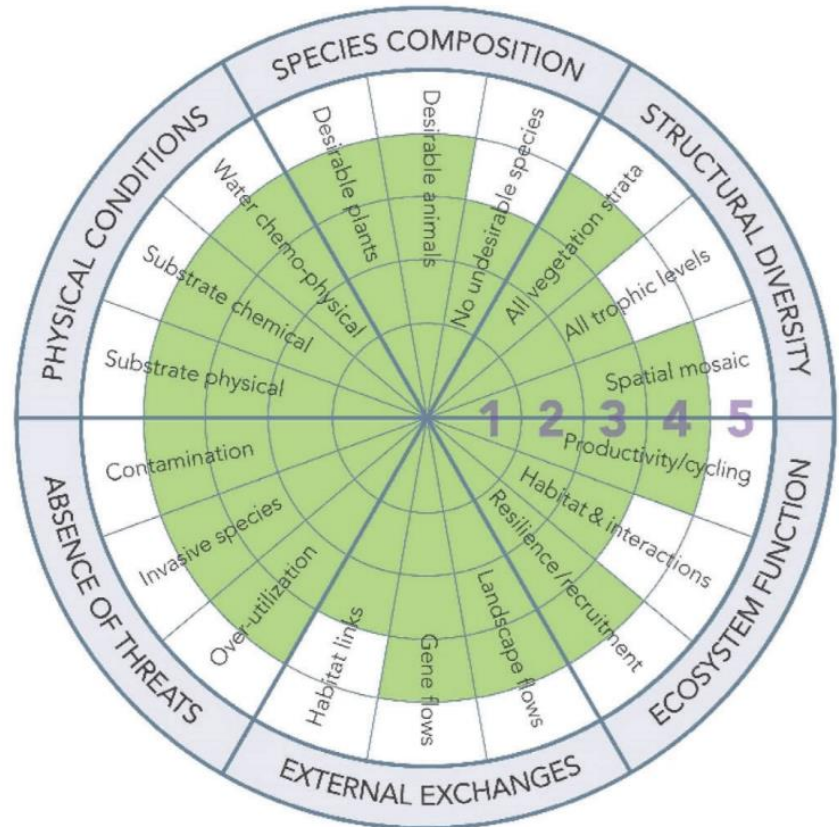


- Recovery Wheel needs to be customized for the MRG
- Ad-hoc group with expert knowledge of the structure and function of the MRG and understanding of restoration and management practices in the MRG can address this task

# A useful tool for the MRG!



Baseline condition pre-restoration



10-years post-treatment

# Next steps

