A Resilience-Based Site Assessment Tool for Ecological Restoration

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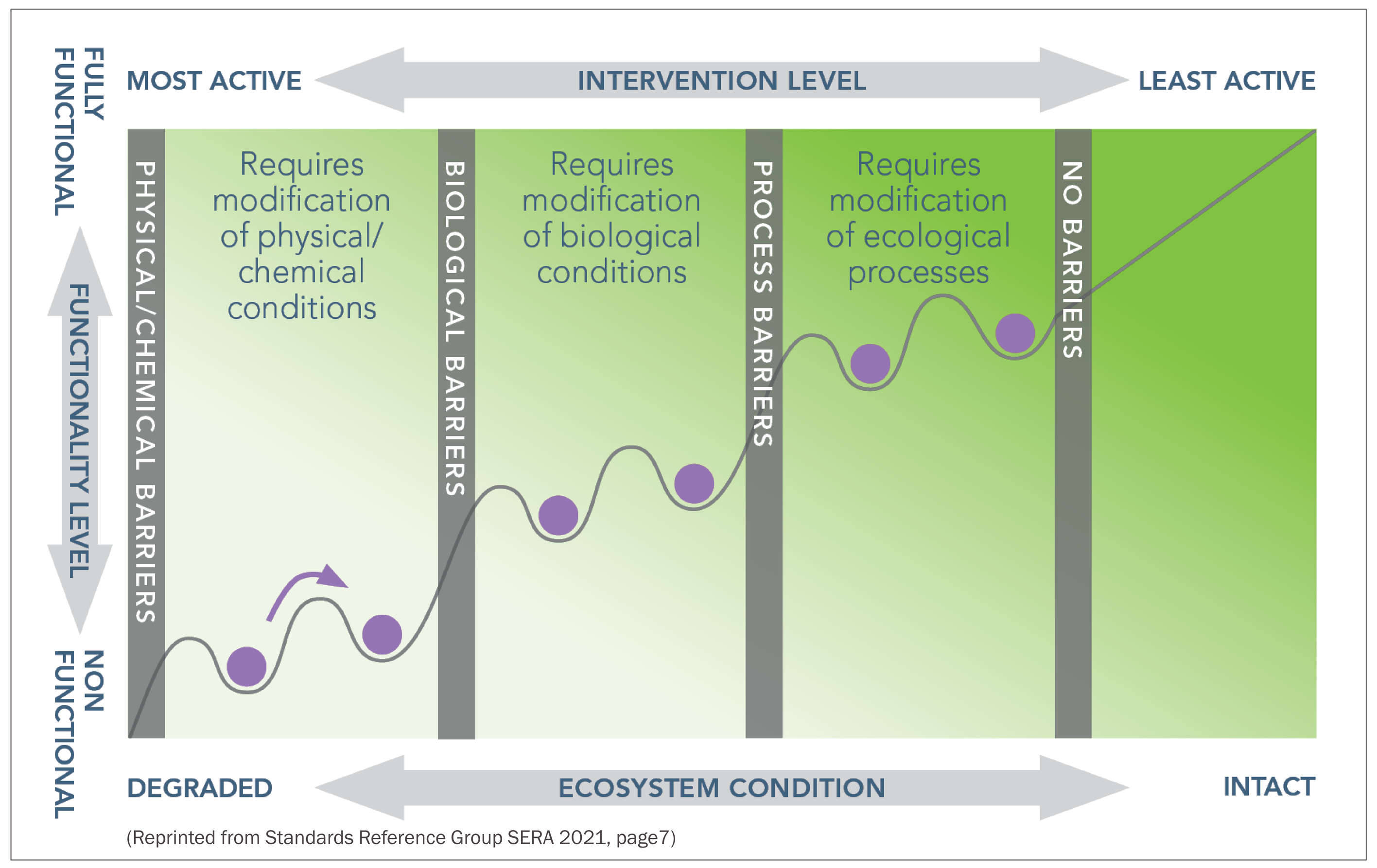
Objectives

1) Create a **site assessment tool** to evaluate site conditions of land acquisitions.
2) Build a process to **predict the level of resources** needed to apply **active or passive restoration methods** to achieve desirable site conditions.

Ecological Resilience

Ecological resilience is "**the capacity of an ecosystem to withstand change or to recover after a disturbance**" (Galatowitsch 2012). Resilience is important, because it helps an ecosystem maintain its functional, natural state, despite stressors or disturbances.



(Reprinted from Standards Reference Group SERA 2021, page7)

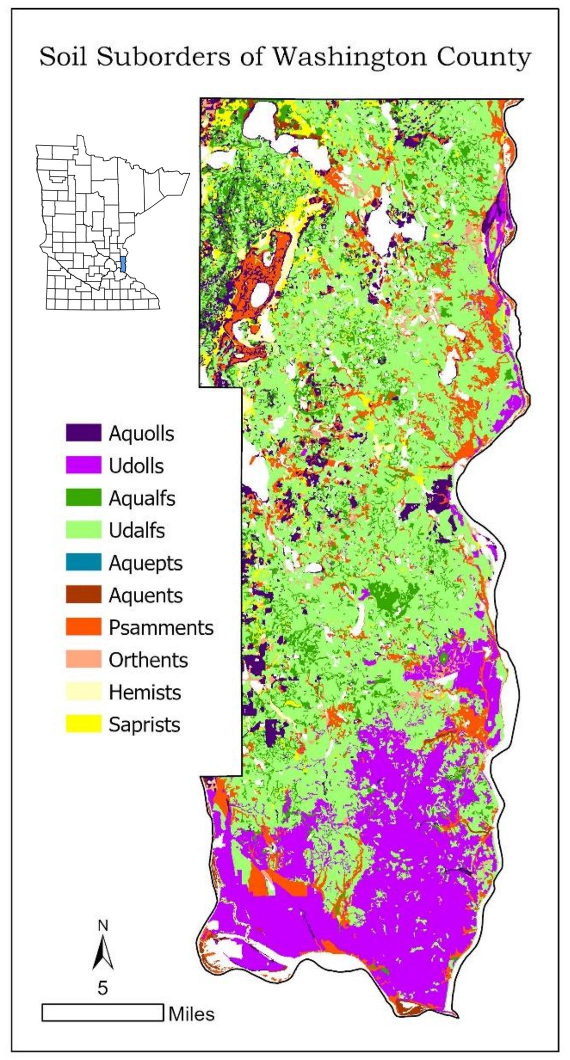
Framework: Passive to Active Restoration

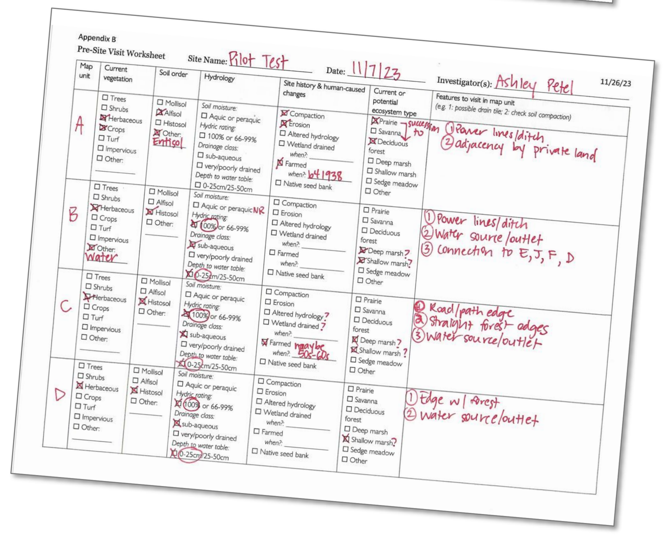
	Natural Restoration	Assisted Restoration	Reconstructive Restoration
Ecosystem resilience	High resilience, low degradation	Moderate resilience, moderate degradation	Low resilience, high degradation
Management activities	End or limit continued degradation		
	Re-establish natural disturbance patterns		
		Biotic/plant community modification	
			Abiotic modification

Deciduous Woodland Resilience Level Example

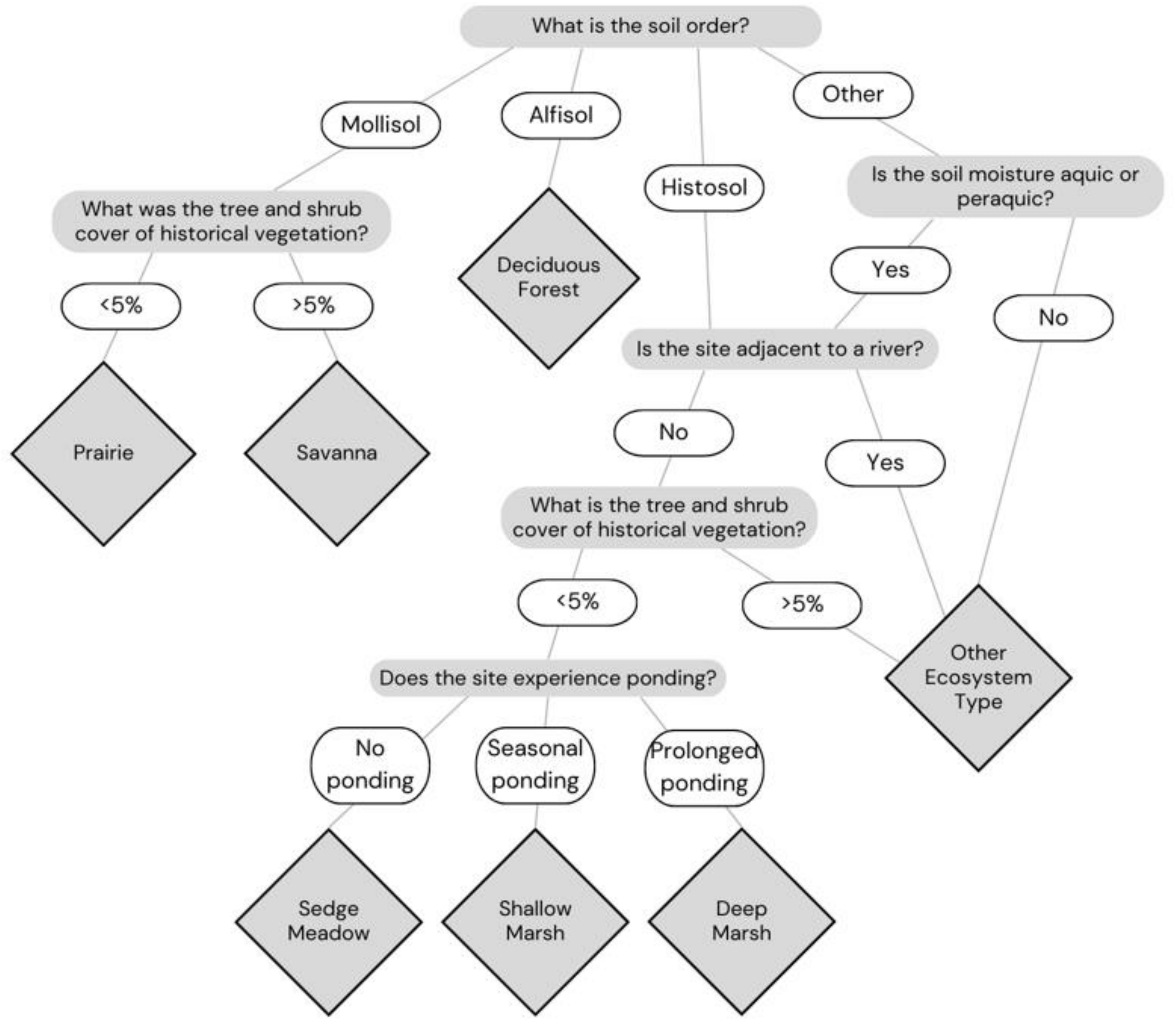
1 Pre-Site Visit Investigation

Goal: Examine the map, aerial images, and history of the site to determine ecosystem type(s) and prepare materials for site visit.



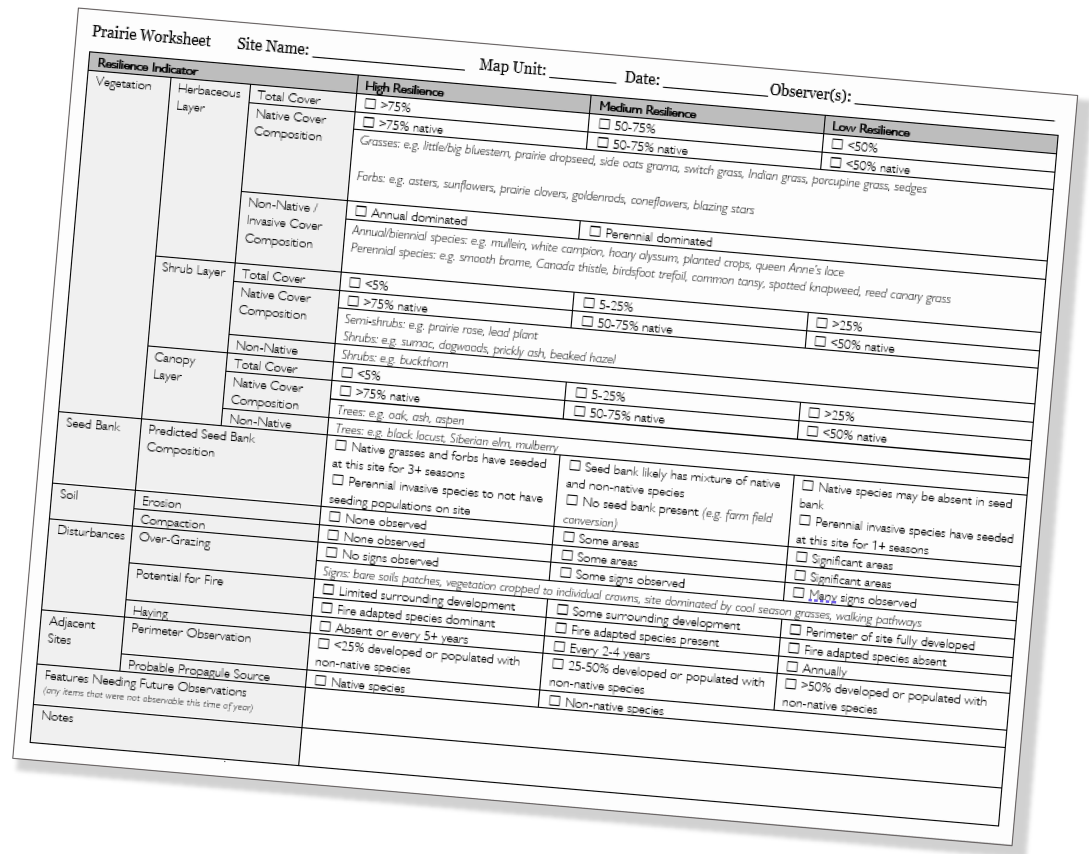


Decision Tree to Determine Potential Ecosystem



2 Site Visit Observations

Goal: Document native and non-native vegetation, confirm soil and hydrology information, visit site features, and record significant factors that may influence ecosystem resilience.



3 Post-Site Visit Summary

Goal: Synthesize information gathered and observed to establish the level of ecosystem resilience and therefore the degree of restoration intervention needed to restore the site.

Summary worksheet & color-coded map

- Green = High resilience = Natural restoration
- Yellow = Medium resilience = Assisted restoration
- Red = Low resilience = Reconstructive restoration

Key Impacts

- Ability to assess site ecological resilience level and predict degree of resources needed to restore the sites
- Standardized approach to organizing and interpreting data and observations
- Universal user approach enables tool to be used by interns and restoration professionals with years of experience

Project Partners: Resilient Communities Project, University of Minnesota; Washington County Minnesota; Metropolitan Council

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References:
Galatowitsch SM. 2012. Ecological Restoration. Sinauer Associates, Sunderland, MA, USA.
Standards Reference Group SERA. 2021. National standards for the practice of ecological restoration in Australia (ed 2.2). Society for Ecological Restoration Australasia.

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