The National Wetland Condition Assessment

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NWCA Objectives:

▶ Produce a national report describing the ecological condition of the Nation's wetlands and stressors commonly associated with poor condition;

▶ Collaborate with states and tribes in developing complementary monitoring tools, analytical approaches, and data management technology to aid wetland protection and restoration; and

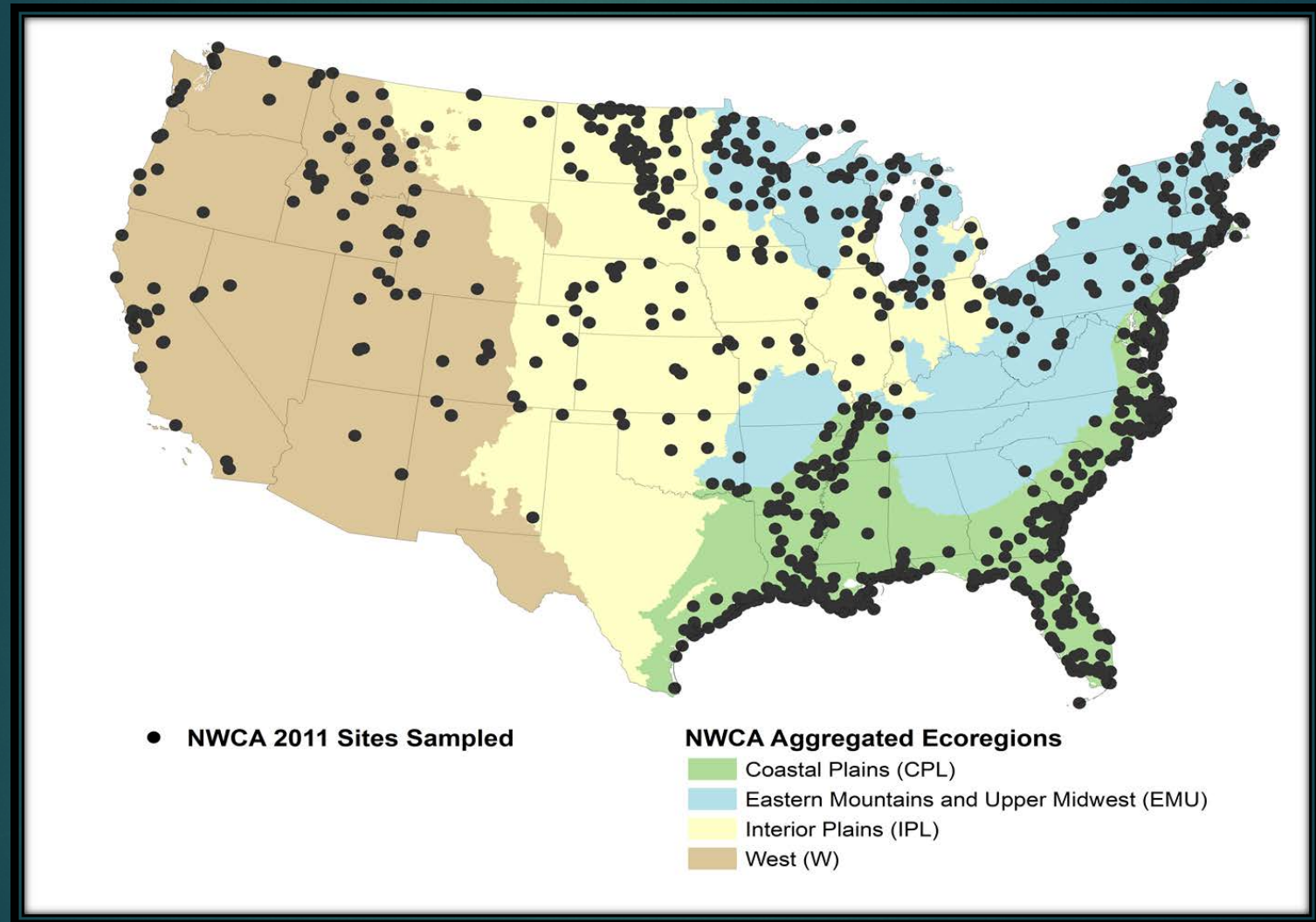▶ Advance the science of wetland monitoring and assessment to support management needs.

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The NWCA sampled:

Tidal and nontidal wetlands of the conterminous U.S., including farmed wetlands not in crop production at the time of sampling
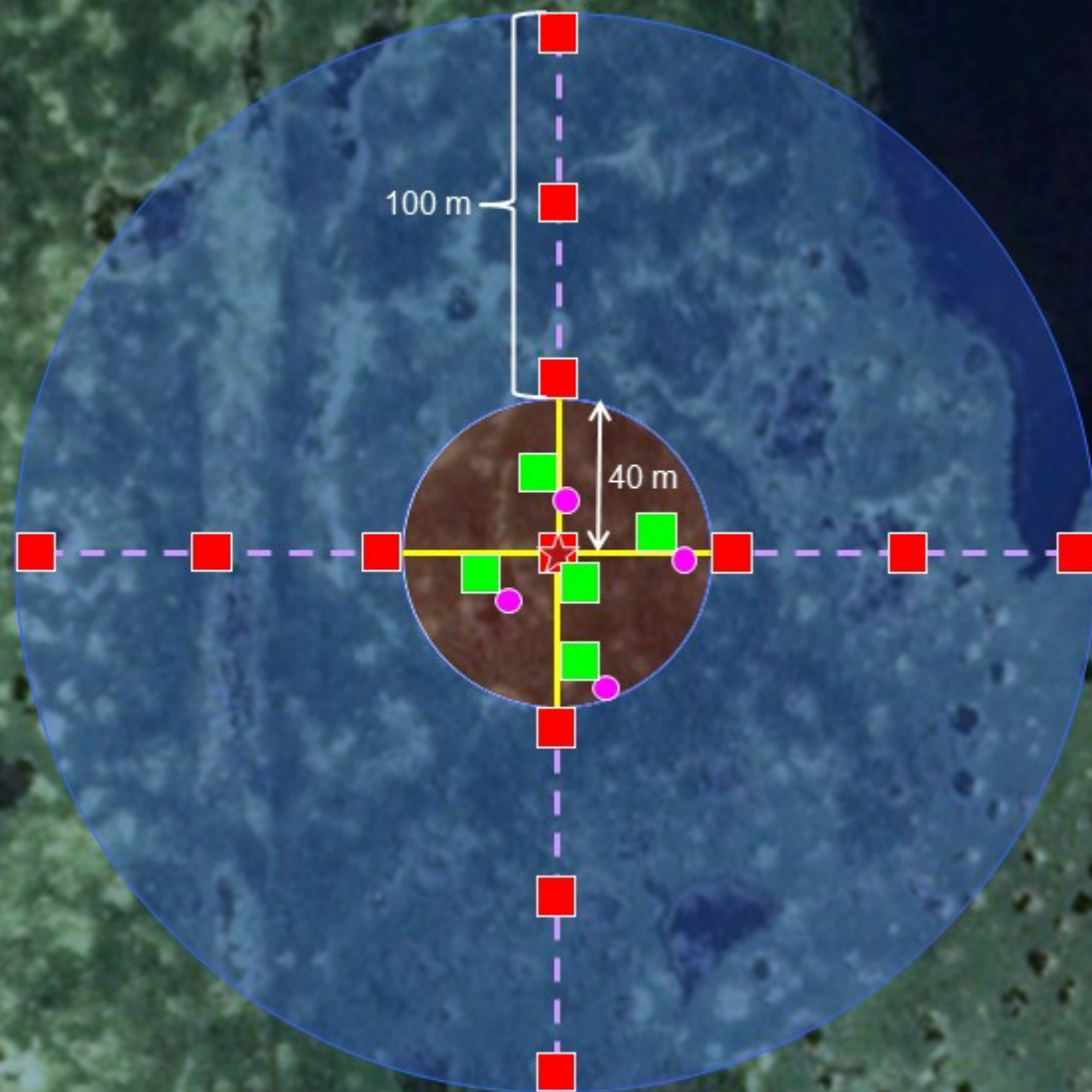
The wetland sites had rooted vegetation and, when present, open water less than 1 meter deep

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Map of sites sampled, NWCA 2011 survey

- **NWCA 2011 Sites Sampled**

NWCA Aggregated Ecoregions
- Coastal Plains (CPL)
- Eastern Mountains and Upper Midwest (EMU)
- Interior Plains (IPL)
- West (W)

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NWCA Standard AA and Buffer

100 m

40 m

Assessment Area

Vegetation Plot

Soil Pit

Buffer Area

Buffer Plot

Categories of Data Collected:

▶ Vegetation

▶ Soils

▶ Hydrology

▶ Water Chemistry

▶ Algae

▶ Stressors in AA and Buffer

▶ Buffer Characterization
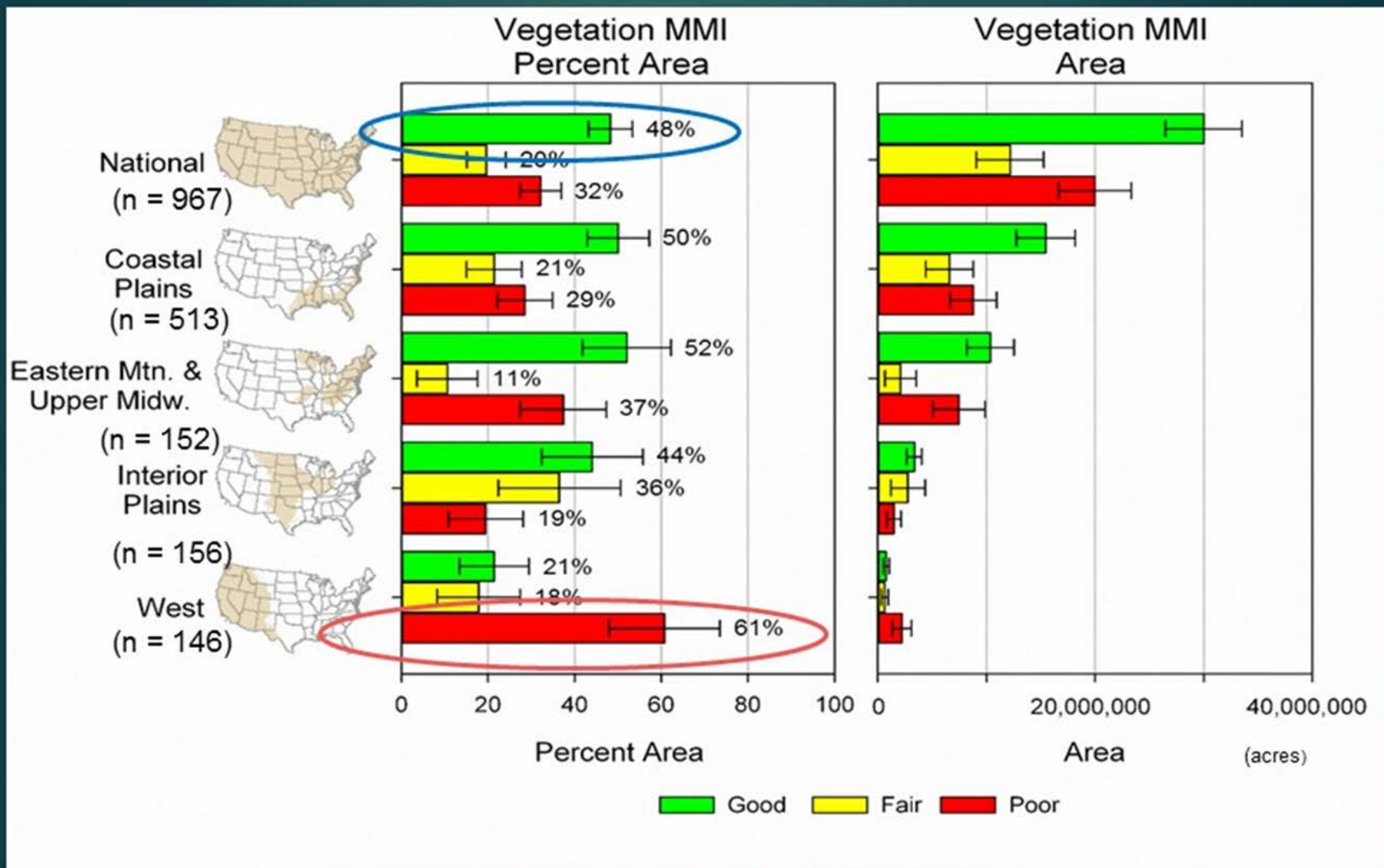
▶ USA-RAM

Presentation Overview

2011 NWCA Results

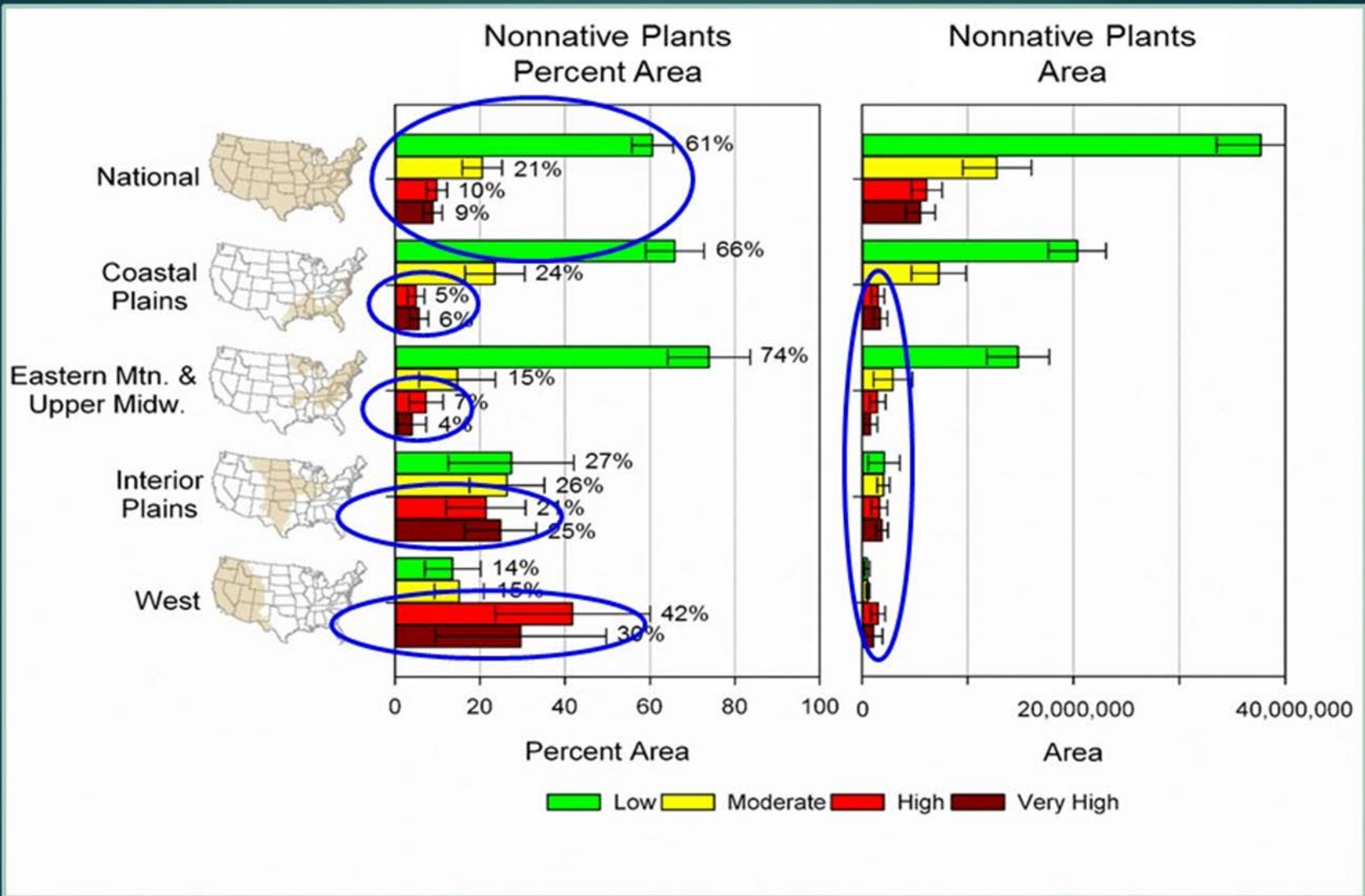Applications to Mitigation Banking and Restoration

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Ecological Condition of Resource

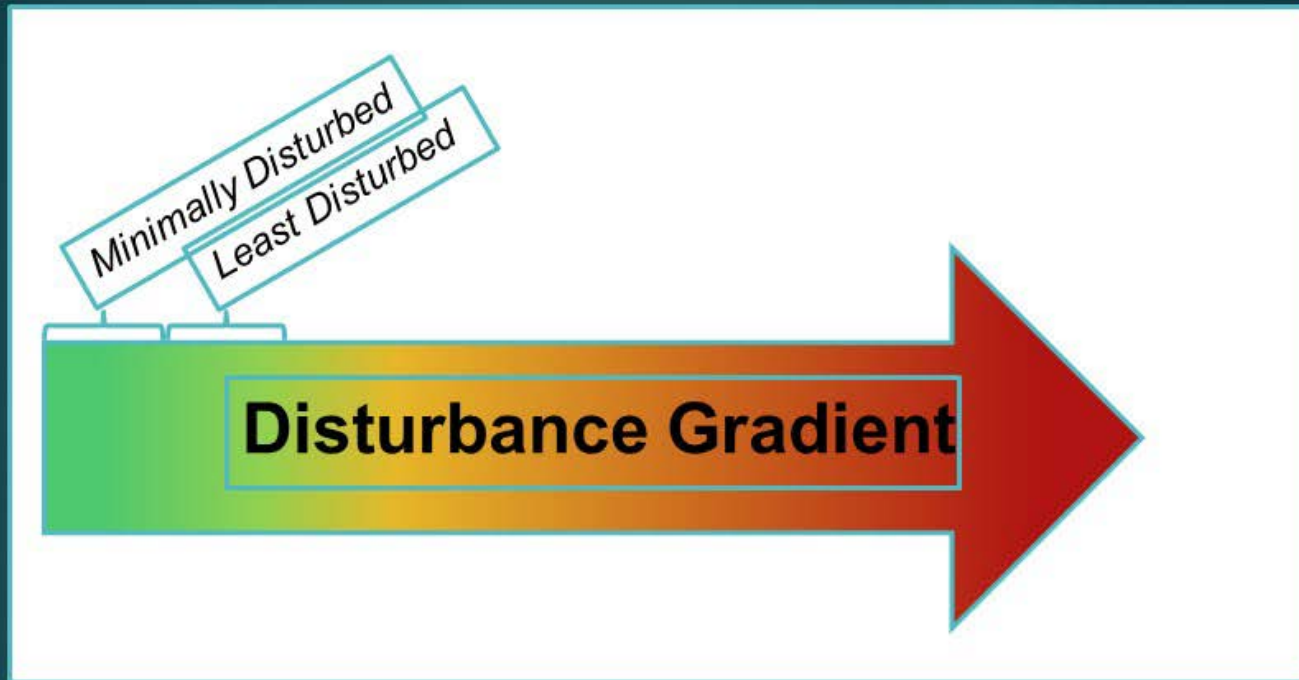# Stressor Extant: nonnative plants (NPSI)

Presentation Overview

2011 NWCA Results

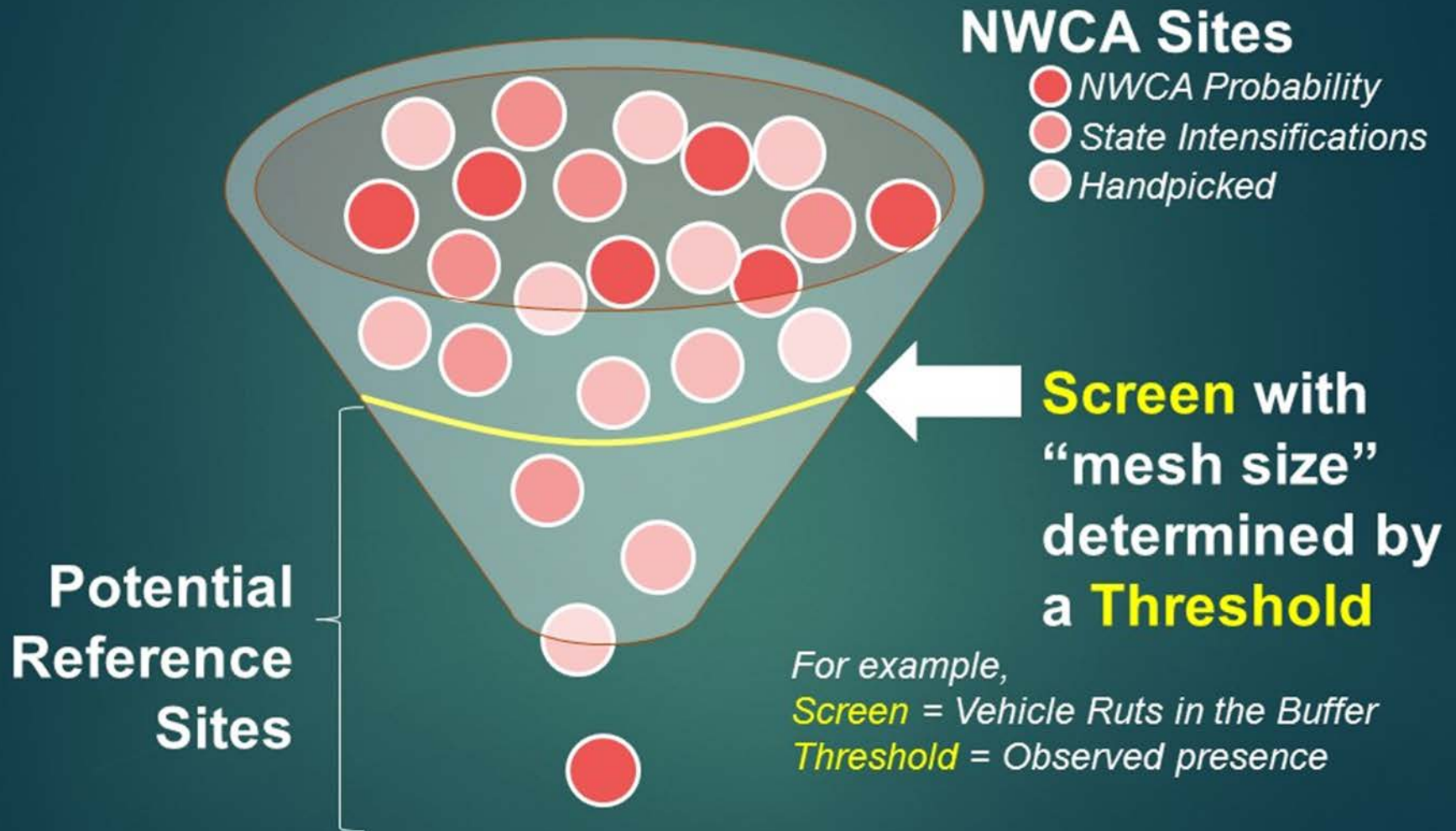Applications to Mitigation Banking and Restoration

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Disturbance Gradient

▶ Following Stoddard et al. (2006) definitions of reference:

▷ _Minimally Disturbed_ sites have no evidence of significant human disturbance

▷ _Least Disturbed_ sites represent the best available conditions given the current state of the landscape

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The Screening Approach

NWCA Sites
- NWCA Probability
- State Intensifications
- Handpicked

Screen with "mesh size" determined by a Threshold

Potential Reference Sites

For example,
Screen = Vehicle Ruts in the Buffer
Threshold = Observed presence

Google earth image "most disturbed" sites

Cape Cod, Massachusetts

High Density Residential Development

nwca11-1748

Golf Course

Bear Pond

SITE_ID = NWCA11-1748
STATE = MA
ECO_X_ST = EMU-PH
REF_NWCA = M

Index scores exceeding threshold:
B1H_ALL = 1.4
H_DIS = 3
HEAVYmetal_INDEX = 3
%ALIEN = 65

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Google earth

Imagery Date: 8/24/2013   42°25'23.87" N   70°55'44.76" W   elev   1 ft   eye alt   1806 ft

Google earth image "least disturbed sites"

SITE_ID = NWCA11-1743
STATE = MA
ECO_X_ST = EMU-PH
REF_NWCA = L

Index scores >0, not exceeding threshold:
B1H_ALL = 0.12
B1H_RESURB = 0.23
%ALIEN = 1.3

nwca11-1743

Residential Development

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Google earth

Imagery Date: 8/24/2013   42°40'30.56" N   71°03'18.23" W elev 130 ft   eye alt 1846 ft
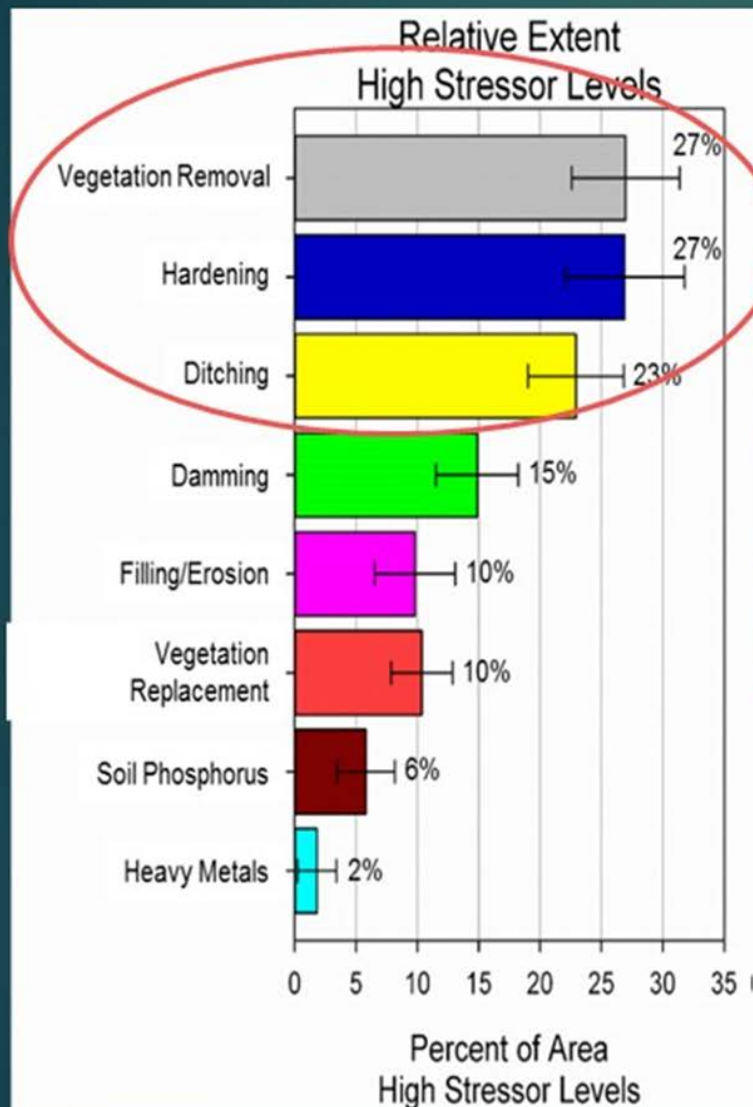
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Minimally disturbed

Relationship Between Stressors and Biological Condition

➢ Relative Extent of Stressors
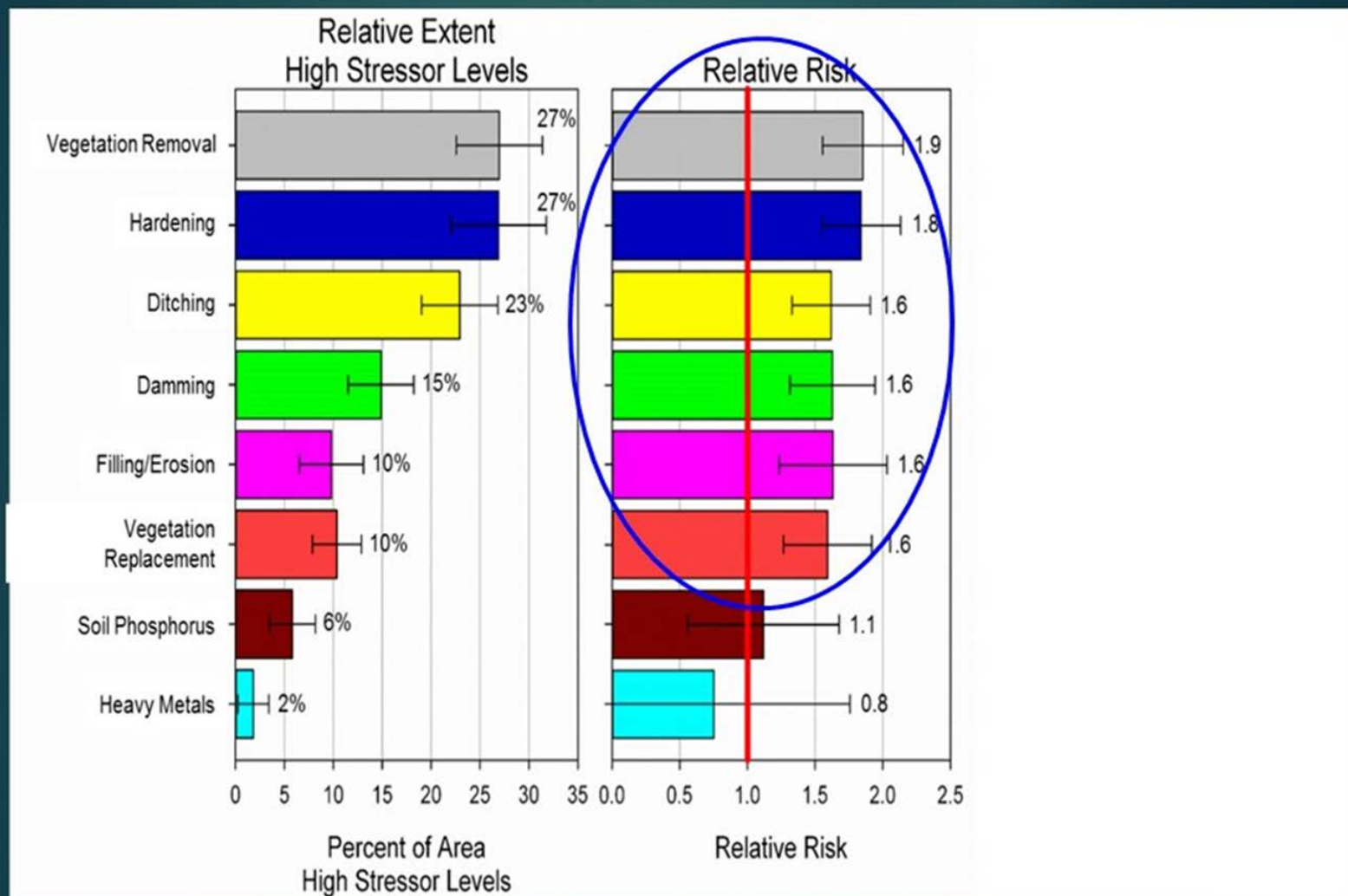
➢ Relative Risk

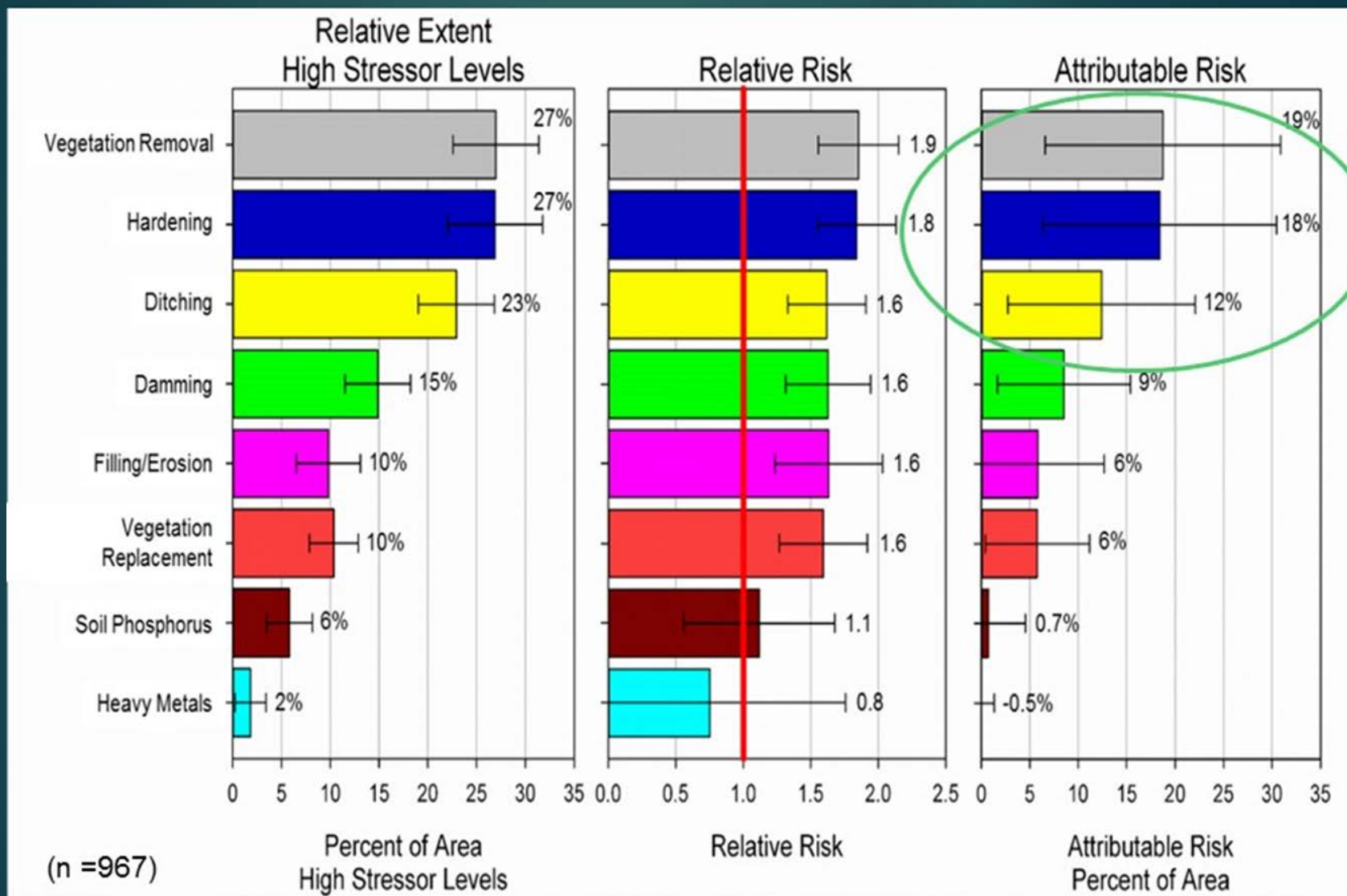➢ Attributable Risk

Relationship between stressors, condition
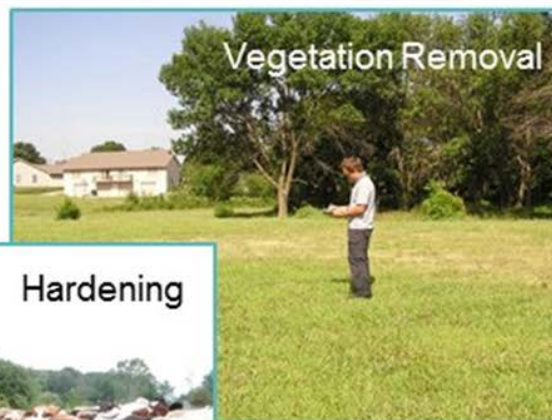
Relationship between stressors and condition; relative risk

Relationship between stressors, condition

2011 NWCA results can be used in mitigation banking and restoration:

➢ For a quantitative definition and benchmark of least disturbed condition (reference)

➢ As a context for evaluating restoration outcomes

➢ To prioritize development of restoration designs that address effects of stressors closely tied to poor condition

How YOU can participate:

➢ Provide input on information gaps NWCA might address

➢ Participate in the NWCA by allowing access if a site of yours is selected for sampling; provide information on its history

➢ Contact Mary Kentula (kentula.mary@epa.gov) or Palmer Hough (hough.palmer@epa.gov) with input or questions

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