Old and New Challenges to Restoring the Upper Mississippi River System

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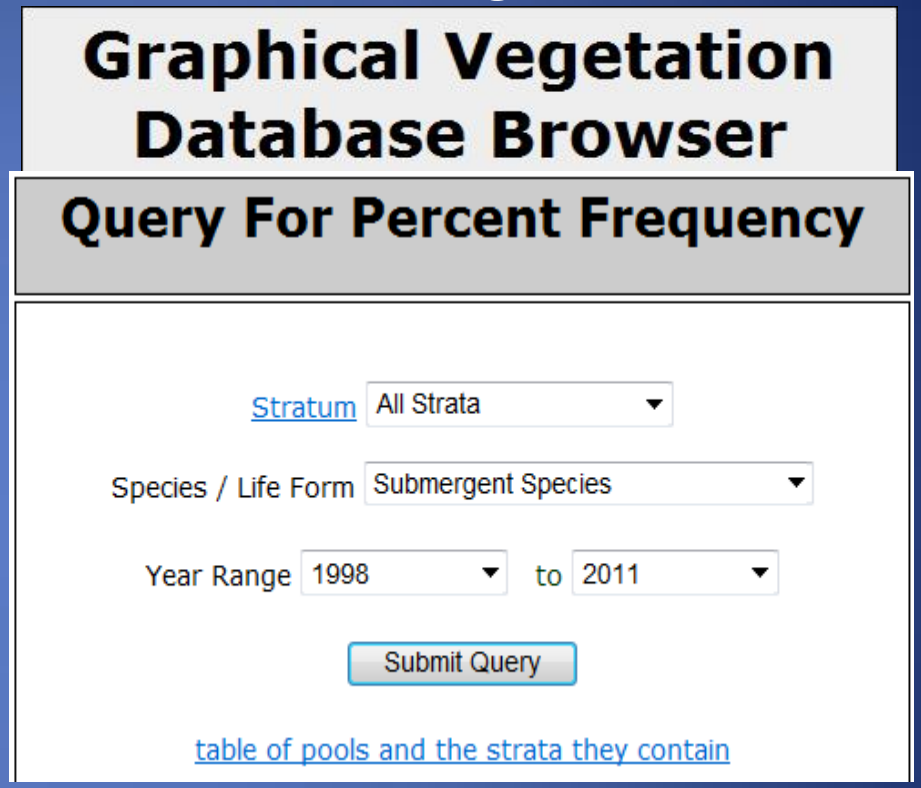
Early (UMRR-EMP) program accomplishments

Restoration

Increasingly “natural” projects

Monitoring/Science



- rapid, intuitive access to data
- studies of limiting factors
- predictive models
- tech assistance now international

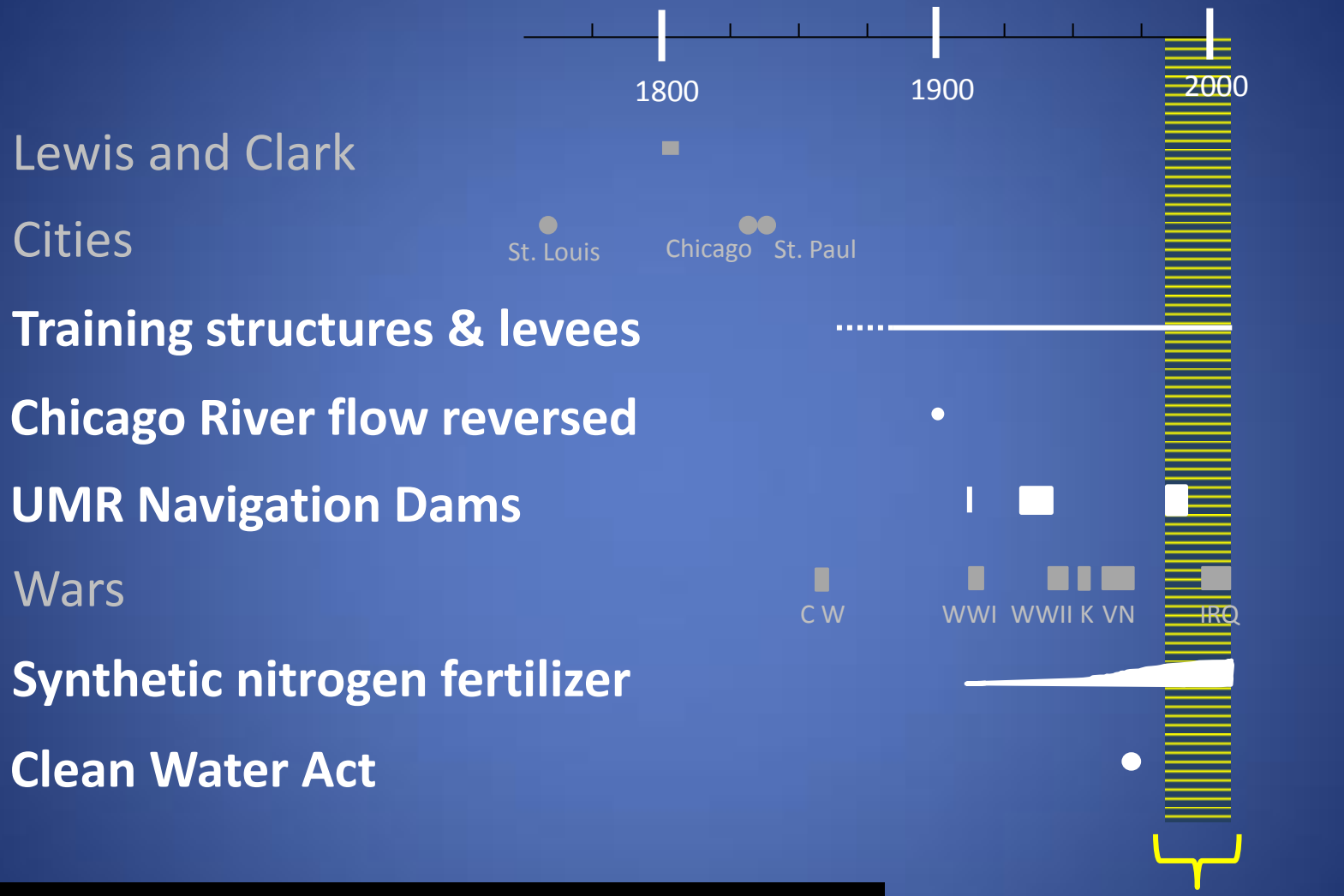
The challenges

1. Make a difference at larger scales
2. Become more accountable

A common restoration question -

After X years (n=26 in this case), how much of a difference has the restoration program made to the ecological condition of the system?

How long until we should start seeing large-scale results?



The UMRR-EMP is now visible on a timeline of river-related human events

Challenge 1: Making a difference at larger scales

- Goal-setting
- Linking site restoration to monitoring at river and reach scales

Past goal-setting attempts

from the "Habitat Needs Assessment" (2000)

	Aquatic	Terrestrial
	(acres x 1000)	
Miss. R. (create)		
Upper Impounded Reach	42.6	1.0
Lower Impounded Reach	24.5	3.0
Open River Reach	25.0	100.0
Illinois. R. (improve quality)	19.0	

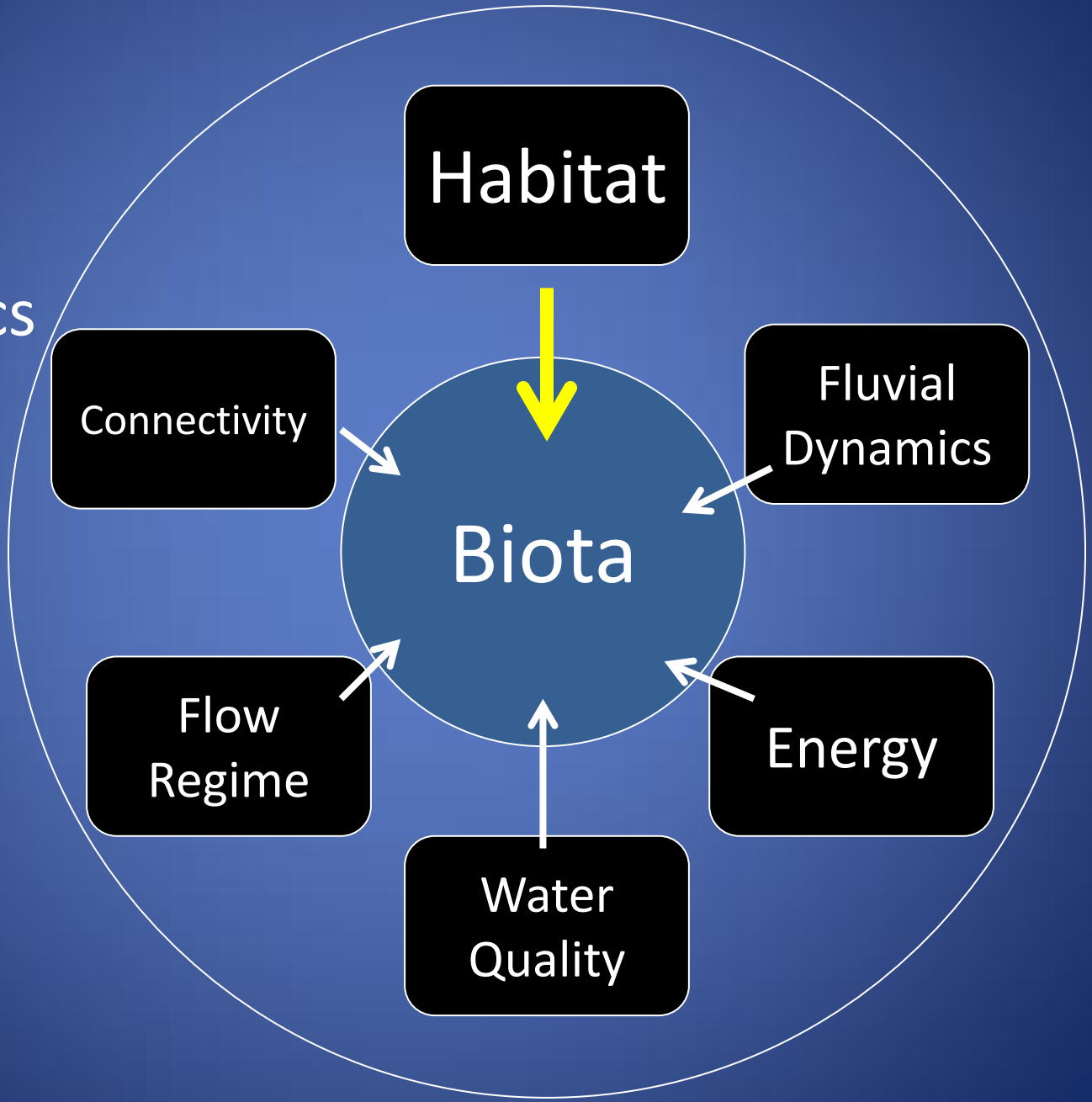
★ (estimates **will double** by 2050 with no action)

Other attempts:

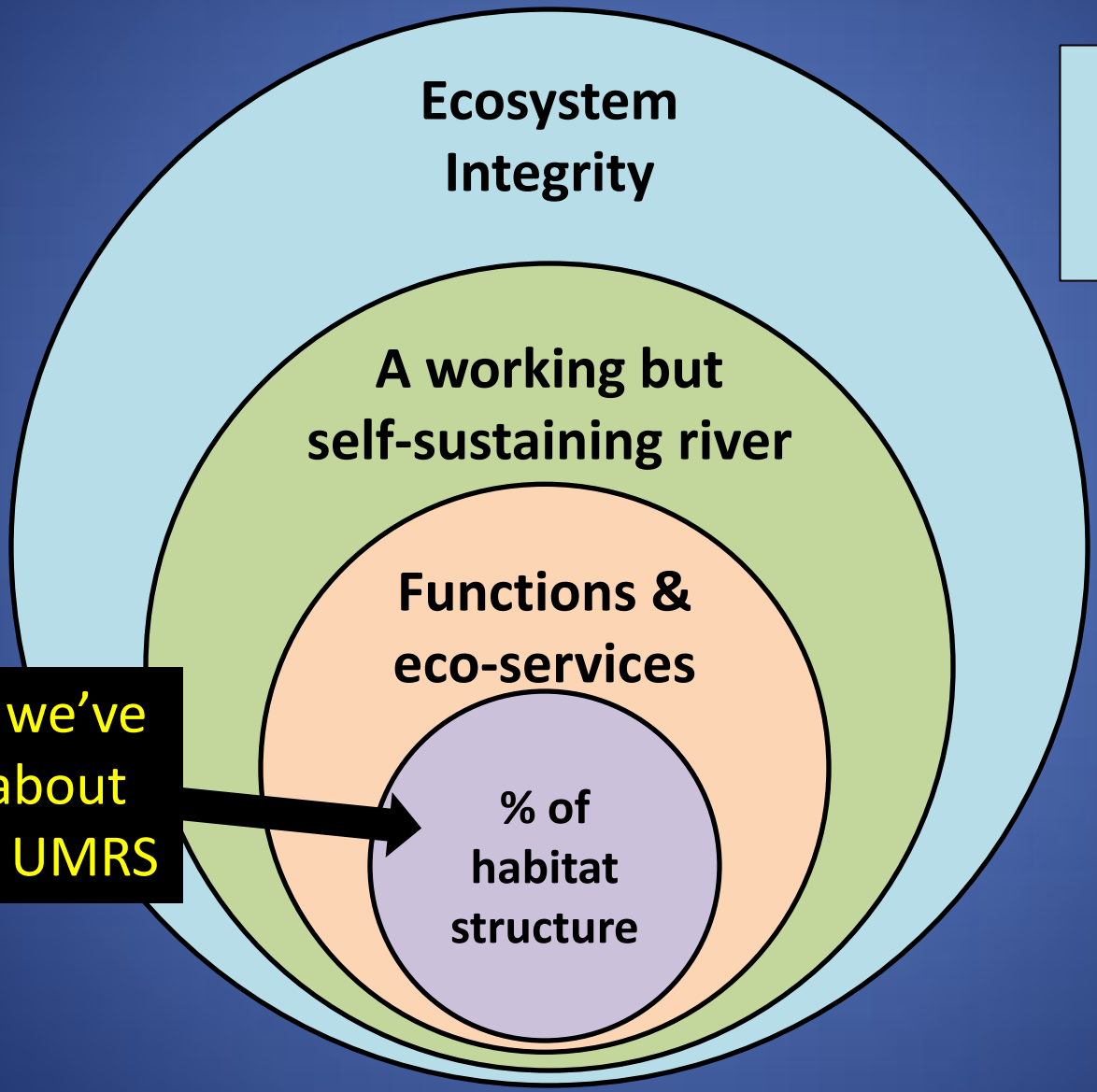
UMRCC habitat needs and cost estimates, Pool Plans, NESP ecosystem goals and objectives

Habitat isn't the only component of river ecosystem health.

7 essential ecosystem characteristics



What is truly feasible?



Not even conceivable now

$$$$$ If conceivable long-term?

$$$

$

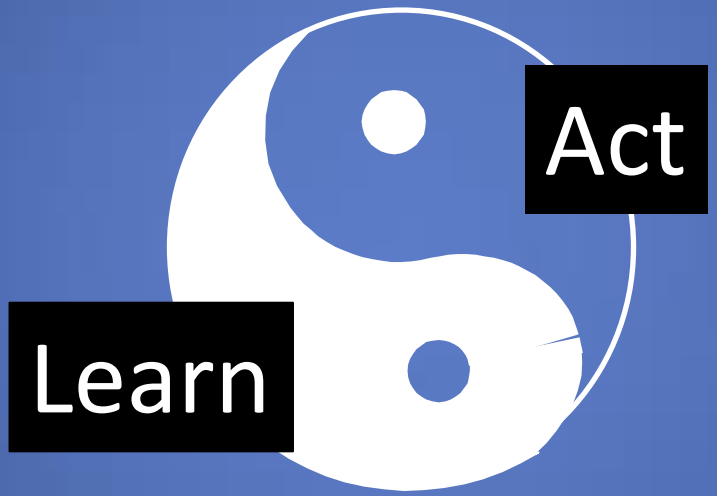
Currently we've restored about 4% of the UMRS

Making a difference at larger scales

- Goal-setting
- Linking site restoration to monitoring at river and reach scales

Why link site restoration and large-scale monitoring?

The concept is appealing



There are potential reasons to link program pieces at larger scales

1. To detect cumulative project benefits
2. To confirm causal relationships & thresholds
3. To facilitate use of large-scale measures as decision criteria

But ….

Will we be fixing pieces that operate independently, but aren't broken?

Intent

Act

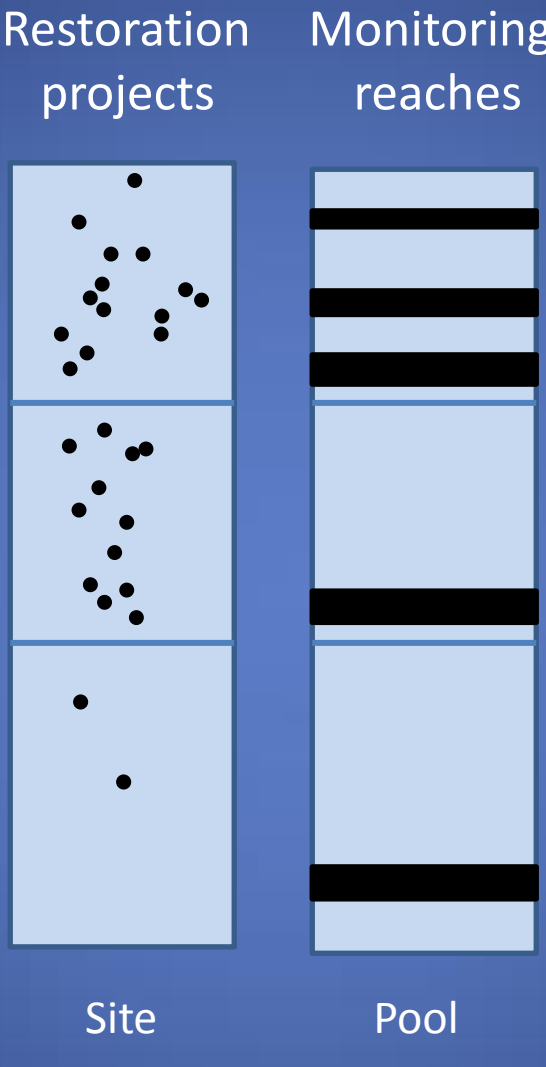
Fix/offset common habitat problems

Develop & test cost/effective practices

Improve fishing and hunting opportunities

Without interfering with navigation

Utilize engineering expertise



Intent

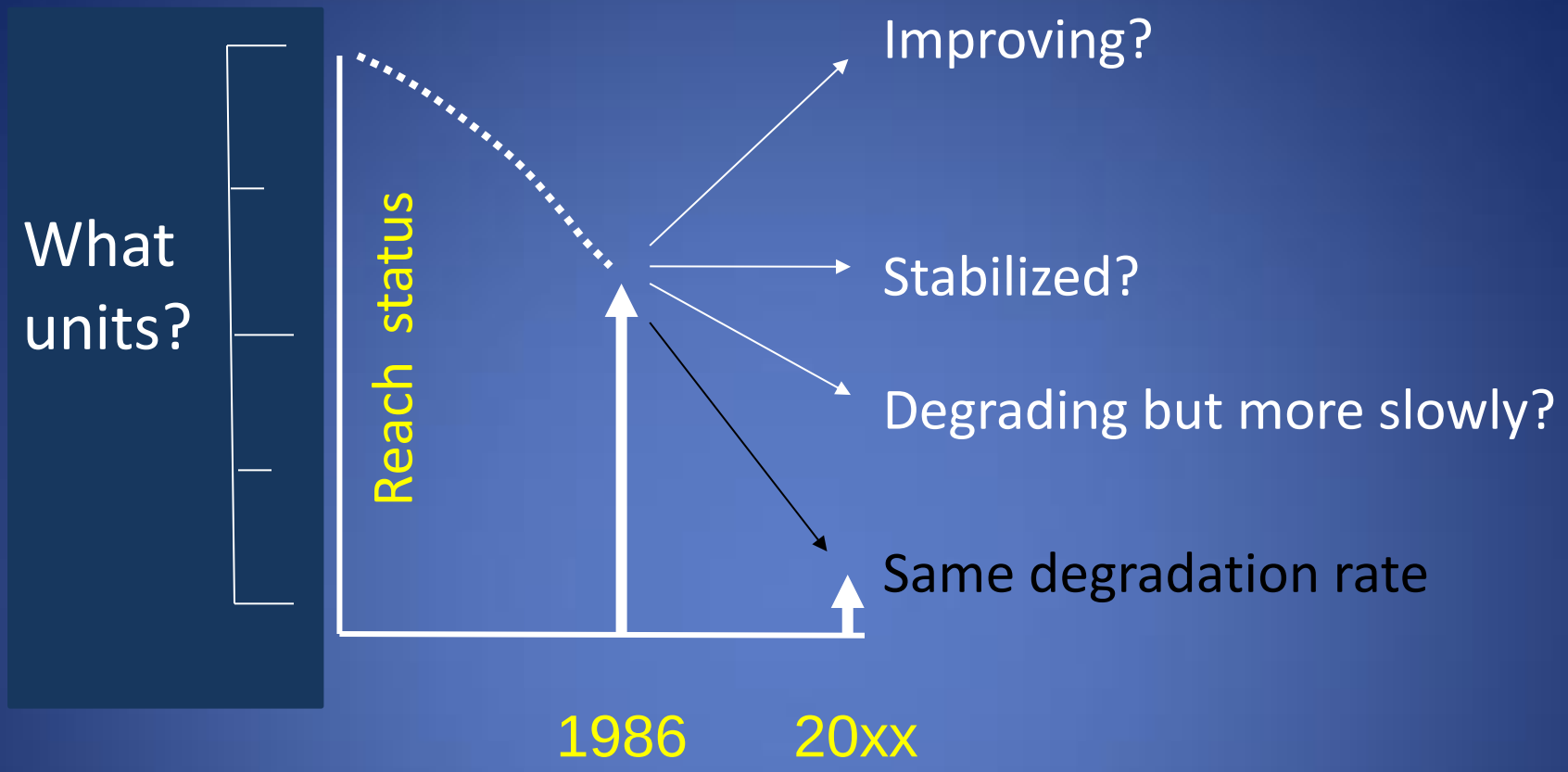
Learn

Provide estimates of condition & change over time

Represent broader pool & reach conditions

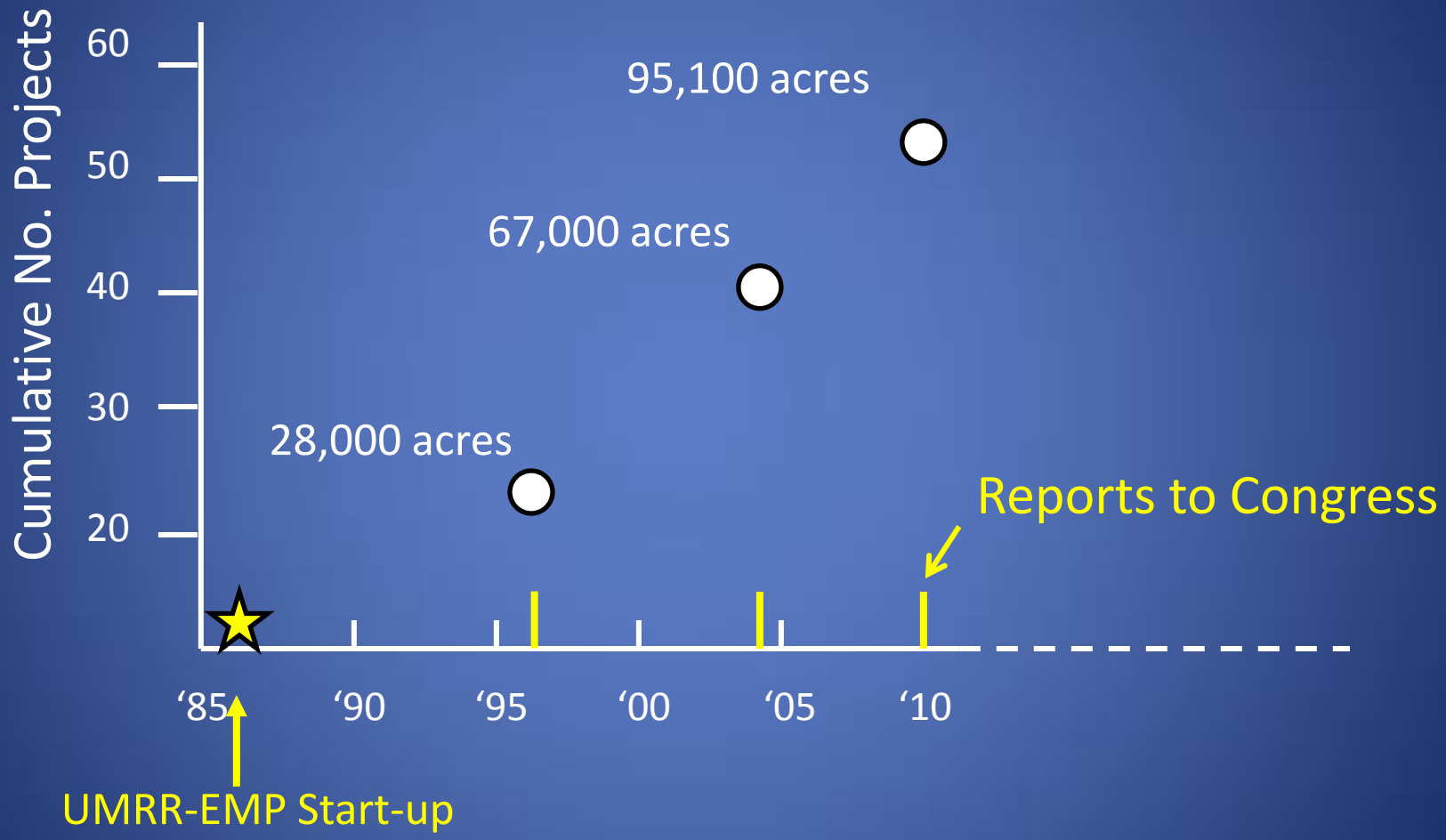
Evaluate management alternatives

The 2nd challenge: becoming more accountable

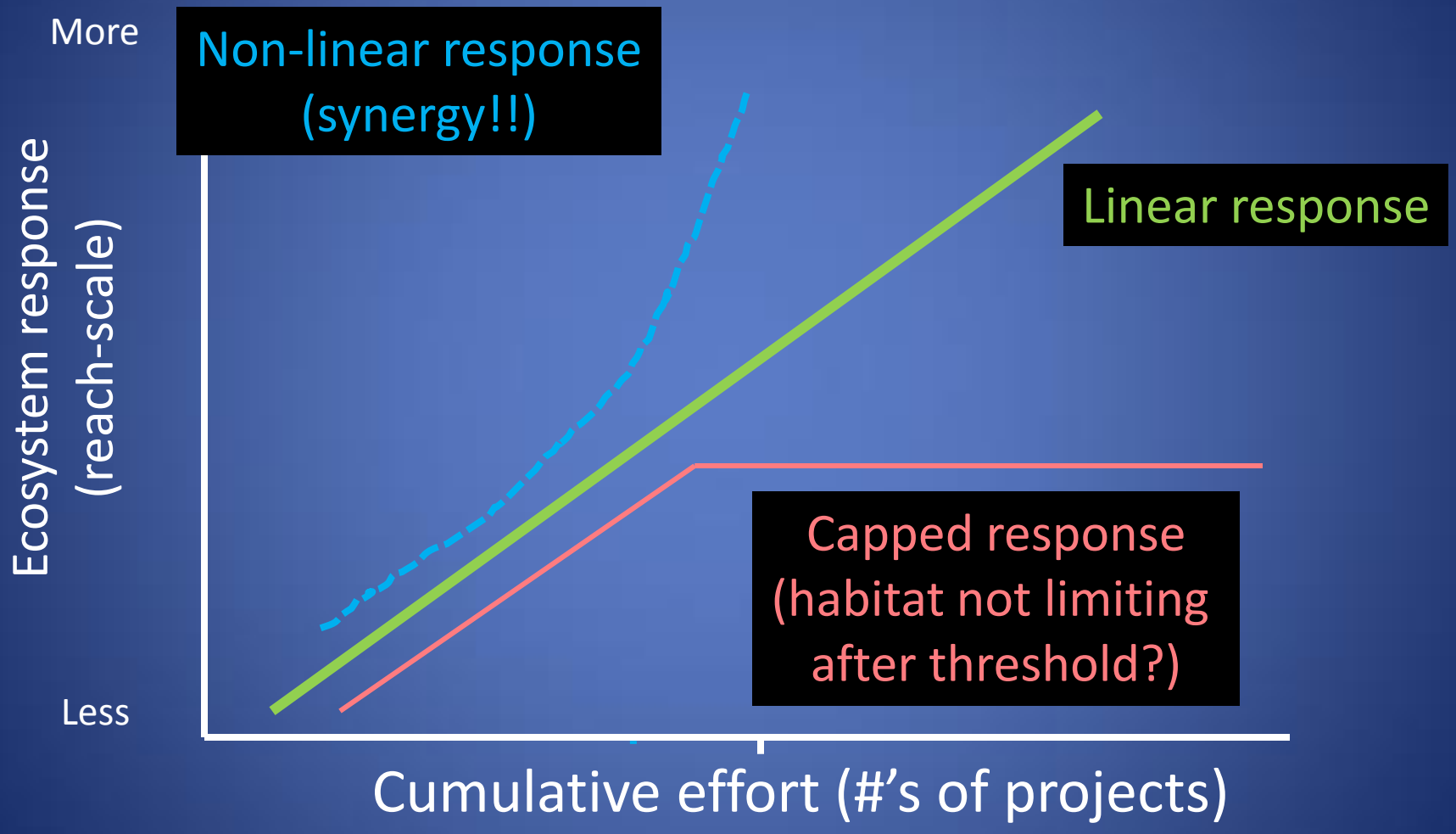


How? Get serious about using large scale ecosystem conditions as <u>decision criteria.</u>

So far, projects and “affected” acres have accumulated linearly.



Three possible reach-scale ecosystem responses to restoration effort



Challenge Summary:

Making a difference at larger scales

- Focus on outcomes, not effort

- Link restoration to monitoring without breaking the pieces

Becoming more accountable

- Move toward reach-scale, quantifiable variables

- Restore, learn, decide, repeat

An assumption: entrenched institutions favor the *status quo* and rarely seek new challenges

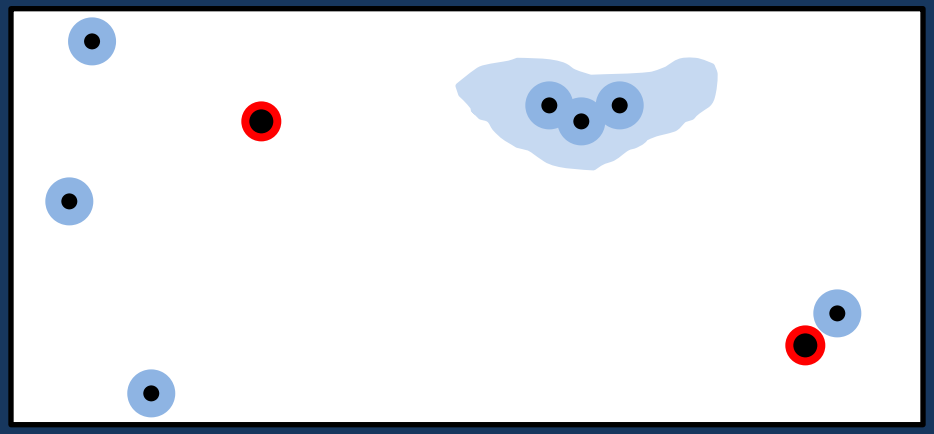
Yet, these challenges can[1] and should be addressed within the scope of existing resources.

[1] Because the responsibility of meeting these challenges rests mostly with the EMPCC and Analysis Team.

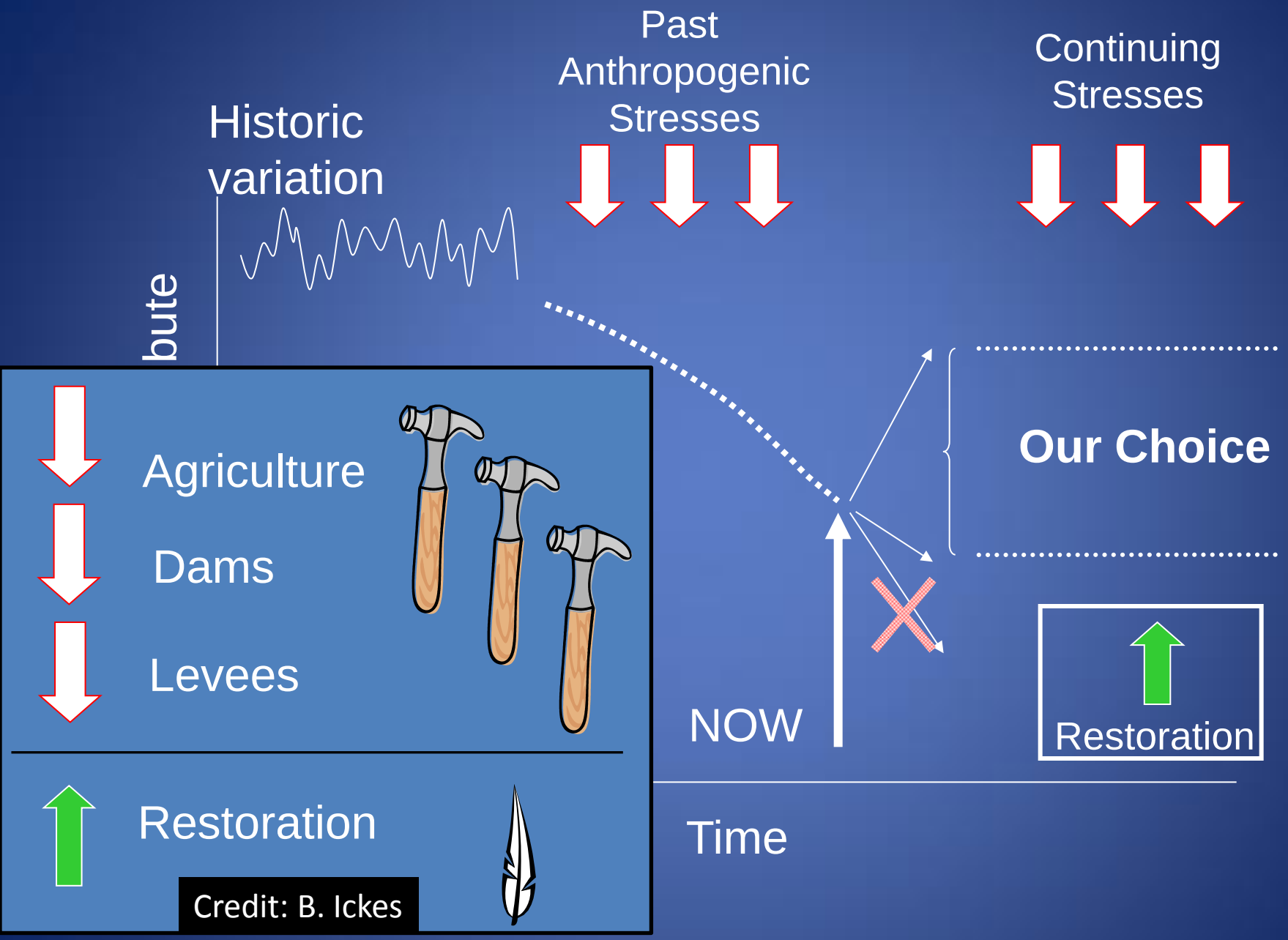
Understanding “zones of Influence” around restoration projects

Black dots are project footprints.

Blue and red borders are “zones of influence”.



How big is the zone of influence?
How does zone size differ by project type?
How might cumulative effects be expressed?
“Influence” refers to cause-effect as well as spatial extent.


Past
Anthropogenic
Stresses
Continuing
Stresses
Historic
variation
bute
Agriculture
Dams
Levees
Restoration
Credit: B. Ickes
Our Choice
NOW
Restoration
Time

Digression #1: An unpleasant but valuable mental image -

Planning = Broccoli

We need a new planning approach, professional help,
and the commitment to use plans regularly.