UPPER MISSISSIPPI RIVER FLOODPLAIN MAPLE-ASH-ELM MANAGEMENT

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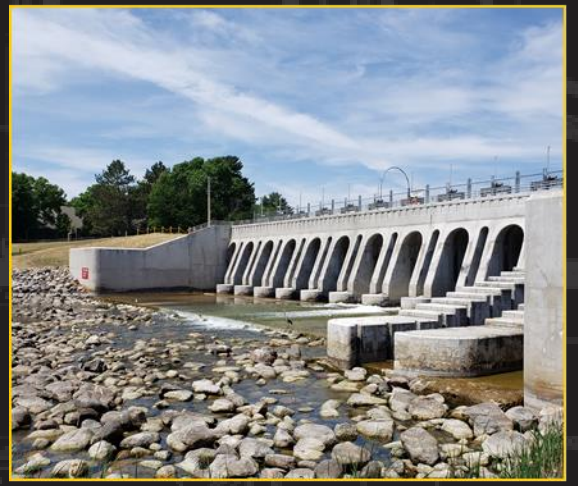

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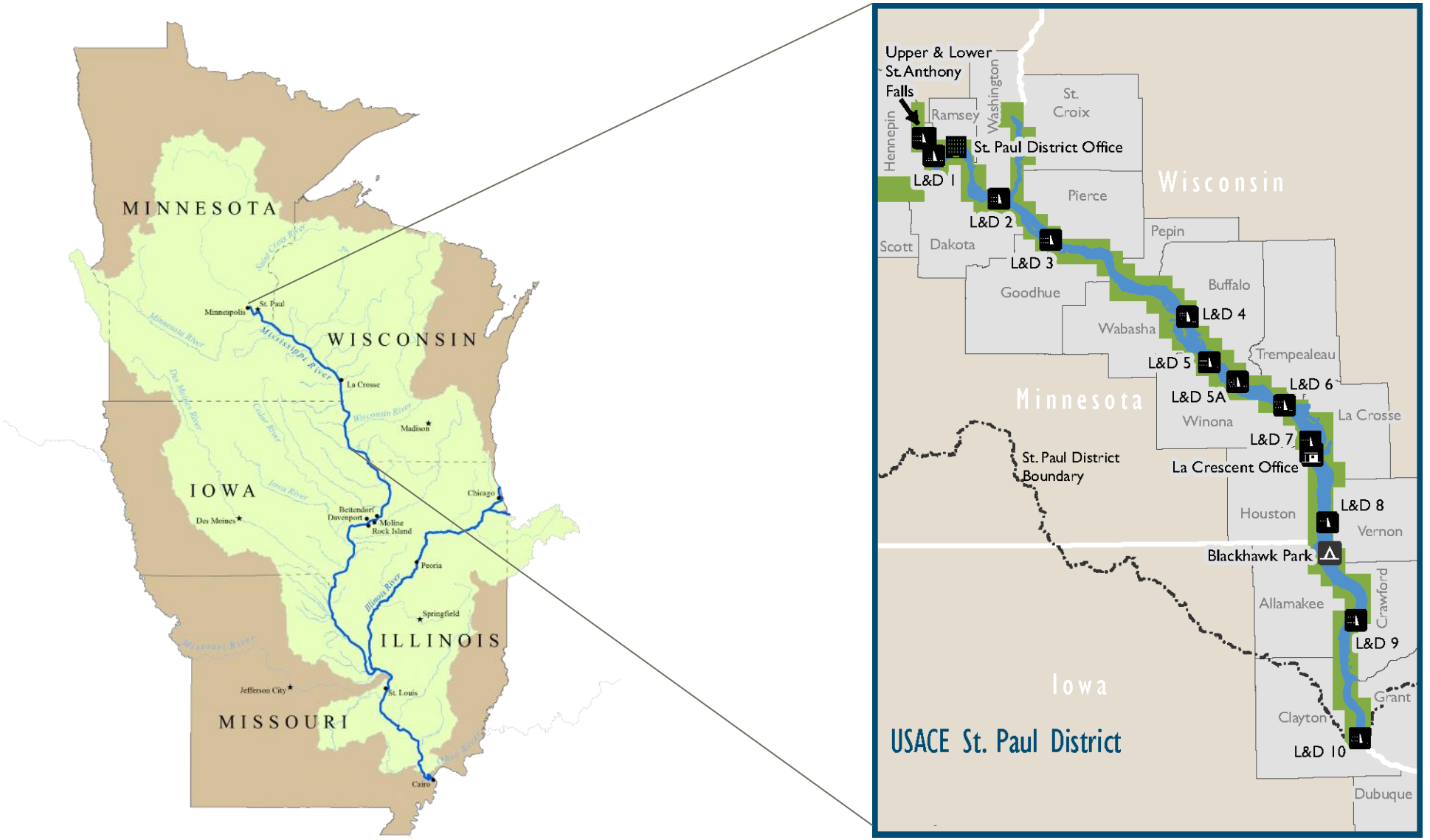
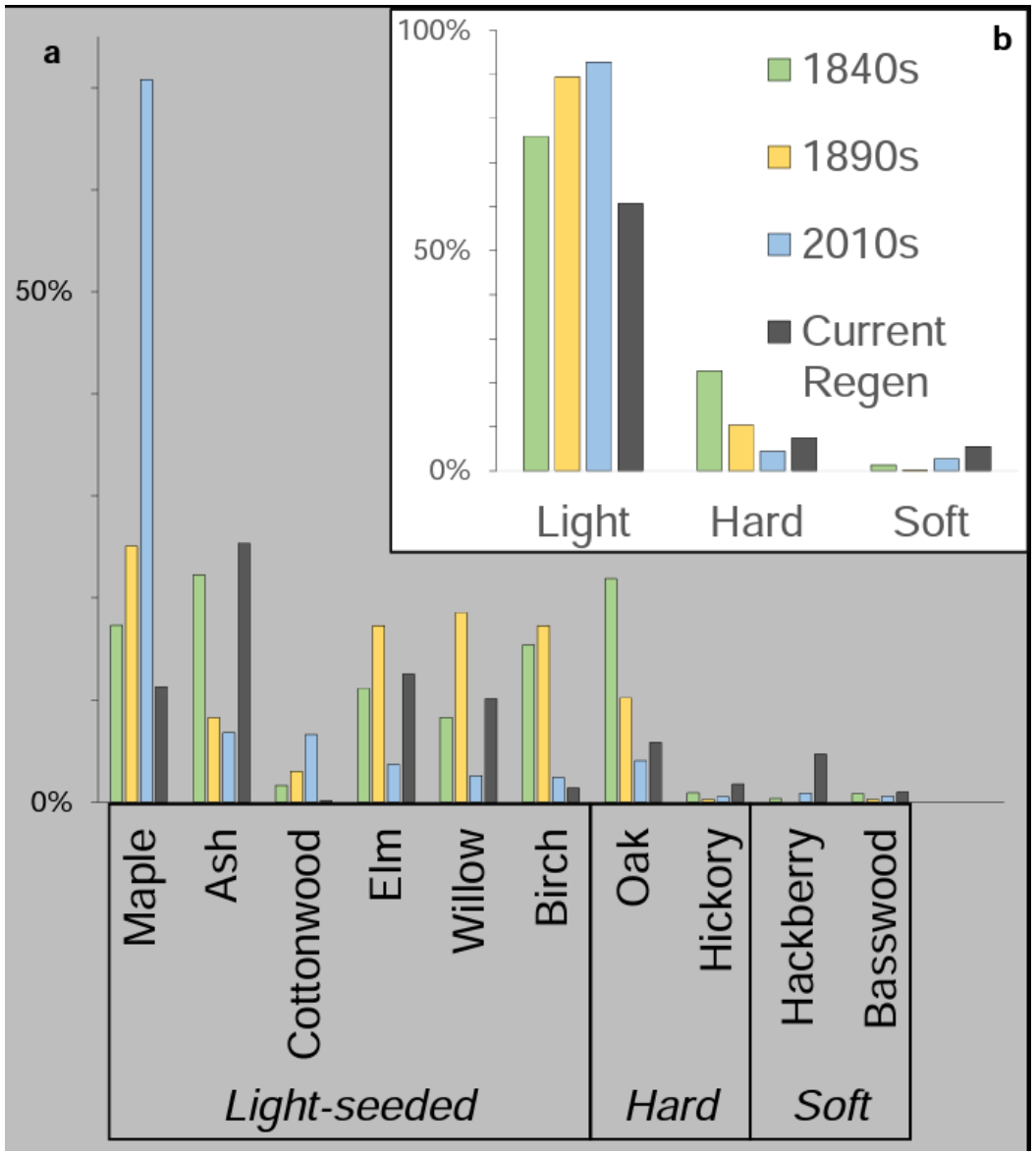
THE UPPER MISSISSIPPI RIVER



MAPLE-ELM-ASH AND THE UMR



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IMPLICATIONS OF ELM AND ASH LOSS

SUCCESSES

Site prep + maple regen

2023

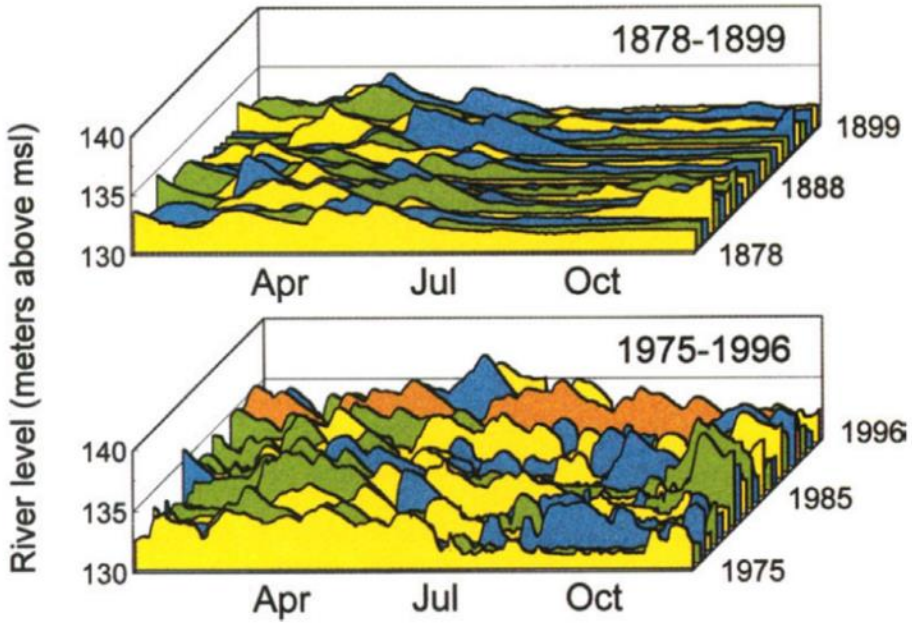
2022

SUCCESSES

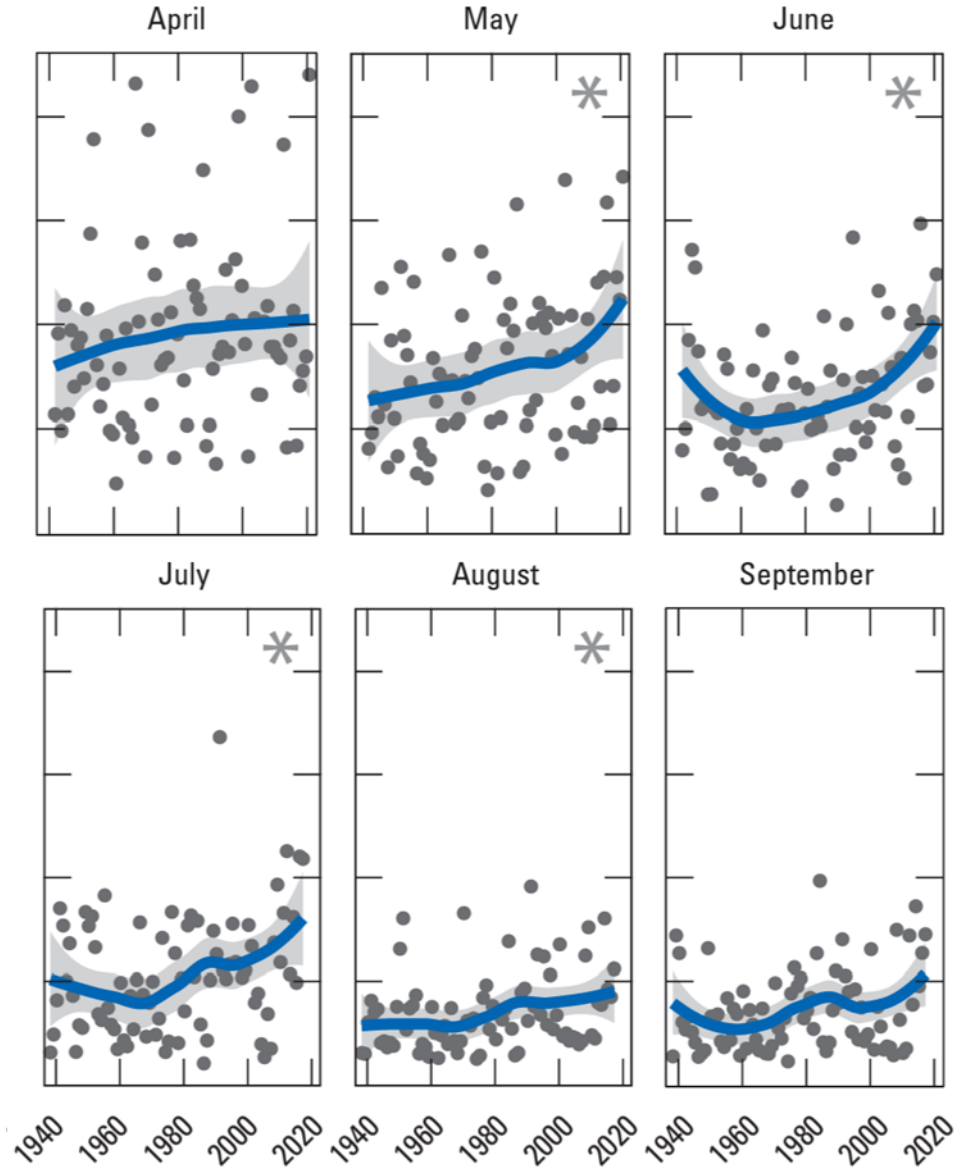
5 year old bareroot sycamore

CLIMATE CHANGE

Sparks et al., 1989, BioScience 48(9)



- Increasing temps less of a concern
- More unpredictable flooding and higher magnitude



Van Appledorn, M., 2022, Hydrologic indicators, chap. B of Houser, J.N., ed., Ecological status and trends of the Upper Mississippi and Illinois Rivers (ver. 1.1, July 2022): U.S. Geological Survey Open-File Report 2022–1039

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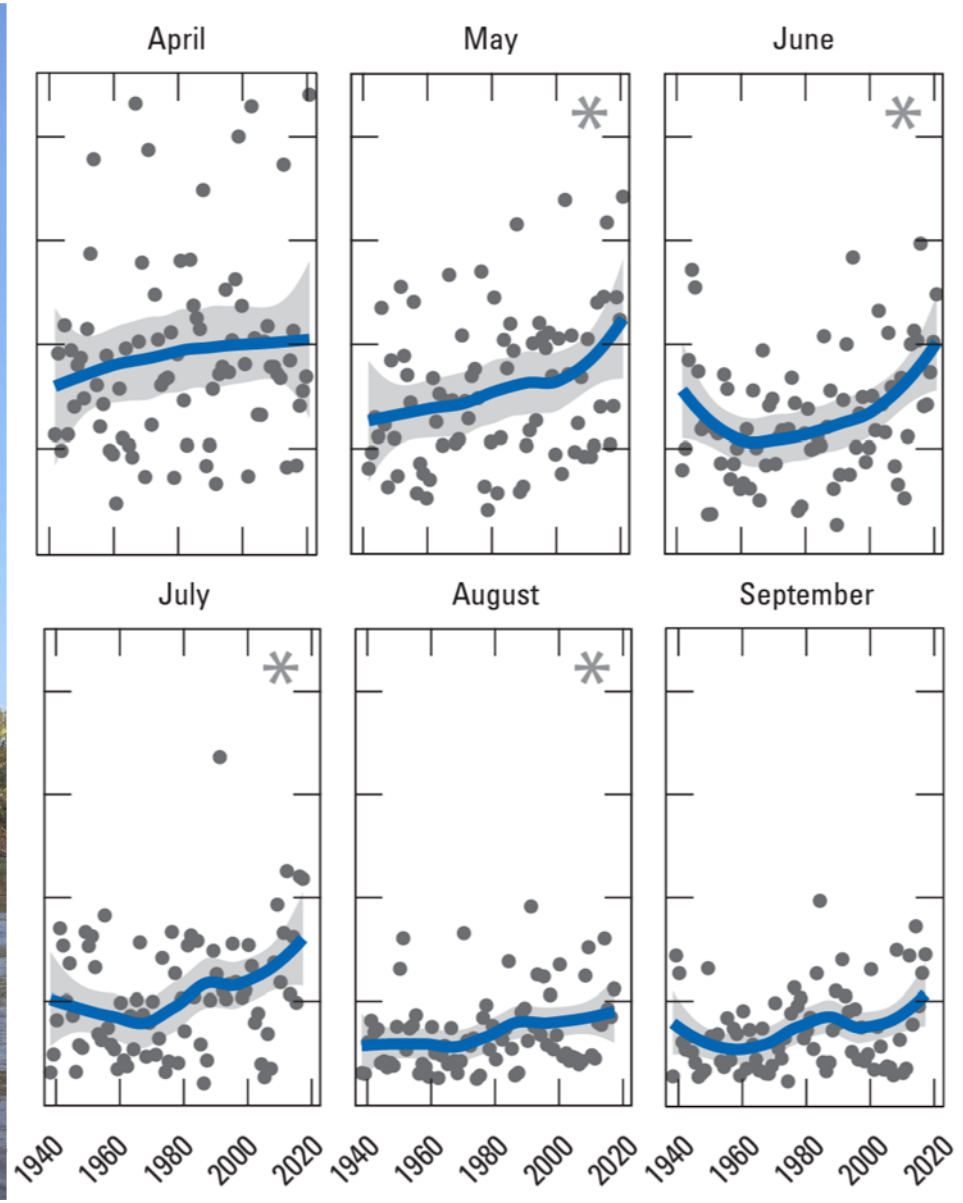
CLIMATE CHANGE



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THINGS WE'VE LEARNED

- Seedling size matters
- Wet ≠ wet
- 50% survival can be considered a success – maybe "full" stocking shouldn't be a goal
- Data only goes so far – reading what the land is doing is critical
- One year's failure is another year's success
- Species flood tolerance ≠ planting success (e.g. silver maple)
- But some species are incredibly resilient

10-foot tall sycamore sprout

CHALLENGES

- Natural regen for anything but elm and ash is almost absent
- Very few alternative species that are somewhat shade tolerant and flood tolerant
- Site access in incredibly difficult
- Very limited understanding of interactions between complex hydrology and tree species silvics
- Very limited long-term datasets – it's difficult to say how these forests developed in the past
- Big stock is hard to find, especially bareroot
- Philosophical – loss of elm and ash isn't leading to CURRENT forest loss, but future forest loss as maple begins to age out

KNOWLEDGE GAPS

- What are the conditions associated with successful natural regeneration of light-seeded species other than ash and elm and how can we replicate those silviculturally?
- What are the key hydrologic components that drive structure and development in floodplain forests, and how do we incorporate those into management planning?
- What role do soils, groundwater, and microsite variability play in the establishment of natural and artificial regeneration, and how can we efficiently capture the information needed to develop effective silvicultural prescriptions?
- Does a dense, multi-layered floodplain forest have a historic reference, or is a more open forest condition actually more representative of what would grow naturally?

QUESTIONS AND CONTACT INFO

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