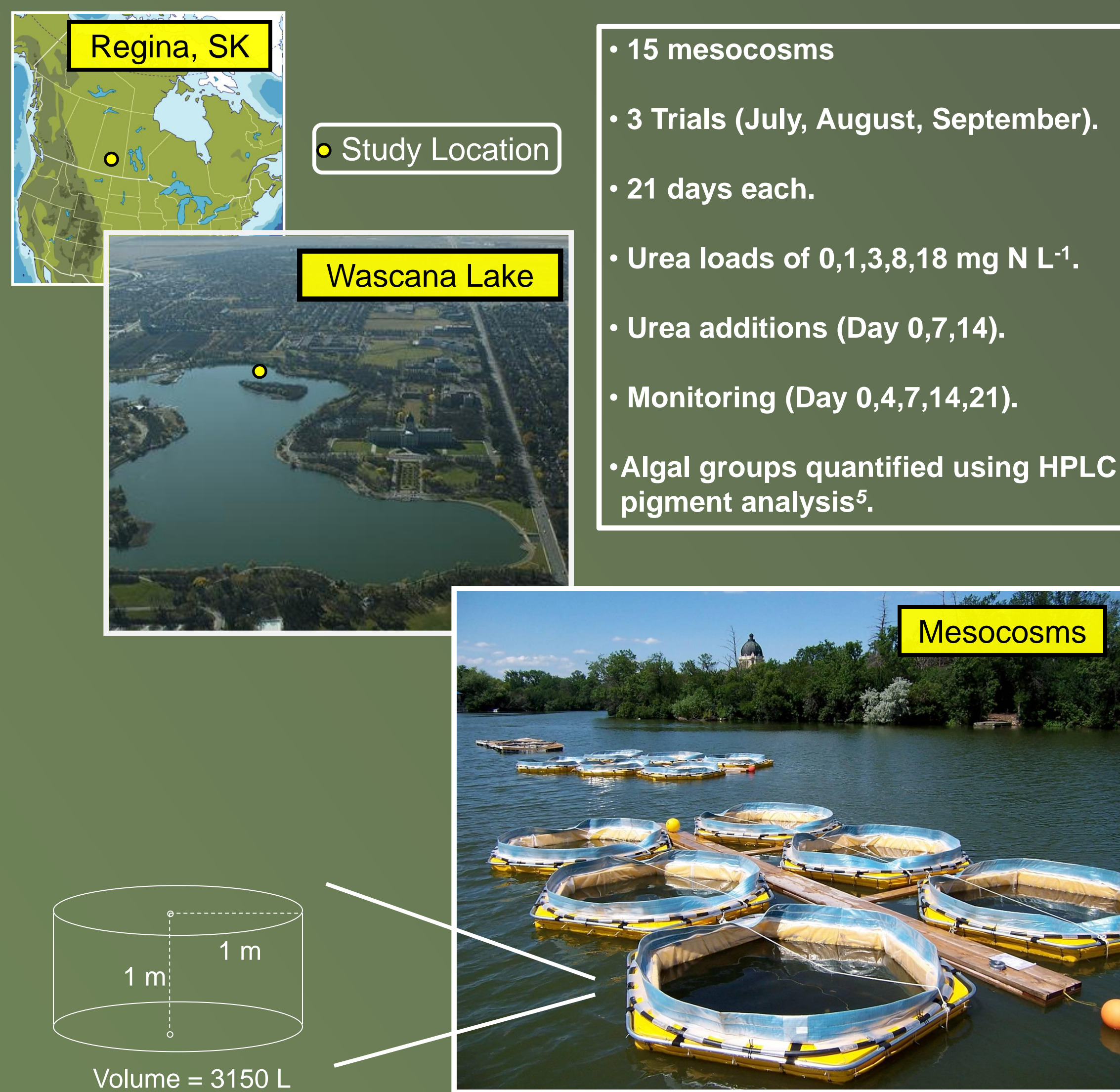


EFFECTS OF DIFFERENTIAL NITROGEN-UREA LOADING ON ALGAL ABUNDANCE, COMPOSITION, AND TOXICITY IN HYPEREUTROPHIC LAKES

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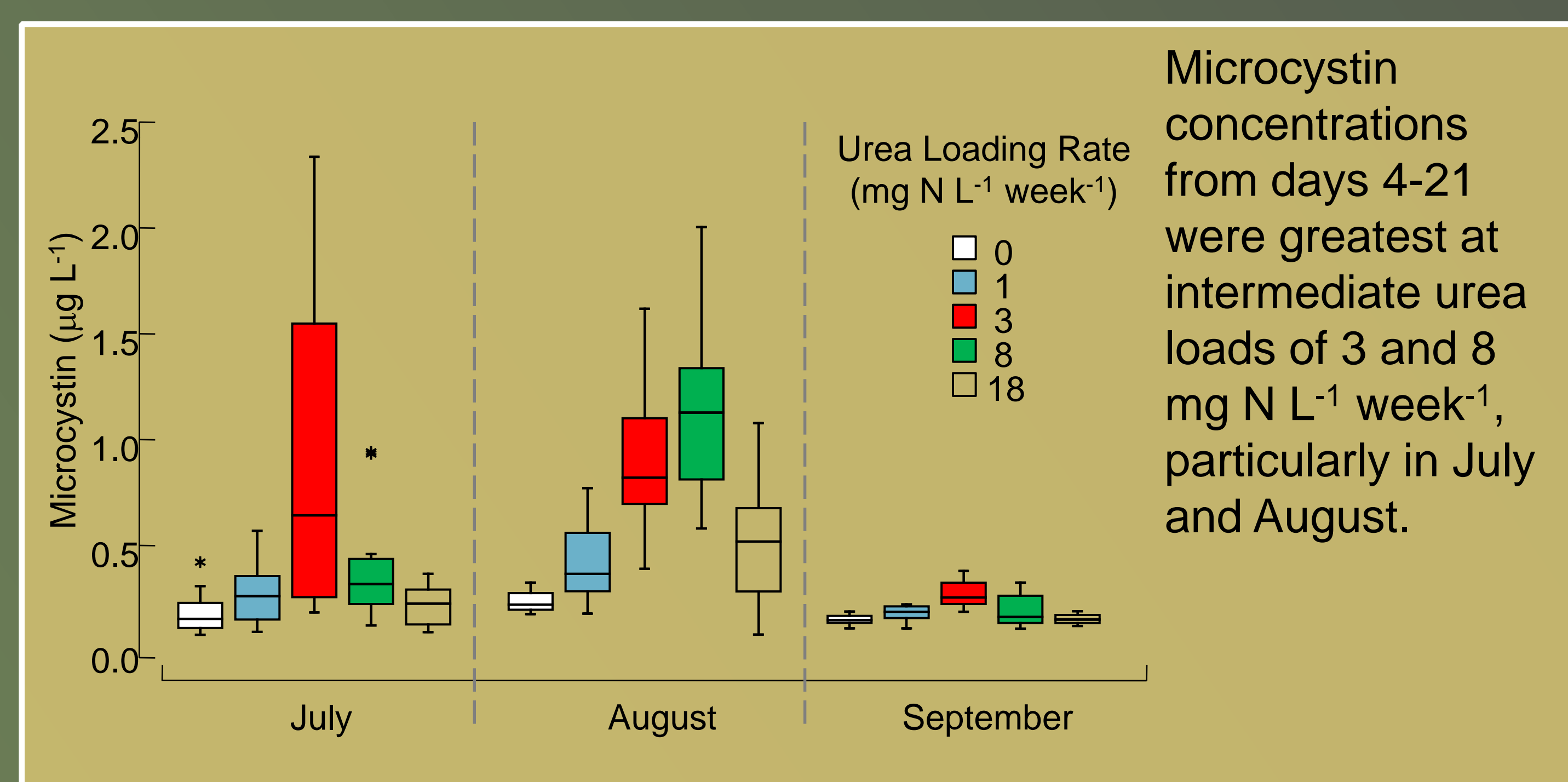
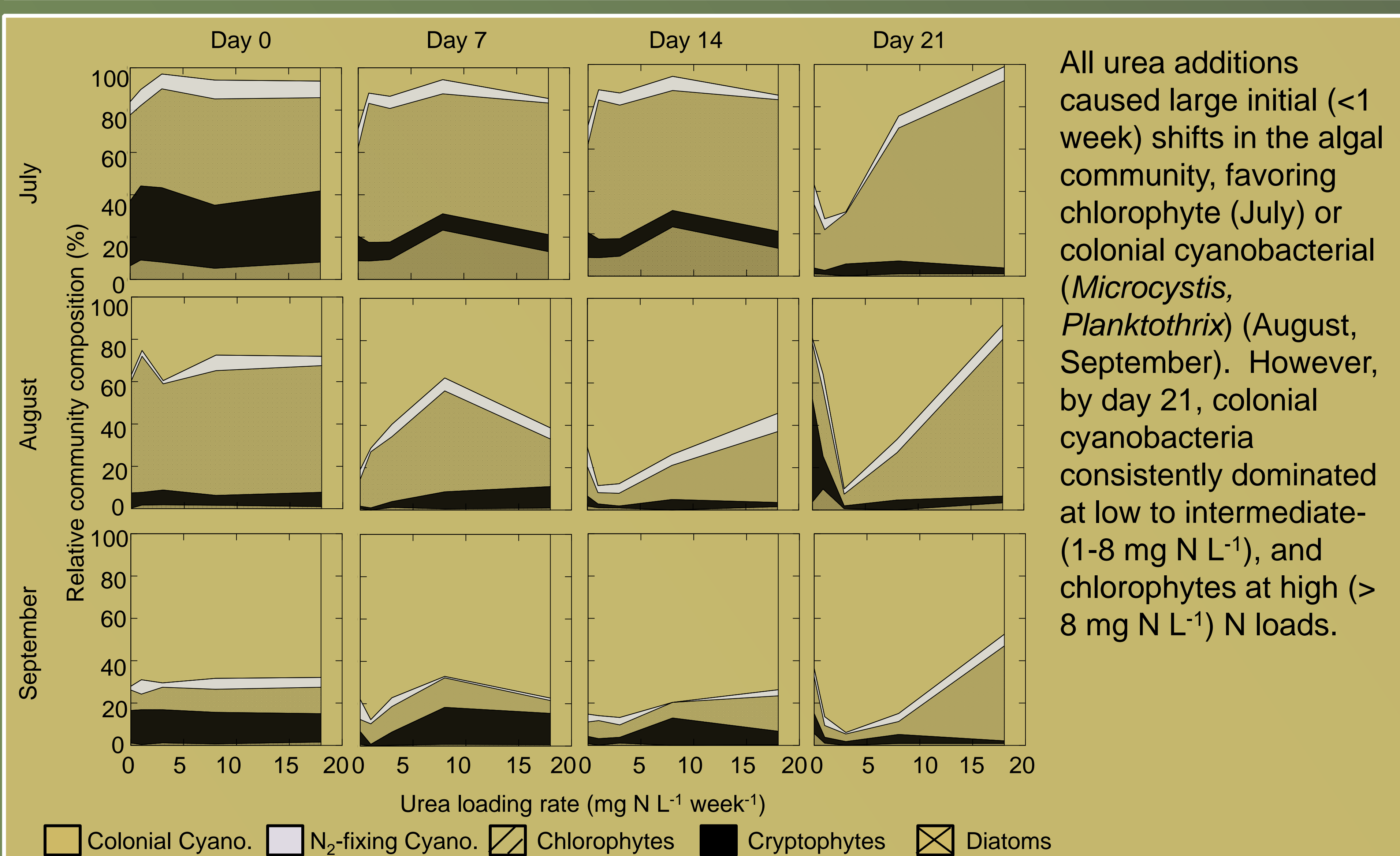
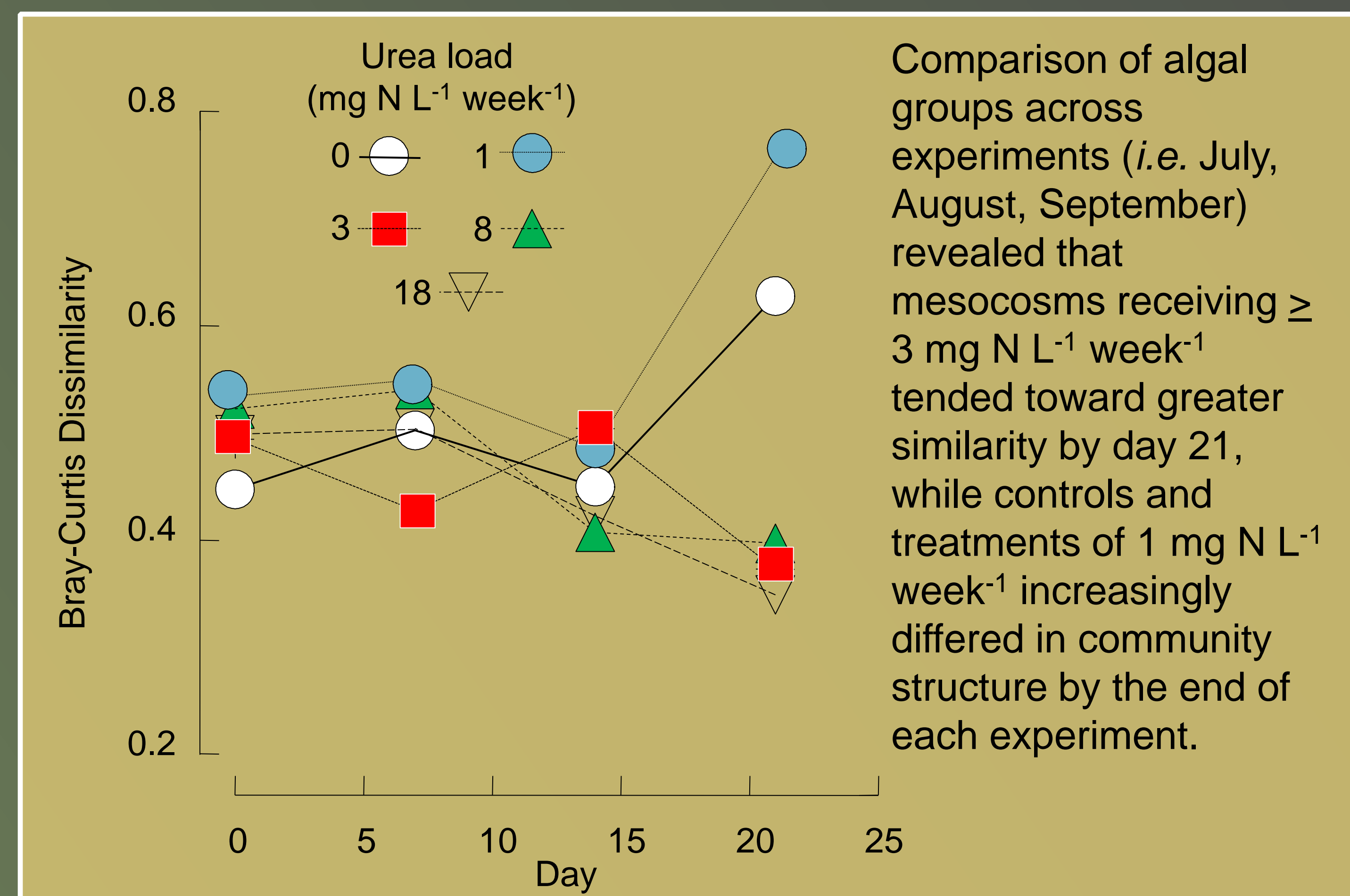
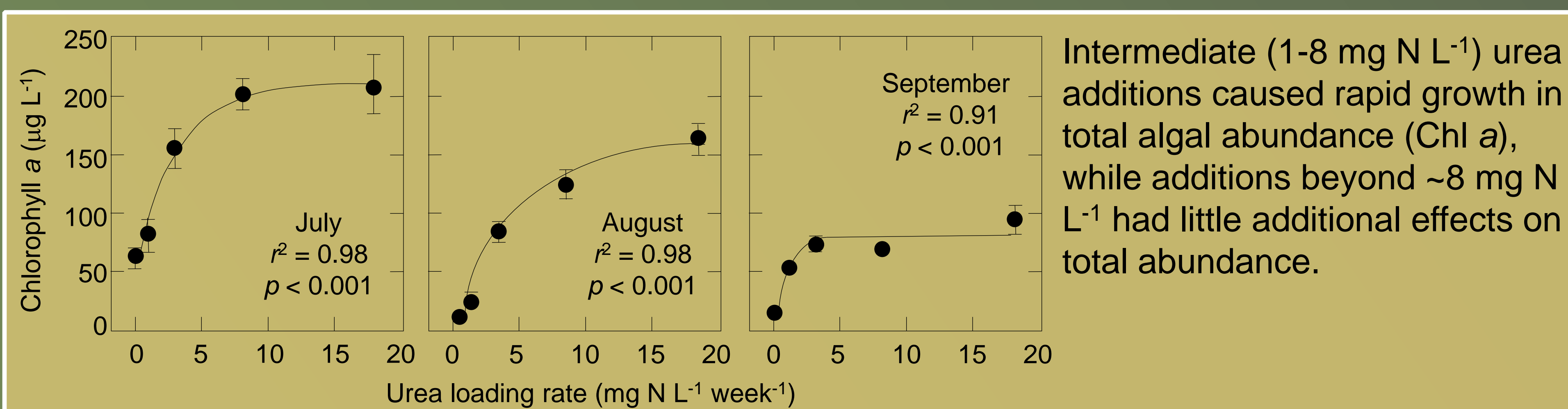
Study Location & Design:



Urea ([NH₂]CO) pollution from fertilizer use, urban-, and agricultural-effluent release is increasing globally, yet little is known of these effects on aquatic ecosystems¹. Previous studies suggest that differing N regimes in P-rich lakes strongly influence algal community composition due to differences in N-assimilation abilities across functional groups^{2,3,4}. In particular, urea loading can enhance colonial cyanobacterial growth (*Microcystis*, *Planktothrix*) and production of the hepatotoxin microcystin². Yet it is not known how this response varies at different urea loads. In the summer of 2009, we conducted a mesocosm experiment in hypereutrophic Wascana Lake to systematically quantify the effects of different urea loading rates on the algal community.

Question: How will algae in phosphorus-rich lakes respond to urea loading from moderate agricultural inputs to potent urban effluents?

Results:



Conclusion: Moderate urea loading in hypereutrophic lakes favors colonial cyanobacterial growth and enhanced microcystin toxicity, but these effects are minimized at higher loads due to the promotion of chlorophyte growth.

Works cited:

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