Numerical prediction (low propagule, low synchrony, weak omnivory)

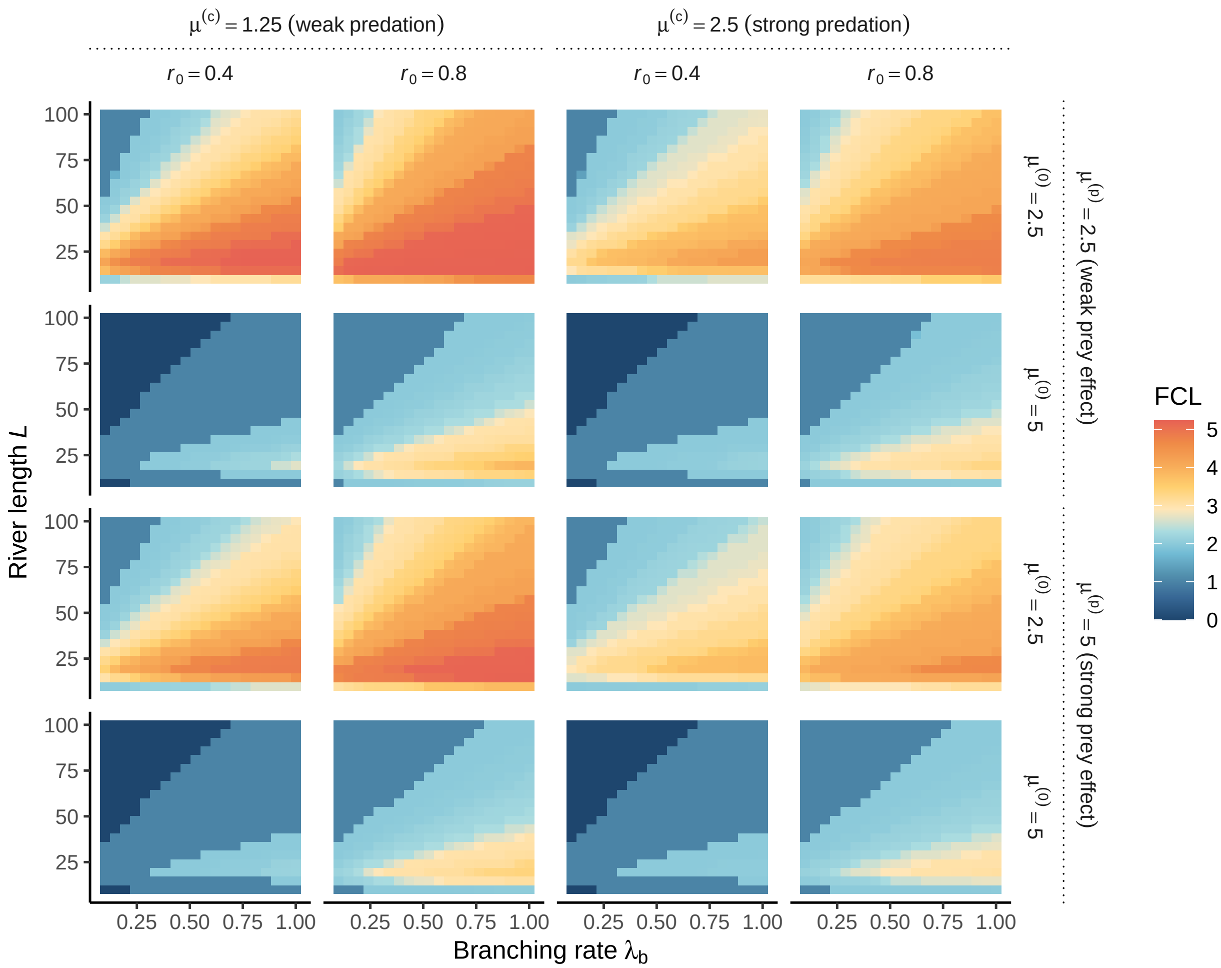

Figure 1: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 75$, synchrony probability $\rho = 0.25$, omnivory $\theta = 0.25$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (high propagule, low synchrony, weak omnivory)

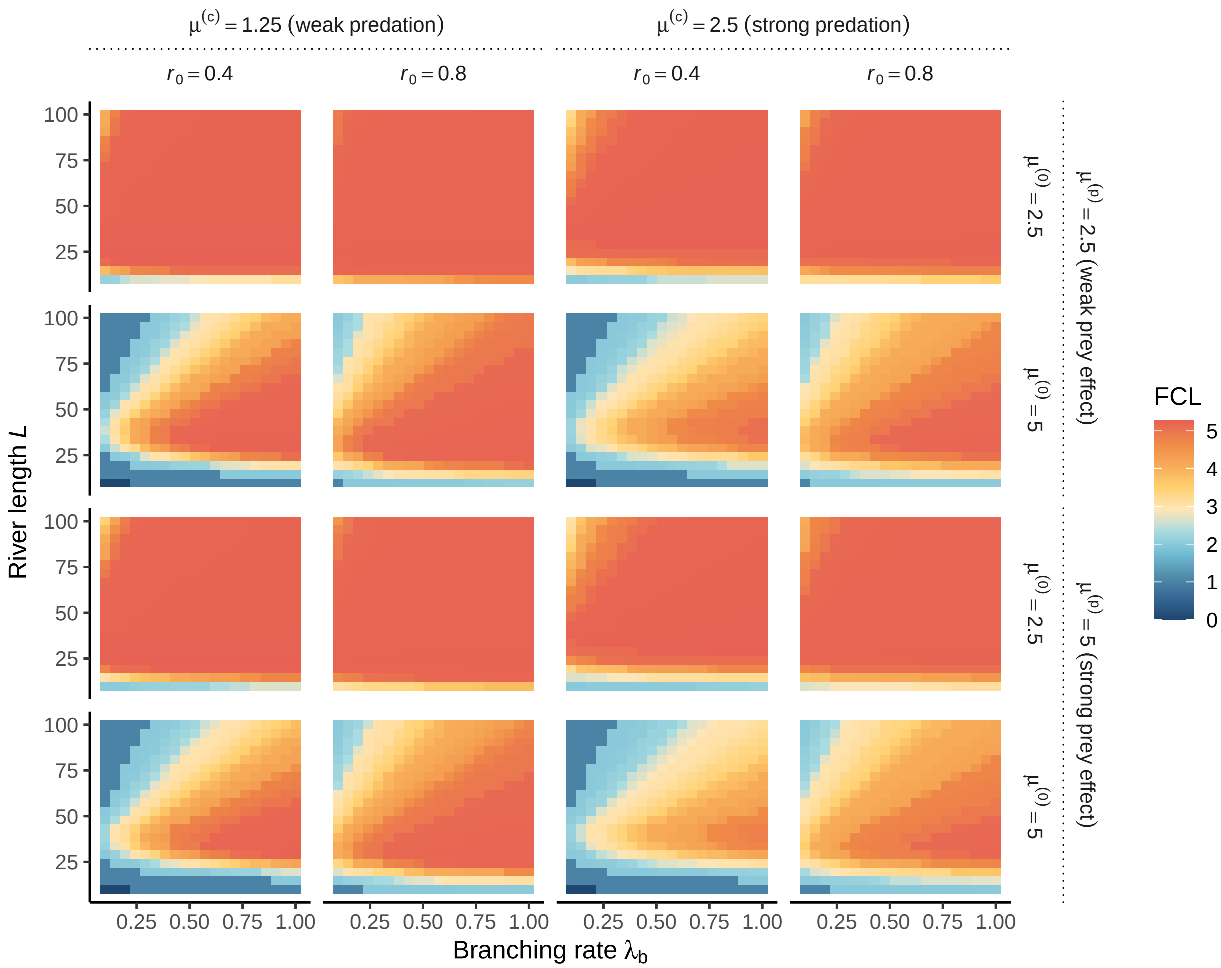

Figure 2: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 150$, synchrony probability $\rho = 0.25$, omnivory $\theta = 0.25$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (low propagule, high synchrony, weak omnivory)

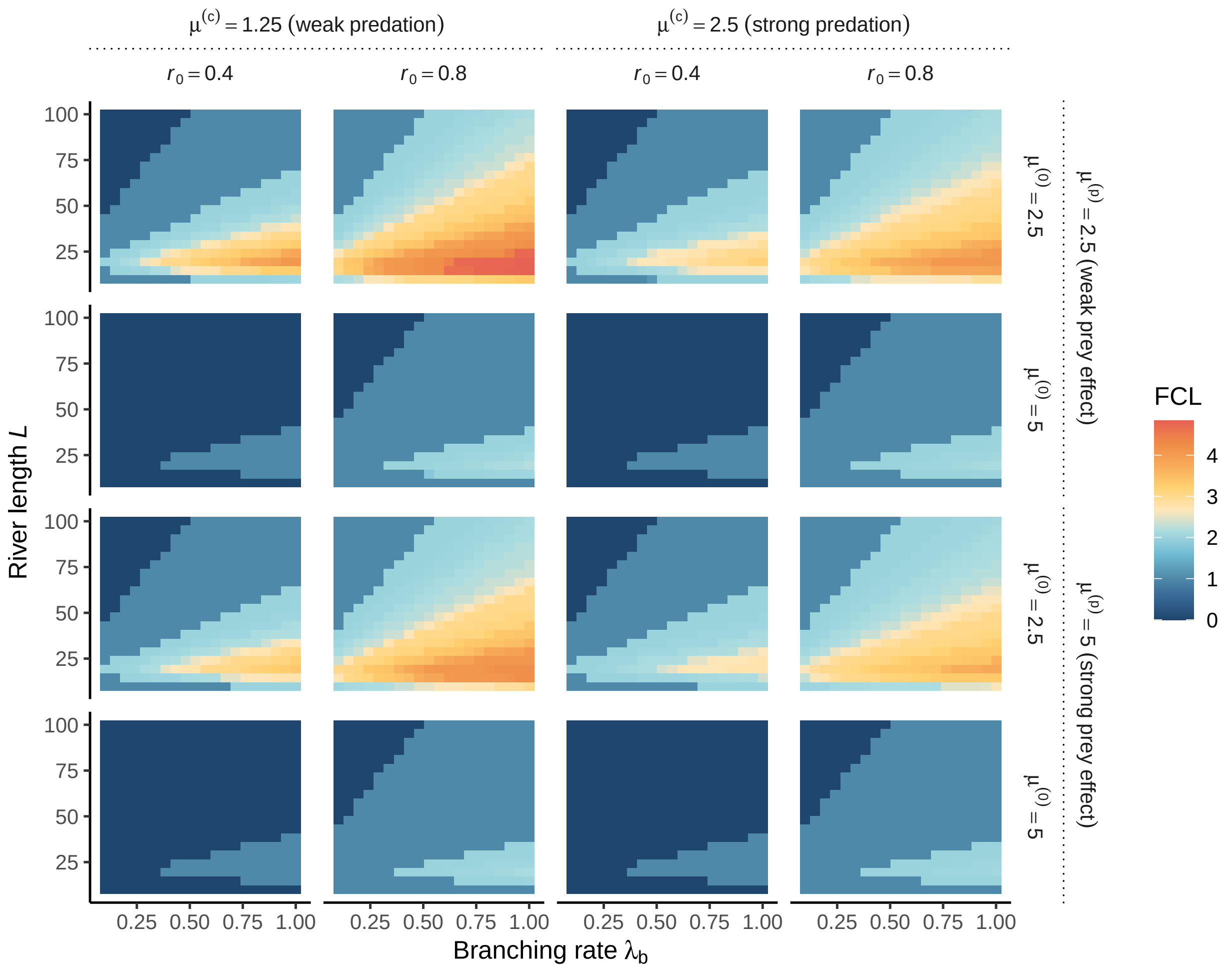

Figure 3: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 75$, synchrony probability $\rho = 0.5$, omnivory $\theta = 0.25$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (high propagule, high synchrony, weak omnivory)

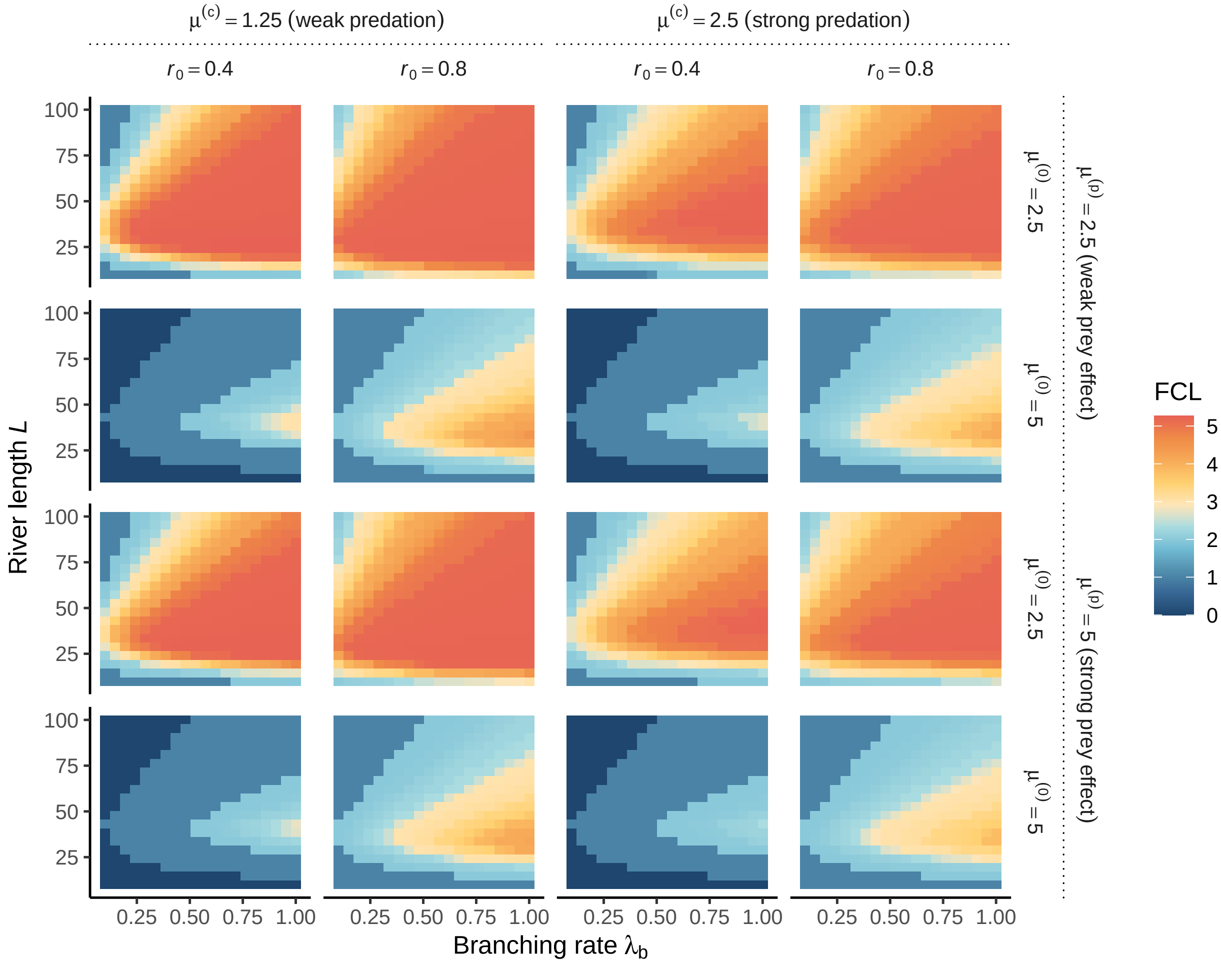

Figure 4: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 150$, synchrony probability $\rho = 0.5$, omnivory $\theta = 0.25$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (low propagule, low synchrony, strong omnivory)

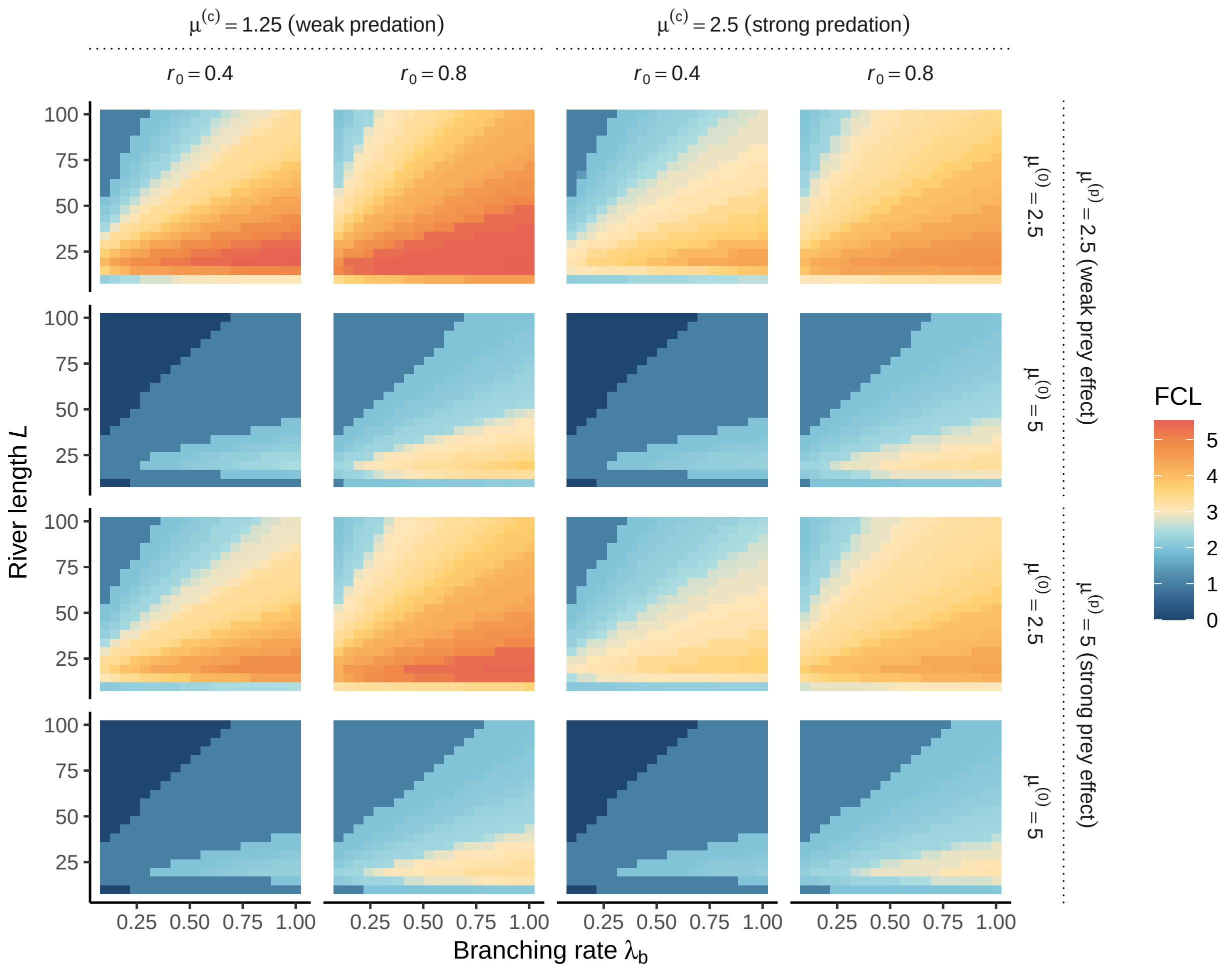

Figure 5: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 75$, synchrony probability $\rho = 0.25$, omnivory $\theta = 0.5$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (high propagule, low synchrony, strong omnivory)

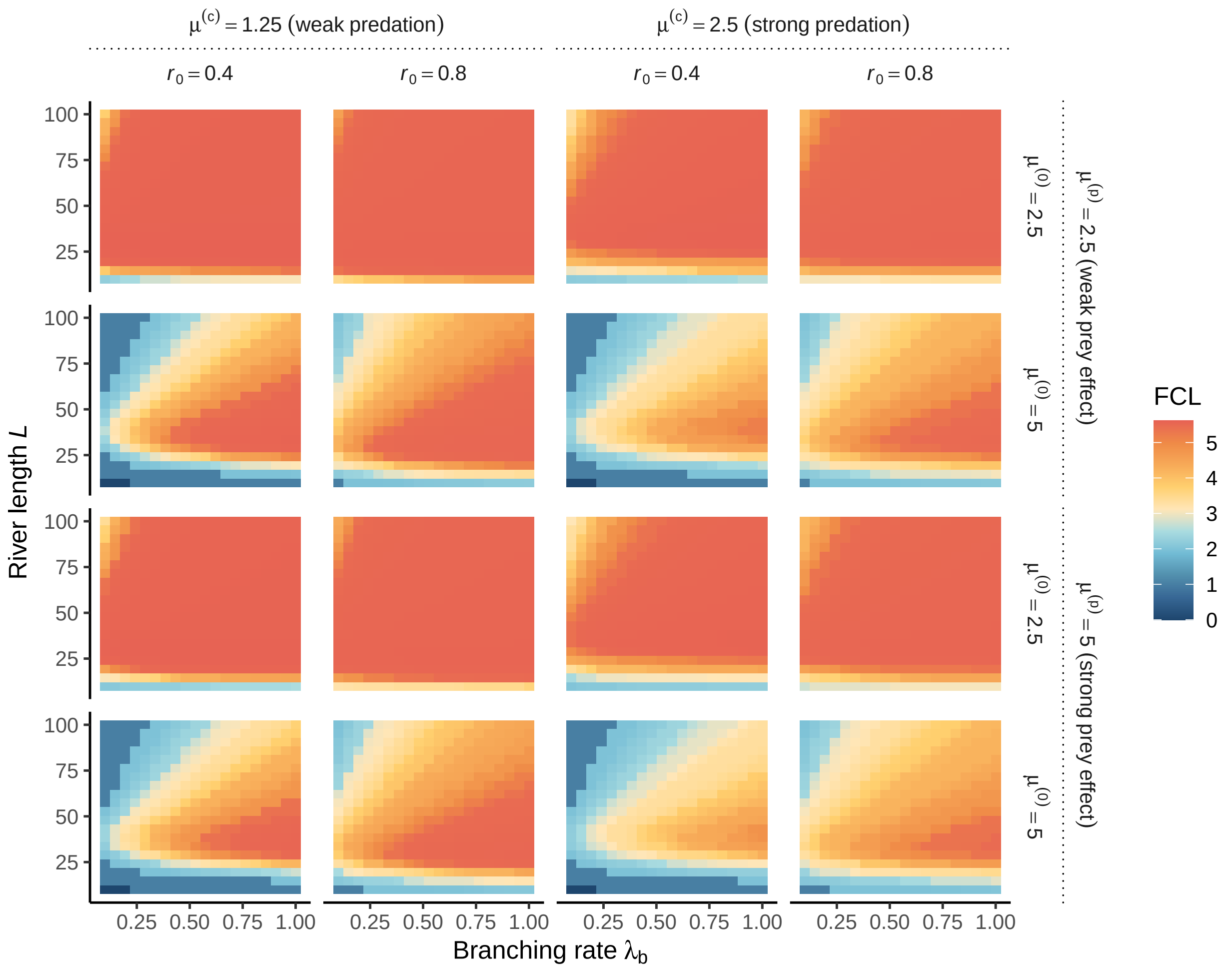

Figure 6: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 150$, synchrony probability $\rho = 0.25$, omnivory $\theta = 0.5$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (low propagule, high synchrony, strong omnivory)

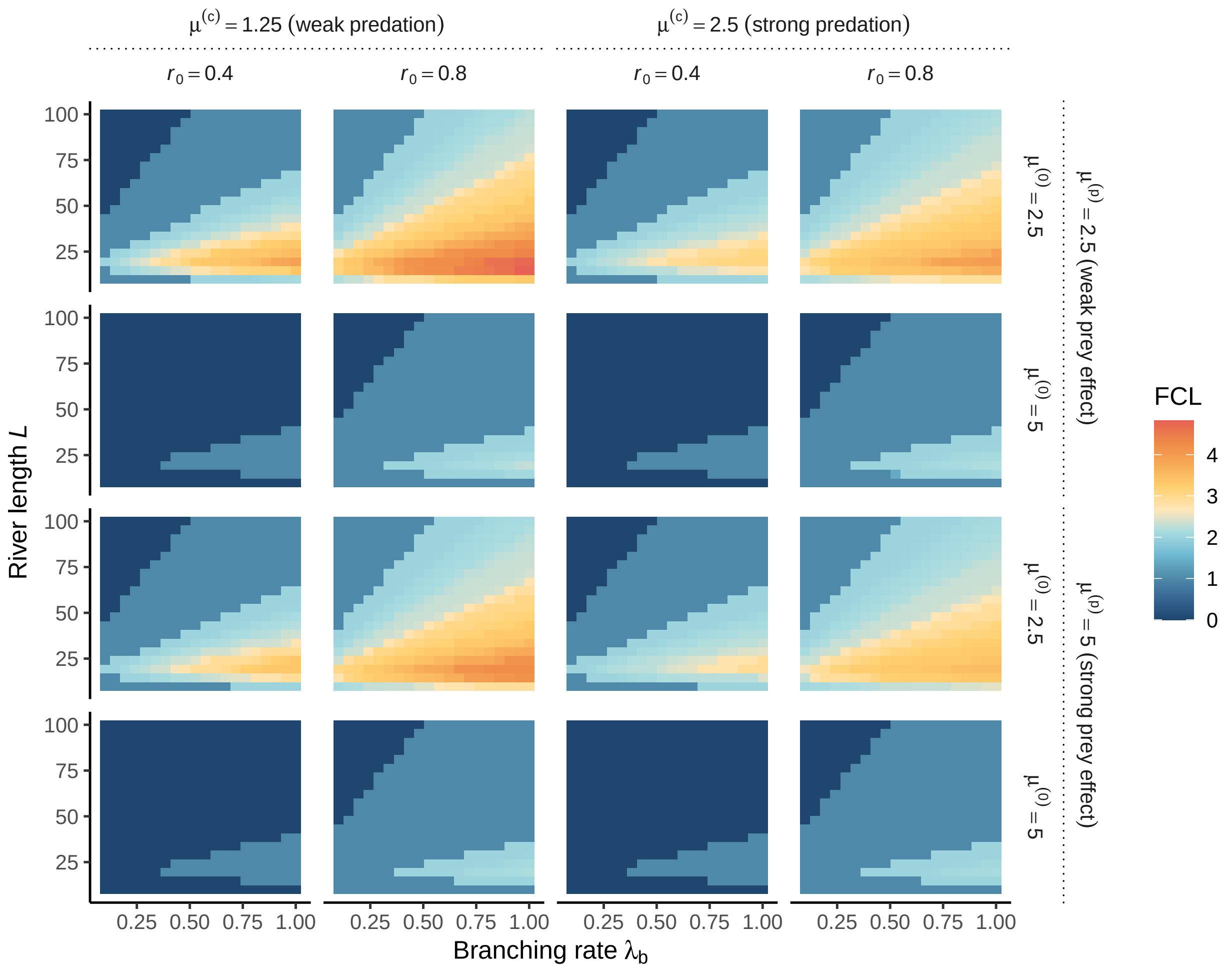

Figure 7: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 75$, synchrony probability $\rho = 0.5$, omnivory $\theta = 0.5$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

Numerical prediction (high propagule, high synchrony, strong omnivory)

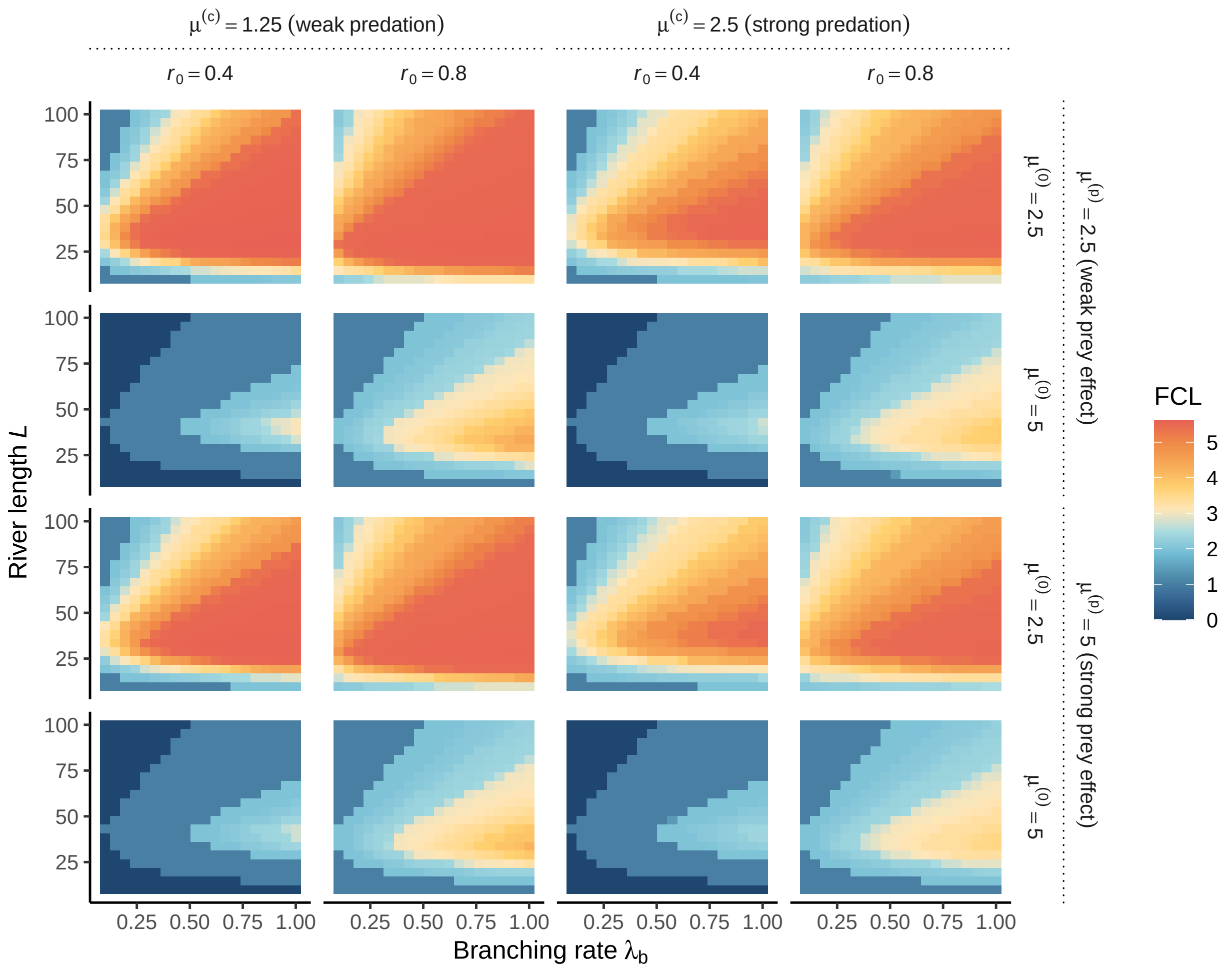

Figure 8: Heatmap of FCL as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of resource supply (r_0), disturbance regime ($\mu^{(0)}$), predation effect ($\mu^{(c)}$), and prey effect ($\mu^{(p)}$). Each cell represents the average FCL of five food webs. Additional parameter values are: number of gross propagules $g_0 = 150$, synchrony probability $\rho = 0.5$, omnivory $\theta = 0.5$, habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.