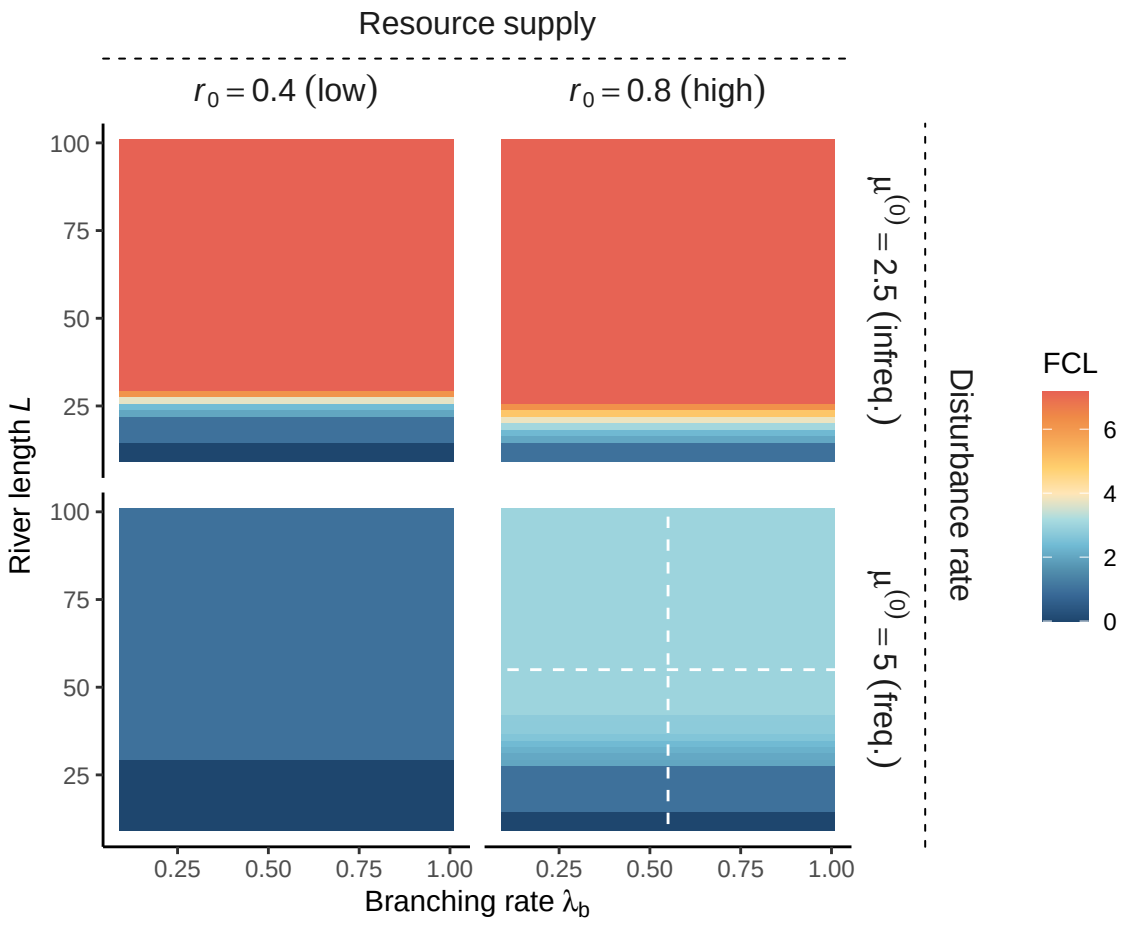
Resource supply
$r_0 = 0.4$ (low)
$r_0 = 0.8$ (high)
Disturbance rate
$\mu^{(0)} = 2.5$ (infreq.)
$\mu^{(0)} = 5$ (freq.)
River length L
100
75
50
25
0.25
0.50
0.75
1.00
Branching rate λ_b
FCL
6
4
2
0

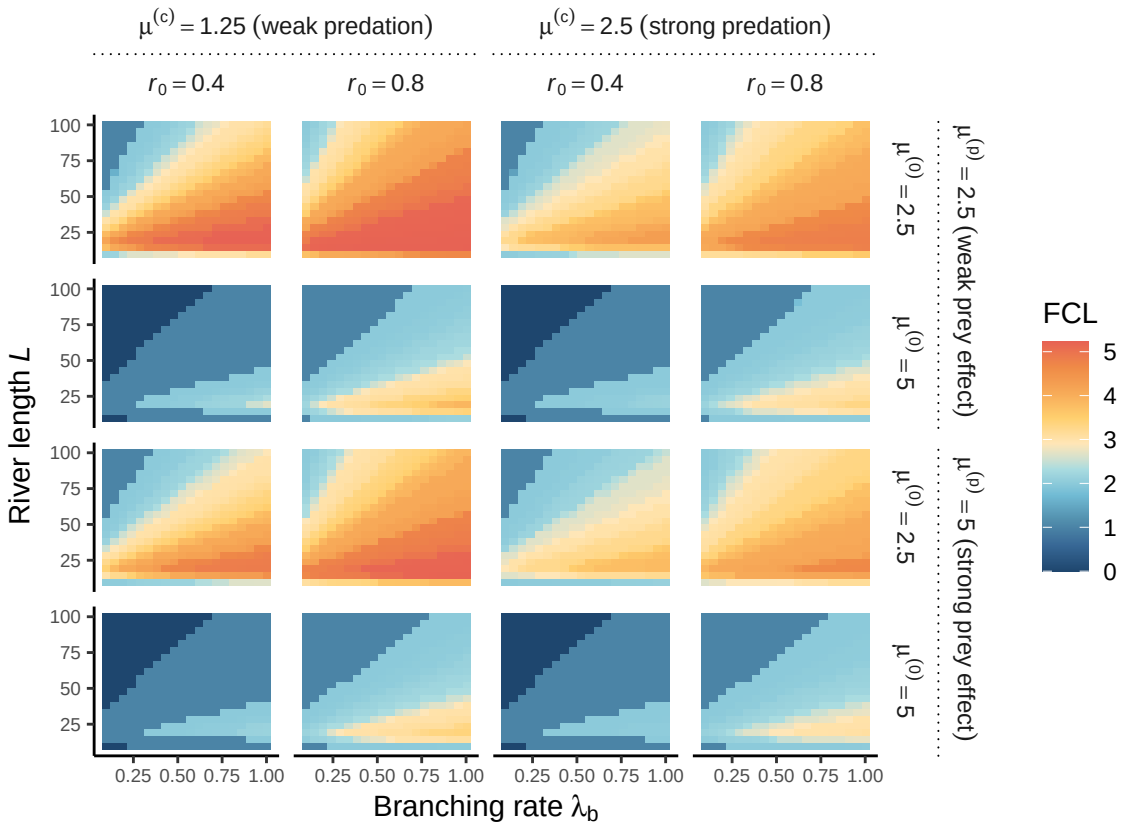

Figure 1: Numerical prediction with low propagule $g_0 = 75$, low synchrony $\rho = 0.25$, and weak omnivory $\theta = 0.25$. Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

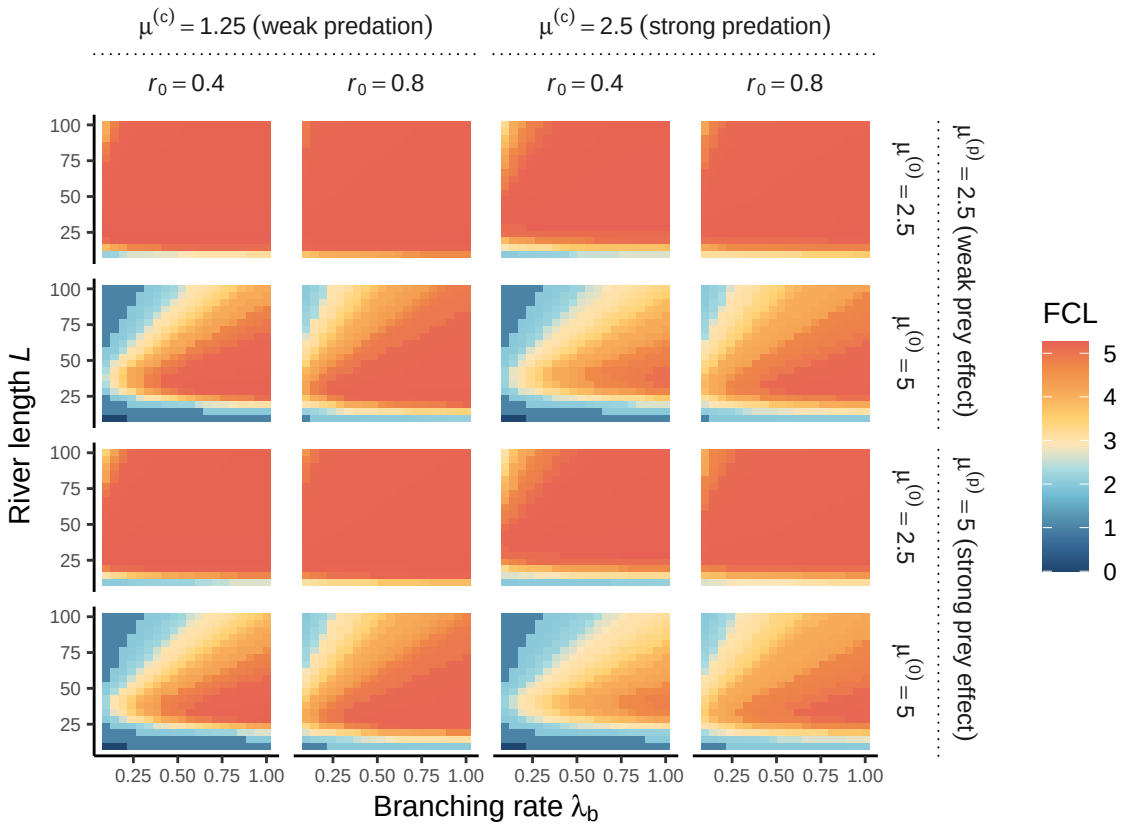

Figure 2: Numerical prediction with high propagule $g_0 = 150$, low synchrony $\rho = 0.25$, and weak omnivory $\theta = 0.25$. Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

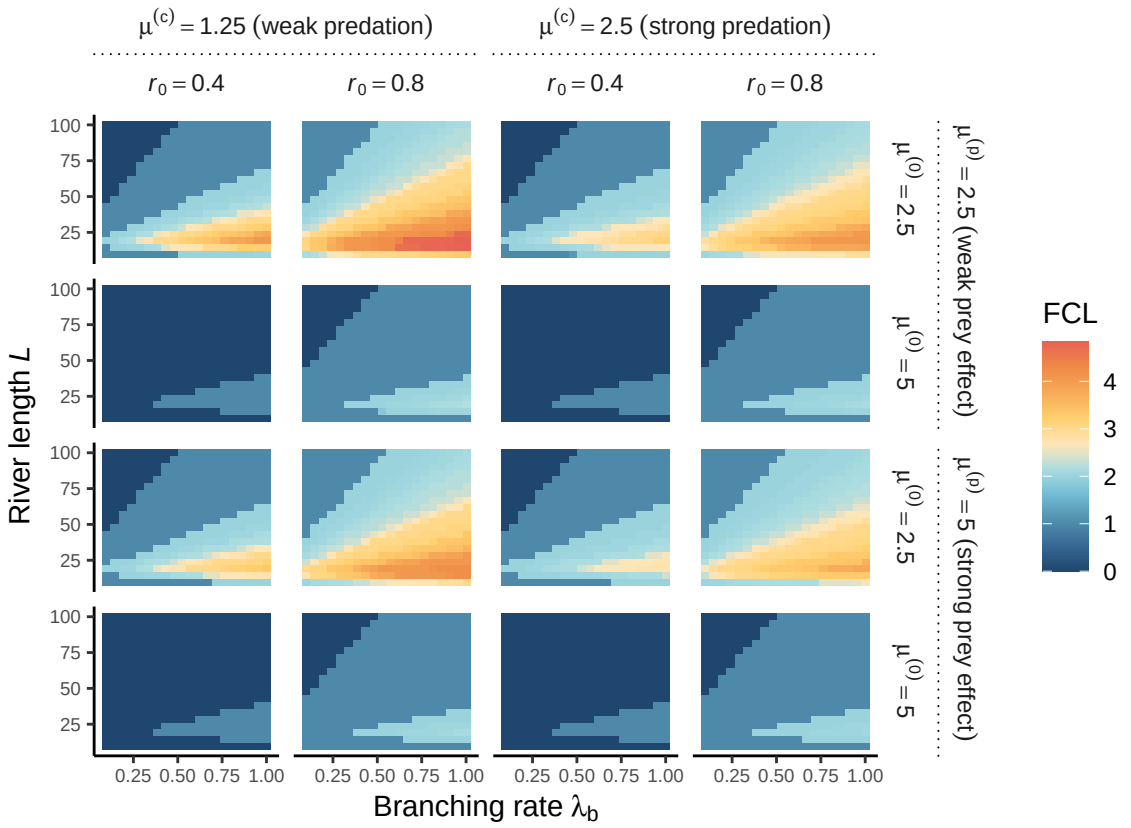

Figure 3: Numerical prediction with low propagule $g_0 = 75$, high synchrony $\rho = 0.5$, and weak omnivory $\theta = 0.25$. Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

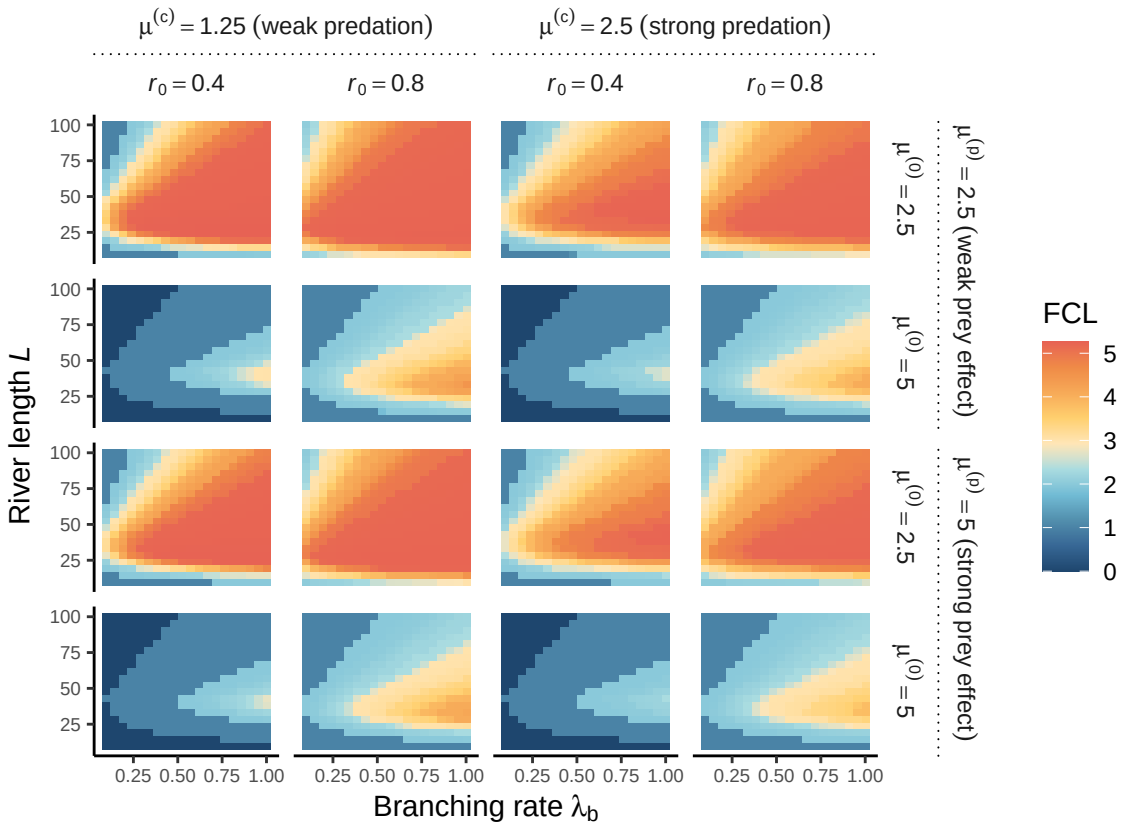

Figure 4: Numerical prediction with high propagule $g_0 = 150$, high synchrony $\rho = 0.5$, and weak omnivory $\theta = 0.25$. Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

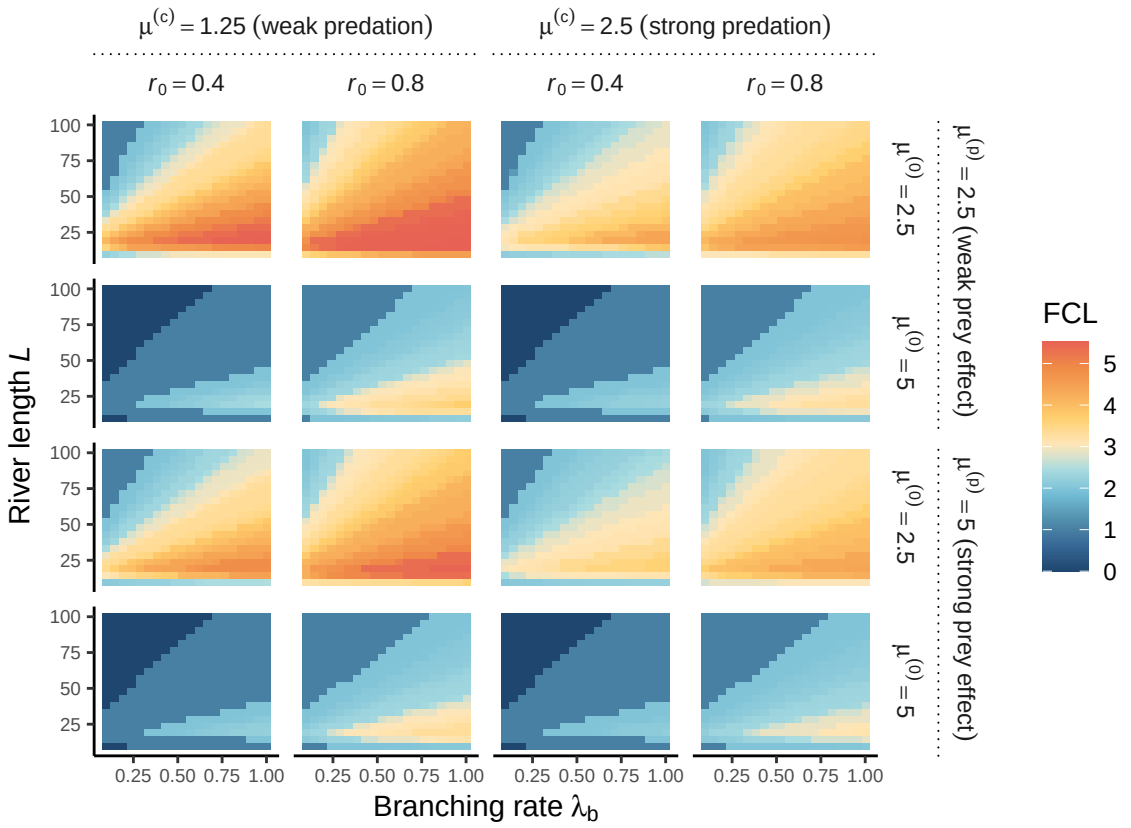

Figure 5: Numerical prediction with low propagule $g_0 = 75$, low synchrony $\rho = 0.25$, and strong omnivory $\theta = 0.5$.Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

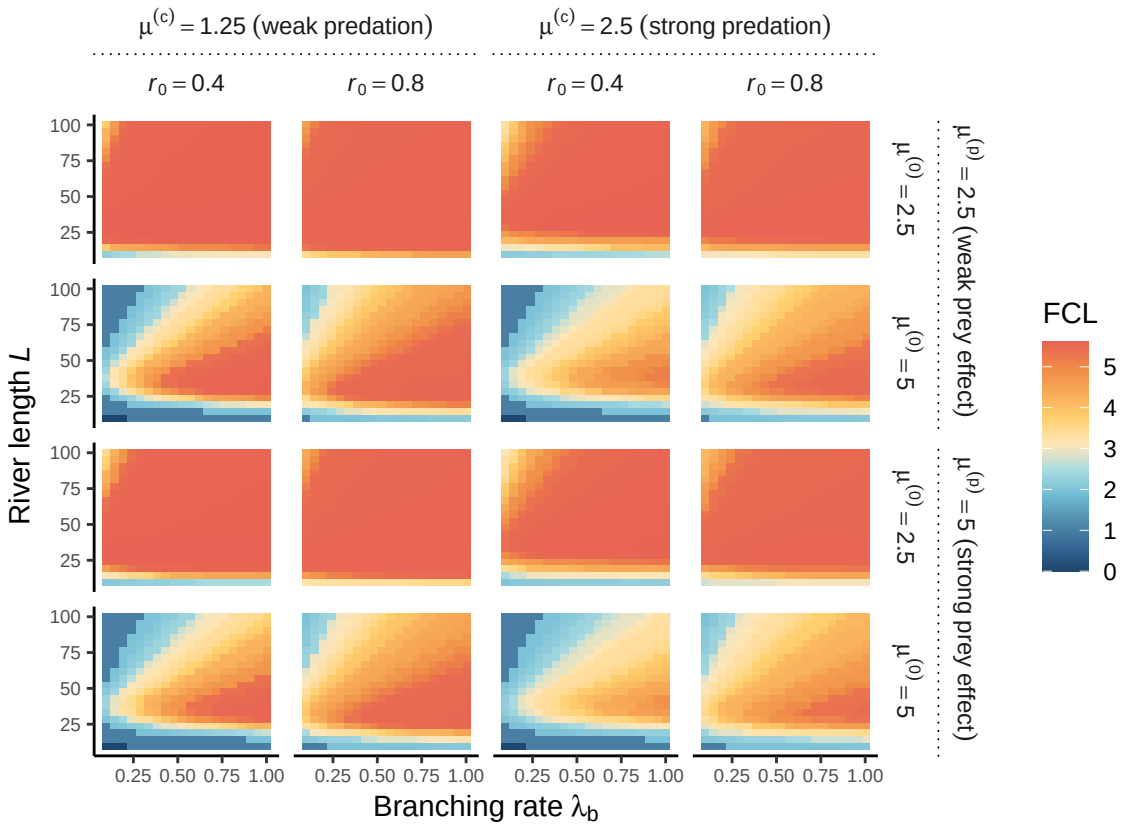

Figure 6: Numerical prediction with high propagule $g_0 = 150$, low synchrony $\rho = 0.25$, and strong omnivory $\theta = 0.5$.Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

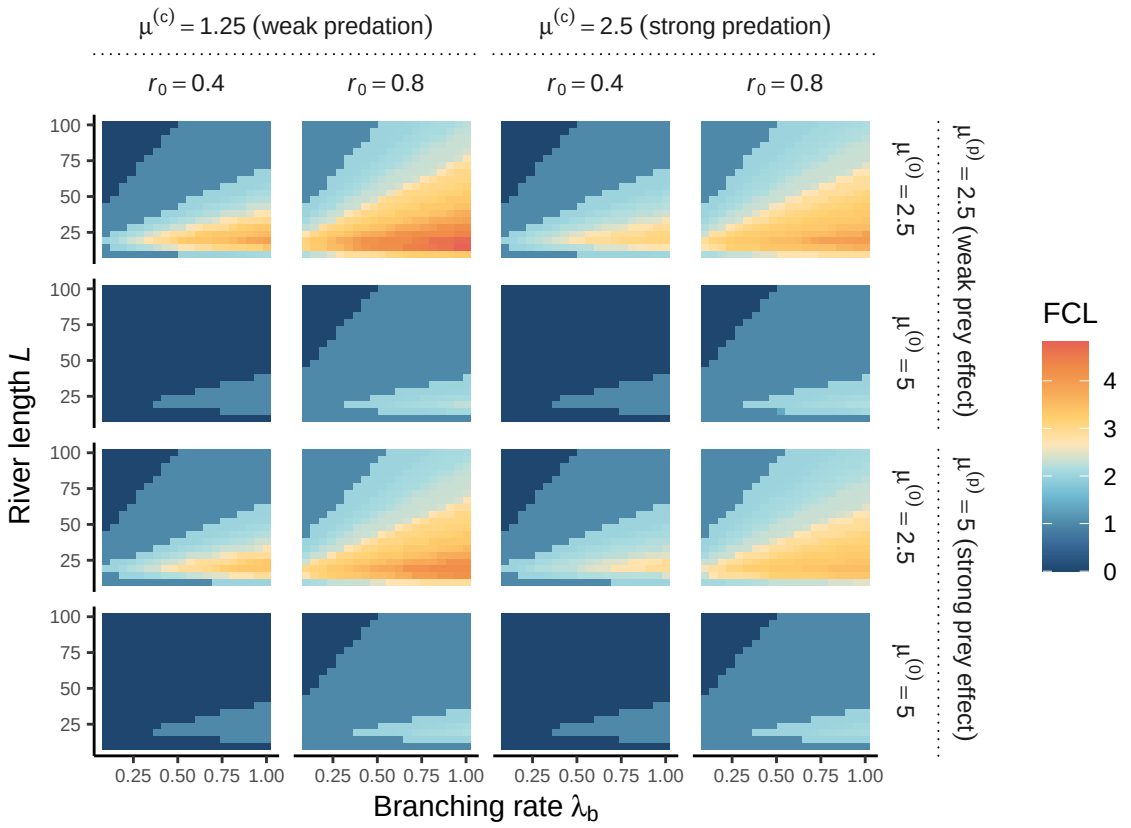

Figure 7: Numerical prediction with low propagule $g_0 = 75$, high synchrony $\rho = 0.5$, and strong omnivory $\theta = 0.5$.Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations of 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.

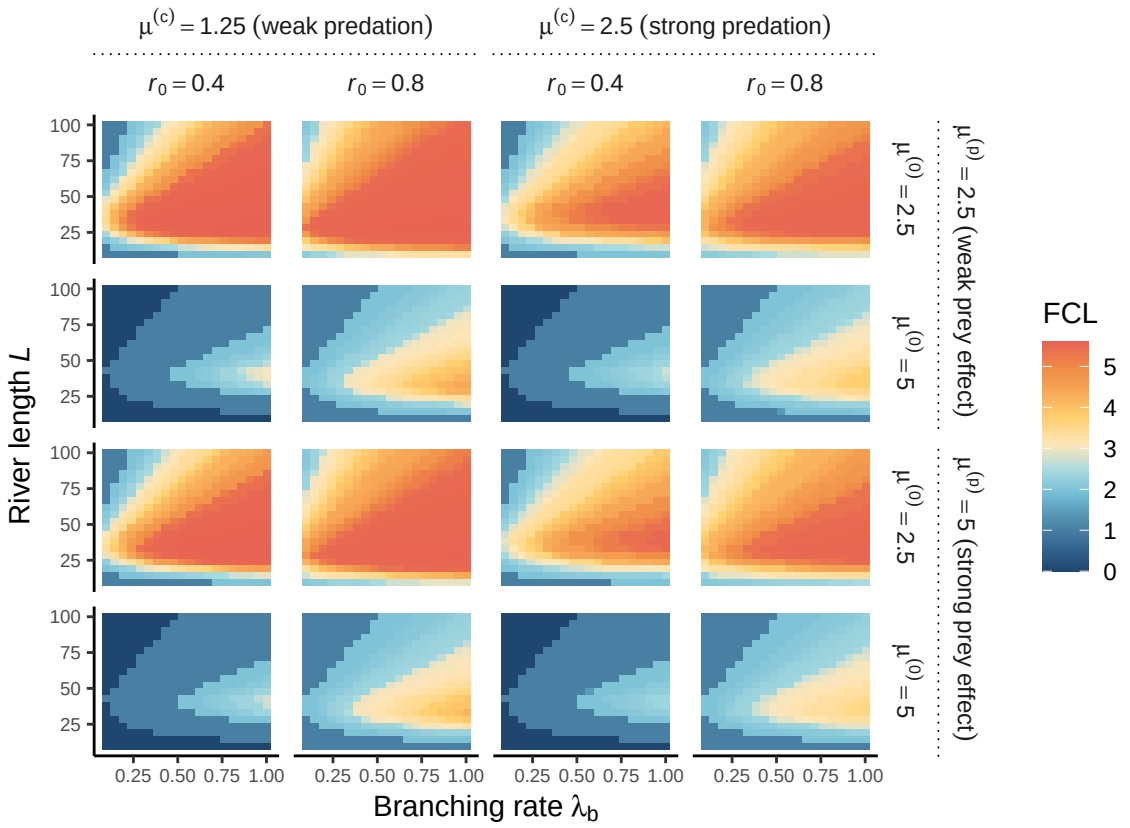

Figure 8: Numerical prediction with high propagule $g_0 = 150$, high synchrony $\rho = 0.5$, and strong omnivory $\theta = 0.5$.Heatmaps of FCL are expressed as a function of ecosystem size (river length, L) and complexity (branching rate, λ_b), with rows and columns displaying different combinations 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: habitat density $h = 2.5$, dispersal capability $\delta_0 = 0.5$, and scaling exponent $\psi_1 = \psi_2 = 0.5$.