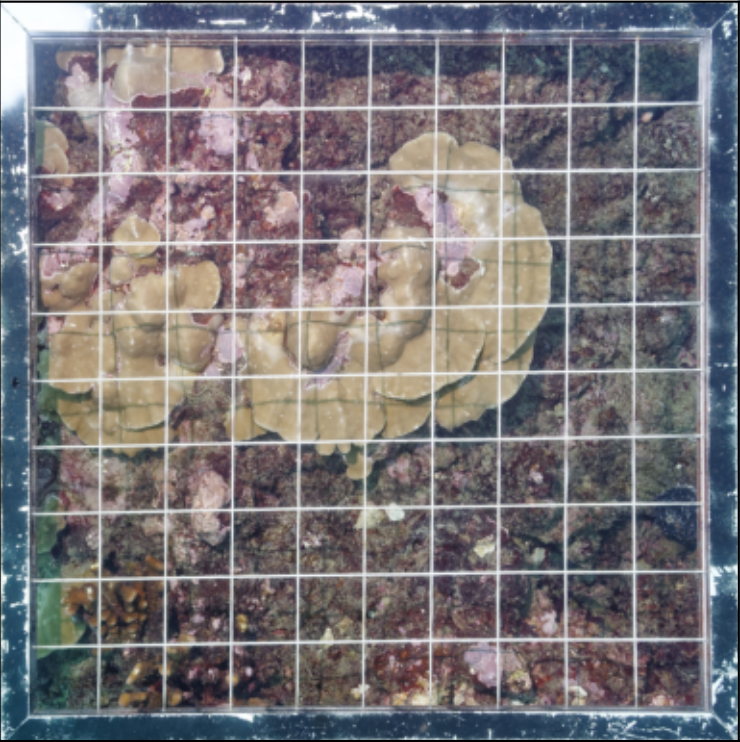
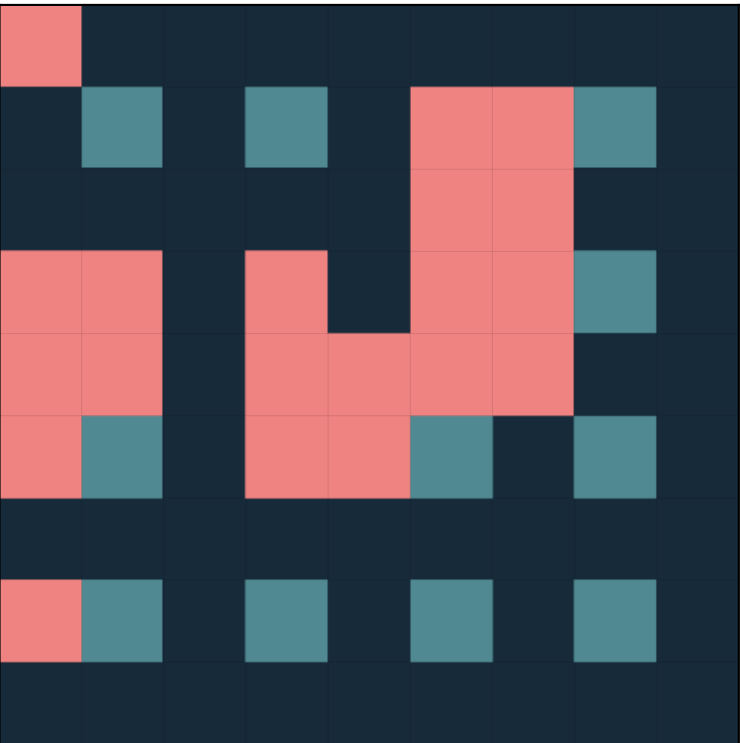


## A. Model motivation

Coral data

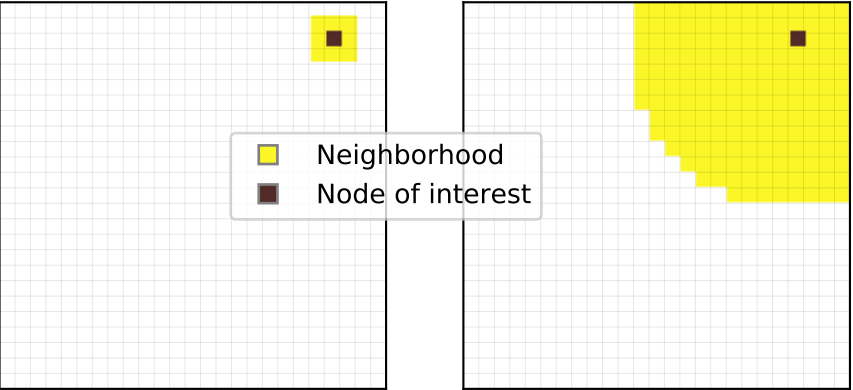


sMHE model

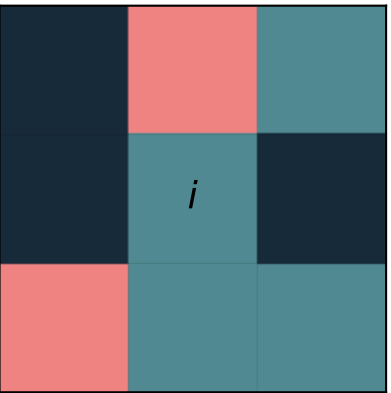


## B. Model construction

Neighborhood definition

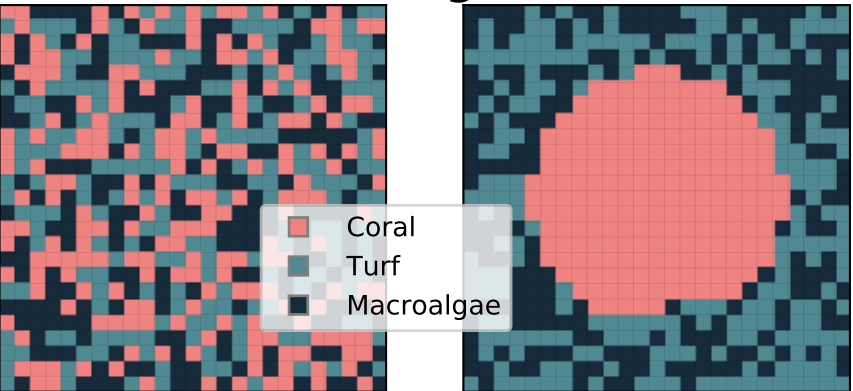


Local neighborhood of node  $i$ ,  $l = 1.45$



$$\begin{aligned} C_i^l &= 2 \\ T_i^l &= 3 \\ M_i^l &= 3 \end{aligned}$$

Initial configurations



Random

Cluster

## C. Model simulation

Species cover temporal evolution of 100 simulations

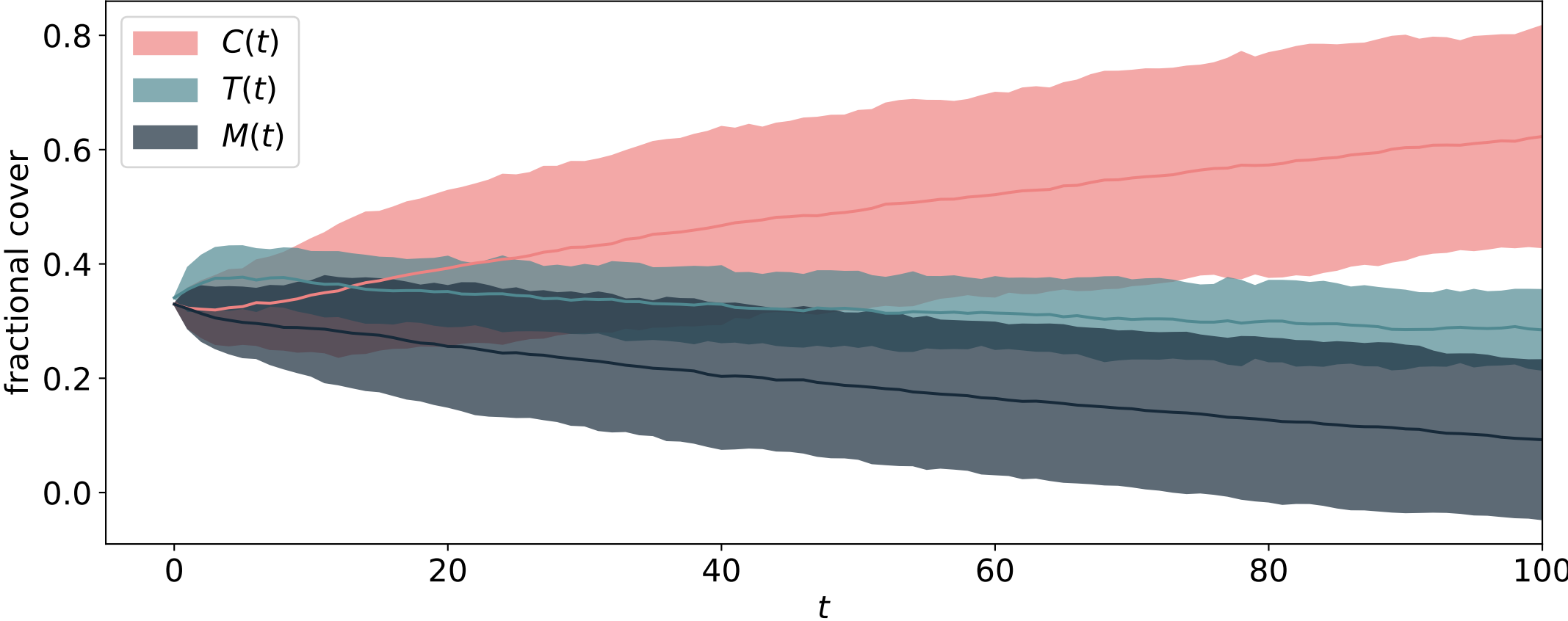
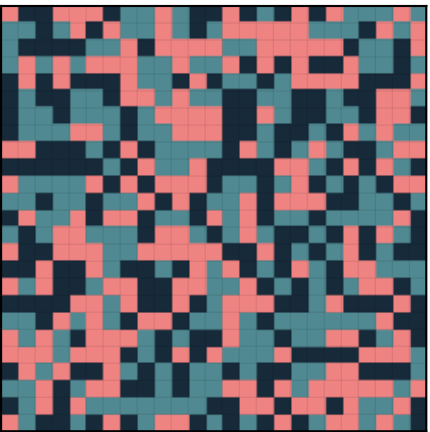
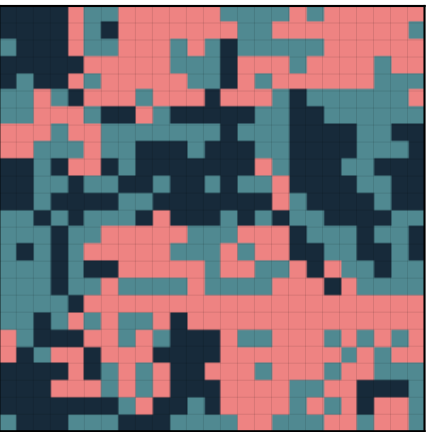


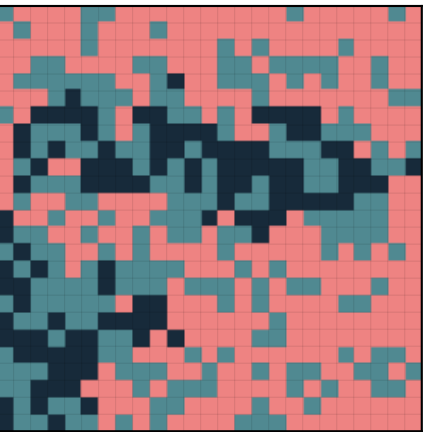
Illustration of model evolution



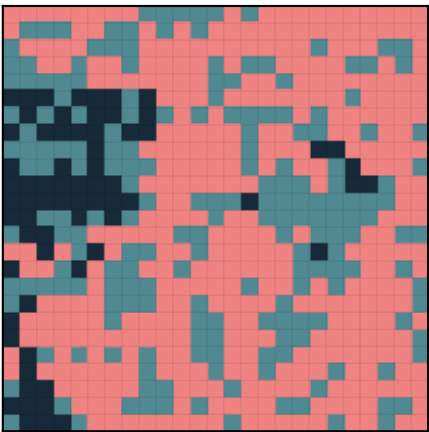
$t = 0$



$t = 20$



$t = 60$



$t = 100$