

## **Model description**

The model is a variation of the Wealth Distribution in the Social Science folder of NetLogo by Uri Wilensky. We use this model to create a landscape with different levels of carrying capacity, and all patches grow resources using a logistic growth function.

Agents consume each time step 1 unit of the resource if at least one unit is available. They will not harvest from the patch if the resource level is below  $\text{Threshold} * \text{Carrying capacity Patch}$ , whether the threshold is a turtle attribute. If an agent cannot harvest on a patch, it will look to the left, right, up and down to find a direction that is more promising (they have a vision accumulating information of all the patches in the direction).

We can allow agents to imitate the threshold of other agents that they observe doing better than themselves. This will lead to overharvesting,

We can also allow agents to peer punish others who use lower thresholds than them. With appropriate penalty levels this will lead to sustainable outcomes.

More details of the model can be found in the e-book, Introduction of Agent-Based Modeling by Marco Janssen.