USTH 2024 – Project 3

Driftwood

Self-regulating access to natural resources

On the coast of a distant country, people compete for the gathering of driftwood brought to the shore by storms. Whoever is first onto a stretch of the shore after high tide is allowed to take whatever he wishes up to its carrying capacity and to gather it into a pile above the high-tide line. To indicate ownership, piles are marked by placing two stones on their top. The wood it contains is then regarded as the property of a driftwood collector. Only wood pile owners always respect pile ownership. Collectors having not yet established a pile can head towards wood piles and “steal” the wood it contains, but only when no pile owner is observing them.

An ABM based on this description will be used to explore the value of this “peer-pressure” regulation in addressing wood theft. Is it possible, without any external enforcement, to reach a stabilized situation?

Extension 1: Modify the agent-based model to explore variations in the recognition of pile ownership. Introduce the ability to steal to owners and analyze the impact on the stability of pile ownership over time.

Extension 2: Extend the model to introduce external factors, such as the arrival of external authorities or external enforcement mechanisms. Explore how the introduction of external influences affects the stability of the system and the behaviors of wood collectors.

Extension 3: Conduct an exploration exercise by varying the size of the wood collector groups. Investigate how the size of collector groups influences the emergence of stabilized situations, considering aspects like cooperation, competition, and the prevention of wood theft. Analyze the system's resilience to perturbations based on group size.