

**MORE ABOUT PARALLEL SESSION:**  
**NATURE'S BENEFITS IN AGRO-FOREST FRONTIERS (FOREFRONT)**

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**Description:**

Designing adaptive strategies to balance and optimise the supply of critical ecosystem services in changing landscapes, particularly at the agro-forest frontiers, demands knowledge of stakeholders, their stakes and the way in which both of them interact in socio-ecological systems, creating both possibilities for synergies (win-win scenarios) and for trade-offs (zero-sum games). In practice, many intermediate solutions can be achieved and the options for reaching that middle ground are actively sought. One beneficial approach that the INREF-WU-programme Forefront is implementing is through the use of environmental games.

In one of the research sites of the Forefront programme (Man & the Biosphere reserve La Sepultura, Chiapas, Mexico) farmers can obtain their livelihood through cattle grazing (mostly exotic grasses) and / or collection of resin from pines; the former activity is important for local livelihoods but strongly discouraged by the conservation-oriented external actors while the latter is the result of recent negotiation between local producers and conservationists. There are several trade-offs between these uses of the landscape (maximising grazing areas is at the expense of tree cover and vice versa; there are also more subtle interactions between both activities, as grazing impacts pine regeneration both positively and negatively). Combinations of grazing and resin collection seem beneficial, but win-win scenarios in the short-term may hamper the long-term sustainability of the system through their effects on regeneration of pines.

Exploring the space for win-win scenarios and the sustainability of them can be done through agent-based modelling (ABM), followed by ABM-supported gaming. The model is called TRUE GRASP (Braasch et al., 2018: Tree Recruitment Under Exotic GRASSES in a Savanna-Pineland).

In this session you will play with others a challenging and fun multiactor game with TRUE GRASP. The programme will be installed on computers (as the programme does not run on a Mac, we will do the session in a computer room). After a short introduction about Forefront and the research area, the principles of agent-based modelling and its specific application in TRUE GRASP will be explained. After that you will play the game. At the end we will explore the successful (synergetic) outcomes. Finally we will reflect on the possibilities to have such gaming practices introduced in education (academic and in other settings) and, if possible, formulate specific recommendations.

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Session overview:

- 16.00-16.30 Introduction
- 16.30-17.20 ABM-supported gaming session
- 17.20-17.45 Discussion
- 17.45-18.00 Recommendations how insight in trade-offs and cooperation through gaming can help achieve the SDGs

For practical purposes the number of participants will be restricted to 40 participants.

Reference:

Braasch, M., L. García-Barrios, S. Cortina Villar, E. Huber-Sannwald & N. Ramírez-Marcial 2018. TRUE GRASP: Actors visualize and explore hidden limitations of an apparent win-win land management strategy in a MAB reserve. *Environmental Modelling & Software* 105: 153-170. <https://doi.org/10.1016/j.envsoft.2018.03.022>