Kulayinjana (« Teaching Each Other »): A Role Playing Game to elicit, model and simulate cattle complex herding strategies

Engaging people in co-designing a role-playing (RPG) game that mimics their everyday life

Arthur Perrotton1, Christophe Le Page2, Peace Chuma3, Bernard Triomphe4, Michel de Garine Wichatitsky2

1 CIRAD, Dep. Environment & Society, UR AGIRs. Harare, Zimbabwe, 2CIRAD, Dep. Environment & Society, UR GREEN. Montpellier, France, 3France/CNRS/National University of Science and Technology, Hwange/Bulawayo, Zimbabwe, 4CIRAD, UR Innovation, Montpellier,

A Socioecological system with complex interactions between rural communities and forest managers:

- 1972: Creation of the Sikumi Forest → banned access for communities
- 1992: Major Drought → communities obtain a controlled right of access to the forest. Grazing allowed, but the official authorized distance is controversial (from 2 to 7 kms)
- Forest managers acknowledge the rural need for grazing land and the benefits of such policy: buffer zone; decreased risk of fire; improved relationships...but are concerned by sides effects such as overgrazing, diseases transmissions and opportunist activities like poaching.
- Herding cattle inside the forest is a key practice for farmers living on the edge of the forest: Access to grazing and water pans that are scarce in the villages; allows to avoid crop damages due to cows entering fields.

Cattle herding is part of a complex farming strategy, various socioecological parameters will influence herders' decisions: personal history, individual objectives, interactions with other farmers/herders, cattle body condition, size of the herd, climate, agricultural calendar...

Cattle herding at the heart of coexistence between rural communities and conservation areas

From Field observations ...

- Living with a family in a village (Magoli)
- Participant observation & interviews
- Driving cattle in the forest with herders

Objectives

- Overview of the system
- Knowing people and being known
- Building trust
- Defining a co-designing team

...To the co-design of a farming RPG

The Team: 11 Villagers and 3 researchers working jointly with a common objective

- The virtual environment reproduces their real life setting: e.g. Village Vs Forest, wildlife, rainfalls.
- Uncertainty is part of the game: climate, predation and crops raiding by wildlife
- Players play their real lives: managing their farms and driving their cattle in a dynamic environment
- The environment (grazing availability, fields) will be impacted by players' decisions
- Players can collaborate, or play individually
- A playing session involves 2 agricultural years with two different rainfall patterns

Conclusion

- Process achieved through mutual trust, freedom of speech and reciprocity.
- Objective reached: Developing an intermediate object that makes sense for all the members of the team, and allows us to collect data on cattle herding strategies