**General questions**

* How does one decide on the actual figure for user and manager budgets? Is the actual number irrelevant, but rather the numbers relative to each other?
* When land\_ownership is true, what is the purpose of adding public\_land? What does the public land actually do?
* How might I make the resources trees? Would having an individual resource as an individual tree just make the number of resources unnecessarily massive (never mind trying to estimate the number of individual trees on a landscape)? Presumably I would want an individual resource unit to represent some unit of forest cover (e.g. hectare). Then if I assumed say, that a landscape cell was 2ha x 2ha then the maximum number of resources for a cell could be 4 (i.e 4ha).
* Observation model will require some thought. The simplest option would be to have perfect observation, which would replicate frequent, high resolution remote sensing of forest cover within a PA. The reality is more nuanced. High res satellite imagery is produced and analysed probably once or twice a year, but you also get discoveries of clearance by field teams randomly throughout the year. Can the transect method be imperfect to replicate this? We want to introduce some level of positive bias i.e. that the observations via the transect (representing authorities presence through the landscape) will regularly miss clearance, and so probably underestimating the loss of resources. But then additionally, we want them to get an accurate picture at regular intervals to mimic remote sensing. Perhaps an imperfect transect followed by perfect detection, in alternate time steps?
* Alternatively, the observe\_type=0 where managers observe a random subset of the landscape might be the way to go, for the simulating of the patrols etc.
* In terms of utility for the users. I guess I want to set it so that if there are trees on a cell in a users land, then the reduction in “yield” is 100% i.e. the user gets no yield from a cell that is covered in trees. So there would be positive utility for the user to cull the trees, as this would increase the yield on that cell. But what is the value of tending crops (+50% yield, see GMSE documentation)? Can I set the utility for that? Working out the relative utility between tending crops and cutting trees will require some thought.
* How would we set the resource target for the manager to reflect the fact that users are allowed to clear forest inside their land? Would we set the target to be the number of cells in the landscape minus the number of cells under tenure? i.e. the manager aims to keep all cells outside tenured land forested
* I land\_ownership is TRUE, then how do we allow the users to clear forest outside their land once all their tenured land is cleared? Is this even possible?

**From SI1**

* In the new version can managers set different policies for different users? Mentioned as a potential new development.
* Are multiple resources allowed yet?

**From SI4**

* Individual costs for the actions of each agent can be set for each user in *sim\_new$manager\_array*. This may be where I need to set the different costs for people with and without tenure.
* We can change the ownership of cells by manipulating sim\_old$LAND[,,3].
* How come the rows and columns appear to be the other way around when assigning custom land ownership?
* Custom budgets can be set using sim\_old$AGENTS (column 17).

**From SI6**

* To make meaningful model inferences, it is often necessary to replicate simulations under the same initial conditions to understand the range of predicted outcomes for a particular set of parameter values
* When parameter values are unknown but believed to be important, replicate simulations can be applied across a range of values to understand how a particular parameter might affect system dynamics
* In gmse\_replicates, do you have access to results from all time-steps from all replicates?

How is the cost of an action actually calculated? When there were 50 stakeholders, and the manager had a budget of 100, they appeared to have 20 to spend on cost of action in each time step (ten\_rep\_1). When there were 50 stakeholders and the manager had a budget of 500, they appeared to have 60 to spend on cost of action in each time step. When there were 30 stakeholders and the manager had a budget of 500 they again had 60 to spend on cost of action. I can’t work out where the cost number is coming from.

If the resource does not decrease yield at all, what is driving the users to cull?

How are the resources distributed in the landscape? Is it random? Can we control it so that they are distributed evenly? Although perhaps we don’t want that?

What drives the variation in user actions in the first time step? Is this dependent on the number of resources the user happens to have on their cell at the beginning?

If the cost of culling remains the same, and user/manager budgets remain the same, and the number of culling actions remain the same, and the number of resources culled is the same, how come the act\_unused is changing?

Am I correct:

The number of actions a user can make in a time step is user budget / cost of action