The model compares household behavioral types using long-term socio-ecological performance. While the model is initialized considering original model parameters, the model focuses on the dynamics from the extension module. This is supported by TRAD, MAX, and SAT households initialized at 0 with no observable dynamics that points to their change during execution. Also, original model parameters are initialized but not described in the narrative. Therefore, dynamics of the original model are needed as they provide the basis for the extended module to work. Main dynamics are driven by pastures, livestock, and household livelihood. "Pastures" is a function of rain, which initializes at 282.71 and remains fixed for comparability purposes. Livestock (initialized at 90) and feeds on pastures' biomass. Household observe pastures and neighbors to make make decisions about livestock placement on pasture every year. Households observe (knowledge-radius) the state of pasture and their neighbours to make decisions about livestock quantity and placement on pastures every year. There are four agents, one of which is a patch type (pasture) and three that correspond to households (E-RO, E-LBD, and E-RO-SL1). E-RO, E-LBD, and E-RO-SL1 are initialized at 20. Number of households can vary during execution. Lastly, as the homog-behav-types is set to TRUE, the simulation will compare performances of agents of each type. A major feature of the extension module is the introduction of a risk parameter (household-risk-att). The risk parameter is composed of factors such as risk attitude and partial observability, which seems connected to knowledge-radius. The Parameter "risk-mode" is set as TRUE and risk is seeded at 0.5.

Early phase dynamics (between 0 and 6 years approx.):

Mean household risk dynamics stay constant for approximately five years within a -0.1 and 1.9 range. Mean reserve biomass increases for approximately three years and mean green biomass increases for about four years. Mean livestock + destock household starts a sharp decrease after about a year while mean destock of households start a sharp increase within a month or two. Gini coefficient total livestock stays almost constant for about 4 years. Count of households with social learning remains constant at 0 for five or six years while mean destock total of households has an immediate sharp increase. Lastly, the count of non-learning households remains at 20 for about 4 years.

Middle phase dynamics (between 5 and 40 years approx.)

Mean household risk dynamics exhibits a logarithmic-like growth. Mean reserve biomass decreases for most runs until year 40. However, a few runs exhibit a decline with an increase in between years 12 and 15. Mean green biomass mirrors mean reserve biomass behavior. Mean livestock + destock household starts a sharp smooth exponential-like decrease after about a year while mean destock of households start a sharp decrease after a month or two. This exponential-like decrease has peaks and valley all the way down. Gini coefficient total

livestock healthy starts a gradual, almost linear, increase after about 4 years. Count of households with social learning has a sharp logarithmic-like increase after five- or six-years reaching values at year 40 between 13 and 53 approx. Runs are show three major ranges at year 40: runs between 13 and 19; 37 and 43; and 48 and 53. All these are approx. ranges. Mean destock total of households has another immediate logarithm-like increase from 0 bending towards the horizontal at about year 20. Lastly, the count of non-learning households starts exhibiting two behaviors after year 4 approx.: either presenting a sharp increase or a sharp decrease. No identifiable curve behavior is observed.

Final phase dynamics (After 40 years approx.)

Mean household risk dynamics exhibits two behaviors: a stabilized one or a sharply decreasing one, with no identifiable curve type. After the decrease, however, the curve flatlines. Mean reserve biomass increases from 40 until about 60 years where turns horizontal completing an "S" shape. Mean green biomass mirrors mean reserve biomass behavior from the same ranges and the same overall "S" shape. Mean livestock + destock household curves upwards and about 60 turns horizontal with most runs exhibiting a flat "S" curve with some exceptions. Exceptions are divided in two: a larger "S" curve and no break at 40 but a continuation of the exponential-like decrease. Mean destock of households flatlines after 40 with some peaks at 41, 47, and 63 approx. Gini coefficient total livestock bends upwards at 40 on its increasing trajectory. At approx. year 60 most trajectories attempt to form a stretched "S" shape. Five trajectories do not bend but present a slight down curvature. Count of households with social learning flatlines at about year 40 maintaining the mentioned ranges between 13 and 19; 37 and 43; and 48 and 53. Mean destock total of households bends either horizontally or keeping a logarithmic-like growth. Lastly, the count of non-learning households shows an "irregular heartbeat" behavior after year 40.