Appendix S3: Model Structure

Equation S3.1: The following equation represents the model structure to characterize the use of the different vegetation units present in each paddock according to *(1)* sheep category, *(2)* body condition score, *(3)* age of the individuals, and *(4)* time (as the number of days since the release in the paddock). The response variable *location* is composed by GPS and random points (1 and 0 values, respectively). The explanatory variable *resource* represents each landscape unit (i.e., Lp: Low production; Hl: High-land; Cw: Central wetland; Pw: Peripheral wetland; Gr: Grassland; ShGr: Shrubland-Grassland; Nf: Native forest; Rf: Riparian forest). Parameter *beta0* represents the selection of the reference landscape unit, which was low production area in *Repuntebajo* paddock, High-lands in *Frison-Guanaco* paddock and central wetland in *Side* paddock. The parameters *betak* represent the rest of the landscape units present in each paddock (with *k* ranging from 1 to the total number of landscape units present in each paddock K). Parameters α*0*and α*k* represent the selection of ewes; β*0* and β*k* represent the selection of hoggets; γ*0* and γ*k* represent the selection of wethers. The sign of these parameters indicates if sheep are selecting (positive sign) or avoiding (negative sign) a particular resource and the value indicate the strength of that selection/avoidance. Parameter represents the effect of time since release, the effect of age and the effect of body condition score on the resource selection patterns. In the model, subscript *i* represents each observation and *j* represents each individual. We fitted a separated model for each paddock, run 20.000 iterations for three chains and used a burn-in of 10.000 iterations.

We have chosen vague prior distribution for all parameters ad hyper-parameters in the model:

Equation S3.2: The following equation represents the model structure to characterize the use of the different vegetation units present in each paddock according to *(1)* sheep category, *(2)* body condition score, *(3)* age of the individuals, and *(4)* time (as the number of days since the release in the paddock). The response variable *location* is composed by GPS and random points (1 and 0 values, respectively). The explanatory variable *resource* represents each landscape unit (i.e., Lp: Low production; Hl: High-land; Cw: Central wetland; Pw: Peripheral wetland; Gr: Grassland; ShGr: Shrubland-Grassland; Nf: Native forest; Rf: Riparian forest). Parameter *beta0* represents the selection of the reference landscape unit, which was low production area in *Repunte bajo* paddock, High-lands in *Frison-Guanaco* paddock and central wetland in *Side* paddock. The parameters *betak* represent the rest of the landscape units present in each paddock (with *k* ranging from 1 to the total number of landscape units present in each paddock K). Parameters α*0*and α*k* represent the selection of ewes; β*0* and β*k* represent the selection of hoggets; γ*0* and γ*k* represent the selection of wethers. The sign of these parameters indicates if sheep are selecting (positive sign) or avoiding (negative sign) a particular resource and the value indicate the strength of that selection/avoidance. Parameter represents the effect of time since release, and the effect of 2-category mixed flocks. Parameters α*0* and α*k* represent the selection of ewes; β*0* and β*k* represent the selection of hoggets; γ*0* and γ*k* represent the selection of wethers. The sign of these parameters indicates if sheep are selecting (positive sign) or avoiding (negative sign) a particular resource and the value indicate the strength of that selection/avoidance. In the model, subscript *i* represents each observation and *j* represents each individual. We fitted a separated model for each paddock, run 20.000 iterations for three chains and used a burn-in of 10.000 iterations.

We have chosen vague prior distribution for all parameters ad hyper-parameters in the model: