Supplementary Material 2: Definition of model parameters

**This supplementary material to the paper, “Effects of stakeholder empowerment on crane population and agricultural production” provides definitions of model parameters used in the paper.**

**Model parameters:**

*L* the agricultural landscape (100x100 cells)

Lxy landscape cell at a given location (x-y) at the agricultural landscape

*Bf* individual farmer budgets (*i.e*., time, practical monetary resources) to perform actions

*Yf* total agricultural production (*i.e,* yield) over landscape cells owned by an individual farmer

*Caction* cost for farmers to perform actions, set by the manager through policy

*Bm* manager budget to set policy

*N†*  target population density set by the manager through policy

*Rar* age of first reproduction for cranes

*Rag* maximum age of a crane

*Rb* mean number of offspring per crane in each time step

*Rm* potential movement range of a crane (number of landscape cells in any direction from the previous occupied cell) from previous time step *t-1*

*t* time step

*(1-p)Nij* Percentage loss of total agricultural production at time step *t* when multiple cranes occupies a landscape cell *L\_{xy}* at the same time step *t*

*Rfe* times feeding by an individual on the landscape in a time step *t*

*Nt* Crane population at time step *t*

*K* Carrying capacity of crane population

N̂ Estimated size of crane population through manager observation