GENERAL STRUCTURE OF THE DATABASE

2 tables to fill first

Tables with a have to be filled before the corresponding b and the corresponding c

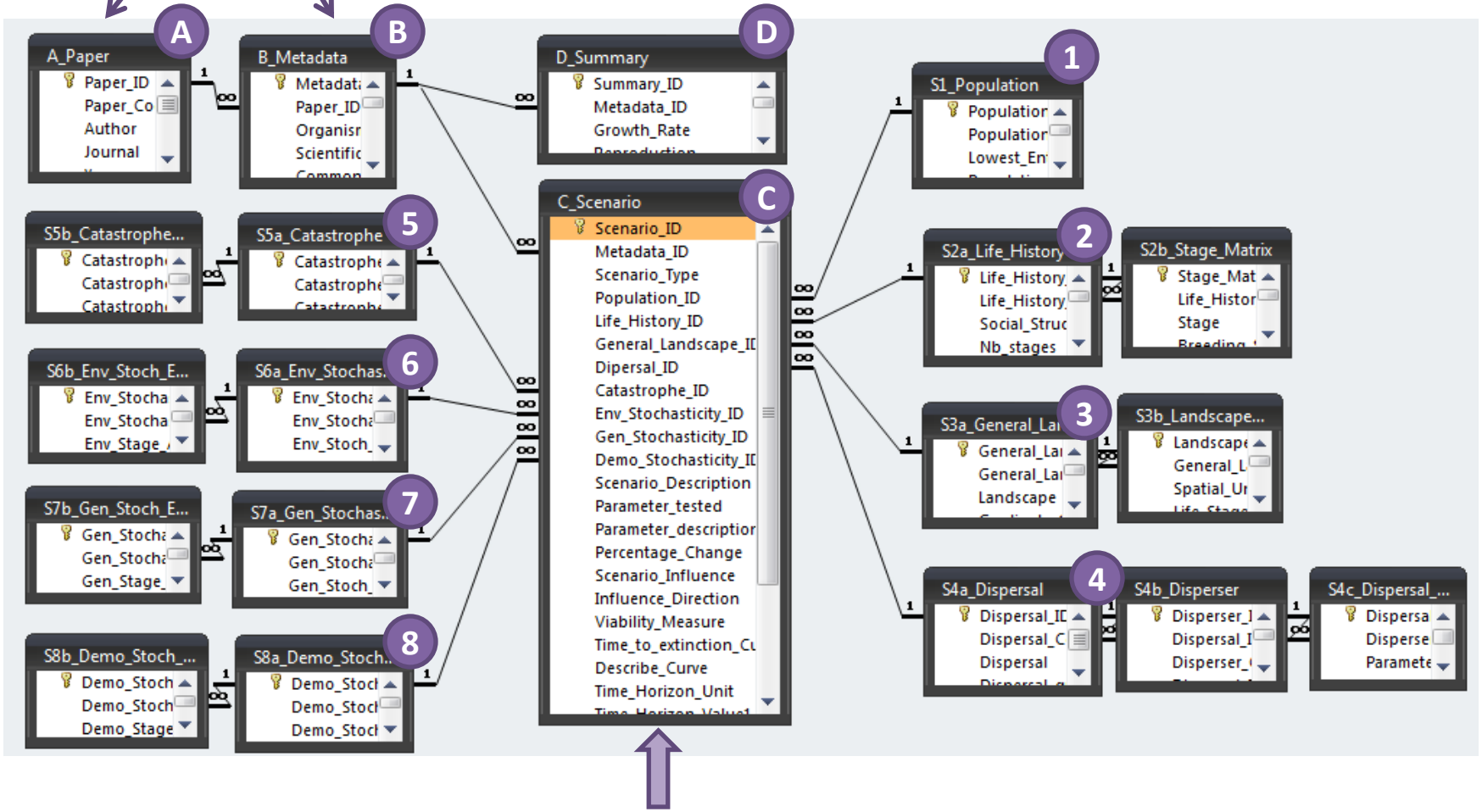


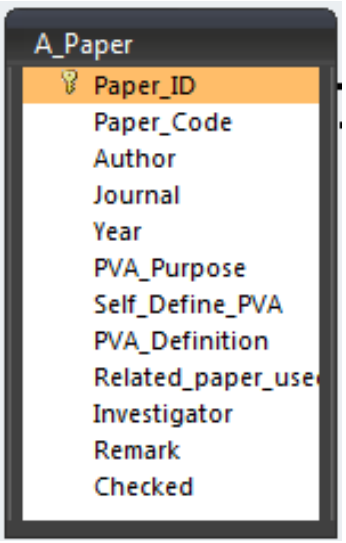
Table C cannot be completed before the others!!!

HOW TO FILL THE TABLES

1. Read the paper carefully
2. Create a unique paper code, i.e. initials of the first author + year of publication
3. Fill table **A** and **B** first
4. Fill tables **S1a** to **S8a**. Order can be inverted, and each of these tables can be first partially filled before completion.
5. Fill the tables **S1b** to **S8b**, using codes written in the corresponding "**a**" tables. (note: the number of codes is high, yet when you start typing a code, the selection will shrink till your code is met).
6. Fill table **C** by selecting parameters from tables S1a - S8a using their codes.
7. Fill table **D** (summary of the PVA results), according to author statements (regardless of your interpretation or opinion)
8. Ask a colleague to read the paper and check what you entered.

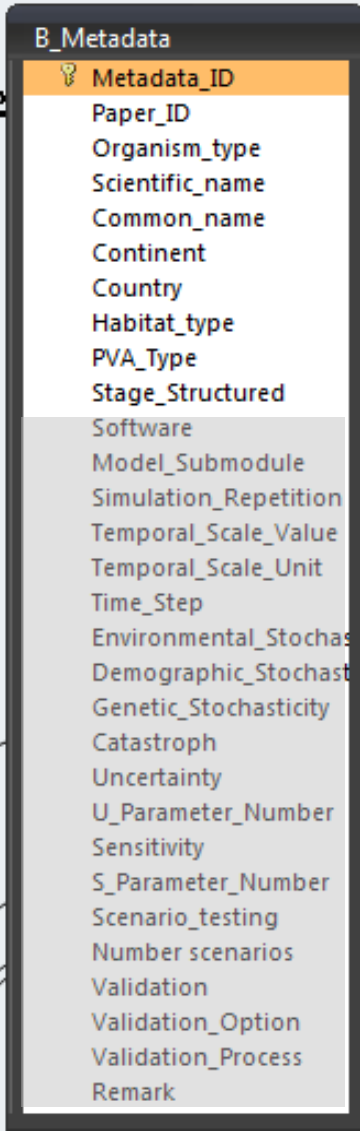
- Parameters that were used in the PVA but provided by another paper of the same author or team should be included as well. In this case, please specify the additional papers used in Table A.
- For each « select among » option, you can always type new value(s) of your own, but it is strongly recommended to restrict yourself to the list provided. If you typed new options, please inform or consult.
- Each table contains a « **Remark** » column. This is the place to mention inconsistencies (e.g. between units, parameter-names vs. contents), problems with paper structure, sources of data, or any other comments, ideas or problems you may have that cannot be listed anywhere else.

Table A. Identification of the paper and its aim regarding PVA



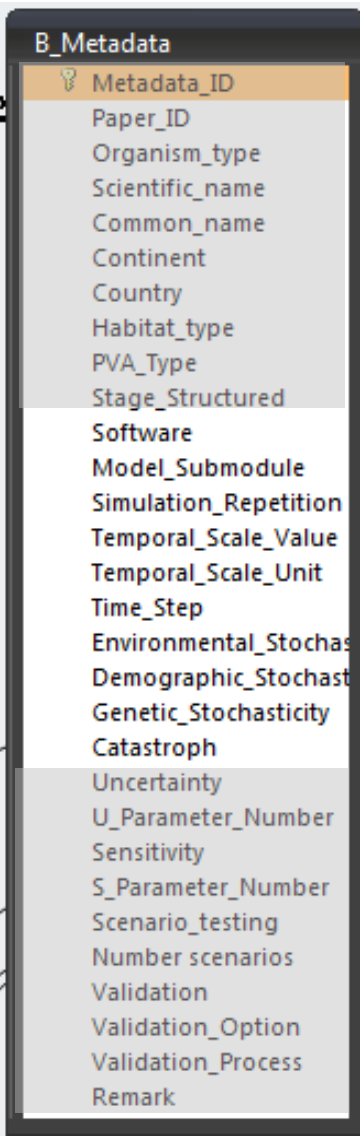
Field	Description	Exemple
Paper_Code	Initials of the first author & year of publication	HJ2006
Author	Family name of the first author	Jager
Journal	Complete journal name with _ between each word	Ecological_Modelling
Year	Year of publication	2006
PVA_Purpose	Select among: - toward species protection - toward reserve management - restoration planning - other	toward species protection
Self define PVA	If the paper contains a definition of PVA, then tick the box	☐
PVA_Definition	Copy the definition found in the paper	…
Related Paper Used	Enter the references of the additional papers needed to fill the parameters	NA
Investigator	Select your name	Viktoriia
Checked	Select the name of the person who verified	Camille

Table B. Metadata on the PVA model (Part 1/3)



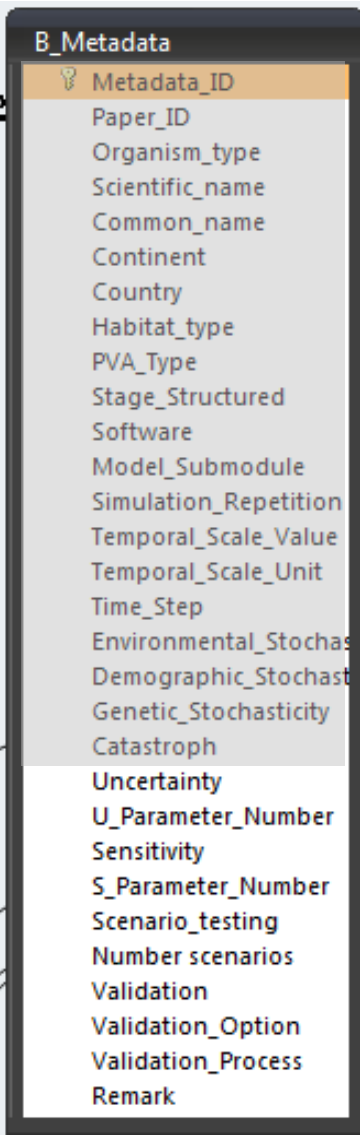
Field	Description	Exemple
Paper_ID	Select the code of the paper you entered in the table A_Paper	HJ2006
Organisme_Type	Select among: mammal;small_mammal;bird;butterfly;other_arthropode;reptile;amphibian;mollusca;plant	Mammal
Scientific name	With _ between genus and species	Taxidea_taxus
Common name	With _ between words	American_bagger
Continent	Select among: Europe;Africa;N_America;S_America;Asia;Australia;Oceania;C_America	North_America
Country	Name of the country where the study took place, if several add _ between each	USA
Habitat type	Select among: Wetland_4; Grassland_5; Heathland_Scrubs_6; woodland_forests_7; sparsely_vegetated_8; cultivated_and_gardens_9; urban_constructed_industrial_10. (Add combinations by codes with sign "_" between them)	Grasslands_4
PVA_Type	Select among: individual;population;occupancy	Individual
Stage-structured	Tick the box if yes	☐

Table B. Metadata on the PVA model (Part 2/3)



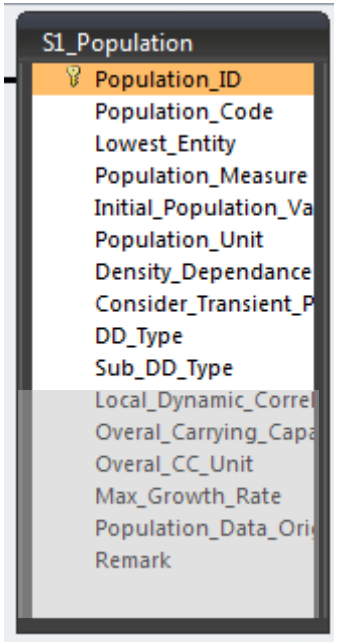
Field	Description	Exemple
Software	Select among: ALEX, POPPROJ, POPGEN, RAMAS, VORTEX, Selfbuilt, Other_ready_made, not_mentioned	not_mentioned
Model_Submodule	Specify submodules used	NA
Simulation repetition	Number of model runs	30
Temporal Scale Value	Total duration of the simulation	100
Temporal Scale Unit	Unit of the temporal scale (year, month, day?)	Year
Time Step	Unit of one time step	Day
Environmental Stochasticity	If environmental sctochasticity is considered in the model, then tick the box	☐
Demographic Stochasticity	If demographicsctochasticity is considered in the model, then tick the box	☑
Genetic Stochasticity	If genetic sctochasticity is considered in the model, then tick the box	☐
Catastrophe	If catastrophe is considered in the model, then tick the box	☐

Table B. Metadata on the PVA model (Part 3/3)



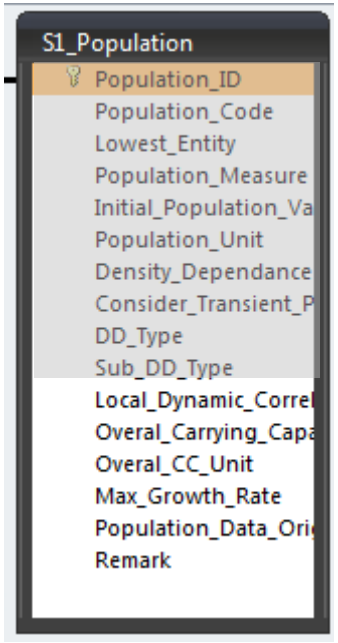
Field	Description	Exemple
Uncertainty	If uncertainty is considered in the model, then tick the box	☐
U Para Number	Put the number of parameter on which uncertainty analysis was conducted	0
Sensitivity	If sensitivity is performed, then tick the box	☑
S Para Number	Put the number of parameters on which the sensitivity analysis was conducted	10
Scenario testing	If scenarios are used in the model, then tick the box	☑
Number Scenarios	Put the number of scenarios tested	19
Validation	If validation is done to the model, then tick the box	☐
Validation_Option	(If validation was done,) Select among: Against_Obs_Patch_Occupancy;Against_Obs_Pop_Size;Against_Trends_Patterns;Others	
Validation Process	Describe the validation process (free text)	

Table S1. Population Module (part1/2)



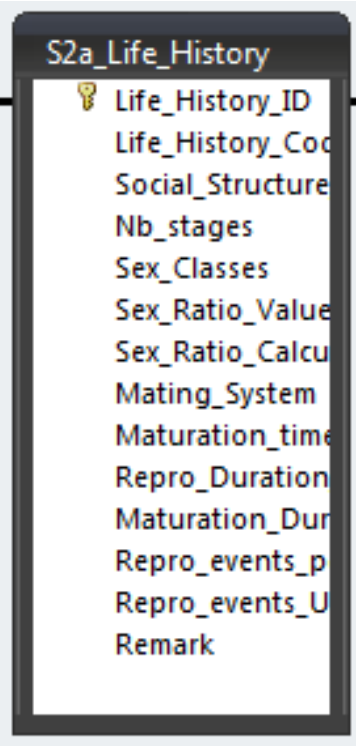
Field	Description	Exemple
Population_Code	Paper Code + _P + Number	HJ2006_P1
Lowest entity	Select among: Individual, home_range, adult, territory, family, flock, adult_female, NA	Individual
Population Measure	Select among: Density, Population_size, Density_kernel, Occupancy	Population_Size
Initial Population Value	Value for the population measure	250
Population Unit	Unit of the previous value, select among: ind/ha, ind, ind/area	Ind
Density dependance	If density dependence in the model, tick the box	☑
Consider transient phase	(how does model start?) Select among: K;Equilibrium;Quasi_stationary;Real_Size; Low_Transient (=population may go extinct); Low_Establishment (= model waits for establishment, only then assesses viability)	
DD_Type	Select among: Only_Ceiling;Around_K (= strongest effect at K); Allee_Effect; Allee_plus_Others	
Sub DD type	Select the code of the corresponding function from Klaus Henle's paper (see last pages of the guidelines), or write the function	1b

Table S1. Population Module (part 2/2)



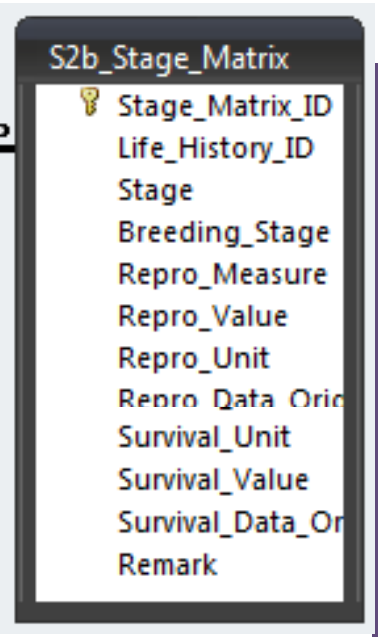
Field	Description	Exemple
Local dynamic correlation	Tick the box if considered	☐
Overal Carrying capacity	Value of the Carrying capacity	
Overal CC unit	Select among: number_individuals density_ha, density_km2	
Max growth rate	Enter the value of maximum growth rate	
Population Data Origin	Select among possibilities	Literature_only

Table S2a. Life History Module



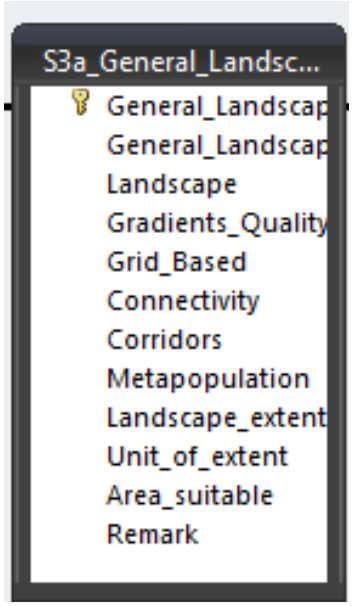
Field	Description	Exemple
Life History Code	Paper Code + _ LH + number	HJ2006_LH1
Social Structure Type	Select among: NA, Solitary, Pairs, Family, Extended_Family, Flexible, Groups, Flocking	Solitary
Nb_stages	Register the number of stages	9
Sex Classes	If there are sex classes, tick the box	☑
Sex Ratio Value	Type the value of the sex ratio	0.5
Sex Ratio Calculation	Select among: F/M, M/F, F/(M+F)	F/M
Mating System	Select among: Polygamous, Monogamous, Hermaphrodite, Leks	Monogamous
Maturation time	Time until sexual maturity (usually in years). If values differ for M vs. F, use values from females	2
Repro duration	Time from sexual maturation till end of repro age (or death)	7
Repro events per time	Number of reproduction events possible within 1 time unit (e.g. if years – once per year, but can be also 2 or 3)	1
Repro unit	Select among: years / months / days	years

Table S2b. Stage Matrix (Life History sub-module)



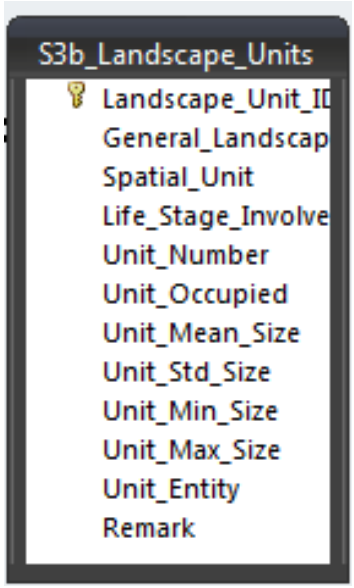
Field	Description	Exemple
Life History ID	Select the corresponding Life History Code	HJ2006_LH1
Stage	Which stage is considered	1_year_Female
Breeding stage	If it is a breeding stage, then tick the box	☑
Repro measure	Select among: fecundity_rate, offspring_nber, clutch_size, NA	Offspring_nber
Repro value	Register the reproduction value	5
Repro Unit	Select among: juvenile/female, max_number, egg	Max_number
Repro data Origin	Select among possibilities	Literature
Survival Unit	Select among: % survive per-step (e.g. day), % survive per stage-time, per-step-mortality (= 1- survival!), per-stage mortality	%
Survival Value	Type the survival value	0.99965
Survival Origin	Select among possibilities	Literature

Table S3a. Landscape Module



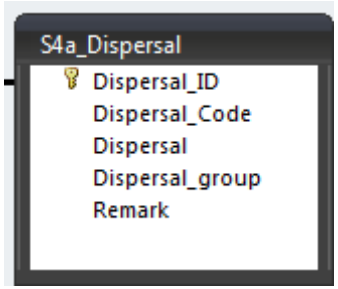
Field	Description	Exemple
General Landscape Code	Paper Code + _LC +Number	HJ2006_LC1
Landscape	Select among: "spatially_explicit";"spatially_implicit";"spatially_realistic";"no"	
Gradients Quality	Tick the box if quality is considered	☑
Grid based	Tick the box if landscape is grid-based	☐
Connectivity	Select among: Structural, Functional, NA	Functional
Corridors	If the paper considers corridors, tick the box	☐
Metapopulation	If paper considers metapop functioning, tick the box	☑
Landscape extent	Total area of the study system	157.3
Unit of extent	Select among: Km2, m2, m_radius, numb_ind	km2
Area suitable	Type the area within the landscape which is considered “suitable area” (e.g. total cover of habitat patches within the landscape). The unit is same as extent.	55.727

Table S3b. Landscape Units (Landscape sub-module)



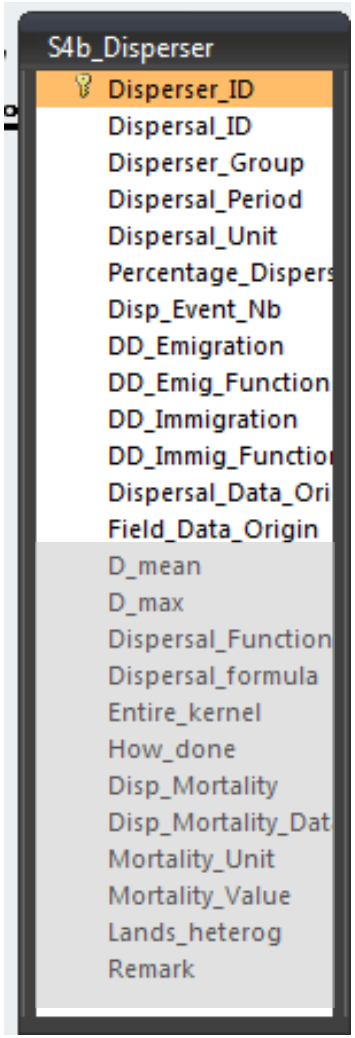
Field	Description	Exemple
General Landscape ID	Select the corresponding Gen Landscape Code	HJ2006_LC1
Spatial Unit	Select among: Patch, Territory, Home_Range, Cell	Cell
Life Stage Involved	Which life stage is concerned ?	NA
Unit Number	Total number of units (= e.g. number of cells or number of patches)	174778
Unit Occupied	Number of units occupied at model initiation	
Unit Mean Size	Mean size of the unit	900
Unit Std Size	Standard Deviation of the unit size	
Unit Min Size	Minimum size of the unit	
Unit Max Size	Maximum size of the unit	
Unit Entity	(= Size-unit of the spatial unit), Select among: Ha, km2, m2	m2

Table S4a. Dispersal Module



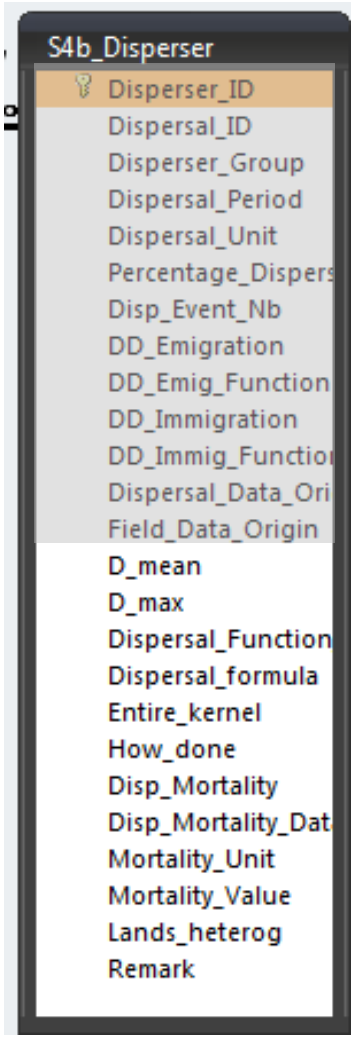
Field	Description	Exemple
Dispersal Code	Paper Code + _ D + number	HJ2006_D1
Dispersal	If dispersal is considered then tick the box	☑
Dispersal_Group	Number of groups with different dispersal parameters	1

Table S4b. Disperser (Dispersal sub-module 1/2)



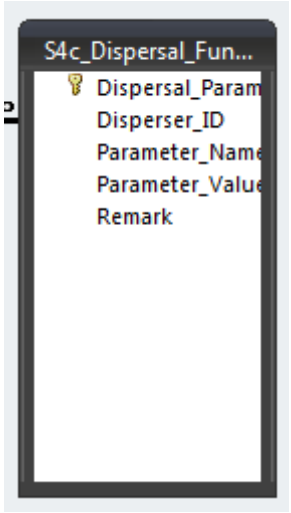
Field	Description	Exemple
Dispersal ID	Select the corresponding Dipersal Code	HJ2006_D1
Disperser Group	Which stage is considered: Select among: Adult, Juvenile, Adult_F, Adult_M, Juvenile_Adult (= Juvenile plus adults), or add others	Juvenile_Adult
Dispersal Period	Specify the dispersal period with "_" between words, or type "once" if dispersal is modeled as a single timeless event per relevant-stage	Mid_June_mid_August
Dispersal Unit	Select among: km, m	Km
Percentage Dispersers	Type Percentage of individuals that disperse if value is available	
Disp Event Number	Type the number of individuals dispersing if number is given (instead of proportions)	
DD_Emigration	Select among: Positive (= more disp. at higher pop), Negative, None, NA	
DD_emig_function	Explain the density dependent function	
DD_Immigration	Select among: Positive (= tend to stop at higher pop, i.e. social), Negative, None, NA	
DD_immig_function	Explain the function for stopping dispersal	
Dispersal data origin	Select among possibilities	Calibrated
Field data origin	Select among: Telemetry, MRR, Translocation, Reintroduction, Path_Following, Radio_Playbacks, Other, NA	NA

Table S4b. Disperser (Dispersal sub-module 2/2)



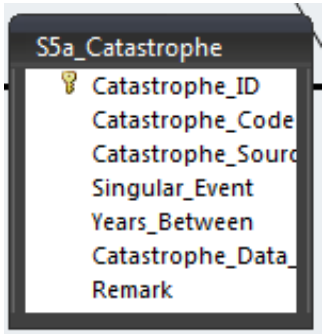
Field	Description	Exemple
D_Mean	Mean dispersal value	3.43
D_Max	Maximum dispersal value	
Dispersal Function	Select among: Negativ_exponential, Inverse_power_function	Negativ_exponential
Dispersal_formula	Write the complete formula with descriptiton of the parameters	M=exp(-a.d)
Entire Kernel	Tick the box if yes	☑
How done	Select among: Prob_exchange;Prob_Emig_Mortality; Explicitly_paths;Combination	
Disp Mortality	Select among: Overall;Per_Step;No	
Disp Mort data source	Select among: Data;Literature;Hypothetic	
Mortality Value	Type the prob mortality of individuals dispersing	0.0002
Mortality Unit	Select among: per_step; per_event; prop_effect_Exchange_Prob	Per_step
Lands Heterogeneity	Select among: Landscape_Permeab;Barriers_Corridors;Continuous; Combination;No (= “black and white” land)	

Table S4c. Dispersal function (Disperser sub-module)



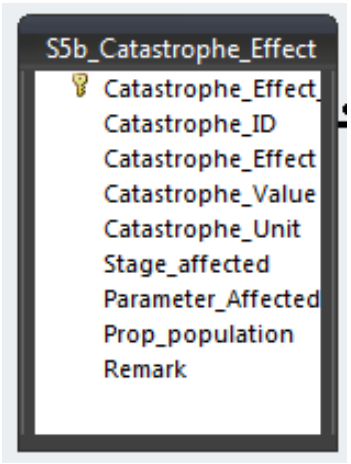
Field	Description	Exemple
Disperser ID	Select the corresponding Dipersal Code and Disperser Stage	HJ2006_D1 Adult
Parameter Name	Set the name of the first parameter of the dispersal function	a
Parameter Value	Set the value of this parameter	2

Table S5a. Catastrophe Module



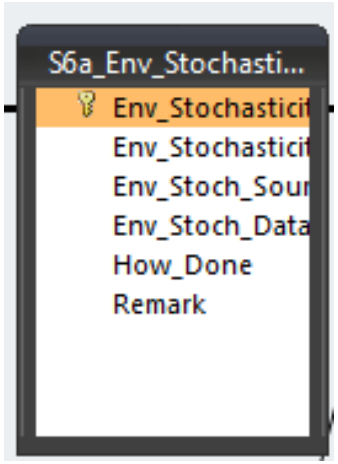
Field	Description	Exemple
Catastrophe Code	Paper Code + _C + Number	RN2008_C1
Catastrop_Source	Select between: Floods;Frost;Heat;Human;Drought;Polution;Fire ;Epidemy	Floods
Singular Event	Tick the box if yes	
Years_Between	Number of year between catastrophe events	
Catastrophe data origin	Select among possibilities	Field_Surrogate

Table S5b. Catastrophe effect (Castrophe sub-module)



Field	Description	Exemple
Catastrophe ID	Select the corresponding Catastrophe Code	RN2008_C1
Catastroph Effect	Description	Decrease_survival
Catastroph Value	Value of the catastrophe measure	0.6
Catastroph Unit	Select among: rate;%_of_years"Probability;%_of_area; area; num_patches	%_of_area
Stage_affected	Enter the stage affected by the catastrophe	All
Parameter Affected	Enter the parameter affected by the catastrophe	Survival
Prop_population	Proportion of population affected (1 means population goes extinct	1

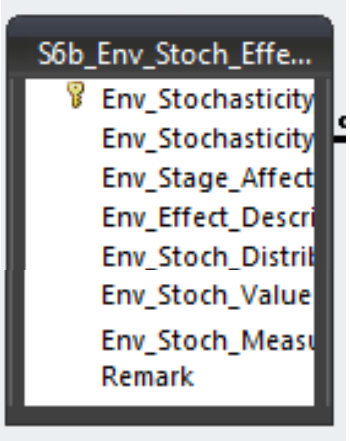
Table S6a. Environmental Stochasticity



Field	Description	Exemple
Environmental stochasticity Code	Paper Code + _ ES + number	RN2008_ES1
Env Stochasticity Source	Select among: Rainfall, Temperature, Rain_Temp, Num_sunny_days, Other	Flooding
Env Stoch data	Description of the way data on stochasticity were collected	
How done	Memo box to add description	

Same structure for :
Genetic Stochasticity (GS)
and Demographic Stochasticity (DS)

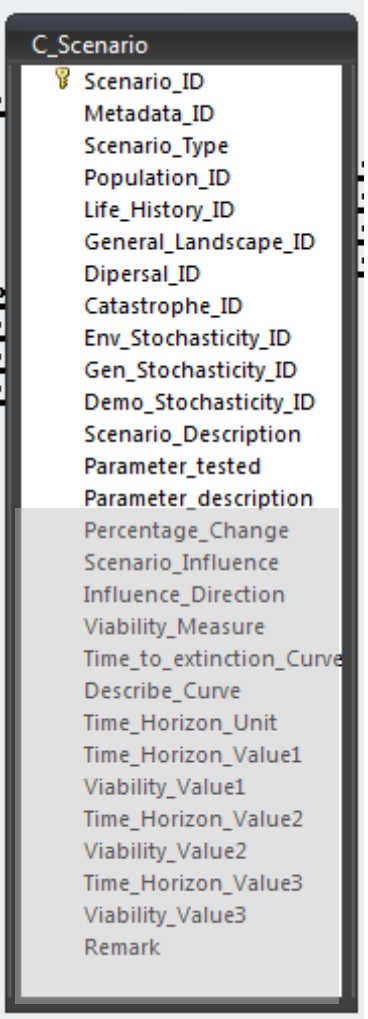
Table S6b. Environmental Stochasticity Effect



Field	Description	Exemple
Env Stochasticity ID	Select the corresponding env stoch code	RN2008_ES1
Env stages affected	List the stages affected, separated by _	All
Env Effect Description	Brief description of the effect	Decrease_fecundity
Env Stochasticity Distribution	Select among: Normal, Uniform, Poisson	Poisson
Env Stochasticity Value	Value of the env stoch measure	
Env Stochasticity Measure	Measure of the env Stoch	%

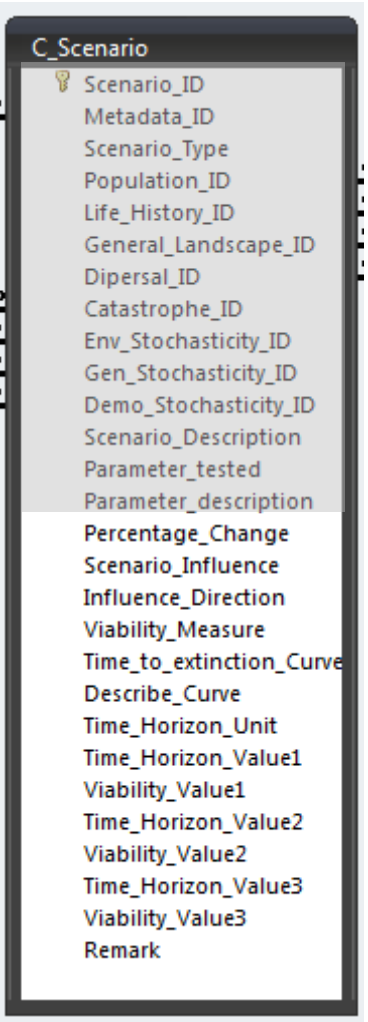
Same structure for :
Genetic Stochasticity (GS)
and Demographic Stochasticity (DS)

Table C. Scenario (1/2)



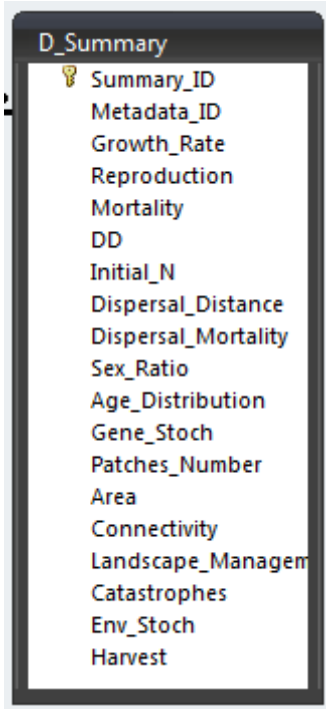
Field	Description	Exemple
Metadata_ID	Select the corresponding Species	Taxidea_taxus
Scenario_Type	Select among: Restoration, Degradation, Life_History_Test, Reintroduction, Sensitivity, Habitat_loss, No_change, Climate_change, Conservation_Area_Establishment	Degradation
Population ID	Select the Population Code with parameters used	HJ2006_P1
Life History ID	Select the Life History Code with parameters used	HJ2006_LH1
Gen Landscape ID	Select the Gen Landscape Code with parameters used	HJ2006_LC2
Dispersal ID	Select the Dispersal Code with parameters used	HJ2006_D1
Catastrophe ID	Select the Catastrophe Code with parameters used	NA
Env Stochasticity ID	Select theEnv StochCode with parameters used	NA
Gen Stochasticity ID	Select the Gen Stoch Code with parameters used	NA
Demo Stochasticity ID	Select the Demo Stoch Code with parameters used	NA
Scenario Description	Briefly explain the scenario	Fragmentation
Parameter tested	Select among: density, fecundity, survival, initial_abundance, carrying_capacity, dispersal_rate, dispersal_distance, territory_quality, territory_size, female_territory_size, male_territory_size, mortality	
Parameter description	Select among: "min";"medium";"max";"decrease";"increase";"average";NA	

Table C. Scenario (2/2)



Field$	Description	Exemple
Percentage Change	Percentage of parameter change according to baseline	
Scenario Influence	Select among: No, Low, Medium, High	Medium
Influence Direction	Select among: Positive, Negative, NA	Negative
Viability Measure	Select among: Time_to_Extinction;Occupancy;Pop_Size;Prob_Extinction;MVP;MVM ;MAN;Quasi_Extinction_Time	Pop_Size
Prob ext curve	If the paper gives a "Prob extinction vs time" graph, then tick the box	☐
Describe curve	Describe the “Prob extinction” curve: e.g. linear increase; exponent increase; threshold increase; etc.	
Time Horizon Unit	Write the unit of time horizon(s)	Year
Time Horizon Value1	Write the first time horizon	30
Viability Measure 1	Measure of the viability at time horizon1 (0.2% Quasi_extinction_Risk by default)	40
Time Horizon Value2	Write the second time horizon (if possible)	
Viability Measure 2	Measure of the viability at time horizon 2 (0.5% Quasi_extinction_Risk by default)	
Time Horizon Value3	Write the third time horizon (if possible)	
Viability Measure 3	Measure of the viability (0.8% Quasi_extinction_Risk by default)	

Table D. Summary



For each of the parameters tested in the paper, select among: Strong_Effect;Weak_Effect;No_Effec. If not assessed, you can select “Not Assessed” or simply leave empty

#	Type	$f(N)$	Description
1a	TC	For $N < K$: 1; For $N = K$: 0	Density independent growth to a ceiling carrying capacity
1b	TD	For $N < K$: 1; For $N = K$: λ^{-1}	Density independent growth to a ceiling carrying capacity
2	TD	For $N \leq K$: 1; for $N > K$: 1 (for K mature females); a ($0 < a < 1$) (for N-K mature females)	Density independence below K and reduced probability of breeding for females in excess of female K
3a	TD	For $N < K$-d: $1+\frac{b}{\phi}$ (with $-\phi \leq b \leq 1-\phi$); for K-$d \leq N \leq K$+e: 1; for $N > K$+e: $1-\frac{c}{\phi}$ (with $0 < c \leq \phi$)	Model with a step function of survival; note, negative values of b result in an Allee effect
3b	TD	For $d_i < N < d_{i+1}$: $1+\frac{b_i}{\phi}$ (with $-\phi \leq b_i \leq 1-\phi$);	Model with i steps of density dependent change of survival
4a	TC, TD	$1-\left(\frac{N}{K}\right)$	Logistic growth model with a ceiling carrying capacity
4b	TC, TD	$1-\left(\frac{N}{K}\right)^{\theta}$	θ-logistic growth model
4c	TC, TD	$1-f\left(\frac{N}{K}\right)^{\theta}$ (with $0 < f \leq 1$)	Generalised θ-logistic model for survival or fecundity
5	TD	$\frac{1}{1+xN}$ (with $x = \frac{\lambda-1}{K}$)	Beverton-Holt model
6	TD	e^{-xN} (with $x = \frac{\lambda-1}{K}$)	Ricker model
7	TD	$\frac{1}{(1+xN)^{\beta}}$ (with $x = \frac{\lambda^{\frac{1}{\beta}}-1}{K}$)	Classical contest ($\beta = 1$) / scramble ($\beta > 1$) competition model
8	TD	$\frac{1}{1+(xN)^{\beta}}$ (with $x = \frac{(\lambda-1)^{\frac{1}{\beta}}}{K}$)	Maynard Smith & Slatkin contest/scramble competition model
9	TD	$e^{-a_0-a_1N}$	Ricker equation (logistic growth model without a ceiling carrying capacity)
10	TD	$e^{-a_0-a_1e^{-\frac{g}{N}}}$	Double exponential model relating population growth to the ratio of the environmental variable g and N
11a	TD	For $N \leq N_{tr}$: 1; for $N \geq N_{tr}$: $\left(\frac{N_{tr}}{N}\right)^{\alpha}$ (with $\alpha > 0$)	Power model of contest/scramble competition above a threshold
11b	TD	For $N \leq N_{tr}$: 1; for $N \geq N_{tr}$: $1+\frac{h}{DIEP}\cdot\left(\frac{N}{N_{tr}}\right)^{\alpha}$ (with $\alpha > 0$)	Power model of density dependent emigration probability above a threshold

12	TD	For $N \le N_{tr}$: 1; for $N_{tr} < N < K$: $\left(1-\frac{1}{\phi}\gamma\frac{\left(1-\frac{N_{tr}}{N}\right)}{\left(1-\frac{N_{tr}}{K}\right)}\right)$ for $N \ge K$: $\left(\frac{K}{N}-\frac{1}{\phi}\gamma\frac{\left(1-\frac{N_{tr}}{N}\right)}{\left(1-\frac{N_{tr}}{K}\right)}\right)$	Threshold model of scramble competition with additional contest competition above K
13	TD	$\left(\frac{K}{N}\right)^{\delta}$ (constrained within $\phi_{\min} \le \phi\left(\frac{K}{N}\right)^{\delta} \le \phi_{\max}$)	Power model for survival with a "baseline" survival a carrying capacity K
14	TD	$i+\frac{j\cdot k}{lN+k}$	Extension of Michaelis-Menton model
15a	TD	$\left[m\left(1+e^{-a_0-a_1N}\right)^{-1}+q\right]^{x}$ (with $\lvert x\rvert = 1$);	Sigmoidal demographic rates multiplier
15b	TD	$\left[1+e^{-a_0-a_1N}\right]^{-1}$	Sigmoidal establishment multiplier
16	TD	$u+\frac{v}{1+\left(\frac{N}{K}\right)^{\varepsilon}}$ (for $u,v > 0$ and ε integer)	Sigmoidal density dependence of the growth rate
17a	TD	$a_4N^4 + a_3N^3 + a_2N^2 + a_1N + a_0$	Fourth-order-polynomial growth model
17b	TD	$a_2N^2 + a_1N + a_0$	Quadratic regression model
$17c_1$	TD	$a_1N + a_0$	Linear regression model
$17c_2$	TD	$a_1N + a_0$ (for $N \le K$) $a_1K + a_0$ (for $N > K$)	Linear regression model with density independence once all territories are filled
17d	TD	a_0 ($0 < a_0 < 1$) for $N_{t+1} > yK$; $a_0 = 1$ for $N_{t+1} \le yK$; $y < 1$)	Reduction of population size by a constant factor if population size exceeds a threshold
18	TD	$1+(\lambda-1)\left(1-\frac{N}{K}\right)$ (for $N \le K\frac{\lambda}{\lambda-1}$) 0 (otherwise)	Model of overshooting populations that crash to extinction
19	TC	$1-e^{-\eta N}$	Allee model: negative exponential
20	TC, TD	$\frac{N}{z+N}$	Allee model: rectangular hyperbola (z is the density at which half of the females mate)
21	TD	$\frac{\langle A\min(BN_m,\ N_f)\rangle}{N_f}$ (with $0 < A \le 1$)	Male limited reproduction of females; $\langle x\rangle$ means integer value of x
22	TD	$\frac{N_m}{K_m}(1+HRI)^{K_m-N_m}$ (with $N_m < K_m$)	Allee effect accounting for a compensatory expansion of male territories
23	TD	$1-x^{-1}\frac{SR_O}{SR_n}$ (with $SR_O < SR_N$; $x = \mu,\phi$)	Model of disturbed mating systems in exploited harem species

24	TD	$1-\left(1-s_a/s_t\right)^{n_s}$	Mate or territory encounter probability in a polygamous mating system
25	TD	$\left(\frac{N}{K}\right)^{\varphi}$	Probability of a vacant nest site becoming occupied
26	TD	$1+\frac{CD}{r_0}\frac{N}{D+N}$	Allee effect: Jacobs' cooperation model
27	TD	$\left\{1-\left[\frac{(P_o-P_K)}{P_0}\left(\frac{N}{K}\right)^{\theta}\right]\right\}\frac{N}{z+N}$	VORTEX model of breeding probability
28	TD	$\frac{E\cdot N}{z+N}$ (with $E<1$)	Density dependent emigration model
29	TD	$\frac{w_j/(n_j+1)}{\sum_j w_j/(n_j+1)}$	Density dependent weighing function for the fraction of immigrants received by subpopulation j
30	TD	$S_{i,x}=\sum_{j=0}^{n}\psi_{ij}I_j t+\psi_{ir}I_r^i t$	Density dependent disease transmission
31	TD	$P=N_m\frac{e^{(N_m-N_f)x}-1}{N_m e^{(N_m-N_f)x)}-N_f}$	Probability of a female pairing successfully in mongamous birds; $N_{m,f}$ is the density of unpaired males/females, x is the area that can be searched by an individual. The formula also applies to the probability of obtaining a territory if $N_{m,f}$ is interpreted as the proportion of vacant suitable habitat/density of dispersers
32a	TD	$(a_0+a_1\ln N_{ra})e^{-a_2 N_a}$	Density dependent stage transition probability with additional density dependent inbreeding depression
32b	TD	$a_0+a_1\ln N_{ra}$	Density dependent inbreeding depression of stage transition probability