Appendix A ï AIC tables

Results of the backward selection of the best fitting model(s) for each studied trait based on Akaikeôs information criteria ((Q)AIC_c). All the models tested for each studied trait are reported in the tables. Models are presented with the fixed effects, form of density dependence (DD), rank in the selection process (Model), number of parameters (*k*), (Q)AIC_c , model support (æ(Q)AIC_c), model weights (w_i) and model deviance. Models including the best supported scenario of density dependence are in bold (see the Material and methods section and Table 1 in the main text). Estimates of fixed effects were obtained by model averaging between models including the best supported scenario only. (i) If interaction term(s) was (were) not included in all the models including the best supported scenario and models with the interaction(s) received less total support than models without it (them), models including the interaction(s) were excluded from model averaging. (ii) If models with the interaction(s) received more total support, only models with the interaction term(s) were used to do averaging. This complex averaging procedure was used because main effects do not have the same interpretation when they also appear in an interaction (Mazerolle, 2012). Full models are in italic. [§] indicates the models used to obtained parameter estimates provided in the main text, [ÿ] indicates the models used to parameterise density-dependent population models and [#] indicates the models used to parameterise density-independent population models. SVL_i: initial SVL (i.e., body size); age : age class; $date_b$: date of birth; $date_r$: release date; $date_{rc}$: recapture date; $date_p$: parturition date; resclutchsize: residual clutch size and sex_j: sex of newborns.

REFERENCES

Burnham, K.P. & Anderson, D.R. (2002) *Model selection and multimodel inference. A practical information-theoretic approach*. Springer, New York.

Mazerolle, M.J. (2012) Model selection and multimodel inference based on (Q)AIC(c). The Comprehensive R Archive Network.

Table A1. Summer growth in juveniles

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + density^2 + sex + SVL$_i$	**quadratic**	**quadratic model 4**	**8**	**-1516.55**	**0**	**0.32**	**-1532.88**
density + sex + SVL$_i$	linear	linear model 3	7	-1515.47	1.07	0.18	-1529.73
density + density^2 + sex + SVL$_i$ + density:sex	**quadratic**	**quadratic model 3**	**9**	**-1514.55**	**1.99**	**0.12**	**-1532.97**
density + sex	linear	linear model 4	6	-1514.06	2.49	0.09	-1526.26
density + sex +SVL$_i$ + density:sex	linear	linear model 2	8	-1513.48	3.07	0.07	-1529.82
factor(density) + sex + SVL$_i$	step function	step function model 3	10	-1513.06	3.48	0.06	-1533.58
density + density^2 +sex + SVL$_i$ + density:sex + density^2:sex	**quadratic**	**quadratic model 2**	**10**	**-1512.71**	**3.83**	**0.05**	**-1533.23**
factor(density) + sex	step function	step function model 4	9	-1511.71	4.83	0.03	-1530.14
density + SVL$_i$	linear	linear model 5	6	-1511.46	5.09	0.02	-1523.65
density + sex + SVL$_i$ +date$_b$ + density:sex	*linear*	*full linear model*	*9*	*-1511.4*	*5.14*	*0.02*	*-1529.83*
factor(density) + sex + SVL$_i$ + date$_b$	step function	step function model 2	11	-1510.97	5.58	0.02	-1533.59
density + density^2 + sex + SVL$_i$ + date$_b$ + density:sex + density^2:sex	***quadratic***	***full quadratic model***	***11***	***-1510.62***	***5.93***	***0.02***	***-1533.24***
factor(density) + SVL$_i$	step function	step function model 5	9	-1508.98	7.56	0.01	-1527.41
factor(density) + sex + SVL$_i$ + date$_b$ + factor(density):sex	*step function*	*full step function model*	*15*	*-1503.43*	*13.12*	*0*	*-1534.57*
sex + SVL$_i$	NA	linear model 6	6	-1502.26	14.28	0	-1514.46
1	NA	null model	4	-1499.65	16.89	0	-1507.75

Table A2. Juvenile body size in August 2008

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + density^2 + sex + date$_b$	**quadratic**	**quadratic model 4**	**8**	**2060.35**	**0**	**0.27**	**2044.02**
density + sex + date$_b$	linear	linear model 3	7	2060.69	0.34	0.23	2046.44
density + density^2 + sex + date$_b$ + date$_{rc}$	**quadratic**	**quadratic model 3**	**9**	**2061.41**	**1.06**	**0.16**	**2043**
density + sex + date$_b$ + date$_{rc}$	linear	linear model 2	8	2062.07	1.72	0.12	2045.74
factor(density) + sex + date$_b$	step function	step function model 3	10	2063.35	3	0.06	2042.84
density + density^2 + sex + date$_b$ + date$_{rc}$ + density^2:sex	**quadratic**	**quadratic model 2**	**10**	**2063.46**	**3.1**	**0.06**	**2042.94**
density + sex + date$_b$ + date$_{rc}$ + density:sex	*linear*	*full linear model*	*9*	*2064.15*	*3.8*	*0.04*	*2045.72*
factor(density) + sex + date$_b$ + date$_{rc}$	step function	step function model 2	11	2064.68	4.33	0.03	2042.06
density + density^2 + sex + date$_b$ + date$_{rc}$ +density:sex + density^2:sex	***quadratic***	***full quadratic model***	***11***	***2065.06***	***4.71***	***0.03***	***2042.44***
factor(density) + sex + date$_b$ + date$_{rc}$ + factor(density):sex	*step function*	*full step function model*	*15*	*2071.53*	*11.18*	*0*	*2040.4*
sex + date$_{rc}$	NA	linear model 6	6	2074.87	14.52	0	2062.68
density + date$_b$	linear	linear model 5	6	2090.45	30.1	0	2078.26
factor(density) + date$_b$	step function	step function model 5	9	2093.42	33.07	0	2075
density + sex	linear	linear model 4	6	2161.97	101.62	0	2149.78
factor(density) + sex	step function	step function model 4	9	2164.76	104.4	0	2146.34
1	NA	null model	4	2205.99	145.64	0	2197.9

Table A3. Annual growth in juveniles

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + density^2 + sex + SVL$_i$ + density:sex [§]	**quadratic**	**quadratic model 3**	**9**	**-1053.07**	**0**	**0.45**	**-1071.96**
density + density^2 + sex + SVL$_i$ + density:sex + density^2:sex	**quadratic**	**quadratic model 2**	**10**	**-1051.82**	**1.25**	**0.24**	**-1072.92**
density + density^2 + sex + density:sex [§]	**quadratic**	**quadratic model 4**	**8**	**-1050.11**	**2.96**	**0.1**	**-1066.82**
density + density^2 + sex + SVL$_i$ + date$_b$ + density:sex + density^2:sex	***quadratic***	***full quadratic model***	***11***	***-1050.08***	***2.99***	***0.1***	***-1073.4***
factor(density) + sex + SVL$_i$ + factor(density):sex	step function	step function model 2	14	-1048.24	4.82	0.04	-1078.38
density + sex + SVL$_i$ + density:sex	linear	linear model 2	8	-1047.16	5.91	0.02	-1063.88
factor(density) + sex + SVL$_i$ + date$_b$ + factor(density):sex	*step function*	*full step function model*	*15*	*-1046.49*	*6.58*	*0.02*	*-1078.94*
density + sex + SVL$_i$ + date$_b$ + density:sex	*linear*	*full linear model*	*9*	*-1045.4*	*7.66*	*0.01*	*-1064.3*
factor(density) + sex + factor(density):sex	step function	step function model 4	13	-1045.08	7.99	0.01	-1072.92
density + density^2 + sex + SVL$_i$	**quadratic**	**quadratic model 5**	**8**	**-1044.46**	**8.61**	**0.01**	**-1061.18**
density + sex + density:sex	linear	linear model 3	7	-1043.7	9.36	0	-1058.26
factor(density) + sex + SVL$_i$	step function	step function model 3	10	-1043.18	9.89	0	-1064.28
density + sex + SLV$_i$	linear	linear model 4	7	-1037.2	15.86	0	-1051.76
1	NA	null model	4	-991.52	61.55	0	-999.72

Table A4. Juvenile body size in May 2009

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + density^2 + sex + date$_b$ + date$_{rc}$ + density:sex + density^2:sex	***quadratic***	***full quadratic model***	***11***	***1009.26***	***0***	***0.41***	***985.94***
density + density^2 + sex + date$_b$ + date$_{rc}$ + density:sex §	**quadratic**	**quadratic model 2**	**10**	**1009.31**	**0.04**	**0.41**	**988.2**
factor(density) + sex + date$_b$ + date$_{rc}$ + factor(density):sex	*step function*	*full step function model*	*15*	*1011.55*	*2.28*	*0.13*	*979.08*
density + sex + date$_b$ + date$_{rc}$ + density:sex	*linear*	*full linear model*	*9*	*1013.85*	*4.59*	*0.04*	*994.96*
density + density^2 + sex + date$_b$ +date$_{rc}$	**quadratic**	**quadratic model 5**	**9**	**1019.06**	**9.8**	**0**	**1000.16**
factor(density) + sex + date$_b$ + date$_{rc}$	step function	step function model 2	11	1019.27	10	0	995.94
density + sex + date$_b$ + date$_{rc}$	linear	linear model 4	8	1024.98	15.72	0	1008.26
density + density^2 + sex + date$_{rc}$ + density:sex §	**quadratic**	**quadratic model 3**	**9**	**1045.32**	**36.06**	**0**	**1026.42**
factor(density) + sex + date$_{rc}$ + factor(density):sex	step function	step function model 4	14	1048.07	38.81	0	1017.92
density + sex + date$_{rc}$ + density:sex	linear	linear model 3	8	1049.66	40.4	0	1032.96
density + density^2 + sex + date$_b$ +density:sex §	**quadratic**	**quadratic model 4**	**9**	**1058.49**	**49.23**	**0**	**1039.6**
density + sex + date$_b$ + density:sex	linear	linear model 2	8	1061.98	52.71	0	1045.26
factor(density) + sex + date$_b$ + factor(density):sex	step function	step function model 3	14	1062.13	52.86	0	1031.98
1	NA	null model	4	1176.41	167.15	0	1168.22

Table A5. Summer growth in yearlings & adults

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density:sex + density^2:sex + density^2:age §	**quadratic**	**quadratic model 3**	**13**	**-1397.21**	**0**	**0.37**	**-1424.4**
density + density^2 + sex + age + SVL$_i$ + density:sex + density^2:sex + density^2:age §	**quadratic**	**quadratic model 8**	**12**	**-1395.32**	**1.89**	**0.14**	**-1420.34**
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density:sex + density: age + density^2:sex + density^2:age	**quadratic**	**quadratic model 2**	**14**	**-1395.14**	**2.07**	**0.13**	**-1424.52**
density + sex + age + SVL$_i$ + date$_r$ + density:sex + density:age	linear	linear model 2	11	-1394.34	2.87	0.09	-1417.2
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density:sex + density^2:age	**quadratic**	**quadratic model 5**	**12**	**-1393.92**	**3.29**	**0.07**	**-1418.94**
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density:sex + density^2:sex	**quadratic**	**quadratic model 4**	**12**	**-1393.08**	**4.13**	**0.05**	**-1418.1**
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density:sex + density: age + density^2:sex + density^2:age + sex:age	***quadratic***	***full quadratic model***	***15***	***-1392.97***	***4.24***	***0.04***	***-1424.56***
density + sex + age + SVL$_i$ + density:sex + density:age	linear	linear model 6	10	-1392.37	4.84	0.03	-1413.08
density + sex + age + SVL$_i$ + date$_r$ + density:sex + density:age + sex:age	*linear*	*full linear model*	*12*	*-1392.18*	*5.03*	*0.03*	*-1417.2*
density + sex + age + SVL$_i$ + date$_r$ + density:sex	linear	linear model 4	10	-1391.31	5.89	0.02	-1412.04
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density^2:sex + density^2:age	**quadratic**	**quadratic model 6**	**12**	**-1390.7**	**6.51**	**0.01**	**-1415.72**
density + sex + age + SVL$_i$ + date$_r$ + density:age	linear	linear model 3	10	-1385.84	11.37	0	-1406.56
factor(density) + sex + age + SVL$_i$ + date$_r$ + factor(density):sex	step function	step function model 3	16	-1384.71	12.5	0	-1418.52
factor(density) + sex + age + SVL$_i$ + date$_r$ + factor(density):sex + factor(density):age	step function	step function model 2	20	-1383.59	13.62	0	-1426.42

Table A5. (continued)							
Fixed effects	Shape of DD	Model	*k*	AIC_c	æAIC_c	w_i	deviance
factor(density) + sex + age + SVL_i + factor(density):sex	step function	step function model 7	15	-1382.98	14.23	0	-1414.56
factor(density) +sex + age + SVL_i + $date_r$ + factor(density):sex + factor(density):age + sex:age	*step function*	*full step function model*	*21*	*-1381.32*	*15.89*	*0*	*-1426.44*
factor(density) + sex + age + SVL_i + $date_r$	step function	step function model 4	12	-1379.04	18.17	0	-1404.06
factor(density) + sex + SVL_i + $date_r$ + factor(density):sex	step function	step function model 5	15	-1378.9	18.31	0	-1410.5
density + $density^2$ + sex + age + $date_r$ + density:sex + $density^2$:sex + density:age	**quadratic**	**quadratic model 7**	**12**	**-1169.07**	**228.13**	**0**	**-1194.1**
density + sex + age + $date_r$ + density:sex + density:age	linear	linear model 5	10	-1168.31	228.9	0	-1189.02
factor(density) + sex +age + $date_r$ + factor(density):sex	step function	step function model 6	15	-1158.97	238.24	0	-1190.56
1	NA	null model	4	-873.86	523.35	0	-881.98

Table A6. Yearling & adult body size in August 2008

Fixed effects	**Shape of DD**	**Model**	***k***	**AIC$_c$**	**æAIC$_c$**	***w_i***	**deviance**
density + sex + age + date$_r$ + density:sex + sex:age	**linear**	**linear model 3**	**10**	**1448.65**	**0**	**0.25**	**1427.94**
density + density^2 + sex + age + date$_r$ + density:sex + density^2:sex + sex:age	quadratic	quadratic model 4	12	1449.62	0.96	0.15	1424.6
density + sex + age + date$_r$ + density:sex + density:age + sex:age	**linear**	**linear model 2**	**11**	**1449.63**	**0.98**	**0.15**	**1426.78**
density + sex + age + density:sex + sex:age	**linear**	**linear model 4**	**9**	**1449.98**	**1.33**	**0.13**	**1431.4**
density + density^2 + sex + age + date$_r$ + density:sex + density:age + density^2:sex + sex:age	quadratic	quadratic model 3	13	1450.45	1.8	0.1	1423.26
density + density^2 + sex + age + date$_r$ + density:sex + sex:age	quadratic	quadratic model 5	11	1450.45	1.8	0.1	1427.6
density + sex + age + date$_r$ + date$_{rc}$ + density:sex + density:age + sex:age	***linear***	***full linear model***	***12***	***1451.75***	***3.1***	***0.05***	***1426.74***
density + density^2 + sex + age + date$_r$ + density:sex + density:age + density^2:sex + density^2:age + sex:age	quadratic	quadratic model 2	14	1452.58	3.93	0.04	1423.2
density + density^2 + sex + age + date$_r$ + date$_{rc}$ + density:sex + density:age + density^2:sex + density^2:age + sex:age	*quadratic*	*full quadratic model*	*15*	*1454.77*	*6.12*	*0.01*	*1423.2*
factor(density) + sex + age + date$_r$ + factor(density):sex + sex:age	step function	step function model 3	16	1457.07	8.41	0	1423.28
factor(density) + sex + age + factor(density):sex + sex:age	step function	step function model 4	15	1458.65	10	0	1427.06
density + sex + age + sex:age	**linear**	**linear model 5**	**8**	**1458.71**	**10.05**	**0**	**1442.24**
factor(density) + sex + age + date$_r$ + date$_{rc}$ + factor(density):sex + sex:age	step function	step function model 2	17	1459.25	10.6	0	1423.22
factor(density) + sex + age + sex:age	step function	step function model 5	11	1464.69	16.03	0	1441.82
factor(density) + sex + age + date$_r$ + date$_{rc}$ + factor(density):sex + factor(density):age + sex:age	*step function*	*full step function model*	*21*	*1464.93*	*16.28*	*0*	*1419.84*
density + sex + age + density:sex	**linear**	**linear model 6**	**8**	**1474.99**	**26.34**	**0**	**1458.52**
factor(density) + sex + age + factor(density):sex	step function	step function model 6	14	1483.18	34.53	0	1453.8
1	NA	null model	4	1844.12	395.47	0	1836

Table A7. Annual growth in yearlings & adults

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + sex + age + SVL$_i$ + density:sex + density:age §	**linear**	**linear model 3**	**10**	**-656.08**	**0**	**0.44**	**-678.24**
density + density^2 + sex + age + SVL$_i$ + density:sex + density:age	quadratic	quadratic model 5	11	-654.12	1.96	0.17	-678.74
density + sex + age + SVL$_i$ + density:sex + density:age + sex:age	**linear**	**linear model 2**	**11**	**-654.02**	**2.05**	**0.16**	**-678.64**
density + sex + age + SVL$_i$ + density:age	**linear**	**linear model 4**	**9**	**-652.96**	**3.11**	**0.09**	**-672.7**
density + density^2 + sex + age + SVL$_i$ + density:sex + density:age + density^2:sex	quadratic	quadratic model 4	12	-652.07	4.01	0.06	-679.18
density + sex + age + SVL$_i$ + date$_r$ + density:sex + density:age + sex:age	***linear***	***full linear model***	***12***	***-651.78***	***4.29***	***0.05***	***-678.9***
density + density^2 + sex + age + SVL$_i$ + density:sex + density:age + density^2:sex + sex:age	quadratic	quadratic model 3	13	-650	6.07	0.02	-679.68
density + density^2 + sex + age + SVL$_i$ + date$_r$+ density:sex + density:age + density^2:sex + sex:age	quadratic	quadratic model 2	14	-647.64	8.44	0.01	-679.92
density + sex + age + SVL$_i$ + density:sex	**linear**	**linear model 5**	**9**	**-646.41**	**9.66**	**0**	**-666.16**
density + density^2 + sex + age + SVL$_i$ + date$_r$ + density:sex + density:age + density^2:sex + density^2:age+ sex:age	*quadratic*	*full quadratic model*	*15*	*-645.03*	*11.04*	*0*	*-679.98*
factor(density) + sex + age + SVL$_i$ + factor(density):age	step function	step function model 4	15	-642.23	13.84	0	-677.18
factor(density) + sex + age + SVL$_i$	step function	step function model 5	11	-640.85	15.23	0	-665.46
factor(density) + sex + age + SVL$_i$ + factor(density):age + sex:age	step function	step function model 3	16	-640.63	15.45	0	-678.3
factor(density) + sex + age + SVL$_i$ + factor(density):sex + factor(density):age + sex:age	step function	step function model 2	20	-635.65	20.42	0	-684.78
factor(density) + sex + age + SVL$_i$ + date$_r$ + factor(density):sex + factor(density):age + sex:age	*step function*	*full step function model*	*21*	*-633.04*	*23.04*	*0*	*-685.2*
factor(density) + age + SVL$_i$ + factor(density):age	step function	step function model 6	14	-556.63	99.45	0	-588.92
density + sex + age + density:sex + density:age §	**linear**	**linear model 6**	**9**	**-540.4**	**115.67**	**0**	**-560.16**
factor(density) + sex + age + factor(density):age	step function	step function model 7	14	-530.18	125.89	0	-562.48
1	NA	null model	4	-442.61	213.46	0	-450.98

Table A8. Yearling & adult body size in May 2009

Fixed effects	**Shape of DD**	**Model**	***k***	**AIC$_c$**	**æAIC$_c$**	**w_i**	**deviance**
density + sex + age + density:sex + density:age	**linear**	**linear model 4**	**9**	**496.02**	**0**	**0.45**	**476.26**
density + sex + age + density:sex + density:age + sex:age §	**linear**	**linear model 3**	**10**	**497.05**	**1.03**	**0.27**	**474.9**
density + density^2 + sex + age + density:sex + density:age + sex:age	quadratic	quadratic model 5	11	499.1	3.09	0.1	474.48
density + sex + age + dater + density:sex + density:age + sex:age §	**linear**	**linear model 2**	**11**	**499.3**	**3.28**	**0.09**	**474.68**
density + density^2 + sex + age + density:sex + density:age + density^2:sex + sex:age	quadratic	quadratic model 4	12	501.12	5.1	0.04	474
density + sex + age + date$_r$ + date$_{rc}$ + density:sex + density:age + sex:age §	***linear***	***full linear model***	***12***	***501.8***	***5.79***	***0.03***	**474.68**
density + density^2 + sex + age + date$_r$ + density:sex + density:age + density^2:sex + sex:age	quadratic	quadratic model 3	13	503.47	7.46	0.01	473.8
density + sex + age + density:age	**linear**	**linear model 5**	**8**	**503.92**	**7.91**	**0.01**	**486.54**
density + sex + age + density:sex	**linear**	**linear model 6**	**8**	**505.11**	**9.1**	**0**	**487.72**
density + density^2 + sex + age + date$_r$ + density:sex + density:age + density^2:sex + density^2:age + sex:age	quadratic	quadratic model 2	14	506.06	10.05	0	473.78
density + density^2 + sex + age + date$_r$ + date$_{rc}$ + density:sex + density:age + density^2:sex + density^2:age + sex:age	*quadratic*	*full quadratic model*	*15*	*508.72*	*12.71*	*0*	473.78
factor(density) + sex + age + factor(density):sex + factor(density):age	step function	step function model 4	18	513.25	17.24	0	469.98
factor(density) + sex + age + factor(density):sex	step function	step function model 6	14	514.34	18.32	0	482.04
factor(density) + sex + age + factor(density):age	step function	step function model 5	14	514.79	18.78	0	482.5
factor(density) + sex + age + factor(density):sex + factor(density):age + sex:age	step function	step function model 3	19	515.46	19.44	0	469.28
factor(density) + sex + age + dater + factor(density):sex + factor(density):age + sex:age	step function	step function model 2	20	518.03	22.01	0	468.9
factor(density) + sex + age + dater + daterc + factor(density):sex + factor(density):age + sex:age	*step function*	*full step function model*	*21*	*520.96*	*24.95*	*0*	468.8
1	NA	null model	4	632.39	136.37	0	624.02

Table A9. Juvenile annual survival								
Fixed effects	**Shape of DD**	**Model**	***k***	**$QAIC_c$** [*]	**æ$QAIC_c$**	**w_i**	**deviance**
density + sex + density:sex	**linear**	**linear model 2**	**5**	**728.00**	**0.00**	**0.17**	**691.81**
density + sex [§ÿ]	**linear**	**linear model 3**	**4**	**728.01**	**0.01**	**0.17**	**693.78**
density + $density^2$ + sex + density:sex	quadratic	quadratic model 3	6	728.24	0.24	0.15	690.07
density + $density^2$ + sex	quadratic	quadratic model 4	5	728.36	0.36	0.14	692.15
sex [#]	NA	step function model 4	3	728.70	0.70	0.12	696.40
density + sex + $date_b$ + density:sex	***linear***	***full linear model***	***6***	***729.78***	***1.78***	***0.07***	***691.55***
density + $density^2$ + sex + density:sex + $density^2$:sex	quadratic	quadratic model 2	7	729.98	1.98	0.06	689.77
sex + $date_b$	NA	step function model 3	4	730.45	2.45	0.05	696.13
density [§ÿ]	**linear**	**linear model 4**	**3**	**731.73**	**3.73**	**0.03**	**699.32**
density + $density^2$ + sex + $date_b$ + density:sex + $density^2$:sex	*quadratic*	*full quadratic model*	*8*	*731.77*	*3.77*	*0.03*	*689.51*
1	NA	null model	2	732.27	4.27	0.02	701.79
factor(density) + sex + $date_b$	step function	step function model 2	8	733.49	5.49	0.01	691.17
factor(density) + sex + $date_b$ + factor(density):sex	*step function*	*full step function model*	*12*	*737.25*	*9.25*	*0.00*	*686.78*

[*] $QAIC_c$ were estimated for Ű= 0.96, obtained from the full step function model. Following Mazerolle et al (2012) and Burnham and Anderson (2002), we calculated the Ű for each of the 3 full models (i.e., linear (0.95), quadratic (0.96) and step function). The highest Ű was then used to estimate all $QAIC_c$ (the lowest Ű is to be used in case of overdispersion). Model ranking was slightly affected by 0.96 compared to Ű= 1 with linear model 2 becoming the first ranked model instead of linear model 3 (same change with Ű= 0.95). However, very similar w_i were obtained with Ű= 0.96 and Ű= 1.

Table A10. Yearling and adult annual survival

Fixed effects	Shape of DD	Model	k	$QAIC_c$	æ$QAIC_c$ *	w_i	deviance
sex + age + sex:age ÿ#	**NA**	**step function model 5**	**5**	**430.32**	**0**	**0.17**	**431.58**
density + sex +age + sex:age	linear	linear model 4	6	430.63	0.32	0.15	429.78
sex+age	**NA**	**step function model 6**	**4**	**430.82**	**0.50**	**0.14**	**434.2**
density +sex + age	linear	linear model 5	5	431.10	0.78	0.12	432.38
density + $density^2$ + sex + age + sex:age	quadratic	quadratic model 6	7	431.61	1.29	0.09	428.64
sex + age + $date_r$ + sex:age ÿ#	**NA**	**step function model 4**	**6**	**431.81**	**1.49**	**0.08**	**430.98**
density + $density^2$ + sex + age	quadratic	quadratic model 7	6	432.06	1.75	0.07	431.24
density + sex +age + $date_r$ + sex:age	linear	linear model 3	7	432.19	1.88	0.07	429.24
density + $density^2$ + sex + age + $date_r$ +sex:age	quadratic	quadratic model 5	8	433.22	2.91	0.04	428.16
density + sex +age + $date_r$ + sex:age + density:age	linear	linear model 2	8	433.99	3.68	0.03	428.96
density + $density^2$ + sex + age + $date_r$ +sex:age + $density^2$:age	quadratic	quadratic model 4	9	434.91	4.60	0.02	427.74
density + sex +age + $date_r$ + sex:age + density:sex + density:age	*linear*	*full linear model*	*9*	*436.02*	*5.70*	*0.01*	*428.88*
density + $density^2$ + sex + age + $date_r$ +sex:age + density:age + $density^2$:age	quadratic	quadratic model 3	10	436.69	6.37	0.01	427.4
factor(density) +sex + age + $date_r$ + sex:age	step function	step function model 3	10	437.16	6.84	0.01	427.88
density + $density^2$ + sex + age + $date_r$ +sex:age + density:sex + density:age + $density^2$:age	quadratic	quadratic model 2	11	438.73	8.41	0.00	427.32
density + $density^2$ + sex + age + $date_r$ +sex:age + density:sex + density:age + $density^2$:sex + $density^2$:age	*quadratic*	*full quadratic model*	*12*	*440.63*	*10.31*	*0.00*	*427.08*
factor(density) +sex + age + $date_r$ + sex:age + factor(density):age	step function	step function model 2	14	443.65	13.13	0.00	425.56
factor(density) +sex + age + $date_r$ + sex:age + factor(density):sex + factor(density):age	*step function*	*full step function model*	*18*	*451.83*	*21.52*	*0.00*	*425.18*
1	**NA**	**null model**	**2**	**458.67**	**28.36**	**0.00**	**467**

* $QAIC_c$ were estimated for **Ú**= 1.03, obtained from the full linear model (**Ú**= 1.03, and 1.06 for the quadratic and the step function full model respectively). Model ranking was not affected by **Ú**= 1.03 or **Ú**= 1.06 compared to **Ú**= 1 and very similar w_i were obtained.

Table A11. Juvenile access to reproduction							
Fixed effects	**Shape of DD**	**Model**	***k***	**$QAIC_c$**	**æ$QAIC_c$** [*]	***w_i***	**deviance**
density + $date_b$ [§ÿ]	***linear***	***full linear model***	***4***	***127.55***	***0***	***0.53***	***117.88***
density + $density^2$ + $date_b$	*quadratic*	*full quadratic model*	*5*	*128.12*	*0.57*	*0.40*	*116.28*
factor(density) + $date_b$	*step function*	*full step function model*	*7*	*132.18*	*4.63*	*0.05*	*115.86*
density [§ÿ]	**linear**	**linear model 2**	**3**	**135.24**	**7.68**	**0.01**	**127.60**
factor(density)	step function	step function model 2	6	140.62	13.06	0	126.44
$date_b$ [#]	NA	linear model 3	4	142.54	14.99	0	132.70
1	NA	null model	2	146.08	18.53	0	140.40

[*] $QAIC_c$ were estimated for ***Ů***= 0.99, obtained from the full step function model (***Ů***= 0.92, and 0.93 for the linear and quadratic full model respectively). Model ranking was not affected by ***Ů***= 0.92, 0.93 or ***Ů***= 0.99 compared to ***Ů***= 1 and very similar w_i were obtained.

Table A12. Parturition date

Fixed effects	Shape of DD	Model	*k*	AIC$_c$	æAIC$_c$	w_i	deviance
density + density^2 + age + density^2:age §	**quadratic**	**quadratic model 3**	**11**	**761.75**	**0**	**0.4**	**737.12**
density + density^2 + age	**quadratic**	**quadratic model 4**	**9**	**762.27**	**0.52**	**0.3**	**742.5**
factor(density) + age	step function	step function model 3	11	764.24	2.49	0.11	739.6
density + density^2 + age + density:age + density^2:age	**quadratic**	**quadratic model 2**	**13**	**764.29**	**2.54**	**0.11**	**734.58**
density + density^2 + age + date$_r$ + density:age + density^2:age	***quadratic***	***full quadratic model***	***14***	***766.79***	***5.04***	***0.03***	***734.46***
age	NA	linear model 4	5	767.21	5.46	0.03	756.64
density + age	linear	linear model 3	6	768.9	7.15	0.01	756.1
density + age + density:age	linear	linear model 2	8	770.67	8.92	0	753.26
density + age + date$_r$ + density:age	*linear*	*full linear model*	*9*	*773.01*	*11.26*	*0*	*753.24*
factor(density) + age + factor(density):age	step function	step function model 2	19	773.02	11.27	0	726.76
factor(density) + age + date$_r$ + factor(density):age	*step function*	*full step function model*	*20*	*775.66*	*13.91*	*0*	*726.44*
density + density^2	**quadratic**	**quadratic model 5**	**7**	**778.38**	**16.63**	**0**	**763.3**
factor(density)	step function	step function model 4	9	781.7	19.95	0	761.94
1	NA	null model	3	786.99	25.24	0	780.76

Table A13. Clutch size

Fixed effects	**Shape of DD**	**Model**	***k***	**$QAIC_c$**	**æ$QAIC_c$***[*]	***w_i***	**deviance**
density + age [§ÿ]	**linear**	**linear model 3**	**5**	**186.13**	**0**	**0.34**	**218.86**
density + age + density:age	**linear**	**linear model 2**	**7**	**187.11**	**0.98**	**0.21**	**214.56**
density + $density^2$ + age	quadratic	quadratic model 4	6	188.22	2.10	0.12	218.74
density + $density^2$ + age + $density^2$:age	quadratic	quadratic model 3	8	188.74	2.62	0.09	213.78
***density + age + $date_r$* + density:age**	***linear***	***full linear model***	***8***	***188.94***	***2.81***	***0.08***	***214.02***
factor(density) + age	step function	step function model 3	8	189.22	3.09	0.07	214.38
density + $density^2$ + age + $date_r$ + $density^2$:age	quadratic	quadratic model 2	9	190.65	4.52	0.04	213.28
factor(density) + age + $date_r$	step function	step function model 2	9	191.17	5.05	0.03	213.94
density + $density^2$ + age + $date_r$ + density:age + $density^2$:age	*quadratic*	*full quadratic model*	*11*	*193.96*	*7.83*	*0.01*	*211.52*
age [#]	NA	linear model 4	4	195.47	9.34	0.00	233.2
factor(density) + age + $date_r$ + factor(density):age	*step function*	*full step function model*	*17*	*204.94*	*18.82*	*0.00*	*206.3*
1	NA	null model	2	261.51	75.38	0.00	320.74
density [§ÿ]	**linear**	**linear model 5**	**3**	**261.96**	**75.84**	**0.00**	**318.7**
factor(density)	step function	step function model 4	6	265.25	79.13	0.00	314.72

[*] $QAIC_c$ were estimated for ***Ú***= 1.25, obtained from the full linear model (***Ú***= 1.27, and 1.28 for the quadratic and the step function full model respectively). Model ranking was slightly affected by ***Ú***= 1.25 compared to ***Ú***= 1: quadratic model 4 moved from rank 5 to rank 3 (same change with ***Ú***= 1.27 or 1.28). In addition, the support of first ranked model (linear model 3) increased when the overdispersion was accounted for. As a result, the interaction between density and age class lost overall support (the cumulated weight of models including an interaction between density and age class moved from 0.53 with ***Ú***= 1 to 0.43 with ***Ú***= 1.25).

Table A14. Postpartum body condition [*]

Fixed effects	**Shape of DD**	**Model**	***k***	**AIC$_c$**	**æAIC$_c$**	***w_i***	**deviance**
density + age + log(SVL$_c$) + date$_r$ [§]	**linear**	**linear model 2**	**8**	**-171.97**	**0**	**0.34**	**-189.38**
density + age + log(SVL$_c$) [§]	**linear**	**linear model 3**	**7**	**-170.54**	**1.43**	**0.16**	**-185.62**
density + log(SVL$_c$) + date$_r$ [§]	**linear**	**linear model 4**	**6**	**-170.16**	**1.81**	**0.14**	**-182.96**
density + density^2 + age + log(SVL$_c$) + date$_r$	quadratic	quadratic model 3	9	-169.95	2.02	0.12	-189.72
log(SVL$_c$)	NA	null model	4	-169.08	2.89	0.08	-177.46
density + age + log(SVL$_c$) + date$_r$ + density:age	***linear***	***full linear model***	***10***	***-168.1***	***3.87***	***0.05***	***-190.3***
age + log(SVL$_c$) + date$_r$	NA	linear model 5	7	-167.5	4.47	0.04	-182.58
factor(density) + age + log(SVL$_c$) + date$_r$	step function	step function model 2	11	-167.3	4.66	0.03	-191.98
density + density^2 + age + log(SVL$_c$) + date$_r$ + density:age	quadratic	quadratic model 2	11	-165.93	6.04	0.02	-190.6
factor(density) + age + log(SVL$_c$)	step function	step function model 4	10	-165.42	6.55	0.01	-187.62
factor(density) + log(SVL$_c$) + date$_r$	step function	step function model 3	9	-165.21	6.76	0.01	-185
density + density^2 + age + log(SVL$_c$) + date$_r$ + density:age + density^2:age	*quadratic*	*full quadratic model*	*13*	*-160.89*	*11.08*	*0*	*-190.64*
factor(density) + age + log(SVL$_c$) + date$_r$ + factor(density):age	*step function*	*full step function*	*19*	*-155.85*	*16.11*	*0*	*-202.2*

[*] Covariance analysis of log-transformed postpartum weight including log-transformed current SVL as a covariate.

Table A15. Body size at birth

Fixed effects	**Shape of DD**	**Model**	***k***	**AIC$_c$**	**æAIC$_c$**	***w_i***	**deviance**
resclutchsize + sex$_j$ + age	**NA**	**linear model 5**	**13**	**1393.37**	**0**	**0.53**	**1366.7**
density + resclutchsize + sex$_j$ + age	linear	linear model 4	14	1395.28	1.92	0.2	1366.5
density + resclutchsize + sex$_j$ + age + density:age	linear	linear model 3	16	1396.94	3.57	0.09	1363.92
age + sex$_j$	**NA**	**linear model 6**	**12**	**1397.82**	**4.45**	**0.06**	**1373.24**
density + resclutchsize + sex$_j$ + age + date$_p$ + density:age	linear	linear model 2	17	1398.74	5.37	0.04	1363.6
density + density^2 + resclutchsize + sex$_j$ + age + date$_p$	quadratic	quadratic model 5	16	1399.15	5.79	0.03	1366.14
factor(density) + resclutchsize + sex$_j$ +age + date$_p$	step function	step function model 2	18	1400.26	6.89	0.02	1362.98
resclutchsize + sex$_j$	**NA**	**linear model 7**	**11**	**1400.34**	**6.97**	**0.02**	**1377.86**
density + resclutchsize + sex$_j$ + age + date$_p$ + density:sex$_j$ + density:age	*linear*	*full linear model*	*18*	*1400.86*	*7.5*	*0.01*	*1363.6*
density + density^2 + resclutchsize + sex$_j$ + age + date$_p$ + density^2:sex$_j$	quadratic	quadratic model 4	17	1401.27	7.9	0.01	1366.14
density + density^2 + resclutchsize + sex$_j$ + age + date$_p$ + density:sex$_j$ + density^2:sex$_j$	quadratic	quadratic model 3	18	1402.96	9.6	0	1365.68
density + density^2 + resclutchsize + sex$_j$ + age + date$_p$ + density:sex$_j$ + density^2:sex$_j$ + density^2:age	quadratic	quadratic model 2	20	1404.45	11.08	0	1362.88
factor(density) + resclutchsize + sex$_j$ + age + factor(density):sex$_j$	*step function*	*full step function model*	*22*	*1406.38*	*13.01*	*0*	*1360.48*
*density + density^2 + resclutchsize + sex$_j$ + age + datep + density:sex$_j$ + density:age + density^2:sex$_j$ + density^2:age***	*quadratic*	*full quadratic model*	*22*	*1408.2*	*14.84*	*0*	*1362.3*
resclutchsize + age	**NA**	**linear model 8**	**12**	**1544.52**	**151.15**	**0**	**1519.94**
1	NA	null model	9	1559.12	165.75	0	1540.78

48 ** The first order interaction between density as a step function and age class was not tested due to the absence of observations in some of the blocks.

Appendix B ï Path analyses

Figure B1. Path diagrams of juvenile access to reproduction (A) and clutch size (B). Path analyses were used to estimate direct effects of density (thick solid arrows) and indirect effects through current SVL (thick dashed arrows), and therefore density-dependent growth. Analyses also accounted for direct and indirect effects of date of birth ($Date_b$) and release date ($Date_r$) on juvenile access to reproduction and on clutch size respectively as well as of age class (Age) on clutch size (thin solid and dashed arrows). Unidirectional arrows indicate simple regressions between two observed variables and bidirectional arrows indicate the variance of observed variables. Letters indicate regression and variance coefficients.

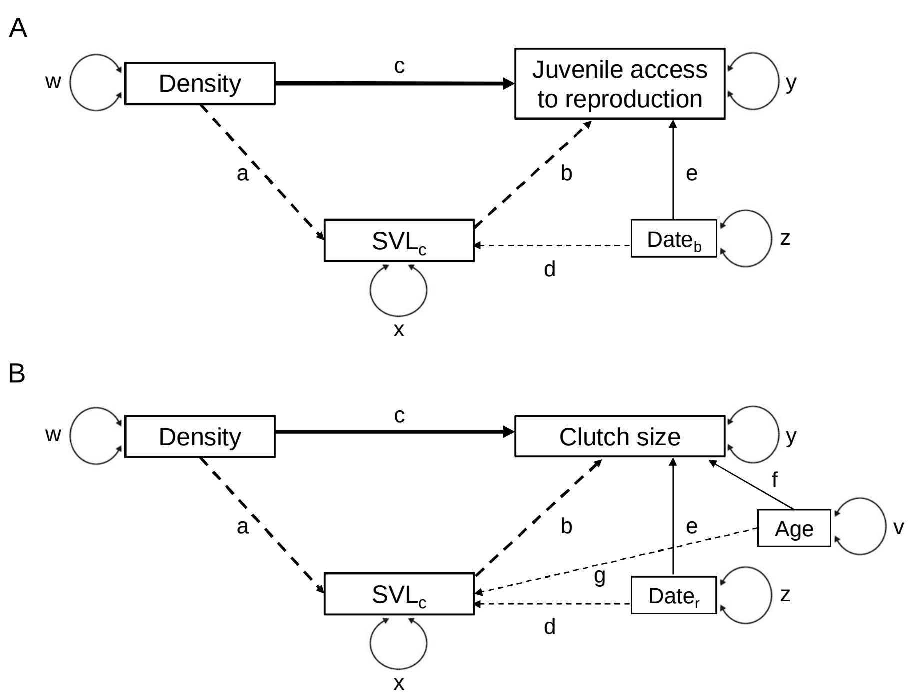

Table B1. Estimates of path analyses parameters for juvenile access to reproduction and clutch size. Significant terms (Wald-Z tests, $P < 0.05$) are indicated in bold.

	Juvenile access to reproduction	Clutch size
Parameter	Estimates ± s.e.	Estimates ± s.e.
a	**-1.68 ± 0.24**	**-0.18 ± 0.05**
b	**0.04 ± 0.01**	**0.46 ± 0.11**
c	**-0.10 ± 0.03**	**-0.22 ± 0.06**
d	**-0.22 ± 0.05**	**0.25 ± 0.05**
e	-0.009 ± 0.006	-0.02 ± 0.07
f		**0.88 ± 0.05**
g		**0.30 ± 0.11**
v		**1.00 ± 0.12**
w	**1.80 ± 0.24**	**0.31 ± 0.04**
x	**11.59 ± 1.53**	**0.47 ± 0.06**
y	**0.15 ± 0.02**	**1.00 ± 0.12**
z	**46.21 ± 6.09**	**1.00 ± 0.12**

Appendix B ï Path analyses

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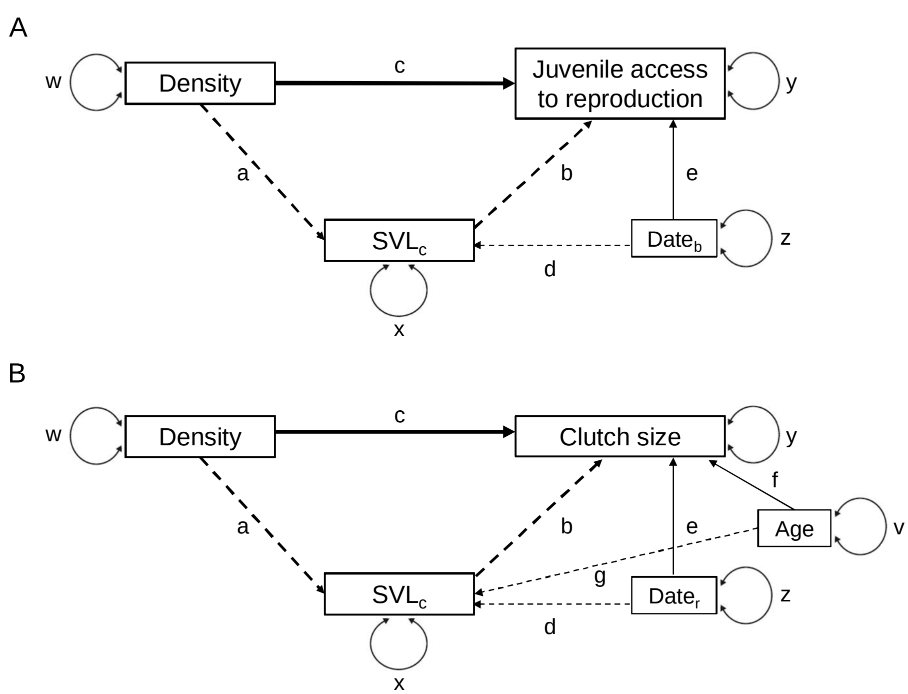

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d	**-0.22 ± 0.05**	**0.25 ± 0.05**
e	-0.009 ± 0.006	-0.02 ± 0.07
f		**0.88 ± 0.05**
g		**0.30 ± 0.11**
v		**1.00 ± 0.12**
w	**1.80 ± 0.24**	**0.31 ± 0.04**
x	**11.59 ± 1.53**	**0.47 ± 0.06**
y	**0.15 ± 0.02**	**1.00 ± 0.12**
z	**46.21 ± 6.09**	**1.00 ± 0.12**

Appendix C ï Age-structured projection matrix model

Model assumptions

We used age-structured matrix population models with post-breeding census and birth pulse dynamics (Caswell, 2001). We first considered a one-sex model (female based) with three age-classes (juveniles, yearlings and adults) and the projection matrix A

$$A=\begin{pmatrix} S_1 \times F_1 & S_2 \times F_2 & S_3 \times F_3 \\ S_1 & 0 & 0 \\ 0 & S_2 & S_3 \end{pmatrix},$$

where S_1 is the annual juvenile survival, S_2 the annual yearling survival, S_3 the annual adult survival, F_1 the juvenile fecundity, F_2 the yearling fecundity and F_3 the adult fecundity. Fecundity in each age class was the product of the stage-specific proportion of breeders ($ɔ_i$), total clutch size (f_i), hatching success (hs_i), and primary sex ratio (sr_i; the proportion of female offspring at birth). Estimates of demographic rates were obtained from our experimental data except for the primary sex ratio which was assumed to be balanced (Table C1).

Juvenile survival, proportion of breeders among juveniles and the total clutch size of juveniles, yearlings and adults were density-dependent. In each case, we used the best density-dependent function supported by our experimental data, i.e., $f(S_1) = \frac{1}{1+\exp[-(a_1 - b_1 n)]}$ for juvenile survival, $f(\gamma_1) = \frac{1}{1+\exp[-(a_1 - b_1 n)]}$ for the proportion of breeders among juveniles (logistic regressions) and $f(F_i) = \exp(a_i - b_i n)$ for the total clutch size (log-linear regression, see the section Statistical analyses in the main text), where a_i is the intercept (at n=0), b_i the slope of density dependence and n the density level (n=N/N_0 where N is the initial density and N_0 the initial density in populations of density level 1; see Table C1). Density dependence of demographic rates is modeled as a function of total population density and is independent of agestructure. Starting conditions of the simulations were similar to the release conditions of our experiment.

A two-sex version of the density-dependent deterministic model was developed to predict the density and age and sex-structures at equilibrium. The two-sex models assumed a male and female coupled life cycle and a polygynous mating system. In two-sex models, potential breeders of all age classes mated randomly. The number of clutches per generation was calculated according to the mating function $M(N_m, N_f)=\min(hN_m, N_f)$ where N_m is the number of males, N_f the number of females and h the harem size (here, $h=4$). For the unrestricted harem size, the mating function $M(N_m,N_f)$ is equal to N_f when N_m is > 0 and to 0 when $N_m = 0$. A harem size of four corresponds to a conservative estimate of the average number of females inseminated by a single breeding male (Fitze et al., 2005). In this case, the number of breeding male is limiting when it is lower than one quarter of the number of breeding females. An unrestricted harem size implies that a single breeding male can inseminate all breeding females from the same population. In this case, the number of males is limiting only when there is no breeding male.

Elasticity analyses

We carried out density-independent and density-dependent elasticity analyses of λ and N_{eq} for each demographic parameter and slope of density dependence (i.e., elasticities of lower-level parameters and not of matrix elements, Caswell, 2001). Elasticities of λ and elasticities of N_{eq} predict the proportional change in λ and in N_{eq} respectively, given a small proportional change in a parameter of the model while all other parameters remain constant (Caswell, 2001). Computations were carried out using ULM (Legendre and Clobert, 1995). Elasticities of N_{eq} are proportional to elasticities of λ if (i) the population has a stable equilibrium, (ii) density dependence is a function of the total number of individuals within the population, and (iii) density dependence operates in the same way in all age classes (Grant and Benton, 2000). Here, only the first two conditions were met.

Demographic stochasticity

The consequences of population density for the extinction risk were investigated using stochastic one-sex and two-sex models. We performed individual-based simulations by incorporating demographic stochasticity on all demographic events. Survival probabilities, breeding probabilities, mating probabilities, sex at birth and the number of mating events were drawn from binomial distributions while the number of offspring produced was drawn from Poisson distributions.

References

Caswell, H. (2001) *Matrix population models*, 2 edn. Sinauer Associates, Sunderland.

Fitze, P.S., Le Galliard, J.-F., Federici, P., Richard, M. & Clobert, J. (2005) Conflict over multiple-partner mating between males and females of the polygynandrous common lizards. *Evolution,* **59,** 2451-2459.

Grant, A. & Benton, T.G. (2000) Elasticity analysis for density-dependent populations in stochastic environments. *Ecology,* **81,** 680-693.

Legendre, S. & Clobert, J. (1995) ULM, a software for conservation and evolutionary biologists. *Journal of Applied Statistics,* **22,** 817-834.

Table C1. Parameter estimates for density-dependent and density-independent one-sex and two-sex models. Estimates of the proportion of breeders and hatching success are given on the logit scale $f(x_i) = \frac{1}{1+\exp(-x_i)}$ (logistic regression) and estimates of the total clutch size are given on the log scale $f(x_i) = \exp(x_i)$ (log-linear regression). In the density-independent model, estimates were calculated by pooling data from all enclosures. In the density-dependent model, $x_i(n) = a_i - b_i n$, where a_i is the intercept (at n=0), b_i the slope of the density dependence and n the density level. Estimates in bold are for females, estimates in italic are for males and other estimates are for both sexes.

	Density-independent model		**Density-dependent model**	
Demographic rates (x_i)	One-sex model	Two-sex model	One-sex model	Two-sex model
Annual juvenile survival (S_1)	0.400	**0.400**, *0.303*	-0.915 + 0.204 × *n*	**-0.915 + 0.204 × *n*** *-1.353 + 0.204 × n*
Annual yearling survival (S_2)	0.527	**0.527**, *0.191*	0.527	**0.527**, *0.191*
Annual adult survival (S_3)	0.281	**0.281**, *0.164*	0.281	**0.281**, *0.164*
Juvenile fecundity (F_1)				
Percentage of breeders (ɔ$_1$)	-0.393		2.120 - 0.986 × *n*	
Total clutch size (f_1)	1.06		1.370 - 0.133 × *n*	
Hatching success (hs_1)	0.836		0.836	
Yearling and adult fecundity ($F_{2\text{-}3}$)				
Percentage of breeders (ɔ$_{2\text{-}3}$)	2.290		2.290	
Total clutch size ($f_{2\text{-}3}$)	f_2 = 1.915, f_3 = 1.923		f_2 = 2.281 - 0.133 × *n*, f_3 = 2.310 - 0.133 × *n*	
Hatching success ($hs_{2\text{-}3}$)	hs_2 = 0.846, hs_3 = 0.914		hs_2 = 0.846, hs_3 = 0.914	

Appendix D ï Consequences of density for the persistence of populations

Figure D1. Population growth rate according to density level. (A) Estimates of population growth rates (± sd/5) were obtained from the stochastic density-independent one-sex (m1) and two-sex (m2, for a harem size h=4 and m3: for an unrestricted harem size) models. (B) Estimates of population growth rates (± sd/5) were obtained from the stochastic density-dependent one-sex (m4) and two-sex models (m5, for h=4 and m6, for h=unrestricted). The thick line represents the observed population growth rates after one year of experiment. Estimates of stochastic growth rates were obtained from Monte Carlo simulations of 1,000 trajectories run during one year.

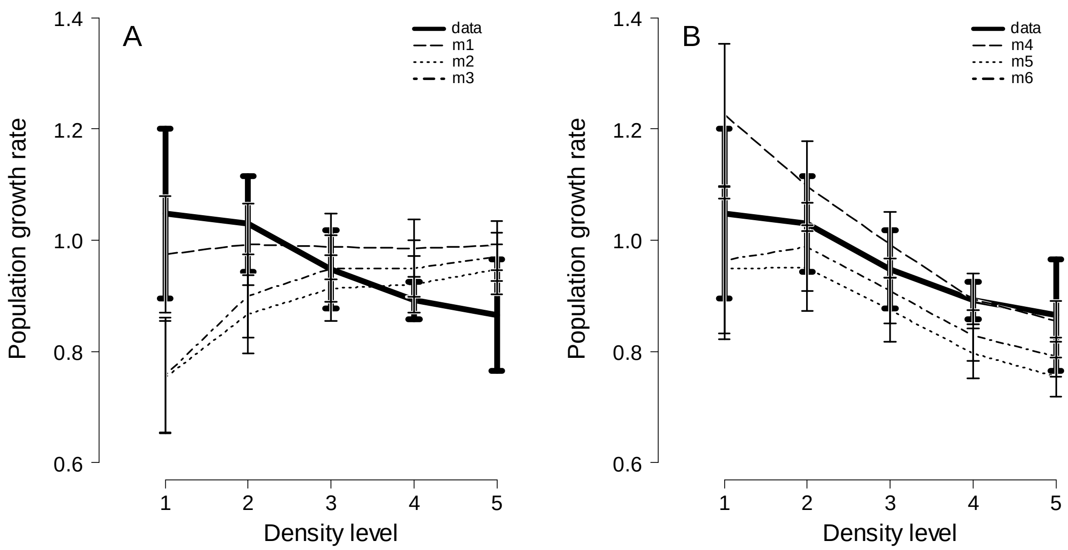
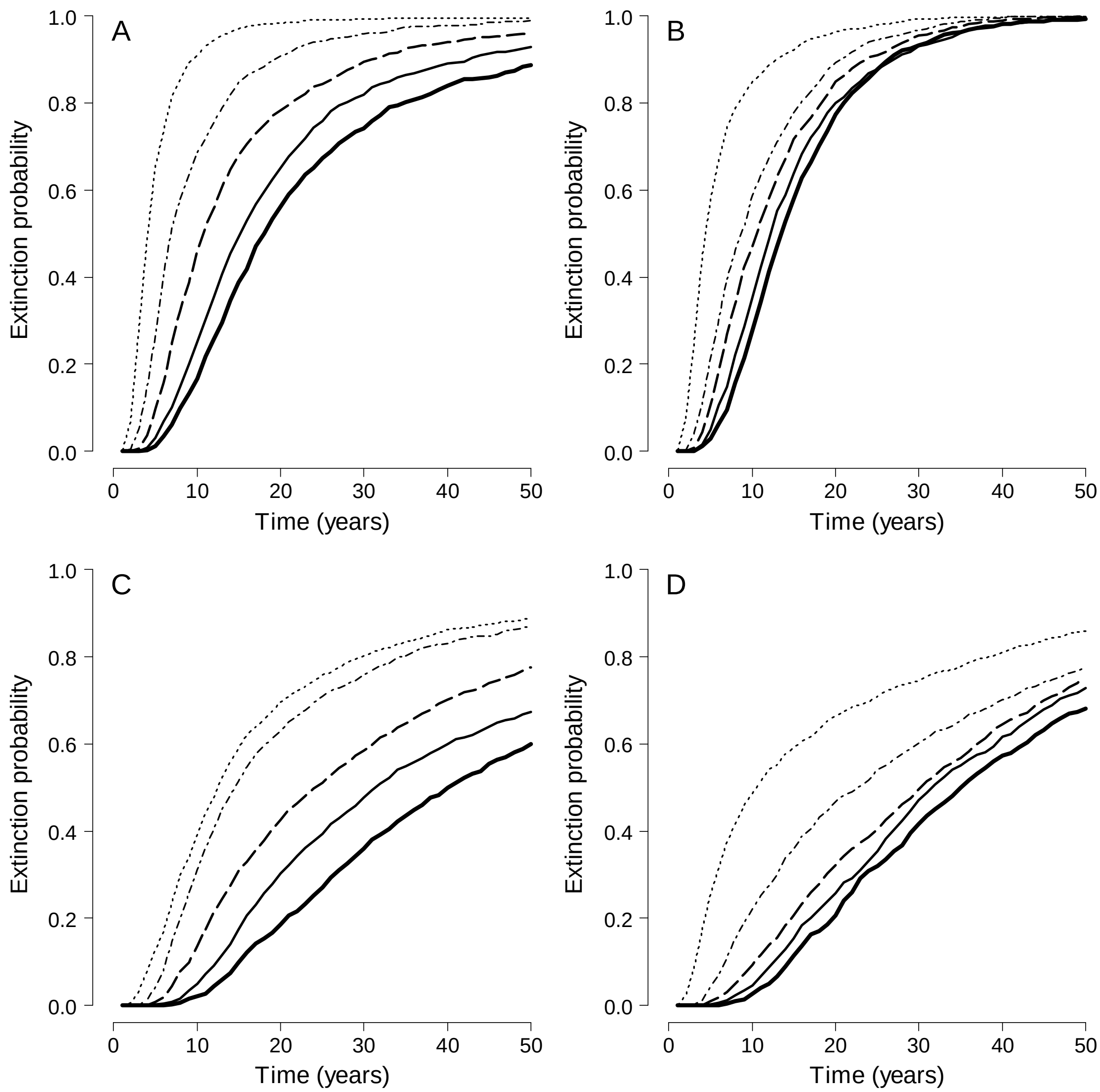


Figure D2. Cumulated extinction probability over time according to initial population density for density-independent (A, C) and density-dependent (B, D) two-sex models. In (A) and (B), the models assumed a polygynous mating system with a harem size of 4. In (C) and (D), the models also assumed a polygynous mating system with a harem size of 4 but with a male annual survival equal to female annual survival. Results are from Monte Carlo simulations of 1000 trajectories. Legends as in Figure 4.



Burnham, K. P. & Anderson, D. R. (2002) *Model selection and multimodel inference. A practical information-theoretic approach,* Springer, New York.

Caswell, H. (2001) *Matrix population models*, Sinauer Associates, Sunderland.

Fitze, P. S., Le Galliard, J.-F., Federici, P., Richard, M. & Clobert, J. (2005) Conflict over multiple-partner mating between males and females of the polygynandrous common lizards. *Evolution,* **59,** 2451-2459.

Grant, A. & Benton, T. G. (2000) Elasticity analysis for density-dependent populations in stochastic environments. *Ecology,* **81,** 680-693.

Legendre, S. & Clobert, J. (1995) ULM, a software for conservation and evolutionary biologists. *Journal of Applied Statistics,* **22,** 817-834.

Mazerolle, M. J. (2012) Model selection and multimodel inference based on (Q)AIC(c). The Comprehensive R Archive Network.