Thunell DEBIPM Supporting info

Viktor Thunell

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Supporting information for DEB IPM (temporary)

A1. Effects of size and temperature on maintenance, consumption and energy budget.

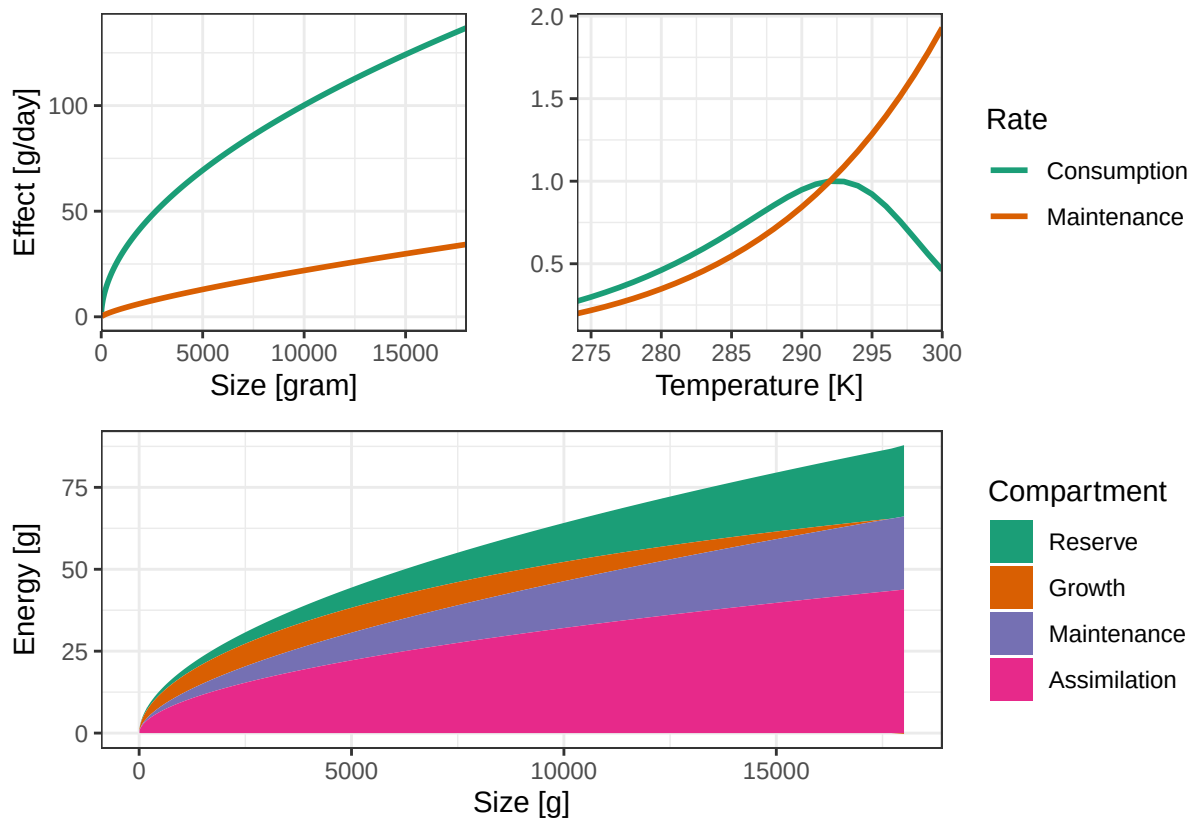
A2. Growth tarjectories and fecundity at for optimal allocation (kappa_0*)

A3. Fitness landscape & stable size structure for contrasting survival scenarios

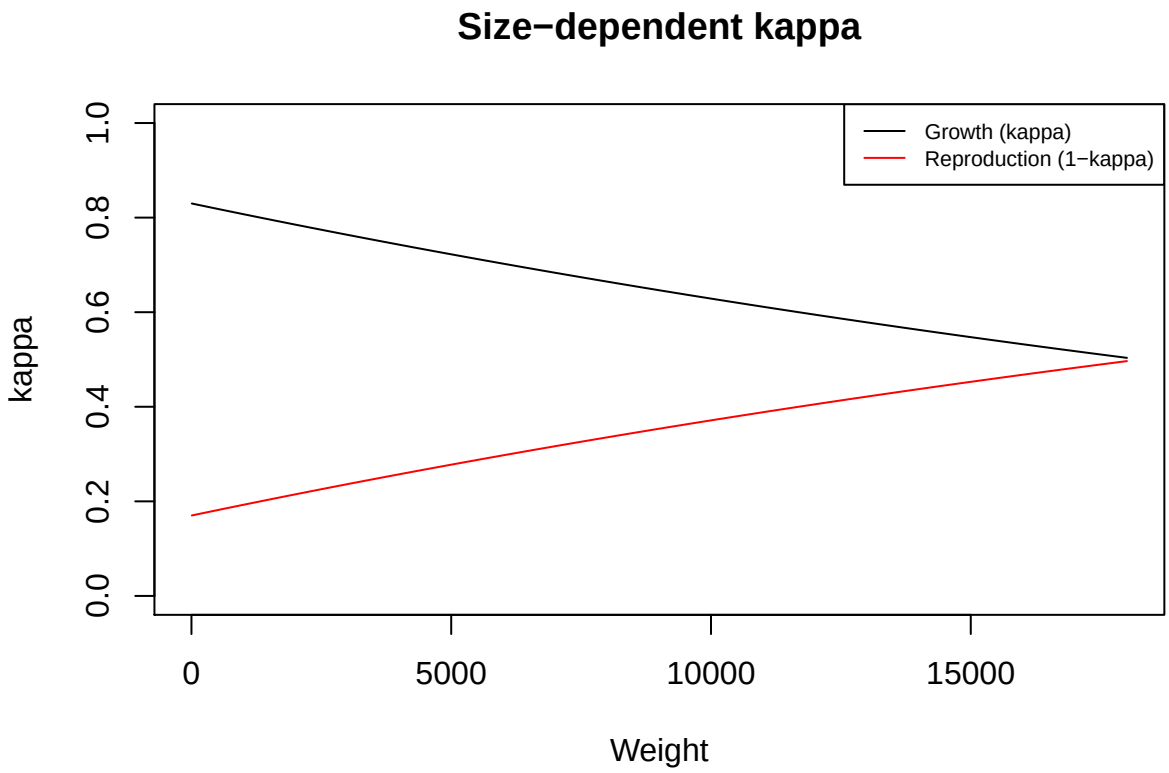
A4. Optimal allocation strategy when kappa is fixed for in the first year of growth.

A1. Effects of size and temperature on maintenance, consumption and energy budget

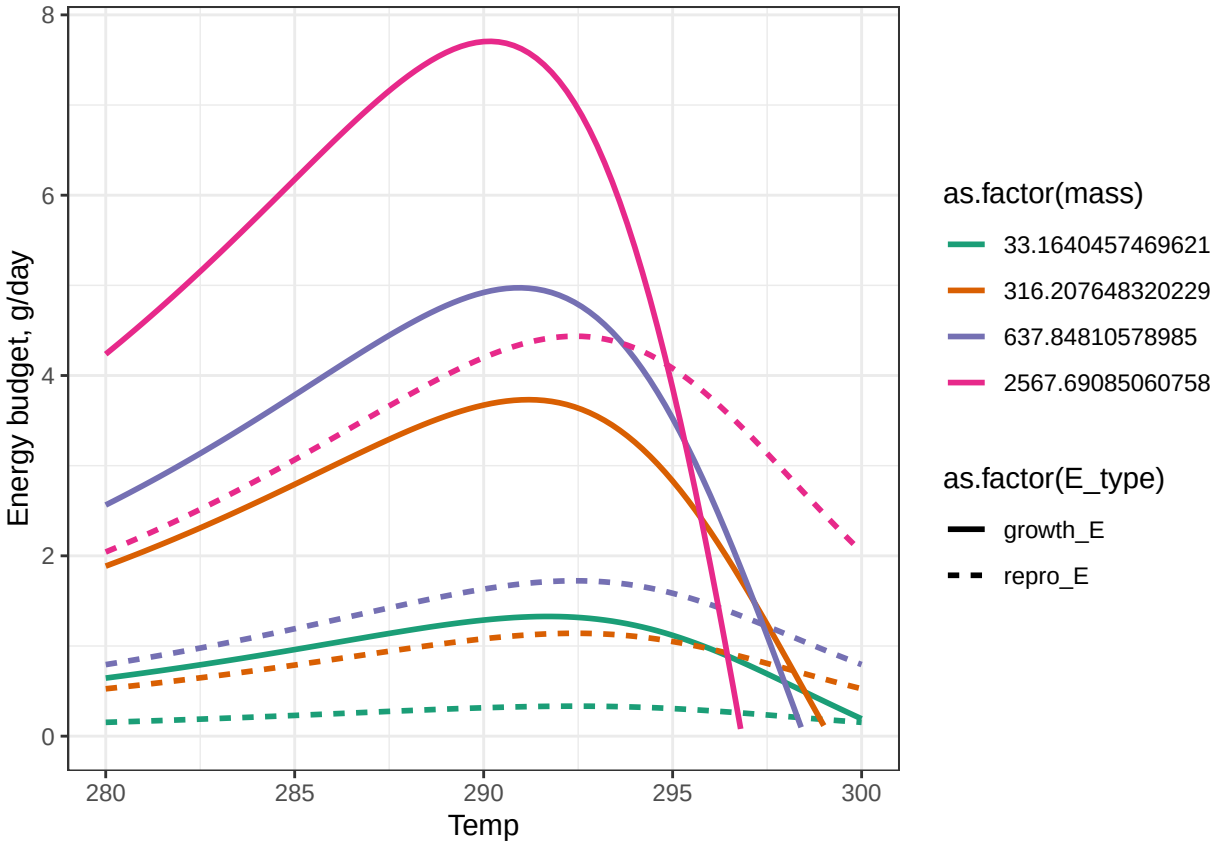
Effects of temperature on maintenance and consumption Effects of temperature on maintenance and consumption



Size dependent Kappa function (k(m), k_0=0.83, k_m=2) Size dependent Kappa function (k(m), k_0=0.83, k_m=2)



Effects of temperature on size dependent energy budget Effects of temperature on size dependent energy budget



A2. Growth trajectories and fecundity at for optimal allocation (kappa_0*)

Growth trajectories and fecundity at for optimal allocation (kappa_0*)

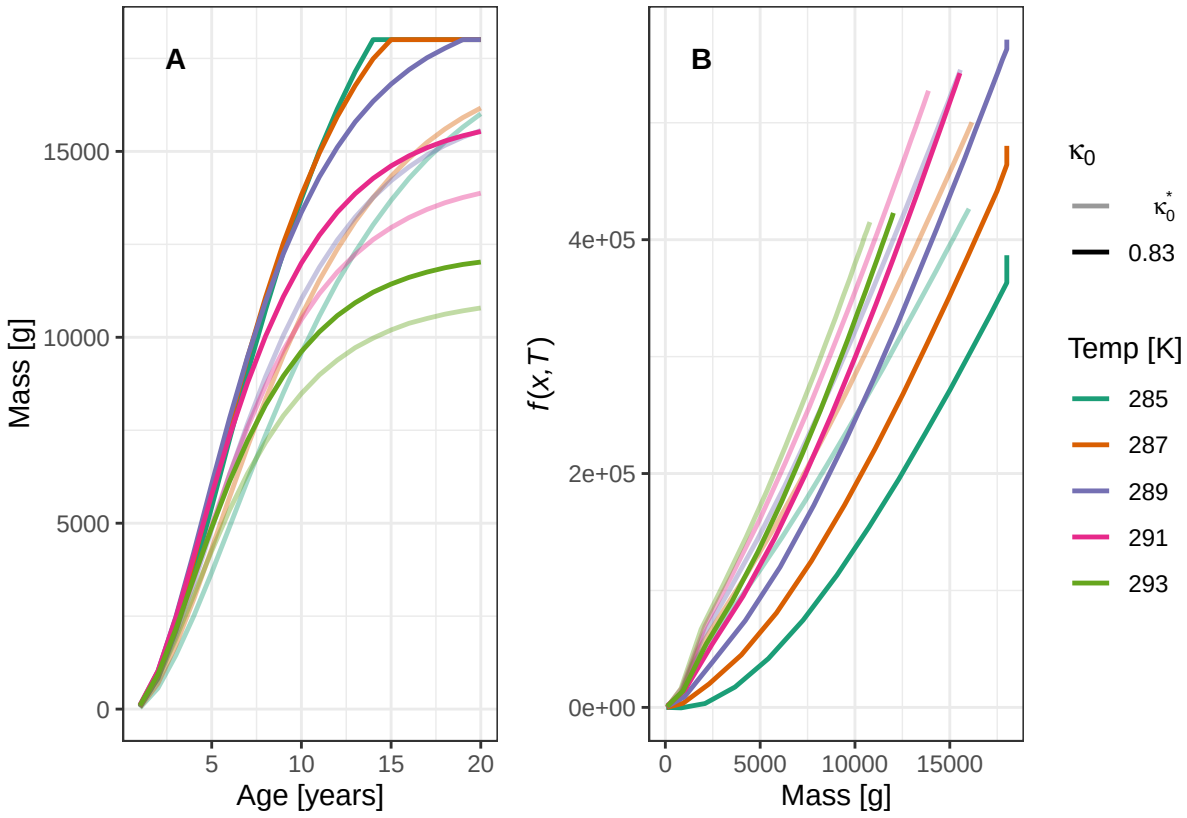


Figure A2. Growth tarjectories (A) and fecundity (B) predicted from the optimal allocation strategy (k_0^*) at five temperatures and contrasted by growth and fecundity for k_0=0.83 (i.e. k_0 used in for tuning he model).

A3. Fitness landscape & stable size structure for contrasting survival scenarios

Fitness landscape & stable size structure for contrasting survival scenarios

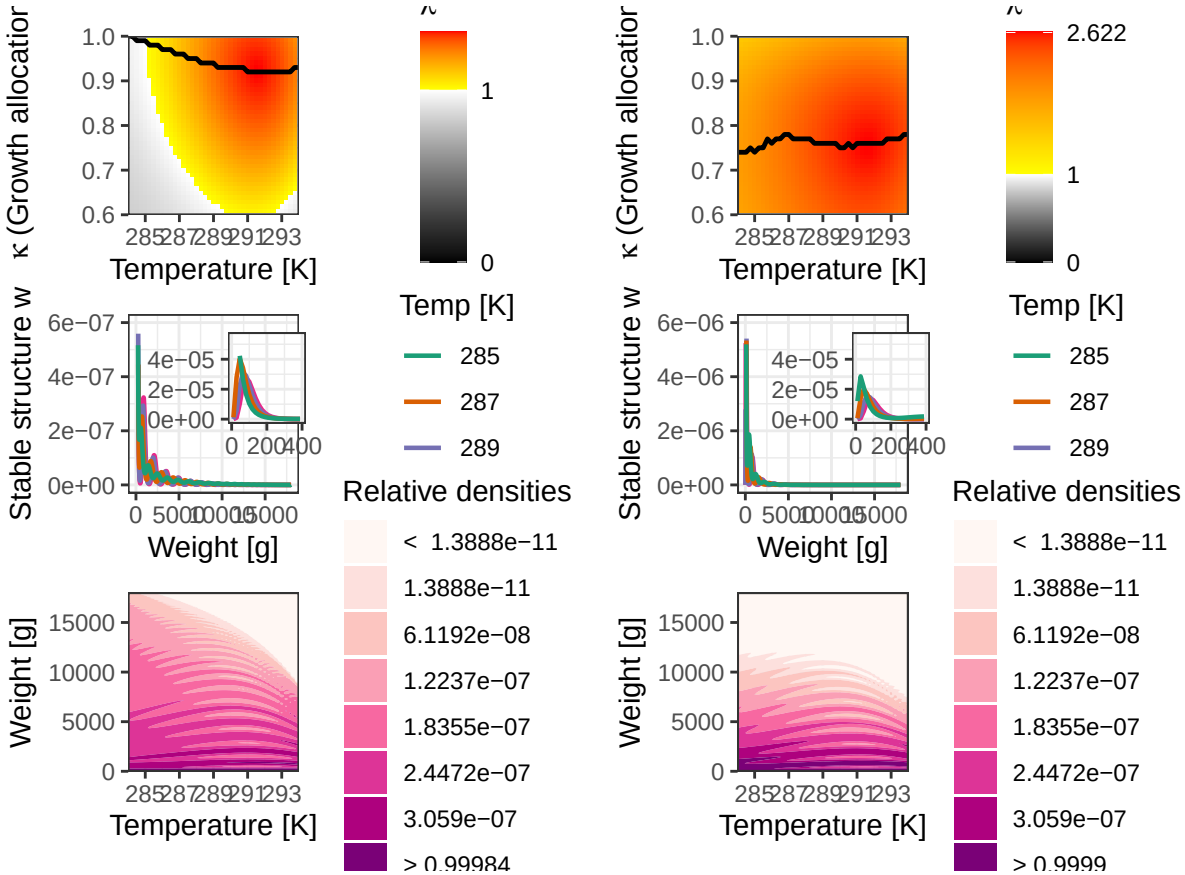
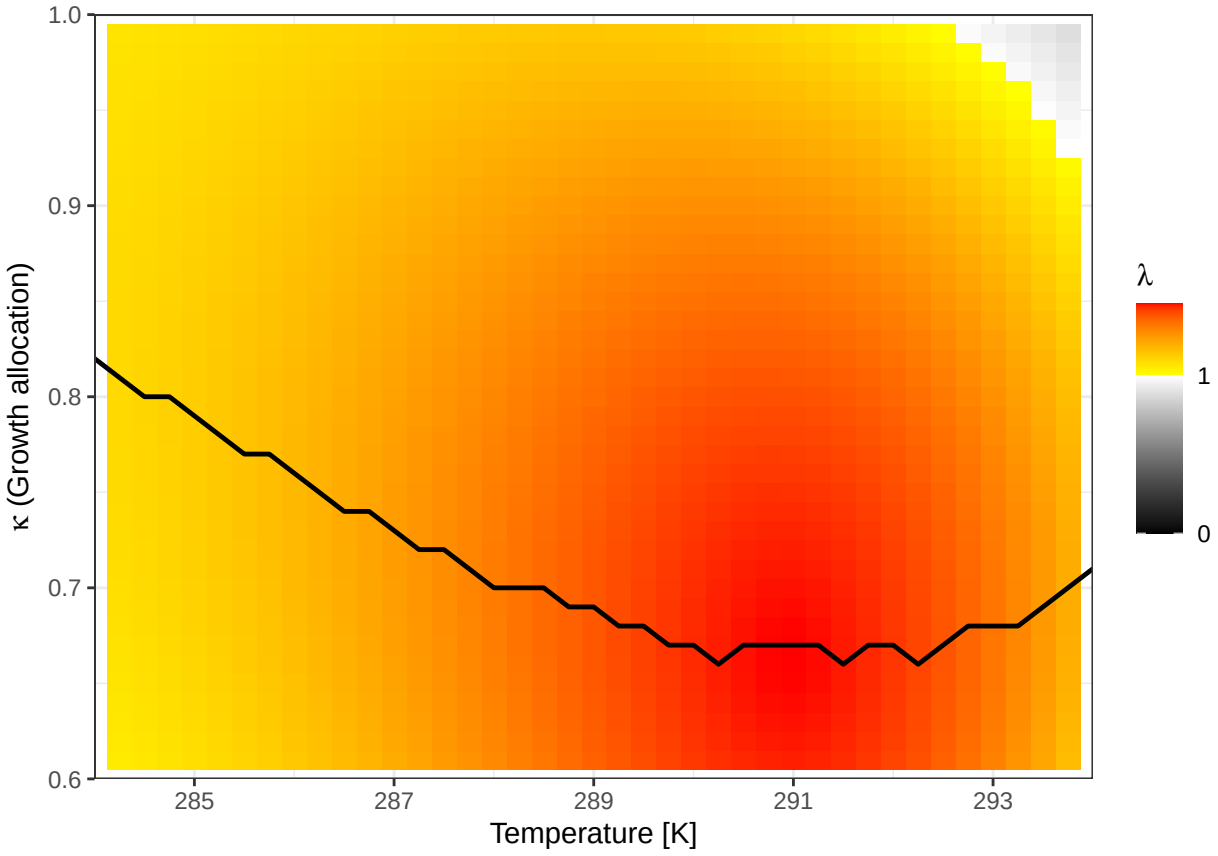


Figure A3. Fitness landscape (A,B) with solid line representing optimal allocation strategy (k_0*) and stable structure w for four temperatures (C,D) and over temperature (E,F) for survival contrast a(x)(A,C,E) and a=0.68 (B,D,F).

A4. Optimal allocation strategy when kappa is fixed for in the first year of growth.

By setting kappa to 1 in the vital rate function descriing first year growth (DEBage1.size), we see that optimal allocation can be substantially lower.


1.0
0.9
0.8
0.7
0.6
κ (Growth allocation)
285
287
289
291
293
Temperature [K]
λ
1
0