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Appendix C from F. Débarre and S. Gandon, "Evolution in Heterogeneous Environments: Between Soft and Hard Selection"

(Am. Nat., vol. 177, no. 3, p. E84)

Supplemental Figures

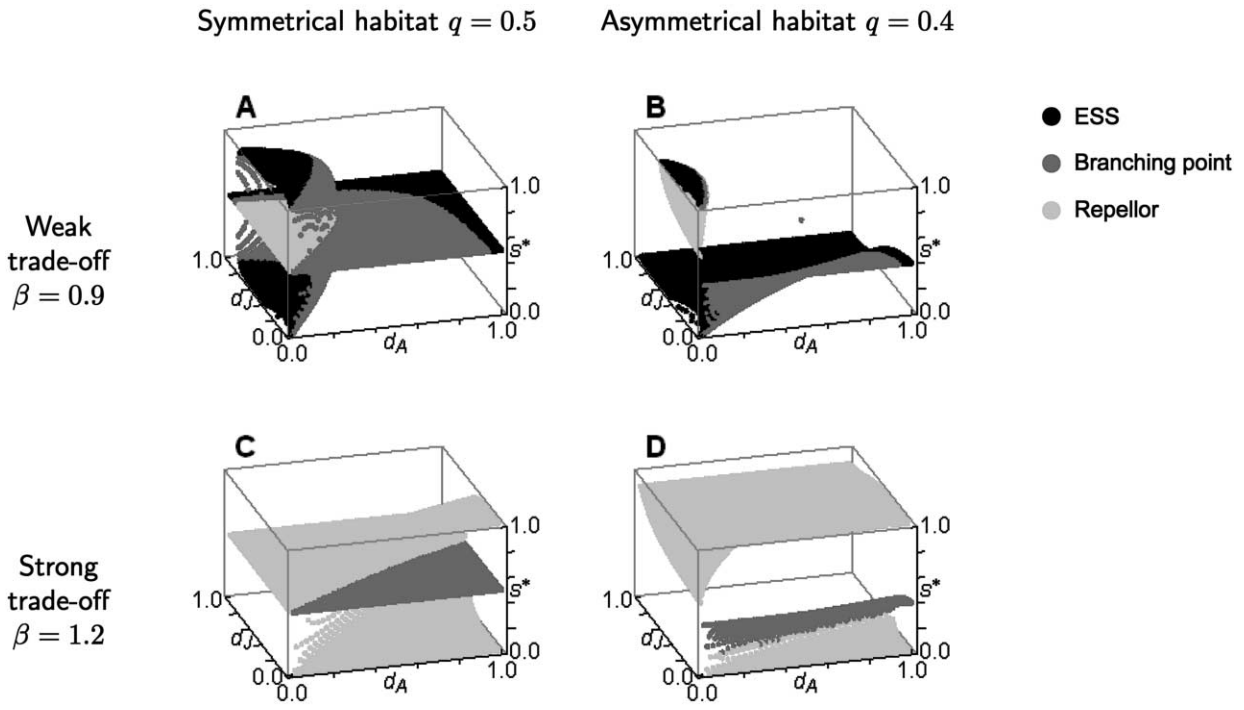

Figure C1: Values and stability of the singular strategies s^* for various trade-off strengths (β) and environment composition (q), depending on adult (d_A; *X*-axis) and juvenile (d_J; *Y*-axis) strategies. *Z*-axis: values of s^*. *Black*, evolutionarily stable strategy (ESS; convergence stable [CS] and evolutionarily stable [ES]). *Dark gray*, branching point (CS, not ES). *Light gray*, repellor (not CS). For each pair of migrations (d_A, d_J), we count the singular strategies, study their stabilities, and deduce the type of evolutionary outcome; this yields figure 6.

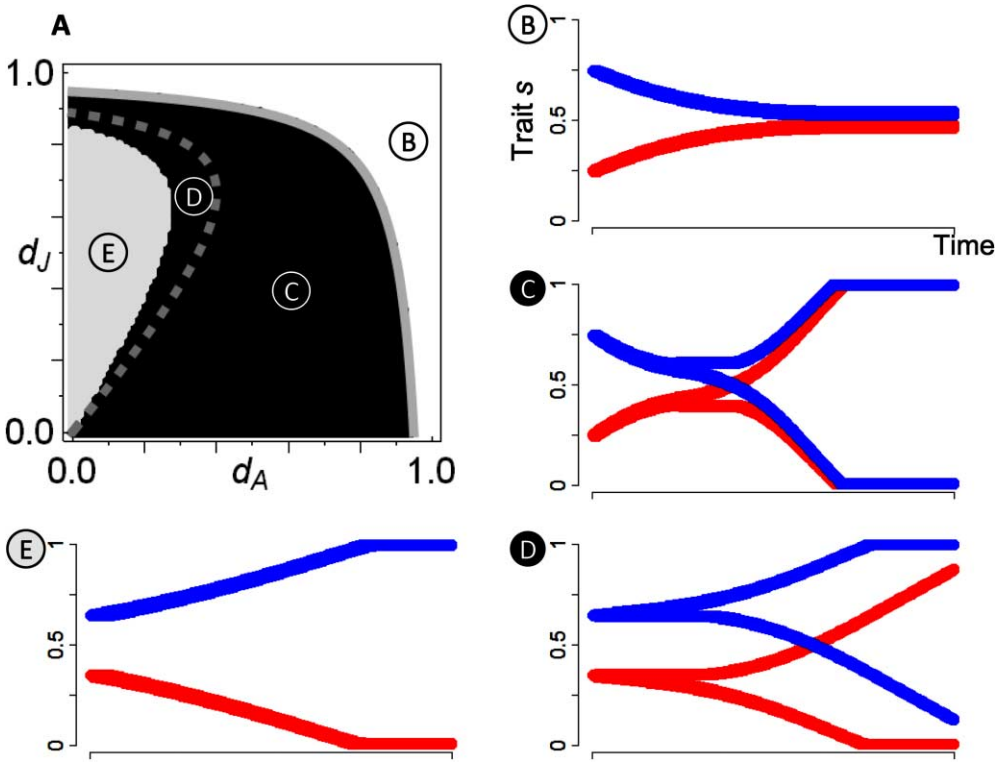

Figure C2: Evolution in time for different pairs of adult and juvenile migrations (d_A, d_J) under a weak trade-off ($\beta = 0.9$) and in a symmetrical habitat ($q = 1/2$). *A*, Evolutionary outcomes (this is fig. 6*A*). *B–E*, Simulated evolutionary trees for particular values of (d_A, d_J). These deterministic simulations are iterations of equation (6), where mutants close to the residents are introduced at regular time intervals. There are 201 possible types with equidistant trait values. *B*, Monomorphism leading to the intermediate strategy $s_0 = 1/2$. *C*, *D*, Polymorphism (branching). In *D*, $s_0 = 1/2$ is a repellor. In *C*, $s_0 = 1/2$ is attainable by gradual evolution; in our simulations, branching does not happen at s_0 because of the finite number of possible traits. *E*, Monomorphism, bistability. The different colors in *B–E* correspond to different initial values of the trait *s*.

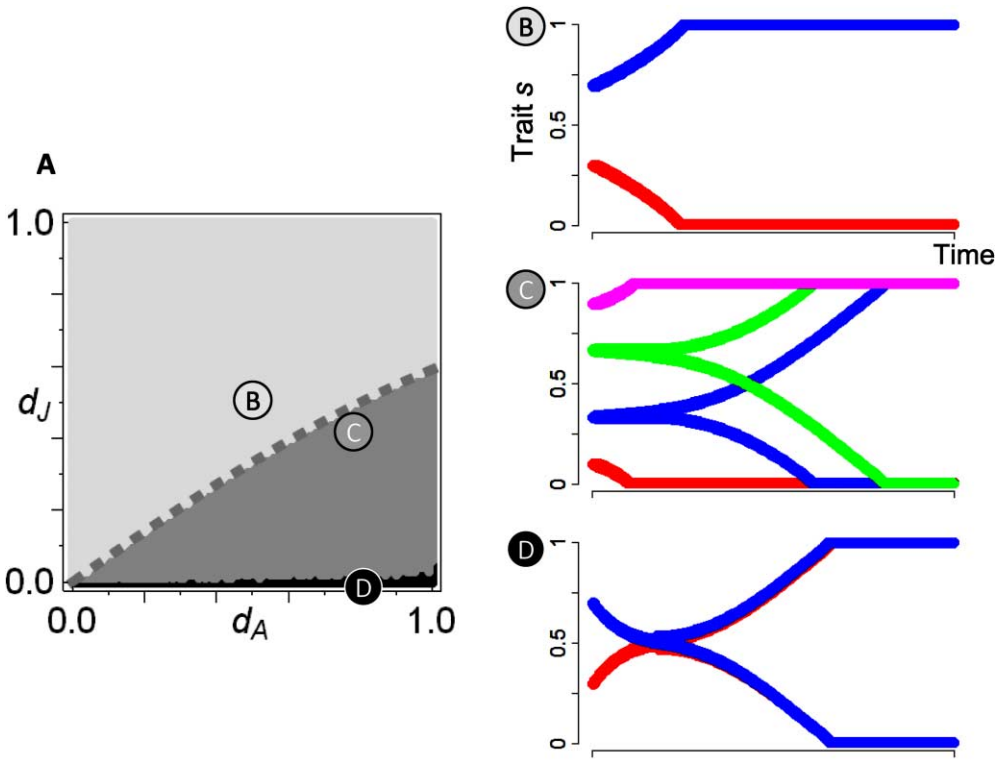

Figure C3: Evolution in time for different pairs of adult and juvenile migrations (d_A, d_J) under a strong trade-off ($\beta = 1.2$) and in a symmetrical habitat ($q = 1/2$). *A*, Evolutionary outcomes (this is fig. 6*C*). *B*, Monomorphism due to bistability. *C*, Tristability (monomorphism or polymorphism, depending on the initial conditions). *D*, Polymorphism (branching). The different colors in *B*–*D* correspond to different initial values of the trait *s*.