
Confrontation of Strategies in the Long-lived Life Cycle

The performances of the five strategies were very similar for the long-lived and short-lived species (Fig. S1). The major differences between the two life cycles concerned the performances of (1) Quality and Success for intermediate levels of predictability, and (2) Philopatry in unpredictable environments.

(1) The range of predictability levels for which Success and Quality performed the best was slightly narrower and biased towards higher values in the long-lived than in the short-lived species (Fig. S1). Because the sensitivity of the growth rate to fecundity is lower in long-lived than in short-lived life cycles (Stearns 1992), the relative gain in fecundity of the Success and Quality strategies by choosing the better patch had to be higher to allow individuals to compensate for the density-dependent cost of spatial aggregation. Furthermore, Success performed better than Quality for intermediate predictability levels in the long-lived life cycle. The origin of this difference between the two life cycles is not entirely clear.

(2) Here, Philopatry performed relatively well in weakly predictable environments (Fig. S1). In this long-lived life cycle, juveniles first breed at age 4 years, at a time when their natal patch quality is no longer influenced by its value 4 years before in weakly predictable environments. Thus, 4 years after patch quality is high, other strategies did not tend to aggregate individuals on the same patch as Philopatry more than on the other patch. This led to the unexpected result that Philopatry may be favoured even though the quality of the natal patch at the time of recruitment is not correlated with its value at birth. Therefore, Philopatry may be selected for reasons other than its capacity to track environmental quality through breeding success alone in predictable environments (a priority access to resources for philopatric individuals was not considered here, see text). Philopatry was in fact equivalent to Random in unpredictable environments in the long-lived life cycle, owing to the long prebreeding period. This is illustrated by the low aggregation level generated by this strategy in unpredictable environments (Fig. S2), which contrasts with its corresponding level for the short-lived life cycle (Fig. 8). As a consequence,
Philopatry did not pay costs linked to spatial aggregation in unpredictable environments.

The general pattern of the strategies' performance seemed relatively unaffected by the life cycle. In particular, environmental predictability, costs of aggregation and information 'parasitism' remained the major factors determining the outcome of confrontations.

**Success versus Presence**

Figure S3 shows an example of the dynamics of resident and mutant population size in the confrontation between the Success strategy (resident) and the Presence strategy (mutant). The arrow indicates the point when the two mutants adopting the Presence strategy were introduced.

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