Supporting Information

Demographic consequences of changing environmental periodicity, *Ecology*

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Appendix S7 - Markov chain modeling the succession of post-fire habitats for the dewy pine population.

Data (Conquet et al. 2022a) are available in Dryad at https://doi.org/10.5061/dryad.hhmgqnkkc and code (Conquet et al. 2022b) is available in Zenodo at https://doi.org/10.5281/zenodo.7078560.

Following previous studies modeling dynamics of populations under disturbance regimes (e.g., Pascarella and Horvitz 1998; Morris et al. 2006; Trauernicht et al. 2016), we used a five-state Markov chain to create a sequence of post-fire habitat states (Fig. S1 and the R code). The first four states (TSF_0 to TSF_3) are deterministic and thus follow each other in a deterministic sequence. On the other hand, the last state ($TSF_{>3}$) is stochastic. When reached, a random year is picked (between 2011 and 2018) in order to parameterize the corresponding matrix population model for $TSF_{>3}$ using the estimated vital rates (Appendix S2: Tables S5 and S6, Appendix S3: Tables S3 and S4). Whether the population remains or not in the fifth state once it has been reached is conditional on the fire-return probability *p* (Paniw, Quintana-Ascencio et al. 2017).

Environment at *t*

Environment at *t*+1	**1**	**2**	**3**	**4**	**5**
1	0	0	0	0	p
2	1	0	0	0	0
3	0	1	0	0	0
4	0	0	1	0	0
5	0	0	0	1	1-*p*

Figure S1 - Markov chain determining the succession of post-fire habitats for the dewy pine population. The first four states (TSF_0 to TSF_3) constitute the deterministic part of the Markov chain and thus always follow each other in a sequence of 1 to 4 (probability of transition = 1). The fifth state ($TSF_{>3}$) is stochastic, and the transition from this state depends on the fire frequency *p* (i.e., the population will remain in state 5 until a fire occurs).

References – Appendix S7

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