

Review of: "Branching Markov Chains: Survival Thresholds and Applications to Species Navigation"

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Potential competing interests: No potential competing interests to declare.

1. To clarify this concept, it would be helpful to provide more detailed explanations or examples.
2. . How do authors examine the long-term behavior of the chain or how they can derive conditions under which the expected number of returns to the birthplace is sufficient for survival.
3. The author might calculate the expected number of returns to the birthplace over time. If the return probability is less than or equal to $1/2$, is the expected number of returns may not be sufficient to ensure that individuals can reproduce before dying out, leading to extinction? More details are needed.
4. The author may include stability analysis of the branching process, showing that when the return probability is above $1/2$, the system can reach a stable state where the population can sustain itself. Conversely, if the return probability is below this threshold, may the population decline towards extinction?
5. The author could also employ simulations to illustrate the dynamics of the branching Markov chain under different return probabilities. By observing the outcomes over numerous trials, would the author provide empirical evidence supporting the theoretical findings?