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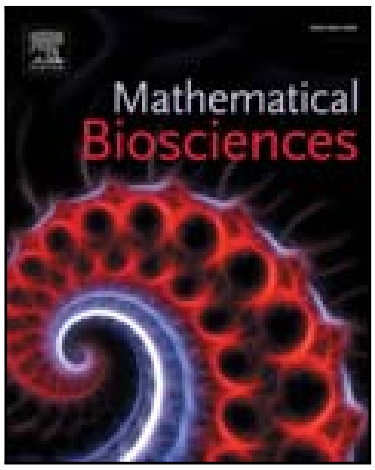

Psychological effect on single-species population models in a polluted environment

Fengying Wei, Lihong Chen

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Highlights

- We propose and investigate single-species population models with in a polluted environment.
- The psychological effect level is discussed within the deterministic model (MD) as well as the stochastic model (SD).
- Weak persistence and permanence of the solution (MD) depend on the psychological effect level.
- Weak persistence in the mean of the solution (SD) has nothing to do with psychological effect level.
- Stochastic permanence of the solution (SD) relies on the psychological effect level.
- Examples and numerical simulations are separately carried out to check the validity of the main results.

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