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#### REFERENCES

- [1] L. J. S. Allen and D. A. Flores and R. K. Ratnayake and J. R. Herbold, Discrete-time deterministic and stochastic models for the spread of rabies, *Applied Mathematics and Computation*, 132 ( 2002), 132, 271–292.
- [2] H. Caswell, *Matrix Population Models: Construction, Analysis and Interpretation*, Sinauer Press, Sunderland, MA 2001.
- [3] W. Ding, L. J. Gross, K. Langston, S. Lenhart and L. S. Real, Rabies in Raccoons: Optimal Control for a Discrete Time Model on a Spatial Grid, *J. of Biological Dynamics* 1(4), 2007, 379-393.
- [4] R. S. Epanchin-Neill and A. Hastings, Controlling established invaders: integrating economics and spread dynamics to determine optimal management, *Ecological Letters* 13 (4), 2010, 528-541.
- [5] B. A. Hawkins and H. V. Cornell, *Theoretical Approaches to Biological Control*, Cambridge, Cambridge University Press, 1999.
- [6] M. Kot, *Elements of Mathematical Ecology*, Cambridge, MA 2001.
- [7] S. Lenhart and J. Workman, *Optimal Control Applied to Biological Models*, Boca Raton, Chapman Hall/CRC, 2007.
- [8] L.S. Pontryagin, V.G. Boltyanskii, R.V. Gamkrelize, and E.F. Mishchenko, *The Mathematical Theory of Optimal Processes*, New York, Wiley, 1962.
- [9] L. Olson, The economics of terrestrial invasive species: a review of the literature. *Agr. Resource Econ. Rev.*, 35, 2006, 178194.