

## Dynamics Of A One-Predator-Two-Prey System In A Single Ecological Patch

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A model is developed to analyze the dynamics of a porcupine population in danger of extinction due to concurrent mountain lion and mule deer populations in the Great Basin Desert of Nevada and surrounding area. Emphasis is placed on a stochastic model using predator-prey, competition, and preference factors. Deterministic analyses provide further insight into correlations between the two methods and statistical analyses are used to attain a stochastic description of the equilibrium points to the system of equations. Based on these results, possible solutions were proposed to safeguard from the extinction of this particular population of porcupines and to aid in other similar environmental circumstances.