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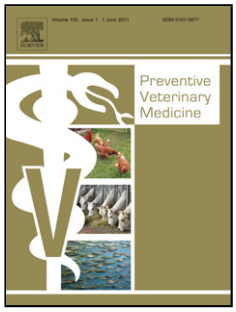

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Companion animal demography and population management in Pinhais, Brazil

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Abstract

We used a two-stage cluster sampling design to estimate the population sizes of owned dogs and cats in Pinhais, Brazil. For dogs, we simulated the population dynamics using a compartmental model of coupled differential equations, incorporating uncertainties in a global sensitivity analysis and identifying the most influential parameters through local sensitivity analysis. The calibration with the known human population improved precision in population size for dogs but not for cats. Population pyramids had a wide base, and the apparent population turnover was lower than the net population gain. A minority of animal immigrants came from other states, and most came from the state capital. Projected dog and human growth rates between 2017 and 2027 were positive and similar, while the projected number of sterilized dogs decreased over the same

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