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Don Gayan Wilathgamuwa* (don.wilathgamuwa@msubillings.edu), 1500 University Dr, Billings, MT 59101. *Analysis and comparison of stochastic differential equations in population models.*

We summarize the results on existence and uniqueness of solutions to different stochastic differential equation models, and discuss the relations between the models. Also, we compare the persistence time of populations under different models of the form $dX(t) = \mu(t, X(t))dt + \sigma(t, X(t))dB_t$ and $dX(t) = \mu(t, X(t), X(t-T))dt + \sigma(t, X(t), X(t-T))dB_t$, where B_t can be either regular Brownian motion or fractional Brownian motion with Hurst parameter $H > 1/2$. (Received September 16, 2014)