Amendments to Survival and population dynamics of the marabou stork in an isolated population, Swaziland

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Bruce Kendall highlighted some issues/ mistakes in the matrix population models after I brought it to his attention. He made the following points after I flagged a potential error in that the fertility estimates don't incorporate survival:

'1. This appears to be a post breeding census model (first category are "newborns"), with fledglings being the newborn stage.

2. You are correct that your Fx is missing a survival term (section 2.1 of my paper). As a post-breeding census model, you would need to multiply the fledglings per female by the parental survival over the preceding year (figs 1d and 2d in my paper).

3. In addition, your model implies that individuals spend a full year as adults before reproducing (individuals that move from subadult to adult in year t do not reproduce until year t+1). If this is not your intent, then you will need to have a term representing reproduction by current subadults who will have matured by the next year (section 2.2; fig 2d)

4. Finally, your maturation rate model is what I called the "stationary age-within-stage structure" (SAS) model (table 2, section 2.3). While there are analyses where this is appropriate, your model endpoints (asymptotic growth rate, stable stage structure, and reproductive values) are best approximated by using the AAS model.

5. A note on presentation of the results: I couldn't easily determine what values you used for stage duration, or which of the many survival models was used in the population model. And the fourth stage was confusing–what biological status do those birds have?'

The paper he's referring to is Kendall, B. E., Fujiwara, M., Diaz-Lopez, J., Schneider, S., Voigt, J., & Wiesner, S. (2019). Persistent problems in the construction of matrix population models. Ecological modelling, 406, 33-43.