WILD 7250 - Analysis of Wildlife Populations
www.auburn.edu/~grand/wildpop

Variance Components

Known Fate Example

1. Make a copy of the MARK example file BLACKDUCK.inp. Start a new MARK results file using the correct model type. The number of groups, occasions, and covariates are listed at the top of the input file.

2. Cast, run and compare the models described in the table below:

Model	Hypotheses modeled
S(.)	No variation in survival rates over time
S(t)	Survival rates are different during each period
S(T)	Survival rates follow a linear trend

3. Follow the instructions in Appendix D of the MARK: A gentle introduction http://www.phidot.org/software/mark/docs/book/ sections D.2.1 and D.2.2 to estimate a simple random effect and a linear trend based on {S(t)} and add them to the Results table.

    a. Be sure to rename the models before you run them so you can tell them apart in the Results

    b. Graph the survival estimates from S(.), S(t), and the two random effects models. You can retrieve the estimates of S-tilde, ($\tilde{S}$), by clicking on the model notes icon (second from the right in the results browser.

4. Paste the results table and the graph into a Word document.

5. Below your results describe the hypotheses behind the three best models and why the estimates of $\tilde{S}$ and $\hat{S}$ differ and why the models including random effects are so much better than S(t).