

Age Structure with Management - Part 2

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Good. We now have a spreadsheet that we are ready to use. What we want to do, obviously, is adjust 'p', the proportion of females that can't breed. It's useful, before we design an experiment, to see what happens if we just change p and how our results change. And if you do that, and you look at your graph of lambda versus time, you will notice a few things.

This is a typical sort of graph that we get, remember, for lambda versus time. We have this oscillating period, and then we have a steady-state value of lambda. As you change p, you will notice that both of these sections change. Remember, by changing p, you are in a sense -- you are definitely changing the effective fecundity of the females. And by Leslie's theorem, if you change fecundity, you will change the steady-state value of lambda.

So what do we want to do? Given that both the short term and the long term are changing, perhaps we need to go back to management.

In a sense, what we've got out of just doing that on the spreadsheet is a question for management. And that question for management is, when you are talking about darting, are you concerned about the short term over the next 10 to 20 years, or are you concerned about whether darting provides you with a long-term, sustainable strategy for controlling the elephant population. And if you had that discussion with management, you'll probably find that they answer both. But if you really press them, they will tell you that if they're going to put an effort into making this work, they really would like to be able to show that it's going to be an effective, long-term management strategy.

Given that, you now know what you need to do with p. You need to change p in such a way that your long-term lambda turns out to be exactly 1.000. 1.000 means the population is not going to change with time. So why don't you try and do that?

But while doing that, a good practice when you're using a spreadsheet is never just do what you're thinking of at the moment or what you've been told to do. Stop and ask yourself if there's anything more that you can get out of the exercise and anything else to be learned. We'll talk about this in a few minutes.

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