**Decision**: whether to further reinforce ARK robin population

**Objectives considered**: size/persistence of ARK population, genetic diversity of ARK population, $$ cost, impact on source population, advocacy

**Model for making predictions**: I used an integrated Bayesian population model to estimate population growth up until now and project 10 years into the future. The model could be used to predict growth into the future, with and without reinforcement. The model combines two sources of information. First, Parlato & Armstrong (2013, 2013) modelled post-release establishment and growth of 10 mainland robin reintroductions including ARK using data on: a) proportion of released birds establishing, and b) subsequent adult survival, juvenile survival and fecundity rates. This was used to make initial projections. Second, I added information from the survey data in 2013/14 and 2014/15. From the maps and information provided, my best interpretation was that 53 individual robins were recorded in 2013/14 and 75 in 2014/15. It was impossible to estimate detection probability from the data provided (i.e. what proportion of the birds present were recorded). Following discussion of the survey methodology with Tim Lovegrove, I guessed that between 50-90% of birds were detected. I assumed no density dependence for these projections, as the managed area can probably hold at least 4000 robins. The population projections are shown on the next page.

**Consequence Table**: The table below gives a guide for making the decision based on the objectives and the model predictions. This can be developed more formally if needed.

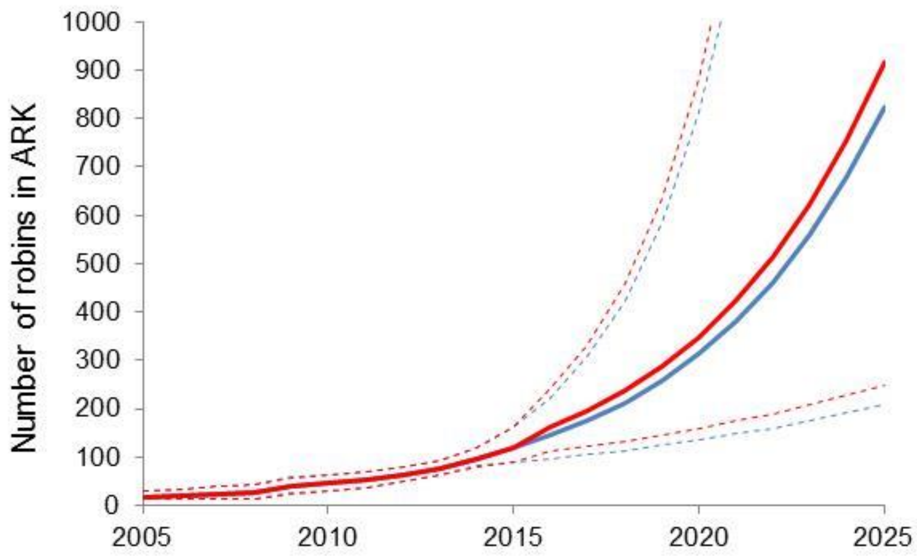
| Objective | Consequence of Reinforcement |
|---|---|
| size/persistence of ARK population | Projections suggest good growth with no chance of extinction in unless conditions change. Translocating more robins would probably have a negligible effect on the trajectory of the population for at least 100 years. |
| genetic diversity of ARK population | Reinforcement could increase genetic diversity, depending on the proportion that establish (it was fairly low in the first translocation). This could be viewed as a good thing in its own right. Increased genetic diversity also potentially increase the population's size and viability over the long term (hundreds of years), but this is unknown. |
| $$ cost | A translocation requires $$, which means reallocating from elsewhere or time spent raising $$. |
| impact on source population | Most translocations incur some cost to the source population, so this must be taken into account. Difficult to evaluate until one or more source pops is nominated. |
| advocacy | Translocations can have positive advocacy benefits by getting people involved and drawing attention to programmes, as long as the translocation is well planned. |

**Upshot**: The decision makers need to weigh the potential, but unclear, benefits of increased genetic diversity and advocacy against the monetary cost and potential impact to the source population.

**References:**

Parlato, E.H., Armstrong, D.P. (2013) Predicting post-release establishment using data from multiple reintroductions. *Biological Conservation* 160: 97–104.

Parlato, E.H., Armstrong, D.P. (2012) An integrated approach for predicting fates of reintroductions with demographic data from multiple populations. *Conservation Biology* 26: 97-106.




Estimated growth of the ARK robin population up to 2015, and future projections under two scenarios: no further translocation (blue) and 50 further birds translocated in 2016 (red). The solid lines show medians and dotted lines show 95% credible intervals (i.e. there is 95% probability that the population will fall within these intervals if the model is reasonable.