



STARLING TIMES 2017

STUDYING THE DEVELOPMENT OF NORTHUMBERLAND STARLINGS

TA-65

Our most ambitious experiment yet

For several years we have been studying the way telomeres (the DNA caps on the ends of chromosomes) shorten rapidly in the early weeks when the chicks are growing fast. There's a mysterious plant root called Astragalus used in Chinese medicine. Several studies in adult

animals (and people) suggest that it lengthens telomeres, apparently reversing the effects of age. No-one is quite sure how, but it probably

involves a repair enzyme called telomerase. And as yet no-one has studied the effect of Astragalus in a developing animal, where telomeres are rapidly shortening, rather than an adult where they are more stable.

Astragalus is marketed as a diet supplement under the name TA-65, sold at great cost, and endorsed by all kinds of (aging)

celebrities such as lead singer of *The Who*, Roger Daltrey (figure 1). This was too rock-n-roll an opportunity for us to miss.

We have therefore randomly assigned one chick in each nest to receive a daily TA-65 supplement during growth, while a control sibling just gets water.



FIGURE 1. ROGER DALTREY: WILL HE GO ON FOR EVER?

By taking blood samples shortly after hatching and before fledging, we will be able to see what effect if any the TA-65 has on

telomere shortening. As evolutionary biologists, we are naturally interested in the idea that there might be costs as well as benefits. If you protect your telomeres better, perhaps you grow less fast (which would not be so good for a small bird). If things could work out better with no downside, we figure Nature would probably have done it that way already!

THE MOBILE LAB ROLLS IN



Work this year, especially blood sampling, has been greatly helped by Clare's buying a Berlingo she can set up as a mobile lab, complete with table and chairs and a proper laboratory balance. No more sampling a bird on your lap with a balance in the footwell, your equipment stuck in the air vents of the Audi! Clearly we need to seek sponsorship from a certain car manufacturer.



AN EARLY SPRING

Birds growing well despite cold dry April and early May

2017 was our earliest breeding season in 5 years of keeping records. The first egg hatched on April 23rd at North Acomb. In previous years, it has been up to two weeks later. We suspect that the mild winter meant the adults had good reserves to begin their attempt early. The farms switch around a little: Kirkheaton, which some years has been the earliest of all, was a week behind the Tyne Valley this year (thankfully for our sanity).

We worried that the dry conditions would mean the parents struggled to raise their chicks. The preferred food for starling chicks is leatherjackets (crane fly larvae found in the

roots of grass). That's why you see the parents hard at work probing in grassland at breeding time. If the ground gets too hard, they can't get to the leatherjackets, and they have to feed less preferred food. The chicks often do less well. However, from the nests we are tracking, it looks like growth has been strong, hunger little, and mortality quite low this year.

A bit of rain would help the fledglings though--and the parents too. Fledglings are bad at feeding themselves for the first couple of weeks, and you will hear their insistent 'Raa! Raa! Feed me!' all over Northumberland well into June.

2017 HALL OF FAME

(Information based on nests in our boxes only)

North Acomb

7 nests, mean clutch size 5.3, fledging from 14th May.

Nafferton

12 nests, mean clutch size 4.9, fledging from 16th May.

Whittle Farm

5 nests, mean clutch size 4.8, fledging from 15th May.

West Farm Kirkheaton

13 nests, mean clutch size 5.3, fledging from 17th May.

Plashtets

14 nests, mean clutch size 6, maximum observed clutch size (7), fledging from 22nd May.



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We are: Professor Daniel Nettle, Professor Melissa Bateson, Dr. Clare Andrews, and our students and collaborators. As ever we would like to thank farmers and farmworkers for putting up with us on their properties over the breeding season, often for long hours at strange times. We couldn't do this research without your cooperation! Also a big thank you to Martin Hughes and our funders the European Research Council. You can download all of our research as it is published from:

www.danielnettle.org.uk/starlings

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