

## SUMMER BURSARY REPORT

By Simon Tomkins

Over the past 3 months, from the start of November to February, I have completed fieldwork with the field team members, and undertaken various tasks in the office. It has been a valuable learning experience and personally I have had a blast. It is something I will remember for a long time and will weigh heavily on future choices I make as to my path after university.

### Sperm work

In 15 catching sessions this season, we have caught and collected sperm from 23 different male Dunnocks, between the ages 1 to 7. Of these, nine were alpha males, six beta males, and six were both alpha and beta in different nests throughout the seasons course. There were also two males whose dominance status was not known. 36 samples from 15 individuals have been preserved in formaline; and 31 samples have also been preserved on microscope slides from 22 different males. Sperm samples have been videoed, and we have formatted these and edited them for analysis.

To catch the birds, I learnt how to set up mist nets with a team, and take them down individually. I have slowly learnt the art of bird extraction from the nets, and have removed over 30 individuals from a wide range of garden species. In the process, I have also learnt how to handle birds with bander's grips. Extracting the sperm was a collaborative effort between the PhD student and myself or the other field assistant. While the PhD student massaged the cloaca, we had to be on hand with a capillary tube and distinguish sperm from fecal matter, collecting the first while cleaning the second. A summary of the season's collection can be seen below:

No.	Bands	Social status	Age	Motility (SCA)	Formaline	Smear slides	Date of collection
1	MG/CO	$\alpha/\beta$	1	1	0	1	15/11/14
2	MG/GW	$\alpha$	2+	1	0	1	27/11/14
3	MG/NO	$\alpha$	4+	1	1	1	10/12/14
4	MG/OW	$\alpha$	1+	1	0	1	5/12/14
5	MG/RV	$\alpha/\beta$	1+	1	1	1	16/12/14
6	MN/NY	$\alpha/\beta$	1+	1	0	1	3/12/14
7	MN/RV	$\beta$	1	1	1	1	27/11/14
8	MO/BN	Unknown	2+	1	1	1	16/12/14
9	MO/NB	Unknown	1+	1	1	0	3/01/15
10	MO/YY	$\beta$	1+	1	1	1	4/12/14
11	MR/CW	$\alpha$	6+	1	0	1	3/12/14
12	MR/GG	$\alpha$	5	1	1	1	11/12/14
13	MR/RR	$\beta$	2+	1	0	1	27/11/14
14	MR/RV	$\alpha$	2+	1	1	1	8/12/14
15	MR/WW	$\alpha$	1+	1	1	1	10/12/14
16	MV/CG	$\beta$	7+	1	1	0	7/01/15

17	MV/NR	$\alpha$	2+	1	0	1	11/12/14
18	MV/RO	$\alpha/\beta$	6+	1	1	0	2/01/15
19	MV/VR	$\alpha/\beta$	6+	1	1	1	19/12/14
20	MW/CO	$\beta$	2+	1	1	1	18/12/14
21	MY/BW	$\alpha$	6+	1	1	1	24/12/14
22	MY/BY	$\beta$	1+	1	1	1	12/12/14
23	MY/YB	$\alpha/\beta$	1+	1	0	1	8/12/14
TOTAL		$\alpha=9, \beta=6,$ $\alpha/\beta=6$	--	23	15	20	

#### Other Fieldwork:

Catching the dunnocks has also been done to get blood samples for genetic analysis and to measure oxidative stress levels in individuals. When the birds were caught, we also learnt how to measure their heads, beaks, tarsi, wings, tails, and mass; and how to band birds with coloured and numbered aluminium bands. Our applications for Level 2 banding certificates are currently pending.

Other than catching, we spent many hours in the garden monitoring and finding individual birds and their nests. This involved taking GPS positions of birds and noting their activity patterns, and once these patterns were understood, using them to work out which individuals had nests and finding those nests. As a group we found 79 nests, and I am proud to say I found 7 of those. Once found, these nests were checked nearly daily, measuring chicks once they hatched and collecting blood for genetic testing and oxidative stress measurements. We also banded them once they were large enough to fledge. Along with consistent measuring and monitoring, we took videos between ages 5-9 days for 2 hours a day in order to monitor feeding patterns of their parents. Finally, we have been surveying densities of people in order to get an idea of distribution patterns of humans throughout the day.

Overall, the fieldwork was a clinic in preparation, organisation, accuracy, and making sure you record everything that might be useful down the line, as it quickly becomes apparent that the work is happening in real-time and if you blink you can literally miss important information. The hours, commitment, and need to stay alert were a real wake up call for me, and to see the monumental effort put in by the PhD students to make this research happen was powerfully inspiring and admirable.

#### Officework:

The real fun begins indoors. Firstly, the databases required daily updates, or the work seemed to grow at an exponential rate. Once this was completed, we had to watch the focals from around 80 nests where we had recorded feeding. How long each bird visited for; the size of the food they brought; how many feeds went to each chick from that food; and the order the chicks were fed in was all painstakingly noted. Next, bird positions from the previous seasons all had to be entered into excel and subsequently the database. Database management and data entry skills are abilities I can now confidently add to my CV! I also had the privilege of extracting data and merging it with R into a analysable spreadsheet.

#### Lab Meetings:

Weekly lab meetings were a personal highlight, getting a new perspective on the department and being able to give dimension to my lecturers as something other than simple teachers was wonderful. Seeing how science is actually done; and the amount of effort which goes into a paper floored me. I have a newfound respect for things I read that have survived the required scrutiny, and the book review process has helped me give new perspectives and focus in my writing, and an awareness of the craft of writing, which will hopefully develop skills which will pervade this summer experience.

#### Thank You:

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