**INTRODUCTION**

**METHODS**

**Capture and Husbandry**

Sixty-four female *L. delicata* were collected in the Sydney region in September 2015 by mealworming. For the duration of the experimental period, each female was placed in separate enclosures measuring 35.5 x 27.5 x 15cm with paper substrate, a home hide box and water bowl. Incandescent 100-W bulbs provided a heat chord to allow thermoregulatory opportunities and the average room temperature was 24ºC. Lizards were fed crickets three times weekly and had access to water *ad libitum*.

**Diet manipulation**

Diet manipulation was carried out in accordance with previous work in lizards (Warner et al. 2007). To establish diet treatments, crickets were divided into two groups. One group was fed a combination of cat food and an assortment of vegetables (i.e. ‘high quality’ diet) while the other was given only corn (i.e. ‘poor quality’ diet). Crickets were maintained on these diets for two weeks to ensure the crickets in the two treatments were more likely to be of different diet quality. The specific differences in diet quality are unknown but previous studies used a similar method to generate distinct treatments (Warner et al. 2007). Crickets were then fed to random female subjects for 3.5 months, forming two treatment groups. The lizards were kept on the same diet for the duration of the experiment.

**Behavioural assays**

Once the lizards were on the altered diet for 3.5 months, their behavior was assayed daily for 14 days. The three assays of interest were activity, neophobia and sociability. All assays were run consecutively on the same day in a temperature-controlled room set at 28ºC for the duration of the experiment. All assays occurred between 0800-1100hr. We also recorded room temperature during assays to account for any day to day fluctuations in room temperature. To reduce order effects, we randomised neophobia and sociability assays after an initial activity assay. Behaviour was recorded using CCTV cameras (model H.264, CCTV security systems, Melbourne, VIC). Each assay was recorded for at least 20 minutes.

**Activity**

The home hide was replaced with a second, experimental hide, during trials. Assays began as soon as the home hide was removed and. We recorded the total distance the individual moved (cm) as an indicator of activity.

**Neophobia/boldness**

A novel item was placed on a transparent circular cutout which was placed in the enclosure (Figure #). The items used were either novel objects or food items. To account for differences in general activity patterns, which might induce a positive correlation between activity and responses to novel object, we also extracted an activity corrected boldness value. This was done by recording the time spent within the zone of the novel object from the previous activity assay and subtracting this value from the time spent in the novel object zone, during the boldness assay. The amount of time the individual spent in the Novel Zone was measured (s).

**Social**

Lizards independent of the experiment were placed into transparent containers and introduced into each enclosure (Figure #). The experimental lizard only had visual cues for the social demonstrator. The assays were recorded and measured the total amount of time (s) the individual spent in the social zone.

**Tracking**

All behavioural assays were scored blind using the automated tracking software Ethovision XT 11.5. Automated tracking significantly reduces collection time, nullifies inter-observer effects and allows for more precise behavioural measures. Additionally, I was able to control for any carry over effects between assays by over-laying arena settings from different assays within a day.

Arenas were defined in the program for each assay to measure a number of variables in each zone (Fig #). The data acquired was from 20 minutes of each video. In some cases, there was a delay in when one of the individuals was tracked but a full 20 minutes was still acquired. In trials where the individual started in the hide, no data could be recorded by Ethovision. To counter this, I generated a data set that showed the amount of time each individual was not found in the Arena and assumed that was when it was in the hide. By incorporating that data into the home hide duration, I managed to account for the missing data points.

**STATISTICAL ANALYSIS**

* Box plots, T-tests
* MCMCglmm