# Advances in Ethology

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Supplements to Ethology, formerly Zeitschrift für Tierpsychologie

Contributions to the

XXV International Ethological Conference

Vienna, Austria

20-27 August, 1997

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## Energy budgets and risk sensitivity in starlings

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The effect of energy budget on starlings' risk-sensitivity was tested in the laboratory. We manipulated energy budgets by limiting access to food outside experimental sessions, controlling therefore the total amount of food received by each bird through the day. Subjects faced two feeding options with the same mean reward amount but different variance: a 'fixed' option (5 units food) and a 'variable' option (2 or 11 units food with probabilities 2/3 and 1/3 respectively). Birds on a 'positive energy budget' treatment were given enough additional food to complete their individual ad-libitum intake; those on a 'negative energy budget' were supplied with food up to half their ad-libitum intake. The positive budget group kept a constant body weight while the negative budget birds dropped in weight through the experiment. Individual tests in the negative budget were stopped if a bird dropped to 80% of its free-feeding weight. Contrary to predictions from the 'Energy Budget Rule' and some earlier findings, starlings significantly preferred the 'fixed' option irrespectively of energy budget conditions. These results are consistent with McNamara's (1996, Am. Zool. 36, 484-495) expectations and some (but not all) previous experimental studies. Our study shows that risk sensitivity in animals is still poorly understood both functionally and mechanistically.

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## Coding of food volume in the ant *Lasius niger*

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Societies of the ant *Lasius niger* shift from an individual to a collective exploitation by trails when faced with food of increasing sizes. The proximate mechanisms underlying these foraging strategies were investigated at the individual level. In the laboratory, we recorded the trail-laying behaviour of the first ants having discovered a sugar solution (0.5M, different volumes offered: 0.33; 0.66; 1; 3 or 6µl). Increasing sizes of the droplet resulted in higher percentages of foragers showing a trail-laying behaviour on their way back to the nest ( $p< 0.001$, $\chi^2= 97$, $n= 212$). No further modulation of the trail intensity occurred in relation with food volume. After feeding, non trail-laying ants searched for additional food (mean time wandering on the foraging area: 84 s, $n= 52$) whereas trail-laying ants left the food surroundings quickly suggesting that they had reached a "wanted" crop volume (mean time: 26s, $n= 142$). These "wanted" crop volumes were similarly distributed whatever the size of the offered droplet. All these data suggest that the decision to lay a chemical trail does not result from an absolute measure of food size done by the ant but rather relies on its ability to ingest a "wanted" volume filling its crop. The interplay between this simple decision rule and the amount of food available leads to the emergence of adaptive foraging patterns without any need to evoke some complex coding of information about food size.

This work was supported by the Belgian "Fund for Joint Baic Research" (Grant 2.4513.93).