



ADAPTIVE BEHAVIOUR AND
SINGING ROUTINES
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I began life as a mathematician, but became interested in astronomy and did my doctorate on black holes. I then meandered back into mathematics and am now part of the statistics group at Bristol, where I do biology instead.

Like many, I came to Berlin with too much baggage in the form of incomplete projects from my pre-Wiko existence. Initially I also made the mistake of accepting too many invitations to speak at other institutions. Eventually I settled down and learned to enjoy myself.

Most of my work is concerned with understanding why animals do what they do. In other words, I am interested in how the process of natural selection shapes the behavioural strategies of animals and whether observed behaviour can be understood as a product of this process. From a technical point of view, the analysis of any specific biological scenario requires the specification of an appropriate measure of fitness and what strategies are

genetically possible. An appropriate mathematical optimisation technique is then employed to find the strategy that maximizes fitness. This optimal strategy is then compared with what animals actually do. Of course animals are never exactly optimal according to any model, but have evolved relatively simple rules that are good in coping with their natural environment. The approach thus works well in predicting behaviour when significant deviations from the optimal are costly. It may give less insight when trying to understand the global rule used by an animal to deal with a complex environment, where deviations from optimality in specific local settings are not costly. This makes the approach difficult to apply to the risk-sensitive behaviour of animals – the topic of my focus group at Wiko.

The year has allowed me to consolidate various areas of my research, particularly in the areas of sexual selection (the evolution of female mate choice preferences) and in analysing the annual routine of animals. New projects included one on the strategy of emergence of plants and animals from dormant states in spring. Here premature emergence is risky because of the possibility of frost. I have also started to work on population cycles of voles and the relationship between clutch size and latitude in birds. Overall, the most useful feature of my academic year was the chance to broaden my interests and to rethink directions. As a consequence I am now determined to learn a lot more animal physiology.

Of the Wiko institutions, I particularly approved of the meals. The Tuesday colloquium had elements of unintentional comedy that made it easy to parody. It was sometimes like a spoof of itself. My own talk was on the singing routines of birds, a talk later to be parodied at the Wiko party, where the theory was modified to explain the singing routine of Fellows. I suspect if either talk is remembered it will be the latter. In general the real talks were interesting and I enjoyed finding out what other researchers had discovered. I would, however, have liked to come away with a clearer insight into how one knows something in another area.

I came to Berlin with the expectation I would have time to cook more. Not so! Nevertheless I did inflict fish soup and other dishes on fellow Fellows, but regrettably did not expose them to enough English cooking! One success (?) here was a large pork pie, which German friends were forced to eat in front of me.

The time here was almost like being a graduate student again, both in terms of the breadth of interest of the people and their friendliness and openness. So my wife, son, and I all had a great time, for which we thank those with whom we interacted.