

Open Peer Review

Current Referee Status:



Version 1

Referee Report 09 December 2015

Gadagkar, R. Referee Report For: Competition over guarding in the Arabian babbler (*Turdoides squamiceps*), a cooperative breeder [version 1; referees: 1 approved, 2 approved with reservations] F1000Research 2015, 4:618 (doi: 10.5256/f1000research.7238.r11476)



Raghavendra Gadagkar

Centre for Ecological Sciences, Indian Institute of Science, Bangalore, India

The evolutionary origins and maintenance of altruism are indeed major unsolved problems in the study of animals and humans. Most people attempt to find ways in which altruistic behaviour, which is believed to be detrimental to the fitness of the actors, is nevertheless favoured by natural selection. Zahavi and his co-workers on the other hand, have consistently pursued the idea that so-called altruistic behaviour is actually beneficial to the actor. This is because the very fact that the altruist is willing (and capable) to undertake costly altruistic behaviour increases his prestige and therefore his access to mates.

In this paper the authors attempt to provide support for their idea (often refereed to as the Handicap Principle), by showing that males of the Arabian babbler compete with each other to have the opportunity to undertake presumably costly, altruistic sentinel or guarding behaviour. Such a claim has been made by this group before but has been criticised by others who were either unable to find such pattern in sentinel behaviour of this species or argued that the observed pattern can be explained by other means. It may be very hard to conclusively demonstrate that males do or do not compete to perform sentinel behaviour or that all other explanations have been ruled out. The best way therefore to test the Handicap Principle in this case is to measure the actual costs and benefits of sentinel behaviour. This has not yet been done and is perhaps hard to do. Thus until such costs and benefits can be measured, we continue to rely on understanding and explaining the patterns of sentinel behaviour. In such a situation, wide acceptance of the Handicap Principle will necessarily depend on other researchers finding evidence in support of it. More research, more data and reiteration by the same authors and their associates are unlikely to be sufficient.

I would therefore argue that this is treated as an open question and researchers finding evidence for and against the Handicap Principle should have the opportunity to publish their findings and their interpretations, as long as they are scientifically rigorous. In this spirit I support the dissemination of this paper but to make it scientifically rigorous I recommend that the authors revise their manuscript in response to my comments below.

1. Introduction, last paragraph: If the authors wish to argue that altruistic acts are not actually altruistic, they should not continue to say "altruistic act of guarding". Perhaps they should something like "supposedly altruistic act of guarding".
2. Under the heading "Descriptions of guarding patterns a. Guarding", the authors state that: "It is usually easy to distinguish the sentinel from an individual that is in the tree for another reason, such as feeding, resting, auto-preening, etc." The authors should say clearly how to make such a

distinction between a sentinel and a bird that is in the tree for another reason, so that other researchers can try to make the same distinction and it does not remain only a tacit knowledge of the present authors. I first assumed that the few sentences that follow this describe how to make the distinction but I am not sure of that. If that is indeed so, the authors should be explicit about it. More generally speaking, many things that Zahavi and his co-workers 'know' is a kind of tacit knowledge to which outsiders have no access. For Zahavi's ideas to become more widely acceptable, they will have to make the effort to describe the sources of their knowledge and the reason for their convictions more transparent and thus allow others to enter into the same knowledge space.

3. In the same section at the end the authors mention that "but on the following day a maximum duration of almost 45 minutes/h was reached, probably due to the availability of a large number of insects that had drowned in the flooding (Anava *et al*, 2002)". It is not clear why "high availability of insects" should increase guarding. Please explain.
4. Under the heading "Descriptions of guarding patterns b. Replacement of sentinels", the authors state in the last line: "The conflict between the two was often manifested by both of them nervously preening themselves". How do we know there was conflict?
5. Under the heading "Descriptions of guarding patterns c. Allofeeding", the authors state in the end "... suggesting that despite being hungry it had refused to accept the "gift" from another babbler". What is the interpretation of refusing to accept food despite being hungry, especially for a subordinate? Please elaborate.
6. In Fig. 2, there is no mention of F1.
7. In all the figures, the colour contrast between different bars is very poor.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Competing Interests: No competing interests were disclosed.