

On Bell Miners, Farmers and the Role of Metaphors in Science: A Reply to Loyn

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In his comment on my article (Poiani 1993), R. Loyn (1995) makes the initial point that I used the term 'farming' in a way different from that which he intended when he first introduced it (Loyn 1987). He points out that by 'farming' he means: (a) territorial defence, (b) selective foraging on lerps and (c) selective foraging on large psyllids or lerps; whereas my term 'farming' means selective foraging on lerps only. I did mention mechanisms (a) and (b), but I agree with Loyn that my use of the word 'farming' is more restricted than his. I narrowed the meaning of the term (and also wrote it in quotes) because I introduced it as a formal scientific hypothesis rather than a metaphor.

My work was an empirical test, and only hypotheses can be tested empirically, metaphors cannot. Metaphors can only be used to stimulate our imagination. In order to test the mechanisms proposed by Loyn et al. (1983), the 'farming' analogy must be modified so that it is liable of easy falsification (Popper 1959). In order to do that, 'farming' cannot be used to label three independent mechanisms, otherwise we make the hypothesis more difficult to falsify: one might still save the hypothesis in spite of one or two of the three mechanisms being falsified. This would not be a correct scientific procedure.

I chose to retain the term 'farming' to label the 'selective foraging' mechanism simply because selective foraging is a less trivial kind of 'farming' (in a metaphorical sense) than just territorial defence. This might have confused some people. Loyn and I agree that 'the territorial defence' mechanism of association between Bell Miners and psyllids is empirically supported but that the other mechanisms are not well supported.

According to Berggren (1962), a metaphor is characterised by five features: (a) we use a word metaphorically when we apply a word usually applied to one kind of thing to another kind of thing; e.g. Bell Miners are 'farmers'; (b) the difference between the referents of any metaphor must be such that a literal interpretation

of their conjunction would produce either logical or empirical absurdity; (c) the two parts of the metaphor must be linked in some way (e.g. as dairy farmers milk their cows without causing harm to them, so Bell Miners are believed to eat only the lerp, leaving the insect intact); (d) A metaphor does not just compare attributes, but it may introduce new meaning by interpreting one in terms of the other (e.g. the farming analogy may put a new perspective on our own farming ecology); and (e) One danger of metaphors is that they can be abused in one way or another (e.g. referring to female hummingbirds as 'prostitutes', Wolf 1975). But the most serious danger is that metaphors can give rise to a myth, that leads to absurdity when taken literally and the person literally believes it (Berggren 1962).

Loyn's use of 'farming' as a metaphor is generally in accordance with points (a) to (d) of Berggren's (1962) analysis. However, much care should be taken to avoid pushing the metaphor too far, and believing that the analogies between human farming and Bell Miner behaviour are true — especially if empirical evidence is flimsy — otherwise we may come dangerously close to transforming the metaphor into myth (point (e), Berggren 1962).

The other major point of being overenthusiastic about the 'farming' metaphor is that it may prevent us from seeing the problem from different perspectives. Thus, Bell Miners (and other insectivorous birds) may sometimes ingest the lerp leaving the nymph behind (and alive) as a result of an anti-predator strategy of the insect, not a 'farming' behaviour of the birds (Poiani 1993). This hypothesis remains untested but is entirely reasonable.

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