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Improving invertebrate welfare

Commentary on **Mikhalevich & Powell** on *Invertebrate Minds*

Heather Browning
School of Philosophy, Australian National University

Walter Veit
School of History and Philosophy of Science, University of Sydney

Abstract: Mikhalevich & Powell (2020) argue that it is wrong, both scientifically and morally, to dismiss the evidence for sentience in invertebrates. They do not offer any examples, however, of how their welfare should be considered or improved. We draw on animal welfare science to suggest some ways that would not be excessively demanding.

Heather Browning is a zookeeper and PhD candidate in the School of Philosophy at the Australian National University, working on conceptual and methodological issues in the measurement of consciousness and animal welfare. **Website**

Walter Veit is a PhD candidate in the School of History and Philosophy of Science at the University of Sydney. His dissertation is on the origins of sentience and consciousness as a "mere" byproduct of the evolution of damage detection, nociception, and pain. **Website**

Mikhalevich & Powell (2020) (M&P) review the literature on invertebrate sentience to challenge the widespread assumption that invertebrates are a "lower class" of life and hence do not require the protection we grant vertebrates. They bring together current findings in invertebrate cognition, physiology and behaviour to argue that there is enough evidence to conclude that some invertebrates, at least, have the type of sentience necessary for welfare consideration. M&P's goal, however, is not to answer the more practical question of how invertebrate welfare can be improved:

> *"Our goal here has not been to determine whether invertebrates can suffer under specific experimental conditions or live well in others; rather, we addressed a more foundational question: whether these animals are capable of suffering or flourishing at all."*

Once we have established that there is sufficient evidence for sentience in a species (or, as suggested by Birch 2017, an order), there is then the further question of what to do about it. There is both a moral and a practical question. The moral question is about what sort of moral status we should accord to a species, given that it is sentient: what role should its members play in our moral deliberations? This is an important question, and one on which there is much to say,

but it is not the one we will address here. We will address the practical question of how we can act to improve the lives of these animals.

One worry about admitting concern for invertebrate welfare is that it may turn out to be too demanding. There are so many invertebrates, used in so many ways, that it might require radical changes in the political and public sphere to protect them. As M&P argue, this is not reason enough to deny admission to the moral community. We would add that moral consideration of invertebrates does not have to be as demanding as might be expected. We should not presume that according moral status to invertebrates places duties on us that we don't even apply to non-human vertebrates. The existence of trade-offs between human and non-human interests has long been recognized: the fact that something may be harmful does not necessarily entail that it is impermissible.

M&P cite the argument of Carruthers (2007) that giving moral consideration to invertebrates would oblige us to adopt the Jain practice of constantly sweeping the floor in front of us to ensure we never step on an insect. This does not necessarily follow from moral recognition. We could recognize sentience in insects without also assuming that they have the awareness and higher-order cognition of persisting through time that creates future-regarding preferences. This would reduce the harm caused by premature death as well as our duty to avoid doing so (Browning and Veit 2020). (We would, however, reject the argument of McMahan 2002 that it would eliminate it completely.)

Even if we were to take premature death as a more significant harm, it would not necessarily follow that we must take substantial actions to prevent it. For example, the fact that driving causes many deaths to mammalian species (Coffin 2007), including humans, is not taken to be sufficient reason to cease driving. Yet we are certain that mammals are sentient and have welfare we otherwise wish to protect. The request to stop driving would be too demanding and thus not morally required. We could similarly acknowledge that while it is harmful to insects to be stepped on, it is too demanding to take measures to ensure that this is completely prevented. So although we should not step on insects deliberately when we can avoid doing so, we are not required to sweep our paths as Jains do. From granting invertebrates moral status, it does not follow that we must make large sacrifices on their behalf. It is clearly an open question as to how demanding certain actions or sacrifices will be, and where the threshold of "too demanding" should be set (particularly in more challenging cases of complex interactions between human activities and animal harms such as in agriculture and habitat incursion), issues that are too complex to untangle here. We simply wish to point out that acknowledgement of moral status does not have to entail huge or difficult sacrifices.

There are many small, feasible ways we can take invertebrate welfare into consideration. The science of invertebrate welfare can be intimately connected with the science of invertebrate sentience. The types of sentient experience of which invertebrates are capable will determine the range of possible benefits and harms. Consider the controversy over whether some insects can feel pain (Klein and Barron 2016; Adamo 2016; Sneddon et al. 2014; Eisemann et al. 1984). If it were to turn out that they cannot, then perhaps we do not need to be concerned about causing them tissue damage; but if they do experience other aversive mental states, such as hunger and thirst (in a qualitative and not merely cognitive sense), we should be concerned about providing adequate food and water. What is important is determining the interests the animals in question possess: what makes their lives go better or worse.

The fact that cockroaches are capable of suffering does not mean it should be forbidden to kill them to prevent proliferation in homes or food storage areas. However, we may want to minimize or forbid the use of neurotoxins that cause a prolonged death and instead investigate quicker and more humane methods of killing. This has been the focus of recent work by the Wild Animal Initiative (Howe 2019). Similar work is being done on the humane control of rodents, who are known to be sentient and capable of suffering (Littin et al. 2014). This does not exclude pest control entirely, but it should constrain and guide how it is carried out.

As typically required for vertebrate species, there could also be the need to seek appropriate methods of analgesia for use in painful experiments in invertebrates (Cooper 2011; National Research Council 2011). There may also need to be a revision of the call for "replacement" under the 3Rs (Russell and Burch 1959). Currently this calls for replacing vertebrates with invertebrates, yet they too may be harmed in research. There might also need to be improved housing conditions for captive invertebrates, whether in research, agriculture or zoos, providing appropriate shelter areas, diet and enrichment, depending on their specific needs and desires (Crook 2013; Horvath et al. 2013).

More specific examples and suggestions will come from research into the capacities and requirements of different species of invertebrates (e.g., Carere and Mather 2019). Species-specific proposals have already been made for octopuses as a result of growing knowledge (Browning 2019). Cognitive bias tests developed in mammals (Mendl et al. 2009, 2010) can, in many cases, be applied straightforwardly to invertebrates to improve their welfare. This has already been done in bees (Bateson et al. 2011). It is clearly possible to take action to improve the lives of sentient invertebrates. We should not let the "demandingness" objection prevent progress.

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