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A Virtue of Precaution Regarding the Moral Status of Animals with Uncertain Sentience

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Abstract

We address the moral importance of fish, invertebrates such as crustaceans, snails and insects, and other animals about which there is qualified scientific uncertainty about their sentience. We argue that, on a sentientist basis, one can at least say that how such animals fare make ethically significant claims on our character. It is a requirement of a morally decent (or virtuous) person that she at least pays attention to and is cautious regarding the possibly morally relevant aspects of such animals. This involves having a moral stance, in the sense of patterns of perception, such that one notices such animals as being morally relevant in various situations. For the person who does not already consider these animals in this way, this could be a big change in moral psychology, and can be assumed to have behavioural consequences, albeit indeterminate. Character has been largely neglected in the literature, which focuses on act-centred approaches (i.e. that the evidence on sentience supports, or does not support, taking some specific action). We see our character-centred approach as complementary to, not superior to, act-centred approaches. Our approach has the advantage of allowing us to make ethically interesting and practically relevant claims about a wider range of cases, but it has the drawback of providing less specific action guidance.

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1. Introduction

In this article we address the moral importance of the fact that fish or invertebrates such as crustaceans, snails or insects, in view of existing scientific evidence, *may* very well be sentient.[1] Several philosophers and scientists have argued that, due to this possibility alone, legitimate moral concerns should be extended to such beings. This argument is not based on any claim that these beings *are* sentient, but aimed to support actions to guard against the possibility that they *may* be (in a qualified sense backed up by science), assuming that sentience confers some portion of substantial moral importance. Some argue via remarks about "erring on the side of caution," giving them "the benefit of the doubt," or via an unspecified precautionary principle (Cooper 2011, p. 201; Horvath et al. 2013, p. 15; Sneddon 2015, p. 974; Sømme 2005, pp. 36–37). Others use an expected value framework (Chan 2011; Horta 2010; Lund et al. 2007; Tomasik 2016a), which, in accordance with common approaches in the ethics and philosophy of risk and uncertainty, we understand as a variant of a broadly conceived type of precautionary moral reasoning (Hansson 2013; Munthe 2011, 2016; Steel 2014). Still others leave out the details of the step from the evidence on sentience to the normative conclusion (Crook and Walters 2011, p. 193; Eisemann et al. 1984, p. 167; Harvey-Clark 2011, p. 219; Lewbart and Mosley 2012; Wigglesworth 1980, p. 9).[2] Most argue for quite modest actions, such as welfare regulations for fishing or regulations requiring the inactivation of animals' nervous systems before potentially painful research (Crook and Walters 2011; Eisemann et al. 1984; Lund et al. 2007; Sneddon 2015; Wigglesworth 1980). A few authors argue for a wider range of specific actions, and urge

[1] That is, sentience in the sense of a capacity to experience pain or suffering. A capacity to feel bad; to have mental states that are affective and aversive or that have negative valence of the sort recognised by many ethical theories.
[2] Broom (2013, p. 152) draws the weaker conclusion that "there is a case for some degree of protection for spiders, gastropods and insects," without specifying the step from the empirical to the normative.

animal organisations to also engage with the interests of such 'lower' organisms (Chan 2011, p. 339). Horta (2010) argues that we should intervene in nature to reduce suffering among wild animals, including insects, Lockwood (1987, p. 86) criticises the use of insecticides on crops that are harmful to humans, such as tobacco, or to prevent cosmetic damage to food, and Tomasik advocates the conversion of grass lawns to gravel or artificial turf to reduce the amount of invertebrate suffering (Tomasik 2016b), reduced driving "especially when roads are wet," and minimization of "walking on grass or in the woods" (Tomasik 2016a).

The argument behind these suggestions, modest or bold, rests on two pillars: First, the claim that there is sufficiently qualified uncertainty regarding the sentience of the beings for there to be *some* precautionary moral reasons to morally consider these beings. Second, the idea that these reasons serve to base specific categorical moral judgements with regard to how we should act in relation to these beings.[3] The first premise is very weak and only requires the acceptance of moral reasons to somehow consider eventualities arising out of scientifically ascertained uncertainties and risks,[4] and the presence of such uncertainties and risks in the case under consideration. For the purpose of this paper, we will therefore assume the first claim to be correct and instead focus on the second claim, that the moral reasons support determinate practical conclusions about how we should act. In section 2, we will argue that the second claim faces serious challenges in most of its more specific variants, based on critical analysis of the nature of moral reasons for precautionary measures. As a complement to such an *act-centred* approach, we propose in section 3 an alternative understanding of what precautionary motivated ethical conclusions can be supported from the scientifically acknowledged uncertainty regarding the sentience of these animals, focused on character rather than immediate action-guidance. We

[3] Examples of such judgements have been given above.
[4] For an overview of notions to this effect, see Hansson (2013), Munthe (2016), and Steel (2014).

argue that this conclusion can gain support from wide range of otherwise competing ethical perspectives, and have secondary, though indeterminate, practical impact on actual actions. We do not argue that our character-centred approach is *superior* to act-centred approaches; rather, it is *complementary* in the sense that there is room for both. In addition to asking whether a specific action should be taken, the option is always there to ask which related character traits, dispositions and so on we should cultivate. Character is one interesting aspect of the moral importance of fish and invertebrates based on uncertainty about their sentience, but considerations about character have been largely neglected in the literature.[5]

2. Challenges for act-centred approaches under uncertainty about sentience

This section distinguishes among six challenges for attempts to support specific action-centred conclusions under uncertainty about sentience on the basis of precautionary reasons: whether the beings are sentient, the degree of sentience, the number of beings, causal complexity, balancing interests and values, and the price of precaution.

Whether the beings are sentient: This is the primary focus of the literature on the moral status of fish and invertebrates based on their possible sentience (e.g. Sneddon 2015; Sneddon et al. 2014). A complication is that there is no consensus about which mental properties are necessary for sentience, so there is both disagreement about what we are looking for, and uncertainty about whether the beings in question have it.

[5] E.g., Mather (2011) discusses contractarian, utilitarian and rights-based approaches, but not approaches focusing on virtue or character.

The degree of sentience: If the beings are sentient, a further question is to what *degree* they are sentient. For example, if they can suffer, how severely can they suffer?[6] Lockwood, who advocates actions out of concern for insects, speaks of them possibly being "in agony" (Lockwood 2011), and of us potentially making "horrendous mistakes in moral judgement," given the way that we treat them (Lockwood 1987, p. 84). It would substantially weaken the case for concern for fish and invertebrates if the suffering they experience only reach magnitudes that are mild compared to severe human suffering. Ethicists tend to assume that non-human animals have less capacity to suffer than humans, but provide no or weak reasons for that assumption. A good example is Vallentyne who says that "the typical human capacity for pain and pleasure is no less than that of mice, and presumably much greater, since we have, it seems plausible, more of the relevant sorts of neurons, neurotransmitters, receptors, etc." (Vallentyne 2005, p. 406). Several philosophers of mind agree. Dennett, for instance, claims that "the capacity to suffer is a function of the capacity to have articulated, wide-ranging, highly discriminative desires, expectations, and other sophisticated mental states" (Dennett 1991, p. 449). So, according to Dennett, although a horse and a dog can suffer, they suffer less than humans (Dennett 1991, pp. 449–450). Few scientists appear to have written on the topic, although an exception is Broom, who concludes that "in some circumstances, humans who experience a particular pain might suffer more than fish, while in other circumstances a certain degree of pain may cause worse welfare in fish than in humans" (Broom 2014, p. 118). Overall, the discussion about the extent to which different species are sentient, if they are sentient, is characterized by speculations and hypotheses, and there appears to be little knowledge on the topic.

[6] For an overview, see Akhtar (2011).

The number of beings: The number of individual fish and invertebrates such as insects is enormous. It has been estimated that the number of insects alive at any point in time is 10^{18} or 10^{19},[7] and just the number of ants has been conservatively estimated at 10^{15} to 10^{16} (Hölldobler and Wilson 2009, p. 5). When humans use or kill fish or invertebrates such as insects to prevent them from damaging crops, or for food, clothing, research or other purposes, we normally affect many more individuals compared to when we affect mammals or birds for similar purposes. Several researchers point to the large number of fish and invertebrates as a reason in favour of taking actions out of moral concern for them (Chan 2011, pp. 339–340; Horta 2010; Lockwood 1987, p. 86; Lund et al. 2007; Tomasik 2016a). However, some normative views hold that the numbers are morally irrelevant: Taurek (1977) would flip a coin if he had to choose between saving one person or fifty other persons, and Kantian views may imply that the numbers do not count because it is not obvious that they can accommodate degrees of wrongness (at least superficially, either an act violates the categorical imperative or it does not) (Calder 2005). Even if we assume that the numbers count, as many normative views and the researchers pointing to the number of fish or invertebrates do, it is still not obvious what the moral implications of the number of such beings are. For example, it is not clear how one should count the number of very different animals. If an ant is sentient and suffers to a specific degree of severity, should that count as much as an elephant suffering to the same degree? One could argue that if an ant is counted as one subject, an elephant should be counted as many subjects, because the much

[7] The number 10^{18} is from Hölldobler and Wilson (2009, p. 5), which refers to a calculation by Williams (1964). The number 10^{19} is from the Entomological Society of America (2010), which says that according to E. O. Wilson, there are nearly 10^{19} insects. The numbers 10^{18} and 10^{19} may refer partly to animals that are sometimes no longer classified as insects; in particular, springtails, which are tiny, extremely numerous organisms. When they were considered insects, they were the most numerous insect (Hopkin 1997 front flap).

bigger elephant brain could be seen as "containing" structures resembling many ant brains.[8] Arguments based on the number of individuals in favour of taking some specific actions typically try to make conservative assumptions about the likelihood and degree of sentience, and then conclude that there are so many individuals that they would still matter morally (Horta 2010; Tomasik 2016a). Although some find such arguments convincing, others do not, for example, as mentioned, because they hold that moral importance does not scale (even roughly) by multiplication of the number of individuals, or because of doubts about whether the suffering qualifies as being sufficiently severe.[9]

Causal complexity: If one wants to argue for specific actions out of concern for fish and invertebrates such as insects based on the consequences of such actions, a familiar problem of applying act-consequentialist reasoning arise, namely, the difficulty of assessing complex causal effects, especially when the long-term future is taken into account (Gren 2004). For example, one might believe that moral concern for insects implies an opposition to killing them to protect crops. However, letting them live has complicated effects on the size and composition of invertebrate populations, which may lead to more suffering on the whole. Therefore, Tomasik (2016d) recommends the more modest and predictable action to at least kill them in less painful ways.

Balancing interests and values: Several of the proposed actions involve trade-offs among different things that have been claimed to have positive or negative final value, and it is a challenge how such values are to be balanced against one another (assuming that there are such values). For example, abstaining from driving to a relative in order to avoid harming

[8] For more on this topic, see Tomasik (2016c).
[9] A reply to the doubt that the suffering may not be sufficiently severe is to make a conservative assumption about the likelihood that the beings' suffering is sufficiently severe, although it would make the argument more complicated.

invertebrates on the way can result in a worsening of the relationship with the relative. On the other hand, by abstaining from the trip, the death of many invertebrate may be avoided, and perhaps some of them would also suffer. One need not claim that values such as relationships, death and suffering are incommensurable or incomparable to acknowledge that it is a challenge how to weight them against one another in a non-arbitrary way.

The price of precaution: A core problem for supporting specific action-centred conclusions has to do with what has been termed "the price of precaution": In order to justify a specific precautionary action, one must show that this action is better motivated than other precautionary actions open to an agent, and thus worth the price of abstaining from the good of these latter precautions (Munthe 2011). The case of animals with uncertain sentience offers an abundance of illustrations of this challenge: How many resources should we direct to reducing suffering among fish and invertebrates in the wild (if they can suffer)? Should we spend time to select foods based partly on which insecticide was used and how painful we estimate that it was? Should we expend resources to learn more about whether and to what extent fish and invertebrates are sentient, and if so how much resources? How much time and resources should we spend making these kinds of decisions? And so on, and so forth. Opportunity costs arise out of the simple fact that for every action taken, including gathering information and making decisions, there will be many more abstained from.[10] Such alternative actions could instead have been taken to benefit fish and invertebrates in other ways, or to benefit something else or reduce some risk completely unrelated to such animals. In particular, justifiable precautionary arguments "cut both ways." That is, one would need to consider the flipside of the uncertainty in question: what if the animals are *not* sentient? In that case we will have wasted resources and

[10] As Sandin et al. (2002, pp. 292–293) notes, "cautiousness in one respect often leads to incautiousness in another."

attention on caring about them and may have foregone benefits that could have been gained by treating them without any regard for their lives or for their well-being, or by spending resources on protecting or benefitting clearly sentient beings.[11]

Despite these challenges, we agree that, provided the presence of a qualified scientific uncertainty regarding the sentience of fish and invertebrates, we should *at least sometimes* take or avoid some actions with regard to their possible suffering, e.g. when the complexity and the "price" of such precautions (in terms of cost of precautionary measures and value foregone when abstaining from certain activities) appears low. This tends to be the case when many aspects of a decision problem are already fixed. For example, Lockwood insisted that his students should anaesthetize insects before conducting potentially painful experiments (Lockwood 2011). In such a case, the decision problem is how to teach a class on insect anatomy and physiology that will take place and take up some roughly given amount of time, regardless of whether the insects are anaesthetized or not, which limits the possible alternative actions that could be taken, and hence reduces the opportunity costs. In addition, according to Lockwood (2011), the cost of using anaesthetic is "very low (a few extra minutes to apply cold or carbon dioxide)." Another example is when one will buy a tie and can choose between one made from silk or synthetic materials, in which case one should arguably choose the synthetic tie. Other convincing cases, although the cost may be higher, include inducing insensibility to pain and suffering before killing fish or doing potentially painful research on, e.g. insects. When more is at stake and the "price" is higher, however, arguing for specific action on precautionary grounds in view of unclear sentience alone becomes less convincing. This tends to be the case when the proposed precautionary action makes demands on time and resources that could otherwise be used in a

[11] Consistency requirements of this sort on precautionary recommendations have been suggested by, e.g., Munthe (2011) and Steel (2014).

range of very different ways (which tends to make the opportunity costs higher). Examples include to convert one's lawn to gravel, make additional interventions in nature, advocate for fish and invertebrates, gather information to make better food, travel and other consumption choices (such as avoiding products with colorants made from insects), and so on.

In conclusion, while arguments of the sort referred to in the previous section may indeed convincingly support at least some actions with regard to the possible suffering of fish and invertebrates, the challenges listed in this section limit the usefulness of act-focused approaches in complicated cases of moral uncertainty, such as this one.

3. A virtue of precaution regarding animals with uncertain sentience

Assuming qualified scientific uncertainty regarding the sentience of fish and invertebrates such as insects, one way to get around the challenges described in the preceding section, while still saying something informative about the moral importance of such beings, is to focus on judgement of *character* instead of actions. A character trait of being disposed to consider the possible moral importance of these beings is fully compatible with causal complexity, with interests and values being at stake that are difficult to weigh against one another, and with also considering other possibilities beyond taking some specific action out of concern for the beings. The reason is that the claim that one should have such a disposition is weaker than the claim that one should take a specific action, at least in complicated cases when the price of the action is substantial. We can also predict that the disposition would have behavioural consequences in many situations, maybe of the kind mentioned in section 1, although the precise such consequences would be indeterminate.

We regard character-centred approaches as *complementary* to act-centred approaches; we do not suggest that a focus on virtue or character is *superior* to a focus on acts. Our point is that it is

ethically interesting to ask which character traits are desirable, that the option to ask that question is always there, and that it is an angle of the ethical problem of uncertainty about sentience that has been largely neglected. Compared to act-centred approaches, our character-centred approach has the advantage of having a role in a wider set of situations, but it has the drawback that it provides less specific action guidance.

Admittedly, a few authors have briefly addressed character and attitudes. Lockwood (2011) explains a part of his rationale for why he insisted that his students should anaesthetize insects as follows:

> I think that treating insects as if they can experience pain cultivates an attitude of respect toward living organisms. And this seems like a good thing. We learn the methods of dissection through practices—and we also learn virtues such as compassion through practice.

Eisemann et al. (1984, p. 167) advise the undertaking of specific actions but also mention attitudes:

> We consider that the experimental biologist would be advized [sic!] to follow, whenever feasible, Wigglesworth's recommendation that insects have their nervous systems inactivated prior to traumatizing manipulation. This procedure not only facilitates handling, but also guards against the remaining possibility of pain infliction *and, equally important, helps to preserve in the experimenter an appropriately respectful attitude*

towards living organisms whose physiology, though different, and perhaps simpler than our own, is as yet far from completely understood. (Italics added.)

Both Lockwood and Eisemann and colleagues here link specific proposed actions to concern for individual insects, and the cultivation of attitudes or virtues entailing such concern.[12] Such an idea may be supported by the general precautionary idea that scientifically qualified uncertainties of moral importance have some ethical valence, in combination with the mentioned qualified scientific uncertainty regarding the sentience of the considered animals. As this notion seems very much like a typical virtue ethical ideal (certain character traits are desirable to develop, nurture and maintain), it can be further tested by asking whether a decent (or virtuous) person would have such character traits. The resulting argument can be stated as follows:

The character argument:

a) If there are qualified scientific reasons to believe that certain beings can have morally relevant negative mental states, then a morally decent (virtuous) person would be disposed to pay attention to and consider the corresponding possible interests of such beings in relevant situations.
b) There are qualified scientific reasons to believe that certain fish and invertebrates can have morally relevant negative mental states.
c) People are sometimes in relevant situations with respect to such animals.

[12] Both Lockwood and Eisemann and colleagues here speak of respect for *living* organisms, but they seem to have the possibility of *sentience* in mind. Others, however, emphasize respect for life (seemingly life *itself*). For example, Adamo (2016, p. 78) says that "insects should be handled with care for reasons that do not hinge on whether or not they experience pain.... All research animals should be handled in a way that reflects a respect for life, regardless of their ability to experience pain." A respect for life is different from the disposition we are concerned with in this section: attention and cautiousness when there is sufficient uncertainty about *sentience*.

d) Thus, people are sometimes in situations, where a morally decent (or virtuous) character would imply paying attention to and consider the possible interests of certain fish and invertebrates.

A few clarifications. The argument refers to 'a morally decent (virtuous) person,' by which we mean a person with desirable character traits. We use 'virtue' and 'virtuous' broadly, without reference to a specific tradition such as Aristotelian virtue ethics or virtue consequentialism (unless noted otherwise). Moreover, the argument says that such a person would be 'disposed to pay attention to and consider' the possible interests of the beings in questions. We mean that such a person would be disposed to notice these beings as being potentially morally relevant, and be cautious regarding the fact that they may be sentient. Adopting such a disposition would involve a shift in moral stance, i.e. a shift in patterns of perception; in one's pre-reflective view of a situation.

In the remainder of this section, we will look closer at and defend premises (a) and (c) of *the character argument*. Premise (b), as already mentioned, is for good reason granted in the present article. The idea of premise (a) is to reformulate the idea of a moral reason to be cautious in the face of qualified scientific uncertainties in terms of desirable character traits, or virtues. This links to familiar common sense ideas of the moral value of precaution, where a virtue of cautiousness includes dispositions to have foresight and to be thoughtful, careful, thorough, meticulous, and considerate. Accordingly, being cautious in relation to animals in the face of qualified scientific uncertainty about their sentience involves having these animals on one's moral radar, paying attention to the possibility that their interests may be at stake in different circumstances, and considering the moral force of these possible interests in view of the

possibility that they are sentient. Thus, a cautious person would allow facts about qualified scientific possibilities about the moral status of these animals to affect her moral-psychological life. In this sense, then, the moral reason of precaution can be seen as being about an (allegedly) good character trait – a virtue.

This notion of the nature of the moral reason of precaution can plausibly be defended from a variety of ethical theories, including Aristotelian virtue ethics, virtue consequentialism, and the virtue of benevolence of David Hume (1978, bk. III, parts 1 and 3) and similar ideas among contemporary followers, such as Slote (1992). Sandin (2009) has presented a general defence of the notion of precaution as a virtue, demonstrating that it fits formal requirement usually advanced for virtue candidates. W. D. Ross suggested that Aristotle's account of courage can be unpacked in terms of two dyads, one of which has caution as excellence (or virtue) and rashness as defect (or vice), and Urmson has suggested a similar analysis, but with a triad of over-caution (defect), caution (excellence), and rashness (defect) (Urmson 1973, pp. 229–230). From a more pragmatic or consequentialist perspective, the described character trait may be seen as generally desirable in view of the obvious risk of causing undesirable consequences due to a narrow outlook on what may be of moral importance. Such thinking also fits well into common sense moral ideas about what it means to act responsibly, underlying familiar notions of negligence and recklessness in jurisprudence and law (Munthe 2016).

An advantage of a precautionary argument regarding the moral importance of fish and invertebrates that focuses on character rather than specific actions is that it can more easily serve as a basis for moral judgements regarding these animals. That is, the set of situations involving such animals about which we can say something general and morally interesting is larger for a character-focused argument of the kind sketched in this section compared to an action-focused

argument of the kind presented in section 1. The character-focus allows one to make weaker claims that remain interesting and practically relevant but which avoid some of the challenging complexities of, for example, decision and opportunity costs that we ran into in section 2. This is the basis not only of premise (c) above, but also that the "sometimes" in that claim may include quite a lot of situations faced by many people. These people, then, should have and express the character trait described, but what this implies in terms of specific action is less determinate.

We can thus leave it open whether a decent or virtuous person would abstain from walking in the forest due to the risk of stepping on small animals, but this does not mean that no practically relevant ethical information is provided. We *can* say that this person would be attentive to, take notice of and be affected in her moral decision-making by the fact that her walks may harm sentient invertebrates. Similarly, regarding the question of whether one should try to prevent or ameliorate possible suffering of the animals under consideration *not* caused by humans, a virtuous person would consider this possible suffering in a way comparable to how she might consider reasons for helping humans that suffer due to, e.g., natural disasters. Again, we need not make specific claims about the size of the costs or burdens in terms of specific relief efforts someone is required to bear; we need only claim that a decent person would have the animals' potential mental states on her moral radar.

This ethical requirement on our character still makes a substantial practical difference for moral decision-making. The psychological features regarding moral attention and consideration have far-reaching implications for ethical thinking and experience, even if all aspects of the behavioural result of that cannot be exactly predicted or prescribed. Moreover, for the person who has not before considered these animals in the way described – probably most people – to

start doing so would be a considerable moral psychological change, plausible to expect to make some difference also in terms of agency and behaviour, at least over time.

4. Conclusions

We have analysed arguments for morally considering animals with uncertain sentience based on precautionary ethical premises (broadly conceived to include expected value frameworks). Most of the literature advancing such moral considerability focuses on advocating specific actions and we have agreed that, given a qualified scientific uncertainty regarding the sentience of these animals, we should *at least sometimes* take or avoid some actions with regard to their possible suffering. This argument has been found plausible when the complexity and "price" of such precautions appear low. When they are higher, however, arguing for specific actions on precautionary grounds in view of unclear sentience becomes less convincing. The main reason for this is that precaution cuts both ways: taking precaution against the possibility that some specific beings may be sentient can have substantial costs, and we could, for example, have spent the attention and resources on reducing some other risk instead.

To get around this challenge and say something informative and general about the moral importance of these animals based on the qualified scientific uncertainty regarding their sentience, we have argued that complementing the precautionary argument from actions with a precautionary argument based on character traits shows promise. A requirement of a morally decent (or virtuous) person that she should be attentive and considerate in the face of the mentioned uncertainty implies an ideal for a person's moral psychology. For someone who does not already have these character traits, the effect of developing them on her moral psychology would be substantial, and can be assumed to have behavioural consequences, albeit indeterminate. We suggest that this regards most people.

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