

Respect for the Smallest of Creatures: An Analysis of Human Respect for and Protection of Insects

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ABSTRACT

Humans have a complicated relationship with insects. Fearing them, we are quick to kill spiders and stomp on ants. Benefitting from them, we raise honeybees and silkworms and use their products for our enjoyment. Depending on them, we try to save bee populations, realizing that many of our food sources would be lost if bees died out. My goal in this paper is to find ways to justify respecting and protecting insects. They have been systematically excluded from animal rights theories because we tend to believe that they lack sentience, the main criterion used to extend rights to nonhumans. As I will argue, the sentience criterion relies on anthropocentric thinking about the ways that animals experience the world. Choosing an alternative to the sentience criterion—one that does not rely on commonalities between insects and humans—is a necessary step in finding a motivation for respecting insects. I will test two approaches to respecting insects—one that involves granting them rights and another that requires thinking of them as possessing inherent worth. Then, I will use my analysis of insects to answer some broader questions in environmental political theory. Mainly, what is the basis for respecting nature even when it does not directly benefit us? Finding a way to respect the creatures that we consider the most difficult to live alongside and relate to serves as a useful test for determining the limits and scope of our respect for nature.

“If all mankind were to disappear, the world would regenerate back to the rich state of equilibrium that existed ten thousand years ago. If insects were to vanish, the environment would collapse into chaos.”¹

-E.O. Wilson

Insect populations have declined rapidly in the last twenty years, and no

¹ Wilson, E. O. *The Creation: An Appeal to Save Life on Earth*. New York, W.W. Norton, 2006, pp. 33-34.

one seems to care. As we gain more knowledge about the disappearance of insect species, some scientists and media outlets have publicized the news of a climate change-driven insect decline. But the vast majority of us remain unaware of the importance and vulnerability of the insect world. Given the abundance and variety of insects, it may seem as though the loss of certain species is insignificant. And yet, the complex web of life suggests otherwise. Almost every type of insect interacts with plant and animal species, providing necessary food, pollination, or fertile soil. These small creatures maintain life.

Despite their importance, insects have been systematically excluded from theories of animal rights. We often fail to recognize in insects the qualities—such as sentience or the ability to feel pain—that we use to establish the rights of other animals. Our ignorance of insect sentience stems from the practical difficulty of studying their tiny nervous systems, along with an evolutionarily ancient aversion that creates barriers to understanding and relating to them. This failure to connect with insects often leads us to think of their death and suffering as insignificant.

My goal in this paper is to analyze how we should interact with insects and find ways to justify respecting and protecting them. Overcoming the instinctual fear and repulsion many of us feel for these creatures is a necessary aspect of any proposal for respecting insects. Additionally, approaches to insect protection require adopting ecocentric views of conservation. Usually, arguments for protecting insects rely on their benefit to us. Many people care about saving bees, for example, because they pollinate plants that we eat. But given some of the shortcomings of anthropocentric approaches, it is necessary to think of alternative theories that guide us to respect insects apart from their relation to us. Finally, our consideration of insects challenges some of the criteria that we often use to extend rights and consideration to nonhuman animals. As I will argue, the popular sentience criterion relies on anthropocentric thinking about the ways that animals experience the world. Choosing an alternative to the sentience criterion—one that does not depend on commonalities between insects and humans—is another necessary step in finding a motivation for respecting insects. In sum, I will argue that respecting insects requires overcoming stigma, adopting an ecocentric approach, and abandoning the sentience criterion.

After describing our current relationship to insects and their importance to various ecosystems, I will test two approaches to respecting insects—one that involves granting them rights and another that entails thinking of them as possessing inherent worth. I will assess each theory in terms of its treatment of stigma, ecocentrism, and the sentience criterion. Finally, I will discuss some of the implications of our treatment of insects for broader questions in environmental political theory.

I. OUR RELATIONSHIP WITH INSECTS

We use insects for a variety of purposes. In labs, scientists experiment on fruit flies to study ageing, genetics, human disease, and countless other topics. In gardens and on farms, we depend on bees and butterflies for the pollination of crops and flowers. It would not be possible to produce silk fabric and clothing without the labor of silkworms, nor would it be possible to break down soil or compost materials without various flies and maggots. Some people eat high-protein insects such as crickets and grasshoppers, and claim that entomophagy, or bug-eating, will become a necessity in the future as other food sources run out.²

Despite our dependence on and benefit from a wide range of insects, we tend to respond to them with fear or repulsion. Our nicknames for bugs—“creepy-crawlies and pests”—capture this attitude. Part of our aversion may stem from our negative associations with insects and the harm they cause. Ticks, mosquitoes, and other insects carry diseases such as Lyme, the Zika virus, and malaria. Parasites, including lice and bed bugs, encroach on our personal space and threaten the sanctity of our homes and bodies. Various types of locusts, worms, and beetles damage crops, threatening the livelihoods of farmers and those who rely on them for food.

In contrast, the vast majority of insects neither pose a direct threat to us nor even benefit us in some way. And yet, our aversion to harmful insects usually extends to all insects. Many people are quick to kill the ants, spiders, and flies that appear in their homes, even when these insects pose no immediate threat. The ease with which we kill these insects stems from our fear (phobias of spiders, for example, are fairly common) and from our inability to relate to them. Perhaps we fail to connect with them because of their divergence from mammalian bodies—their wings, shells, and antennae contrast with the appendages of more familiar animals. Insects' size and abundance also seem to play a role in our tendency to discount them. How could an ant—a being as small as a crumb—possibly matter, especially when there are millions more of them? Most of all, it is difficult for us to recognize sentience in insects—the main attribute used to determine the degree to which an animal can be likened to humans. Our simultaneous dependence on and inability to relate to insects merge to form our complicated relationship with them.

II. THE NECESSITY OF INSECTS

What would the world look like without insects? Not only do insects bene-

2 Barbara J. King, “The Joys and Ethics of Insect Eating,” *NPR*, April 3, 2014.

fit us in certain ways, but they also serve a vital role in ecosystems more generally. The naturalist E.O. Wilson refers to insects as “the little things that run the natural world.”³ Though we are often unaware of their presence and necessity, their disappearance would spark a cascade of additional extinctions. Vital to the food chain, insects serve as a food source for most bird and fish species.⁴ Plants also benefit from insects in numerous ways, mainly through enhanced soil quality and pollination. Some plants depend on specific bee species for pollination, and some bee species can only acquire food from certain types of plants. This symbiotic relationship entails that when either partner—plant or insect—becomes endangered, the other suffers as well.⁵

Climate change has caused a massive decline in insect populations that humans are only just beginning to quantify and analyze. Given the size and abundance of insect species, it is difficult to track their decline. Additionally, there are millions of species that humans have never studied or counted before.⁶ But recent experiments that involve catching and recording large quantities of insects in certain areas have demonstrated that their numbers are declining quickly.⁷ ⁸ For example, researchers studied arthropod populations in Puerto Rico’s Luquillo rainforest between 1976 and 2012, a period in which maximum climate temperatures increased by two degrees Celsius.⁹ The decline of the arthropods mirrored a loss of lizard, frog, and bird species in the same forest. As the authors of this study write, “climate warming is the major driver of reductions in arthropod abundance,” and leads to the “collapse of the forest food web.”¹⁰

The decline of insects has caused a similar cascading effect in other parts of the world as well. Pollinators of all types (mainly bee and butterfly species) are declining at an unprecedented rate.¹¹ Many native bee species in New England have become endangered due to disease, pesticides, and a reduction in the plants they require for food.¹² As the bee species go extinct, native plant species die as well, and this dual decline harms bird populations in return. As biologist and bee ecologist Robert Gegear explains, the resulting lack of biodiversity could cause

3 Brook Jarvis, “The Insect Apocalypse is Here,” *The New York Times Magazine*, November 27, 2018.

4 Jarvis, “The Insect Apocalypse is Here.”

5 Robert Gegear, interview with the author, November 29, 2018.

6 Jarvis, “The Insect Apocalypse is Here.”

7 Jarvis, “The Insect Apocalypse is Here.”

8 The insect decline may be part of a massive reduction in biodiversity that some refer to as the “sixth great extinction,” or the sixth time in the earth’s history that many species have gone extinct within the same time frame (*New York Times Magazine*).

9 Bradford C. Lister and Andres Garcia, “Climate-driven Declines in Arthropod Abundance Restructure a Rainforest Food Web,” *Proceedings of the National Academy of Sciences of the USA*, September 2018.

10 Lister and Garcia, “Climate-driven Declines.”

11 Interview with Robert Gegear.

12 Interview with Robert Gegear.

gardens and fields to transform into endless, green lawns. Vibrant gardens full of plant and animal life will wither away without pollinators.¹³

III. APPROACHES TO RESPECT

How should we interact with these creatures which we depend on but cannot relate to? Broadly, there are two categories of approaches that we could take. First, there are anthropocentric approaches, or strategies, that frame motives for conservation around human interests. There are at least two forms of anthropocentrism: (1) viewing the world from the perspective of humans without considering the perspectives of other beings or the natural world as a whole or (2) prioritizing the interests of humans over everything else. An example of (1) would be failing to grant moral consideration to insects because they may lack consciousness, a trait we sometimes use to determine whether we should extend moral rights or standing to other beings. As conscious animals ourselves, we often believe that consciousness is a key feature of a being that is “advanced enough” to receive our consideration. There are multiple examples of (2) in relation to insects. Some people believe that we should protect insects because they contribute to biodiversity, making the world more aesthetically pleasing to us. On a more drastic scale, some people argue that we should protect insects because ecosystems will collapse and we will lose food sources without them.

One of the main dangers of anthropocentric thinking is that it leads us to exclude from our consideration the aspects of nature that do not (as far as we know) directly benefit us. This exclusion entails that we should not attempt to avert the suffering or extinction of plant and animal species that we have not decided benefit us in some way. Ironically, this exclusion fails to achieve the goals of anthropocentrism: it is likely that, due to our limited knowledge of nature and ecosystems, we will fail to save a species that we need. Given the complex web of organisms that makes up the natural world, it is not possible to foresee all of the consequences of failing to respect and protect a particular species. Additionally, this anthropocentric approach to conservation is dangerous in the sense that it could easily lead to more environmental harm in the future. As biologist Jeffrey Lockwood acknowledges, it was an anthropocentric view that “created the environmental problems confronting us today.”¹⁴ Even if we could successfully use anthropocentrism and our fear of human extinction to motivate ourselves to reverse the trends of climate

¹³ Interview with Robert Gegear.

¹⁴ Lockwood, Jeffrey A. “The Moral Standing of Insects and the Ethics of Extinction.” *The Florida Entomologist* vol. 70, no. 1, 1987, pp. 83.

change, our lingering dominance over nature and prioritization of our immediate interests will lead to additional environmental problems in the future. A more radical shift in our relationship with nature is necessary to ensure lasting, positive change.

Anthropocentric views contrast with ecocentric approaches to conservation, or approaches that take into account the needs and interests of beings besides humans by treating nature as an end in itself. An example of an ecocentric approach to conservation is arguing for the protection of a species of bees not because that species is necessary for human food sources or enjoyment, but simply because the bees matter inherently. When considering ways to interact with insects, we should prioritize ecocentric approaches over anthropocentric approaches, given the pitfalls of anthropocentrism.

An ecocentric approach to interacting with insects involves some form of respect for insects and a motive for their protection beyond their relation to us. If insects are inherently valuable, then we owe them respect and should care about their interests. Theories of respect guide our actions and the way we treat other beings. For centuries, Western political theory framed humans as the only creatures deserving of respect. For example, the Kantian theory of respect features humans as the only rational beings, and thus the only entities that we should treat as ends in themselves.¹⁵ But this theory of respect entails that nonhumans can be exploited for the benefit of rational beings. The theories that I will analyze call into question this assumption, and provide us with alternative grounds for respecting nonhuman animals and aspects of nature.

A) INSECTS AS CITIZENS, DENIZENS, AND SOVEREIGNS

One approach to respecting insects is to grant them rights. There are many different types of rights, including moral rights, legal rights, civil rights, and political rights. It may benefit insects and elevate their standing to extend some of these rights and protections to them. In their book *Zoopolis*, Sue Donaldson and Will Kymlicka propose a model for animal rights that ensures that animals' "basic interests cannot be sacrificed for the greater good of others."¹⁶ Even though Donaldson and Kymlicka label these rights "inviolable," they also acknowledge that there are situations in which these rights are not "absolute or unconditional,"

¹⁵ Robin S. Dillon, "Respect," *The Stanford Encyclopedia of Philosophy*, Spring 2018 Edition.

¹⁶ Donaldson, Sue and Will Kymlicka. *Zoopolis: A Political Theory of Animal Rights*. New York, Oxford University Press, 2011, pp. 19.

including when animals harm or threaten to harm humans.^{17 18}

By centering animal rights in political theory, Donaldson and Kymlicka demonstrate ways to integrate animals into our existing models of citizenship and sovereignty. One of their strategies is to separate animals into three broad categories based on our levels of interaction with them: domesticated, liminal,¹⁹ and wild animals. Domesticated animals such as dogs, pigs, and chickens are oppressed in many ways; they are held in captivity, their labor is exploited, and some of them are killed and eaten on a daily basis. Donaldson and Kymlicka argue that, because we have integrated these animals into our society, we have certain obligations to them—mainly to listen to and interpret their interests and needs.²⁰ The best way to reverse their oppression and ensure that their needs are met is to grant them full citizenship rights. Using comparisons to children and mentally disabled people, Donaldson and Kymlicka argue that humans can extend assistance and representation to animals by noticing their interests and then communicating them to the rest of society. Nonhuman animals are capable of communicating to us in nonverbal ways, and with the support of human companions, these expressions of their interests can be translated into the political system.^{21 22} Based on this citizenship theory of the rights of domesticated animals, humans should not harm them or exploit them for food or labor.

Donaldson and Kymlicka argue that liminal animals should be allowed to live near and around us without subjection to extermination or harm.²³ Even though they are not granted the rights of full citizens, they are still guaranteed the right to not be harmed and the right to have their interests included in decision-making and urban planning. Additionally, fully wild animals are granted rights to be protected from human destruction of their habitats. As sovereign beings, they are members of their own communities that humans cannot disrupt or harm.²⁴ Their needs must be taken into account any time that humans build on or otherwise disrupt the land they inhabit.

According to Donaldson and Kymlicka, the basis for granting these rights to animals is their sentience, which “has distinct moral significance because it en-

17 Donaldson and Kymlicka, *Zoopolis*, pp. 19 & 41.

18 Similarly, even inviolable rights for humans can, in some situations, be violated. For example, the right to freedom is not unconditional; it becomes constrained if people are found guilty of crimes and sentenced to prison.

19 A liminal animal lives alongside us and shares some of the same living spaces without being domesticated. For example, pigeons and squirrels interact with us on a daily basis and live in our cities and towns even though we have not domesticated them.

20 Donaldson and Kymlicka, *Zoopolis*, pp. 101.

21 Donaldson and Kymlicka, *Zoopolis*, pp. 112.

22 This view alters our understanding of citizenship. Based on more than voting rights, citizenship involves at a minimum participation in the political system by voicing needs and interests that are given consideration.

23 Donaldson and Kymlicka, *Zoopolis*, pp. 214.

24 Donaldson and Kymlicka, *Zoopolis*, pp. 157.

ables a subjective experience of the world.”²⁵ Sentient creatures possess interests and goals; in other words, they “care about how their lives go.”²⁶ Based on this theory of animal rights, the possession of interests differentiates certain animals from rocks or trees. Though there may be reasons to protect and care about forests, we do not need to grant forests inviolable rights because trees are not sentient. When we look at them, we do not feel as though there is “someone home,” or a person there.²⁷ Thus, we only have obligations towards animals with subjective experiences of the world.²⁸

If we apply this animal rights model to insects, then it is necessary to determine whether insects are sentient. Donaldson and Kymlicka explicitly exclude insects from their analysis, explaining that current evidence and scientific analysis suggests that insects are not sentient.²⁹ Thus, insects are not granted inviolable rights or included in our conceptions of citizens, denizens, or sovereign beings. As Lockwood proposes, however, insects are more intelligent and aware than we might think, and our tendency to think of insects as “genetically programmed robots” has contaminated our ability to consider their sentience.³⁰ In contrast with the view of insect sentience that Donaldson and Kymlicka propose, there exists evidence that suggests that insects can experience pain, form relationships, and solve problems.

Testing whether a being has a subjective experience of the world is not a simple task; there is no standard set of attributes that determine sentience. To solve this issue, we can rely on some of the common criteria for sentience including consciousness, awareness, the capacity to feel pain, the ability to communicate, and the potential to problem-solve. Based on many definitions of sentience, if a living being possesses one or more of these attributes, we can regard it as sentient.³¹

Many scientists suggest that, at a bare minimum, insects have interests. For example, they try to avoid painful stimuli, including dangerous temperature changes, toxic chemicals, and electrical shock.³² They also writhe in response to pesticides, and they try to escape if they are physically restrained.³³ It is possible that insects do not feel pain in response to these stimuli (pain is subjective, and therefore difficult to study in other beings). However, multiple studies³⁴ indicate

25 Donaldson and Kymlicka, *Zoopolis*, pp. 24 & 31.

26 Donaldson and Kymlicka, *Zoopolis*, pp. 23.

27 Donaldson and Kymlicka, *Zoopolis*, pp. 36.

28 Donaldson and Kymlicka, *Zoopolis*, pp. 36.

29 Donaldson and Kymlicka, *Zoopolis*, pp. 31.

30 Lockwood, “The Moral Standing,” pp. 78.

31 Lockwood, “The Moral Standing,” pp. 70.

32 Smith, Jane A. “A Question of Pain in Invertebrates.” *ILAR Journal*, vol. 33, no. 1-2, 1991, pp. 25-31.

33 Smith, “A Question of Pain in Invertebrates.”

34 Lockwood cites multiple studies that analyze insect pain. He writes that Alumets et al. (1979) “reported that earthworms possess B-endorphins and enkephalins which, by functional analogy, suggest the capacity for pain.”

that insects can experience some form of visceral pain.³⁵ It is also possible that insects communicate with each other. For example, honeybees use “an elaborate form of symbolic communication” or the “dance language” to share information on the “distance, direction, and desirability” of food sources and nesting sites.³⁶

If, as this research suggests, insects possess the capacity for language, pain, and awareness, then they meet some of the criteria for sentience.³⁷ Humans, however, tend to find it difficult to accept this conclusion. Regardless of our scientific advances in studying insect behavior and nervous systems, we remain quite removed from the insect world. No matter what we learn about insects, they are still (at least for most of us) difficult to relate to. Once again, the size of insects becomes a barrier to understanding them. It is difficult to imagine that such a small creature could have a complex enough nervous system to possess any criteria for sentience.³⁸ Additionally, we may find it difficult to believe that insects are sentient because we tend to study pain, consciousness, awareness, and language in vertebrate animals.³⁹ Many of our tests for sentience, for example, rely on verbal language or other human-centered ways of thinking about sentience.⁴⁰ In order to adequately study insect sentience, we need to develop ways to test for consciousness and awareness that do not depend on our understanding of language. As Gegear explains, studying insect behavior and consciousness is akin to “studying a group of people where you don’t know the language.”⁴¹

In his book *How Forests Think*, Eduardo Kohn presents us with ways to think about human-insect communication. Based on observations of the rainforest in Ecuador’s Upper Amazon as well as the people who live there (the Runa), Kohn suggests that “seeing, representing, and perhaps knowing, even thinking, are not exclusively human affairs.”⁴² Kohn develops an expanded and flexible definition of selfhood; according to him, anything that interprets or represents the world in some way possesses a form of selfhood.⁴³ For example, as flying ants in the rainforest relate to the environment and the beings around them in a certain way, he would argue they possess selfhood. One feature of their selfhood is their ability to communicate with other animals and to behave in a manner dependent

He also cites the work of physiologist V.B. Wigglesworth who discovered that “insects do experience visceral pain as well as pain caused by heat and electrical shock.” (pp. 76)

35 Lockwood, “The Moral Standing,” pp. 76.

36 Lockwood, “The Moral Standing,” pp. 78.

37 Lockwood, “The Moral Standing,” pp. 81.

38 Smith, “A Question of Pain in Invertebrates.”

39 Interview with Robert Gegear.

40 Interview with Robert Gegear.

41 Interview with Robert Gegear.

42 Kohn, Eduardo. *How Forests Think: Toward an Anthropology Beyond the Human*. Berkeley, University of California Press, 2013, pp. 1.

43 Kohn, *How Forests Think*, pp. 78.

on factors in the external world. Humans enjoy eating these flying ants, and are able to predict when the ants will emerge from the ground by paying attention to various signs from nature.⁴⁴ These predictions are the result of “treating ants as the intentional communicating selves they are.”⁴⁵ The humans in this example use this form of communication to interact with the insects by hunting and eating them. It would not be possible to predict the ants’ flight without implicitly acknowledging the ways that they understand and react to the world. With this example, Kohn demonstrates that in paying attention to and understanding the interests of insects, communication with them is possible.

If we take all of these examples to suggest that insects have some form of sentience, then we can apply the *Zoopolis* theory to them. There are not many domesticated insects, but honeybees and silkworms would be extended full citizenship rights. Liminal animals such as spiders and ants would be denizens, and insects that live exclusively in the wild (the vast majority of them) would be sovereign beings. The rights of each of these groups may entail that we must avoid “unnecessary or insensitive handling or restraint” and refrain from killing them.⁴⁶ Additionally, we could not use them as a food source or exploit them for their labor. The purpose of this paper is not to compile a comprehensive list of the rights of insects under this model, but rather to suggest that we could extend to them the rights of citizens, denizens, and sovereigns.

Although it is possible to use the *Zoopolis* model to grant rights and protections to insects, this approach has two major shortcomings. The first involves barriers to communicating with and relating to insects. Based on this theory, taking into account the interests and needs of nonhuman animals requires crossing an inter-species communication barrier. As Kohn and Gegeer argue (from an anthropological and biological view, respectively), insects are capable of communication. However, learning how to predict insect flight or studying insect behavior in a lab does not necessarily entail a full understanding of insects’ interests. Donaldson and Kymlicka propose relying on humans to represent their animal companions in the political sphere. But do there exist willing and adequate human translators for insects? It is useful to consider as candidates the human members of our society who appear to know the most about insects.

One group of candidates includes the farmers and gardeners who rely on certain species of insects for the pollination of crops and flowers. Their intimacy with plant life includes their knowledge of insect biology and behavior. Despite their reliance on (and perhaps respect for) pollinators, earthworms, and

44 Kohn, *How Forests Think*, pp. 79.

45 Kohn, *How Forests Think*, pp. 81.

46 Smith, “A Question of Pain.”

other “beneficial insects,” many farmers and gardeners also engage in a constant battle with the insects that sabotage their plants. A farmer who cares about saving bee populations may simultaneously kill potato beetles, locusts, or other insects that damage crops. Although there may exist some exceptions, it seems as though most farmers and gardeners only engage with insects so far as they benefit or hurt plants, which is not an adequate foundation to build the type of relationship or companionship required for use of the *Zoopolis* theory.

The Runa and other people who eat insects relate to them in a similar way. While they may learn a great deal about insects in order to predict their movements or learn how to raise them, the ultimate goal of their interactions is to hunt and eat the insects. It is important to note that eating insects does not necessarily entail a lack of respect for them. It may be necessary or justifiable in some situations to use insects as a food source. However, if the only goal of one’s interactions with insects is to eat them, then the insects are used as a means to assuage human hunger; in other words, the insect serves a purpose for the human. Given the nature of this interaction, a person who eats insects is not in an ideal position to advocate for the insects’ interests.⁴⁷

Another group of humans who interact with insects frequently are entomologists and other scientists who study insects. Although these scientists may possess the best understanding of the biological mechanisms behind possible insect sentience, their scientific knowledge does not entail respect or a willingness to translate the needs of insects to the rest of society. In fact, many scientists who study insects keep them confined in tanks and cages for long periods of time and expose them to painful stimuli.

Analyzing these various human-insect relationships reveals that, at least at present, it would be difficult to find adequate human representatives for the insect world. Even if it is possible to find some willing and knowledgeable humans, it is doubtful that there are enough of them to sufficiently represent the vast number of insect species that we interact with. There are far fewer domesticated animals in the world than there are insects, so domesticated animals are easier to accurately represent. However, it may be possible to overcome these difficulties by focusing our attention on a few of the species that we interact with most frequently or tend to exploit for resources and labor, such as honeybees and silkworms.

The most significant barrier to finding human translators is the stigma associated with insects. Donaldson and Kymlicka write that “most humans come to understand and care for animals by having a relationship with them—observing

⁴⁷ It is worth noting that there may exist more complex relationships between insects and humans that allow humans to use insects for the purposes of food or labor and simultaneously respect and appreciate them.

them, hanging out with them, caring for them, loving and being loved by them.”⁴⁸ But we do not tend to think of people as “loving” insects or developing caring relationships with them. Because of our difficulty relating to them, which often takes the form of fear or disgust, our relationships with insects are not comparable to our interactions with dogs, cats, and other domesticated animals.

This stigma against insects may begin to fade away. It is possible that, with more research on invertebrate nervous systems, we will gain enough knowledge of insect sentience to be able to relate to them. This scientific knowledge, however, may not succeed in helping us overcome the instincts that have led us to fear insects for centuries. Additionally, even if our view of insects changes, and we find a way to relate to them, it will only be because we recognize in them something that resembles us. A major flaw with our theories of respect is that each time we grant it to other creatures, it is often only because we see ourselves and aspects of our humanity in them. Even with enough research, it is possible that insects will never be considered similar enough to us to be included in this group. Therefore, we must overcome our dependence on relatability as a necessary criterion for respect. This shift in justification is a fundamental first step towards learning how to interact with insects in a more respectful way. The version of animal rights theory that Donaldson and Kymlicka articulate offers us no way to move beyond our narrow focus on resemblance as a basis for respect.

The second problem with using the *Zoopolis* theory as the model for our treatment of insects is that, despite the extensive rights it grants to animals, it remains a fundamentally anthropocentric approach. The citizenship and sovereignty model that Donaldson and Kymlicka propose depends on existing political structures and concepts. As Donaldson and Kymlicka explain, “for many legal and political purposes, advancing an animal rights agenda will require using the pre-existing language of persons and extending it to animals.”⁴⁹ This dependence on human-designed models means that treating animals like citizens and sovereigns entails bringing them into a political landscape that was developed with humans in mind. The categories of citizen, denizen, and sovereign reflect language and political theory that is familiar only to humans. Thus, animals might be forced into a system that they ultimately cannot consent to, and that hinges on philosophical and moral principles that are inaccessible to them. To extend the human concepts of law, rights, and citizenship to animals entails viewing our relationship with them through an anthropocentric lens.

Additionally, this theory’s dependence on the concept of sentience allows the exclusion of many beings, including insects (at least until more scientific re-

48 Donaldson and Kymlicka, *Zoopolis*, pp. 255.

49 Donaldson and Kymlicka, *Zoopolis*, pp. 30.

search is conducted and accepted). Humans have decided that sentience is a criterion for moral considerability because a subjective experience of the world is a core feature of humanity. Thus, when we recognize sentience in other animals, we begin to care about them as well. Donaldson and Kymlicka acknowledge that moral theories often fall into this anthropocentric trap by taking “humanity as [their] standard.”⁵⁰ Based on an anthropocentric view, animals “achieve moral standing only if they can be seen as possessing or approximating some aspect of [the] essence of humanity.”⁵¹ Donaldson and Kymlicka believe that their theory avoids this trap by focusing on the protection of vulnerable beings rather than the protection of beings that relate to humans. Possessing sentience is a form of vulnerability because a being with sentience possesses interests that can be unfulfilled or harmed.⁵² But this response fails to demonstrate why the Zoopolis theory is not anthropocentric. Instead, it replaces sentience (an anthropocentric criterion for moral considerability) with another criterion that is equally anthropocentric: vulnerability. A human understanding of vulnerability suggests that a being must be sentient to have interests or be harmed. Again, this view of vulnerability is based on our own experiences of the world and fails to take into account the experiences or perspectives of other living beings. Thus, focusing on vulnerability does not demonstrate that this version of animal rights theory avoids anthropocentrism.

B) RESPECTING NATURE

Another approach to understanding the way we should interact with insects is to rely on ecocentric views of their worth. In his article “The Ethics of Respect for Nature,” philosopher Paul Taylor presents us with an alternative to anthropocentric environmental ethics. Taylor argues that we have moral obligations to plants and animals to “protect or promote their good for their sake.”⁵³ These moral obligations include respecting the “integrity of natural ecosystems,” saving endangered species, and minimizing environmental pollution.⁵⁴ The reason we should care about the well-being and survival of plant and animal species is that each living thing possesses an “inherent worth” and a “good,” or well-being.⁵⁵ In contrast with theories that depend on sentience as a criterion, Taylor’s theory relies instead on these two features of living beings.

According to Taylor, “every organism, species population, and commu-

50 Donaldson and Kymlicka, *Zoopolis*, pp. 33.

51 Donaldson and Kymlicka, *Zoopolis*, pp. 33.

52 Donaldson and Kymlicka, *Zoopolis*, pp. 33.

53 Taylor, Paul. “The Ethics of Respect for Nature.” *Environmental Ethics*, vol. 3, 1981, pp. 198.

54 Taylor, “The Ethics of Respect for Nature,” pp. 198.

55 Taylor, “The Ethics of Respect for Nature,” pp. 198.

nity of life has a good of its own which moral agents can intentionally further or damage by their actions.”⁵⁶ Humans, plants, insects, and other animals all possess interests that can be protected or harmed (notice that inanimate objects such as rocks do not fall into this category). Generally, these interests include staying “strong and healthy.”⁵⁷ Thus, even if a plant is not necessarily aware of being harmed or benefited, it can still be injured or helped in certain ways.⁵⁸ The second main feature of Taylor’s argument is that all living things possess inherent worth.⁵⁹ Part of this inherent worth stems from the fact that living things deserve moral consideration as “members of the Earth’s community of life.”⁶⁰ Granting all living beings moral consideration does not mean that they possess inviolable rights; it only entails that every living being must be considered when making decisions.⁶¹ Establishing the inherent worth of living things also involves considering it “intrinsically valuable” to protect the interests of living things whenever possible.⁶² Taylor argues that granting each living being inherent worth and moral considerability allows us to develop a certain attitude towards all of nature that he labels “respect for nature.”⁶³

Taylor’s theory accounts for some of the shortcomings with the *Zoopolis* theory. The respect for nature that he articulates does not entail granting consideration to living things based on their similarities to humans. For example, consciousness is not a necessary criterion for moral considerability.⁶⁴ Rather, we begin to respect each living thing simply because it possesses intrinsic value. This theory allows us to transition away from the sentience criterion and other human-centric criteria for respect. Additionally, and more broadly, Taylor’s theory outlines an ecocentric approach to respecting nature. When applied to insects, his theory entails that we should respect them because we understand that they possess a good and inherent worth. Thus, we are obligated to respect their interests by refraining from harming them, and we need to take into account their interests when interacting with them or making decisions that influence them.

C) The Limits of our Respect

How might we decide which species’ well-being to prioritize when those

56 Taylor, “The Ethics of Respect for Nature,” pp. 199.

57 Taylor, “The Ethics of Respect for Nature,” pp. 199-200.

58 Taylor, “The Ethics of Respect for Nature,” pp. 200.

59 Taylor, “The Ethics of Respect for Nature,” pp. 201.

60 Taylor, “The Ethics of Respect for Nature,” pp. 201.

61 Taylor, “The Ethics of Respect for Nature,” pp. 201.

62 Taylor, “The Ethics of Respect for Nature,” pp. 201.

63 Taylor, “The Ethics of Respect for Nature,” pp. 202.

64 Taylor, “The Ethics of Respect for Nature,” pp. 211.

interests come into direct conflict? The main problem with Taylor's theory is that he does not articulate the limits of our respect for insects or other aspects of nature. If we adopt Taylor's theory, then we must treat all living beings with equal respect. How then, can we determine whether and how to prioritize our interests above the interests of insects? This account of respect cannot effectively guide us in situations in which insects pose a threat to our wellbeing or survival. There are many situations in which it might be necessary to harm or kill an insect (or insects) in order to protect ourselves or others.

In *Zoopolis*, Donaldson and Kymlicka present us with a way to think about potential conflicts between our rights and those of animals. Their solution to the human-animal conflict of interests is to apply what Rawls refers to as the "circumstance of justice."⁶⁵ This principle, based on Hume's statement that "ought implies can," suggests that "humans only owe justice to each other when they are in fact able to respect each other's rights without jeopardizing their own existence."⁶⁶ Thus, justice only applies in certain situations—when one's life is not at stake. If a mosquito that is likely to carry a disease is biting us, we are justified in killing it given that it has the potential to kill us. Our relationships with insects may also change over time. An insect that currently poses no threat may evolve to carry a fatal disease, changing the circumstances of justice. Thus, "assessing and sustaining the circumstances of justice is...an ongoing task."⁶⁷

Another approach to recognizing the limits of our respect for or protection of insects is to "shift the burden of proof" onto humans.⁶⁸ Lockwood establishes the moral considerability of insects by arguing (like Taylor) that they possess certain interests that can be harmed or helped by humans. Based on this moral considerability, Lockwood proposes a minimum ethic for our treatment of insects:

We ought to refrain from actions which may be reasonably expected to kill or cause nontrivial pain in insects when avoiding these actions has no, or only trivial, costs to our own welfare.⁶⁹

Lockwood describes a circumstance of justice; so long as insects pose no threat to our well-being, we should not kill or harm them in any way. This minimum ethic places the burden on humans to demonstrate the necessity of harming an insect before acting.⁷⁰ Notice that this minimum ethic fails to grant any positive rights or

65 Donaldson and Kymlicka, *Zoopolis*, pp. 41.

66 Donaldson and Kymlicka, *Zoopolis*, pp. 41.

67 Donaldson and Kymlicka, *Zoopolis*, pp. 41.

68 Lockwood, "The Moral Standing," pp. 84.

69 Lockwood, "The Moral Standing," pp. 83.

70 Lockwood, "The Moral Standing," pp. 84.

protections to insects—it does not show us how we should help or protect insects in ways that exceed simply avoiding directly harming them. Instead, it demonstrates a baseline of respect for insects: it is not morally justifiable to kill an insect for no reason.

These theories give different accounts of the type of situations in which we can justifiably harm insects. Donaldson and Kymlicka measure insects' threat to human existence, while Lockwood draws our attention to insects' threat to human welfare more generally. Lockwood's articulation of the limits to our respect is a more useful and practical approach. With their theory, Donaldson and Kymlicka ignore the fact that humans possess interests other than survival. Our health and happiness, for example, are additional human interests that may weigh into our decisions about how to treat insects. Lockwood presents us with a way to integrate some of our other interests besides survival into our consideration of human-insect conflict.

Although Lockwood's theory provides us with a more useful account of the limits of our respect, it also complicates our decisions. When we expand our list of relevant human interests past survival, it becomes more difficult to measure them and to use them in decision-making. Determining whether an insect will kill us is more straightforward than determining the degree to which an insect will affect our quality of life or overall health. If one has a choice between eating insects or dying of starvation, the decision they should make is clearer than deciding whether to endure hunger for a short period or eat insects. Lockwood offers us no limit on the types of interests that we can take into account when prioritizing our wellbeing. He acknowledges that "the control of insects to prevent cosmetic damage" to crops is not justified by his minimum ethic.⁷¹ Additionally, he explains that major threats to our health justify harming insects. But many cases, including the consumption of insects as food, do not clearly fit into the categories of cosmetic harm or serious health threat. Thus, Lockwood's minimum ethic fails to offer us guidelines for navigating these more nebulous conflicts of interest.

IV. HUMANS AND NATURE

The current dominant approach to protecting insects is to articulate their benefit for humans. People might rally to save honeybees because of our reliance on their labor or our enjoyment of their honey. Similarly, people might feel motivated to protect insects in order to save certain plant or bird species they like. In each situation, the desire to protect insects stems from our needs and inter-

71 Lockwood, "The Moral Standing," pp. 86.

ests. Even when humans discuss the protection of insects in the context of climate change, their goals remain anthropocentric.

A negative consequence of adopting anthropocentric views is that we tend to anthropomorphize nature. It is only when we believe we have recognized a “human” aspect of an animal (or plant) that we begin to view it as deserving of our moral consideration. But this approach to respecting nature fails to extend respect and protection to multiple nonhuman animals and plants, including insects. Until recently, we have assumed that insects are mere robots without any sort of consciousness or feelings. And even with the advent of promising research into the subject, we are not confident that insects are sentient. Our requirement that “respectable” creatures must fulfill a sentience criterion has led us to invest an insufficient amount of resources and energy into protecting insect species that are now endangered or extinct. The great insect decline of the last twenty years is a sobering reminder of the consequences of that perspective.

Understanding the shortcomings of the sentience criterion leads us to understand that, more broadly, we cannot pick and choose the aspects of nature we want to respect. Each individual organism, plant and animal species, and community should be afforded the same baseline respect in terms of moral consideration. Even if there are reasons to prioritize one species’ interests over the interests of another species, we must, at a minimum, consider the interests of all affected creatures before acting. We should not base our moral consideration of nature on arbitrary principles such as sentience. Nor should we base our moral consideration on the degree to which we fear or avoid certain species such as insects. Fear and a lack of understanding or relatability should not entail disrespect. To gain our respect and protection, it is enough just to exist.

Taylor’s theory encapsulates this message and offers us an ecocentric approach to respecting insects and nature more broadly. Adopting his theory would allow us to abandon the sentience criterion and respect insects even when we cannot find an aspect of resemblance or similarity between them and us. However, Taylor’s theory leaves us with unanswered questions about how to balance our interests with the interests of nature, and how to determine the situations in which we can use insects for certain purposes.

It is necessary, therefore, to piece together aspects of Taylor’s theory with other theories that outline methods for weighing our interests against those of insects. Using Taylor’s theory, we can think of our respect for insects as independent of the sentience criterion, and we can find inherent value in their existence. If we also draw upon Lockwood’s minimum ethic, we can describe some of the situations in which it may be necessary to harm or kill insects, and we can find the justification for prioritizing our interests when our welfare is at risk. This blend of theories requires us to take into account the interests of insects and consider our

effect on them when acting or making decisions.

V. CONCLUSION

Drawing to a conclusion our centuries-long domination of nature will require a change in our theories and our practices. In particular, it requires abandoning anthropocentric approaches to conservation. How can we convince people to adopt a more ecocentric view of nature in place of an anthropocentric one? One strategy is to acknowledge the degree to which the two approaches converge. Although their intents differ, their results may be similar. Saving the human species probably requires finding a way to protect and respect the environment so that our habitats, ecosystems, and resources are preserved. And, as I have argued, it is not possible to protect the environment without adopting a fully ecocentric approach. Thus, adopting an ecocentric view and learning to care about the environment for its inherent worth would directly benefit us and improve our chances of survival. Unfortunately, acknowledging the convergence between the two approaches seems to require an ecocentric view in the first place. If we continue to view ourselves as separate from the rest of nature, then we will not notice the myriad ways in which we are woven together with the natural world and share the same habitat and desire for survival. In contrast, if we begin to see ourselves as more connected with nature, then a clear delineation between anthropo- and ecocentric views will fade away; all efforts to care for the environment will benefit nature (which includes us). But how can we break down this barrier that we have established?

For inspiration, we can look to the pollinating bee and the pollinated flower. As Gegear explains, the two beings are not individuals—rather, they are a combination, an interdependent relationship, an assemblage.⁷² Neither one can exist without the other species. The bee and the flower represent the interconnectedness essential to all ecosystems and the strength of a relationship rooted in common interest. If we similarly begin to see our interests in survival as intertwined with the interests of nature, then it will be far easier to overcome anthropocentric barriers to respecting nature. Even if some of our interests come into conflict, our ultimate interest in preserving the natural habitat that is common to all living things. We are forced to share the same space and resources. Acknowledging the areas in which our interests merge helps us to understand that we are not separate from this network of life. Even the smallest of creatures—the ants, bees, and worms of the world—depend, like us, on the health of the environment, and thus deserve our respect.

72 Interview with Robert Gegear.

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