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<b>Supervisor's Department</b>	Philosophy
<b>Project Title</b>	Kinds of Minds

**Description of Research Project (1500 characters maximum)**

In the Ancient worlds, philosophers and religious leaders tended to represent animals and humans as members of the same category, who differed in their abilities and moral status in degree, rather than in kind. Confucianism and Daoist thinking took animals and humans alike to form part of the moral universe, the Buddha taught that animals are minded and require moral concern and he condemned wearing animal skin and occupations that involve slaughtering animals. Aristotle thought we can see traces of human mental capacities in most other animals. Medieval views began to question the continuity thesis. Though Avicenna argued that animals have an embodied form of self-awareness, he didn't think that animals have rationality. While some Christians such as Aquinas agreed we have duties to animals, but not because they are intrinsically valuable, Augustine didn't think humans have any duties to animals. These Christian philosophers drew a firm line between humans and other animals. Augustine emphasized human superiority over animals due to human rationality, since rationality is required for an afterlife. Aquinas agreed that animals are 'without intellect,' and 'not made in God's image.' Only humans can go to heaven, and Jesus only died for us (or so they say).

So much of current theorizing about animal cognition looks like a debate between the Ancients and the Christian way of thinking about other animals. The current debates in primatology are stuck on the question of how alike, or how different, other animals are from us. Frans de Waal emphasizes continuity, arguing that great apes are so much like humans that they participate in the foundations of moral thinking, as well as the ability to think rationally and problem solve. Daniel Povinelli emphasizes difference, sometimes suggesting that chimpanzees don't think of other chimpanzees as minded beings at all. Given that the philosophical attention to animal cognition research is largely focused on the primate research, and in particular great ape research, this emphasis on studying apes through a human lens has been inherited in much of the philosophy of animal minds literature.

The focus on great apes has its benefits, but also its limitations. The morphological, behavioral, and social similarities between humans and other apes help us translate and understand ape goals, abilities, and behaviors, making it relatively easy to see apes as minded, based on an inference to the best explanation of what they are capable of doing. However, these similarities also encourage anthropocentrism, which has the downside of limiting our ability to create alternative possibilities.

Anthropocentrism also encourages us to see other animals as like us, or at least what we take ourselves to be. In this way, anthropocentrism can start us off on the wrong foot, since we can be so wrong about ourselves. Furthermore, the focus on primates can lead us toward a false view about the distribution of capacities in other animals. Benjamin Beck lamented this focus on chimpanzees back in 1982, writing, "Advanced cognitive capacities are not restricted to chimpanzees and other pongids, and are not associated uniquely with tool use. The chimpanzee bias should be abandoned, and reconstructions of the evolution of intelligence should be modified accordingly."

Beck was speaking of cognitive ethology, or the study of animals in their natural environments. While there has been some expansion of the naturalistic study of animals in the last 35 years, with more inclusion of other great apes as well as corvids, elephants, cephalopods, and cetaceans, the field is still focused on animals commonly considered to be smart. The Ancients were not so focused—the animals mentioned in their texts include chickens and cows, spiders and ants. During the early part of the 20th century, behaviorists preferred to study rats and pigeons, while today the common lab rat of interest is the domestic dog--another species commonly thought to be intelligent, in part because of

its purported co-evolutionary history with humans (Hare et al. 2002). It is true that biologists are studying a larger range of taxa, including the ants and spiders of interest to the Ancients. However, little of that research has filtered into the most vocal discussion of animal minds. Furthermore, scientists are studying the learning abilities, sensitivities, and memory of plants, and this work should be integrated into philosophical questions about the mind (Calvo 2016). The move toward examining a larger range of potential minds will help address Beck's worry that the current science is misleading us about the evolution of mind, given the small set of taxa used as data for the reconstruction. And it will also inform us about the varieties of minds, and corresponding mental capacities. We already know there are a diversity of sensory modalities in other species, and there may be a diversity in other mental capacities as well—for example, we may find evidence of a greater range of emotions.

The research that is emerging on neglected taxa do not take the anthropocentric perspective typical of ape studies. Some of this research might be usefully introduced. In labs like Povinelli's now-defunct lab at New Iberia or Tomasello's soon-closing lab at Max Plank, human children and nonhuman apes are directly compared on the same task. Children and apes have been compared on their competence and understanding in false belief tasks, imitation, causal reasoning, rule-enforcement, fairness, metacognition, and more. These topics of focus, and the direct comparison between animal performance and human performance, can be extended to other species, though the conclusions we draw must be conditional on the quality of the comparative task.

The science might also progress by investigating human development, starting in the womb. With new imaging techniques, fetus behavior, memory, and learning can be studied and direct comparisons may be possible between fetuses and embryos across taxa. The developmental considerations have long been a concern, since there seems to be little attention paid to developmental stages in animal research. This, despite the fact that it is common to use subjects across developmental stages. (In a recent important study, the ape subjects had a mean age of 20, with a range between 6 and 40 years).

The move to widen the focus to include a variety of taxa, "smart" or not, maybe even minded or not, will help to further philosophical investigation into the nature of mind and mental capacities, as well as questions about methodology. The particular topics that will be covered in the research project include the following:

1. The problem of other minds. When looking at plants, at ants, at spiders, at the blobfish, the problem of other minds becomes less a skeptical problem and more a scientific one. How do the typical approaches to the problem of other (animal) minds fare when confronted with beings like these? If we conclude that it is appropriate to assume that plants have minds, will such a premise be methodologically fecund? Might it bring into focus some typically unappreciated property of mind?
2. What sort of functional vocabulary will we need to explore questions of mind across taxa? Radical interpretation gets quite radical when we look at worms and scorpions, and native knowledge may be increasingly important in order to even understand the goals of neglected taxa. For example, cultural knowledge about where, when, and how to fish may help to understand a species of fish, and knowledge about how to keep pests away can help us on the path toward understanding a caterpillar species.
3. How do the problematic attempts to define terms like "cognition" (Allen 2017) and "associative reasoning" (Dickenson 2009; Buckner 2018) impact the approach of widening the scope of potentially minded living creatures? Some psychologists take cognition and associative reasoning to be at odds with one another, but there are reasons for rejecting this position. Do current definitions of such terms pre-empirically exclude some beings, or include more beings that we might anticipate? To what extent is associative reasoning a part of processes we currently take to be cognitive? Furthermore, if we don't define such terms will this impact our ability to examine the possibility of mind in neglected taxa?
4. What sort of relationships between mind and life might we discover by widening the lens of cognition studies?
5. What can we learn about consciousness and normativity by studying the sensory modalities and cognitive

processes of neglected taxa of animals and plants? Jesse Prinz, Peter Godfrey Smith, and Evan Thompson have all turned some attention to these matters, and I will review and analyze their arguments about the evolution of consciousness.

6. What ethical implications might there be for a widening of the class of minded beings? Some omnivores worry already about the moral status of mammals and birds and fish, given their cognitive capacities, and some writing on these capacities make the connection explicit (as Jonathan Balcombe does in his 2016 book *What a Fish Knows*). Vegans are sometimes reluctant to accept that plants may be minded, given their premise that “being minded” entails “immoral to eat.” I would like to address this question as well, if space permits.

#### **Undergraduate Student Responsibilities (1500 characters maximum)**

The student will be involved in helping me research and draft a book contracted with Cambridge University Press. The student will be involved in library research on cognitive capacities in nonhuman animals, managing the database of articles found during research and used in each chapter, proofreading, and analyzing content. I will teach them how to use Zotero as a data management system, and I will introduce them to the various on-line search methods for finding academic research. This student will be charged with building a database of articles on the cognitive capacities of various species, including the octopus, bees, corvids, cetaceans, and elephants, and writing a brief description of each study. While assembling the final draft of the manuscript, my research assistant will also be involved in proofreading, formatting and copy-editing.

#### **Qualifications Required (750 characters maximum)**

Students should be capable of library research in psychology and biology, and have a familiarity with philosophy. Students should have excellent written communication skills, be able to meet deadlines, and be interested in the subject!

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