

RESEARCH ARTICLE

Bats, viruses, and human beings: a chiropteraphilic theodicy

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Abstract

This project offers an expansive theological understanding of the relationship between suffering and the divine while providing grounds for constructive human responses to suffering. To do this, I use an ecomimetic investigation of bats – selected because of their relationship to the COVID-19 pandemic – to explore the complexity of creaturely suffering in an interdependent world. Next, I offer an explanation of vulnerable suffering that is grounded in God’s faithfulness to all of the creation that God called good. Rather than using this explanation to excuse human indifference to suffering, I argue that embracing one’s creaturely finitude authorises constructive responses to suffering.

Keywords: attention epistemology; COVID-19; ecomimetic interpretation; finitude; interdependence; suffering

Suffering raises many theological and ethical questions. The question of why a good God would permit suffering predates Christianity, and many Christians continue to seek proper human responses to creaturely suffering. Although theodicy has frequently consisted of apologetic demonstrations of the logical consistency of belief in a good God despite suffering, many modern theodicies have expanded their fields of inquiry to address ‘the practical problem believers and unbelievers struggle with as they experience or witness evils that challenge either their sense of agency or what they have learnt about God from others’.¹ Rather than dealing with questions of moral evil, this article focuses on creaturely suffering that cannot be ascribed to human willing – sometimes called ‘natural evil’.² It can be understood as offering a theodicy, broadly defined, because it offers an expansive theological understanding of the relationship between suffering and the divine and explores how this understanding grounds appropriate creaturely responses to suffering. To do this, I use an ecomimetic investigation of bats to

¹Lois Malcom, ‘Theodicy’, in Ian A. McFarland, David A. A. Fergusson, Karen Kilby and Iain R. Torrance (eds), *The Cambridge Dictionary of Christian Theology* (Cambridge: CUP, 2011), p. 499.

²For a detailed argument for why I am avoiding the traditional language of ‘evil’, see Ian A. McFarland, ‘The Problem with Evil’, *Theology Today*, 74 (2018), pp. 321–39. In order to examine the relationship between the divine and suffering, I adopt Ursula Goodenough’s definition of biological suffering as encompassing any organism’s struggle for existence. See Ursula Goodenough, ‘The Biological Antecedents of Human Suffering’, in James W. Haag, Gregory R. Peterson and Michael L. Spezio (eds), *The Routledge Companion to Religion and Science* (New York: Routledge, 2011), pp. 233–47.

explore the complexity of creaturely suffering in an interdependent world. Next, I offer an explanation of vulnerable suffering that is grounded in God's faithfulness to all of the creation that God called good. Rather than using this explanation to excuse human indifference to suffering, I argue that embracing one's creaturely location, informed by ecomimetic identification, authorises constructive responses to suffering.

Paying attention through ecomimetic investigation

Engaging vulnerability in its phenomenological complexity requires what Sallie McFague calls 'attention epistemology', which I develop through ecomimetic interpretation. McFague describes attention epistemology as 'the kind of knowledge that comes from paying close attention to something other than oneself' by 'listening, paying attention to another, the other, in itself, for itself'.³ As she notes, this requires 'knowledge of *difference* ... attention to radical particularity' and taking 'with utmost seriousness the differences that separate all beings: the individual, unique site from which each is in itself and for itself'.⁴ This project uses an ecomimetic examination of bats, and particularly the Chinese horseshoe bat or *Rhinolophus sinicus*, to explore how such attention to a non-human creature in and for itself can inform theological reflection on suffering. I selected this species for engagement because of the complex relationship bats have to human flourishing and suffering, particularly in light of the COVID-19 pandemic.

Ecomimetic interpretation is based on the modern biomimicry movement, which prescribes close observation of nature to address various engineering and design problems.⁵ For example, close observation of bats has led to significant developments in human flight and sonar capacities.⁶ Ecomimetic interpretation expands the fields to which such close observation might be applied beyond engineering and design, using identification with other-than-human creatures to inform theological reflection as well.⁷ This identification is based on Christian understandings of creation from nothing, which entail the assumption that God is immediately related to all of creation, empowering and sustaining the existence of all creatures. Because *every* creature enjoys this direct relationship to the divine, *any* creature's existence is a suitable locus for theological reflection.

The close attention to and empathetic identification with other creatures required by such reflection is not without its challenges. One danger is that the interpreter will engage in what Nancy Howell calls 'naïve anthropomorphism', projecting human experiences and categories onto creatures that inhabit the world in radically different ways than we do.⁸ This would effectively erase the unique contributions that engagement with other-than-human creatures might offer. Another challenge is that the interpreter must remain aware of the epistemological limitations inherent in trying to identify with a creature that is radically different from human beings. In 'What is it Like to Be a Bat?', Thomas Nagel notes that, although humans share many characteristics and experiences with other mammals, bats 'nevertheless present a range of activity

³Sallie McFague, *The Body of God: An Ecological Theology* (Minneapolis, MN: Fortress Press, 1993), p. 49.

⁴Ibid., p. 50.

⁵Janine Benyus, *Biomimicry: Innovation Inspired by Nature* (New York: Morrow, 1997).

⁶*Super Bat*, directed by David Korn-Brzoza (MagellanTV, 2008).

⁷Rebecca Copeland, 'Ecomimetic Interpretation: Ascertainment, Identification, and Dialogue in Matthew 6:25–34', *Biblical Interpretation* 29/1 (February 2021), pp. 67–89.

⁸Nancy R. Howell, 'Homo Sapiens and Other Animals', in Philip Clayton and Zachary Simpson (eds), *The Oxford Handbook of Religion and Science* (Oxford: OUP, 2006), p. 947.

and a sensory apparatus so different from ours' that the limits of identification are easily demonstrable.⁹ Because bat echolocation is different from both human sight and hearing, he argues, 'there is no reason to suppose that it is subjectively like anything we can experience or imagine'.¹⁰ Our ability to identify with bats is constrained by our own limited experiences, and Nagel notes that attempts to imagine a bat's experience 'tells me only what it would be like for *me* to behave as a bat behaves', but not 'what it is like for a *bat* to be a bat'.¹¹ Because experience does have a subjective character, identification with others can never be completely successful, and ecomimetic interpretation must recognise the epistemological limits inherent in this enterprise.¹² These limitations, however, do not mean that nothing is gained through such identification. After surveying the work of Marc Bekoff and Frans de Waal, Howell notes that in science a biocentric or animal-centric anthropomorphism is both justified (by our 'genetic and evolutionary connections') and useful, as evidenced by 'research and medical achievement'.¹³ Likewise, identification with other creatures is a legitimate source for theological reflection, although the limitations inherent in such identification must always be kept in mind.¹⁴

Writing about ecomimetic interpretation raises another issue, in addition to the epistemological limitations on intra-species identification. In order to pay attention to another species in and for itself, the interpreter will need to delve deeply into what is currently known about that creature's way of being in the world. Deciding how much of the information gained from this exploration needs to be shared with readers involves a delicate balancing act. Although some of the details provided in the following investigation do not directly contribute to my arguments about creaturely suffering, interdependence and divine faithfulness, I believe they are needed to generate the kind of empathy necessary to pay attention to bats, in and for themselves, as well as in the context of a particular theological argument.

Bats, viruses and humans

With more than 1,100 species, bats make up the second largest mammalian order (Chiroptera) and account for over 20 per cent of all mammals living today.¹⁵ The only flying mammal, bats have adapted to conditions all around the world, and are found on every continent except Antarctica, as well as many islands. Flight aids bats in their 'struggle for existence', allowing them to range further in search of food while expending less energy, and also keeps them safer from ground-dwelling predators. Bats' diets vary from frugivores and nectivores to insectivores and even three species of sanguivorous vampire bats. Recent estimates of the economic value of the ecosystem services that bats perform – notably pollination, seed dispersal, and insect control – indicate that

⁹Thomas Nagel, 'What is it Like to Be a Bat?', *Philosophical Review* 83/4 (Oct. 1974), p. 438.

¹⁰Ibid.

¹¹Ibid., p. 439.

¹²For a discussion of these limitations in philosophy, pastoral care and theology, see Peter Capretto, 'Empathy and Silence in Pastoral Care for Traumatic Grief and Loss', *Journal of Religious Health* 54 (2015), pp. 339–57; and Marie McCarthy, 'Empathy: A Bridge between', *Journal of Pastoral Care* 46 (1992), pp. 119–28.

¹³Howell, 'Homo Sapiens and Other Animals', p. 948.

¹⁴Even Nagel concedes the possibility of some connection, noting that 'The distance between oneself and other persons and other species can fall anywhere on a continuum ... The imagination is remarkably flexible.' Nagel, 'What is it Like to Be a Bat?', p. 442.

¹⁵John D. Altringham, *Bats: From Evolution to Conservation*, 2nd edn (Oxford: OUP, 2011), p. xi.

bats 'are likely one of the most economically important nondomesticated groups of mammals'.¹⁶ Bats are not blind, but many nocturnal species do have the ability to use echolocation to navigate, communicate and hunt in the dark. They are remarkably long-lived for mammals of their size, with typical life expectancies ranging from seven to thirty years in the wild.¹⁷ Rhinolophidae is the family of horseshoe bats, insectivores found in Europe, Africa, Asia and Australia.¹⁸ They derive their name from the unique shape of their nose-leaf, a physiological adaptation that allows them to emit their echolocation calls through their nasal passages.¹⁹ The *Rhinolophus sinicus*, or Chinese horseshoe bat, weighs 10 to 13 grams and lives in southeastern China and along the Himalayas.²⁰

Echolocating bats like *R. sinicus* emit high frequency sounds from their larynx, and are able to use the echoes that return to them to perceive their surrounding and detect prey. Because most other animals cannot perceive frequencies as high as bats use, these frequencies have many advantages, which include being able to locate and approach small prey undetected while avoiding the attention of predators.²¹ Bats' brains have evolved complex systems for processing the immense amount of auditory data they receive every second while flying. Different species of bats use different frequencies, and they are able to distinguish each other by echolocation calls. This allows them to share ranges without interfering with one another while foraging.²²

In addition to navigation and hunting, bats' vocalisations also serve communicative functions. Horseshoe bats use different frequencies for social communication than for hunting, emitting 'short constant frequency communication calls' during social interactions, in contrast to the resting frequencies used in echolocation.²³ In addition to allowing communication between adult bats, these social vocalisations play an important role in raising young bats as well. Mother bats must leave their babies in the roost to hunt shortly after birth, and continue leaving the infants behind to hunt regularly as the babies mature. Because bats often roost in large colonies, the mothers need to be able to identify their babies from among many others upon their return. Baby bats are born with particular vocalisations, and a mother can pick her baby's cry out from hundreds of others.²⁴

The physiological strain of flight requires bats to have cardiovascular and respiratory systems that are far superior to those of most other mammals, as well as mechanisms

¹⁶Justin G. Boyles, Catherine L. Sole, Paul M. Cryan and Gary F. McCracken, 'On Estimating the Economic Value of Insectivorous Bats: Prospects and Priorities for Biologists', in Rick A. Adams and Scott C. Pederson (eds), *Bat Evolution, Ecology, and Conservation* (New York: Spring, 2013), p. 502.

¹⁷Altringham, *Bats*, p. 123.

¹⁸L. Liang, X. Luo, Z. Liu, et al., 'Habitat Selection and Prediction of the Spatial Distribution of the Chinese Horseshoe Bat (*R. sinicus*) in the Wuling Mountains', *Environmental Monitoring and Assessment* 191 (2019). <https://doi-org.ezproxy.bu.edu/10.1007/s10661-018-7130-4>.

¹⁹Altringham, *Bats*, p. 22.

²⁰University of Bristol, 'Rhinolophus sinicus: Chinese rufous Horseshoe Bat', <http://www.bio.bris.ac.uk/research/bats/China%20bats/rhinolophussinicus.htm>, accessed May 2020; Samantha Stoffberg, David S. Jacobs, Iain J. Mackie and Conrad A. Matthee, 'Molecular Phylogenetics and Historical Biogeography of Rhinolophus Bats', *Molecular Phylogenetics and Evolution* 54 (2010), pp. 1–9.

²¹Altringham, *Bats*, p. 68.

²²Y. Li, J. Wang, W. Metzner, et al., 'Behavioral Responses to Echolocation Calls from Sympatric Heterospecific Bats: Implications for Interspecific Competition', *Behavioral Ecology and Sociobiology* 68 (2014), pp. 657–67. <https://doi-org.ezproxy.bu.edu/10.1007/s00265-013-1680-9>

²³Ying Liu, Jiang Feng and Walter Metzner, 'Different Auditory Feedback Control for Echolocation and Communication in Horseshoe Bats', *PLoS One*, 24 Apr. 2013, <https://doi.org/10.1371/journal.pone.0062710>.

²⁴Altringham, *Bats*, p. 124.

for preserving energy while not hunting. Although a bat's resting heart rate is comparable to other mammals the same size, that rate can increase sixfold during flight.²⁵ In order to keep their muscles oxygenated during energy-intensive flying, bats have hearts three times the size of comparable mammals, larger lungs, and other physiological adaptations that improve the efficiency of both hearts and lungs.²⁶ In order to reduce the need for greater energy stores in the form of fat – which would increase the burden on bats in flight – they can also reduce their metabolic rates when resting by entering torpor.

Bats can conserve energy by becoming heterothermic, setting their body temperatures lower than normal. Many bats enter this state of torpor when roosting, only increasing their temperatures shortly before dusk to prepare for hunting. In temperate zones, bats may extend torpor in hibernation for weeks or even months when food sources are scarce.²⁷ Different species of bats require different ambient temperatures to maximise their energy savings during torpor. Because caves often contain a variety of microclimates with different temperatures, they are ideal locations for multiple species to roost together.²⁸ John Altringham notes that bats are 'undoubtedly the most gregarious and social of mammals' – they congregate not only with other members of their own species, but with many other species as well.²⁹ Female bats often form large nursery colonies where the sharing of body heat can reduce the cost of thermoregulation during foetal development and lactation.³⁰

Bats are known to be viral reservoirs, meaning they host viral populations – often without developing pathological symptoms themselves – that can be transmitted to other animals. Scientists have demonstrated that bats were the likely hosts of viruses responsible for several recent outbreaks among human populations, including Ebola, Severe Acute Respiratory Syndrome (SARS), Middle Eastern Respiratory Syndrome (MERS), and COVID-19.³¹ In spite of carrying significant viral loads, sometimes for their whole lives, bats rarely sicken from most of these viruses. Although bat immunology is still not fully understood, scientists have identified a number of different adaptations that allow bats to coexist relatively peacefully with these viruses. These include the increased metabolism and body temperature that occur during flight, innate systems for identifying and protecting cells from viral infections, and adaptive responses that control various viruses.³² In addition to their own immunity, bat sociality probably contributes to their status as a viral reservoir. Although no single bat yet studied had a virus identical to the SARS-CoV responsible for the 2003 SARS outbreak, all of the

²⁵Ibid., p. 47.

²⁶Ibid.

²⁷Ibid., pp. 98–9.

²⁸Ibid., pp. 138–9.

²⁹Ibid., p. 138; and Andrew T. Smith and Yan Xie, *Mammals of China* (Princeton: Princeton University Press, 2013), p. 232.

³⁰Altringham, *Bats*, p. 114.

³¹Kristen G. Anderson, Andrew Rambaut, W. Ian Lipkin, Edward C. Holmes and Robert F. Garry, 'The Proximal Origin of SARS-CoV-2', *Nature Medicine* 26 (2020), pp. 450–2, <https://www.nature.com/articles/s41591-020-0820-9>; and A. Banerjee, K. Kulcsar, V. Misra, M. Frieman and K. Mossman, 'Bats and Coronaviruses', *Viruses*, 11 (2019), p. 41, doi:10.3390/v11010041; Cara E. Brooks and Andrew P. Dobson, 'Bats as "Special" Reservoirs for Emerging Zoonotic Pathogens', *Trends in Microbiology* 23 (2015), pp. 172–80; and Michelle L. Baker and Peng Zhou, 'Bat Immunology', in Lin-Fa Wang and Christopher Cowled (eds), *Bats and Viruses: A New Frontier of Emerging Infectious Diseases* (Hoboken, NJ: Wiley Blackwell, 2015), pp. 396–419.

³²Brooks and Dobson, 'Bats as "Special" Reservoirs', pp. 178–9.

components of that virus were found among the various species of bats in a single cave in China. *R. sinicus* is one of the many species found there, and is 'regarded as the primary natural host of SARS-CoV'.³³ Similarly, scientists have not yet found a zoonotic virus identical to the SARS-CoV-2 responsible for COVID-19, but they found a 96 per cent match with a bat coronavirus.³⁴

Despite their effective immunological responses to viruses, bats are susceptible to other pathogens. Of recent concern, the fungus *Pseudogymnoascus destructans* causes white-nose syndrome (WNS), which has devastated North American bat populations. *P. destructans* has also been found in European and Asian bat populations, but in those locations it does not cause the widespread mortality seen in North America, indicating that the fungus was likely introduced by tourists exploring North American caves at the beginning of the century.³⁵ Since then, WNS has caused the death of millions of bats in North America by disturbing their hibernation and forcing them to deplete their fat stores before food returns in the spring.³⁶ Recently, North American bats have shown increasing tolerance of the fungus, indicating they may be adapting to its presence.³⁷

In addition to infection by novel pathogens to which they have not adapted, bats face a number of other threats. Although their nocturnal habits protect bats from many predators, they are still vulnerable to birds of prey, ground-dwelling predators including lizards and cats that can reach roosting bats, and humans who hunt bats for food in many areas.³⁸ Like many other animals, bats are threatened by loss and fragmentation of habitat resulting from land development, loss of roosting sites and threats from human infrastructure including roads and cars.³⁹ Population declines have also been linked to the pressures of air, water, and light pollution, as well as the effects of climate change.⁴⁰ Finally, many bat species are threatened by human persecution. Because fruit-eating and vampire bats pose an agricultural threat and bats can spread diseases, human beings sometimes respond by destroying habitats or taking other actions to control bat populations. Such responses are rarely species-specific and can cause significant declines in bat populations.⁴¹

³³Hu B., Zeng L.-P., Yang X.-L., Ge X.-Y., Zhang W., Li B., et al., 'Discovery of a Rich Gene Pool of Bat SARS-Related Coronaviruses Provides New Insights into the Origin of SARS Coronavirus', *PLoS Pathogens* 13(2017): e1006698. <https://doi.org/10.1371/journal.ppat.1006698>.

³⁴P. Zhou, X. Yang, X. Wang, et al. 'A Pneumonia Outbreak Associated with a New Coronavirus of Probable Bat Origin' *Nature* 579 (2020), pp. 270–3, <https://doi.org/10.1038/s41586-020-2012-7>. Although similarities have also been identified to a virus isolated from a pangolin, the direct precursor would need an animal host with 'a high population density (to allow natural selection to proceed efficiently)'. K. G. Andersen, A. Rambaut, W. I. Lipkin, et al., 'The Proximal Origin of SARS-CoV-2', *Nature Medicine* 26 (2020), pp. 450–2, <https://doi.org/10.1038/s41591-020-0820-9>. Because pangolins are solitary mammals, this makes bats the more likely zoonotic host.

³⁵Altringham, *Bats*, p. 254.

³⁶DeeAnn M. Reeder and Marianne S. Moore, 'White-Nose Syndrome: A Deadly Emerging Infectious Disease of Hibernating Bats', in Adams and Pederson (eds), *Bat Evolution, Ecology, and Conservation*, pp. 413–34; and Craig L. Frank, April D. Davis, and Carl Herzog, 'The Evolution of a Bat Population with White-Nose Syndrome (WNS) Reveals a Shift from an Epizootic to an Enzootic Phase', *Frontiers in Zoology* 16 (2019), p. 40, <https://doi.org/10.1186/s12983-019-0340-y>.

³⁷Frank et al., 'Evolution'.

³⁸Altringham, *Bats*, pp. 252–5.

³⁹Ibid., pp. 243–65.

⁴⁰Ibid., pp. 251–60.

⁴¹Ibid., p. 256.

Bat conservationists note that human relationships to bats are more complex than these responses take into account. Bats do not seek out human contact, so most human exposure to bat-borne pathogens occurs when human beings trade in wildlife or disturb bat habitats, either through agricultural expansion or entering the caves bats frequent.⁴² Furthermore, although insectivorous bats may host various viruses, they also help control disease-bearing insect populations that human beings are more likely to encounter in their daily routines.

Bats are important members of ecosystems around the globe. They control populations of insects, pollinate plants and disperse seeds. They are social creatures that do not limit their sociality to their own species, forming communities of many different species. Insectivorous bats like *R. sinicus* survive by consuming other creatures, and are in turn consumed by other predators as well. Although they have remarkable immune systems, they are susceptible to novel pathogens introduced by human beings. Human beings have long been fascinated by bats' abilities to both fly and navigate in the dark, but also fearful of bats' capacities to carry diseases. Bats are vulnerable to suffering that results from disease, predation and starvation. They also suffer from both intentional human actions designed to destroy their populations and unintentional human encroachment on their territories. Bats contribute to the flourishing of viruses, and thus unintentionally cause human suffering from various diseases. Bats cause the suffering of insects and other prey, but contribute to the flourishing of a variety of plants. Attention to the relationship between bats and other species, including human beings, reveals the complexities of creaturely interdependence. It indicates that vulnerability is inherent in the interdependent community of creation. We cannot consider the unique capacities of bats without some consideration of the insects upon which they feed, the predators that feed upon them and the viruses they host without succumbing to illness.

Divine faithfulness

All creatures are caught up in interdependent relationships with one another, relationships that make them dependent on other creatures for their flourishing but also vulnerable to suffering. Creaturely dependence on God is of a different order.⁴³ The Christian doctrine of creation from nothing holds that all of creation possesses intrinsic worth and that all of creation is dependent on God for existence. The idea that God delights in all creatures, whether they are treasured, feared or ignored by human beings, is found in both Christian and Jewish writings. The simplest formulation is found in Genesis 1:31: 'God saw everything that he had made, and indeed, it was very good.'⁴⁴ A corollary of the Christian assertion that God created the universe from nothing is that everything would descend into nothing but for the will of God holding it in existence, and that all things therefore remain dependent on God.⁴⁵ This means that the reliability of existence at both the individual level and the universal one are based on God's

⁴²Ibid.

⁴³See Schleiermacher's contrast of the relative dependence we experience as creatures in relationship with one another and our absolute dependence on God. Friedrich Schleiermacher, *The Christian Faith: A New Translation and Critical Edition* (Louisville, KY: Westminster John Knox Press, 2016), §4.4.

⁴⁴This theme is taken up in other biblical writings, including the Psalms, Job and the Gospels, notably Matt 10:29 and Luke 12:6.

⁴⁵See Athanasius' argument that, being called from non-existence, human beings would 'be everlasting bereft even of being' if they were separated from God. Athanasius, 'On the Incarnation', in Edward R. Hardy (ed.), *Christology of the Later Fathers* (Louisville, KY: Westminster John Knox Press, 2006 [1954]), p. 59.

faithfulness to creation as a whole and to individual creatures within it. Both bats and human beings can rely on the physical laws that govern our universe because God does not change them, but rather holds everything in existence through them. Divine faithfulness preserves the being of all things as they come into being, live, grow, multiply, die and pass on into the bodies of other creatures.⁴⁶

Creaturely dependence means that God willingly preserves in existence all of those things that cause creaturely suffering as well as those things necessary for creaturely flourishing. God holds in existence the water, air, insects, mates and roosts that horseshoe bats need to survive. God also holds in existence the predators, *P. destructans*, and other things that cause chiropteran suffering. Divine faithfulness extends to bats, viruses, cats and human beings as they contribute to the flourishing and suffering of creation. Although some human beings might prefer that God stop holding bats and coronaviruses in existence, from the perspective of horseshoe bats, human beings and birds of prey are the entities that could disappear to the benefit of all. Such divine intervention would allow them to flourish: hunting, breeding, hibernating and raising their young in greater safety. Whether an entity is helpful, harmful or indifferent depends on the perspective from which such evaluations are made. No created being has the perspective of the divine.⁴⁷

If Christian assertions that the material world is ‘very good’, that all of creation glorifies the Creator and that God’s presence and providence extend to all creatures are taken seriously, then *R. sinicus*, *P. destructans* and the SARS-CoV-2 virus are also good, also glorify the Creator, and God’s presence and providence extends to them as well. From an ecomimetic perspective, the question of why God would allow a virus to kill hundreds of thousands of human beings cannot be severed from the questions of why God would allow human tourists to spread *P. destructans* to North American bat populations and why God would allow human beings to hunt and kill horseshoe bats. Theoretically, God could prevent all of this by ceasing to hold creation – or parts of it – in existence. Such a response, however, would contradict God’s faithfulness and loving-kindness to all of creation.

Understanding God’s faithfulness in the midst of the vulnerability grounds a theological understanding of suffering in three ways. First, it acknowledges that God’s love and faithfulness extends to every individual creature as well as the whole of creation. In an interdependent world, creatures cause the suffering of other creatures, both intentionally and unintentionally. However, this feature of creaturely finitude does not provoke divine unfaithfulness. God does not intervene, constraining creaturely freedom or destroying certain creatures for the benefit of others. This supports process theologians’ objections to classical portraits of God as the omnipotent director of all things that happen, but it grounds the reality of suffering in divine faithfulness rather than in divine impotence.⁴⁸ An appeal to divine faithfulness to creation does not absolve God from having created a world in which interdependence leads to suffering, but it resonates

⁴⁶This does not exempt living creatures from death, but death is not the same as non-existence. For a fuller discussion of divine faithfulness, see Rebecca L. Copeland, *Created Being: Expanding Creedal Christology* (Waco, TX: Baylor University Press, 2020), pp. 57–62.

⁴⁷For a related argument on the perspectival divide between human beings and the divine, see Copeland, *Created Being*, p. 52.

⁴⁸For process critiques, see John B. Cobb, Jr. and David Ray Griffin, *Process Theology: An Introductory Exposition* (Louisville, KY: Westminster John Knox Press, 1976), pp. 9, 52–4; and Charles Hartshorne, *Omnipotence and Other Theological Mistakes* (Albany, NY: State University of New York Press, 1984), pp. 10–26.

with theodicies that argue there was no other way for God to have created a world, that this is the 'best of all possible worlds' or that suffering was a necessary risk to realise a greater good.⁴⁹ This does not, however, mean that God is indifferent to creaturely suffering.

Second, this understanding supports Christian assertions of divine solidarity with suffering creatures. Christians claim that in the incarnation, the Word became a creature like us, vulnerable to the same kinds of suffering that we are. In addition to this embodied solidarity with creaturely suffering, Jesus taught that God is intimately related to all suffering creation, that even the sparrow does not perish apart from God (Matt 10:29). This means that God is with every creature, closer than its own breath, holding it in being even in its deepest affliction.⁵⁰ God suffers with all of creation groaning, never turning away or refusing to see the horrors that we must face. God's presence penetrates to the heart of the tragic side of interdependence, accompanying us in our suffering.

Finally, this approach invites human beings to expand our perspectives and our sympathies by identifying with others and acknowledging that their suffering also matters to God. It separates suffering from sin and spiritual growth, indicating that suffering is not orchestrated for the benefit of some at the expense of others. It instead portrays suffering as a symptom of the vulnerability of interdependence that all creatures share. We cannot dismiss another's suffering as divine punishment for sin, but should rather perceive God's faithful presence with all creatures in the midst of their suffering.

God's faithfulness to all of creation provides the foundation for a theological understanding of suffering built on the idea of a God that delights in and loves all parts of creation. This can be a challenge when what God loves is the very thing threatening our own flourishing. Accepting such an argument invites us to look beyond our own ego-centric perspectives, to develop more expansive understandings of the interdependencies of creation in order to approach a beatific vision of seeing the vulnerability and beauty of this world in ways a little more similar to how God might see it. Rather than cultivating indifference to suffering, this approach expands our sympathies to accommodate the suffering of creatures we often overlook. This theoretical approach to understanding suffering should not lead human beings to passively accept situations of suffering, however. It instead offers us grounds for responding to creaturely suffering from our own particular creaturely locations.

Anthropic finitude in an interdependent creation

As a corollary of upholding the absolute dependence of all creatures on God, the doctrine of creation from nothing also asserts that there is an ontological distinction between God and all of creation. Although creatures are embedded in interdependent relationship *with* one another, no creature is responsible for holding all of creation in existence. Those who worship the Creator God may be called to love all of creation as God does, but we must also recognise our position *as* creatures *within* creation. This is actually a liberating position that allows us to intervene in suffering in ways

⁴⁹Gottfried Leibniz, 'Best of All Possible Worlds', in Michael L. Peterson (ed.), *The Problem of Evil: Selected Readings*, 2nd edn (Notre Dame, IN: Notre Dame University Press, 2017), pp. 50–8; and Henry Schuurman's description of the 'Greater Good Principle' in 'Theodicy', in Paul Barry Clarke and Andrew Linzey (eds), *Dictionary of Ethics, Theology, and Society* (London: Routledge, 1996), pp. 816–19.

⁵⁰The book of Job strongly implies that God midwives the birth of wild animals, mentioning mountain goats and deer in particular. See Job 39:1–9.

that a universally faithful God does not. Embracing our anthropic finitude – in an examined and intentional way – is more faithful than trying to adopt a divine position vis-à-vis the rest of creation. Accepting that we are creatures rather than gods is a necessary precursor to ethical human action. This is not to say that we should disregard the suffering of other creatures, but that a ‘chastened anthropocentrism’ offers an appropriate framework for ethical decision-making in the face of suffering. The desire to alleviate suffering is a good part of our creaturely finitude.⁵¹ An appreciation of divine love for all of creation encourages us to extend that desire to the alleviation of other creatures’ suffering as well.

For Christians, attention to the Gospels’ accounts of Jesus’s life justifies our efforts to alleviate suffering. As a human being, Jesus’s own survival was just as intertwined in the suffering of other creatures as ours is, as can be seen most explicitly in the fish he consumed and fed to others (John 21:9–14). Nevertheless, Jesus worked to alleviate suffering when possible. He responded to the suffering of hunger in the feeding of the multitudes (Matt 14:13–21 and 15:29–39; Mark 6:30–44; Luke 9:10–17; John 6:1–15), of illness in the curing of leprosy and other diseases (Matt 8:1–4), of social ostracism in befriending the woman at the well (John 4:5–26) and of violence when he prevented the stoning of the woman caught in adultery (John 8:1–11). In Matthew 25, Jesus admonished his followers to do likewise – feed the hungry, welcome the stranger, clothe the naked and visit the sick and imprisoned (Matt 25:31–46). Like Jesus, human beings survive off the suffering of other creatures, but also like Jesus we have the capacity to respond to suffering in constructive ways.

Divine faithfulness means that God does not kill the fish to feed the fisher, nor smite the violent to prevent further violence. It does mean that God is present with the fish, the fisher, the criminal and the victim, mourning their suffering and delighting in their flourishing in the interdependence of the created world. Faithful creaturely finitude means that those seeking to emulate Jesus should similarly love all of creation, recognise that vulnerability is inevitable and yet work to alleviate suffering when possible. Expanding our empathetic capacities and our theological imaginations by paying attention to the lives of other beings does not require us to stop caring for ourselves and others of our species. It does, however, invite us to consider the welfare of other creatures in doing so.

To return to the case of human–bat relations, this means recognising that our interactions with horseshoe bats presents a threat to both bats and human beings. It also means recognising that many creatures are dependent on bats. Finally, it means remembering that all of those creatures we have examined – humans, bats, viruses, fungi and insects – are beloved by God. Although one might be tempted to eradicate populations of horseshoe bats because of their capacity to spread coronaviruses, this type of command-and-control response denies both the intrinsic and instrumental value of these creatures. Theologically, it smacks of idolatry, an attempt to overstep our creaturely limitations and decide which creatures should be permitted to exist.

A more faithful response to the vulnerabilities of interdependence involves loving those creatures that threaten us as well as those that benefit us. It requires considering

⁵¹The two prongs of this approach (understanding the vulnerability of created interdependence and seeking to alleviate suffering when possible) draws on and resonates with F. Powe’s tragic-liberation model, although because of my focus on suffering rather than evil this project does not delve into the issues of intra-human violence, justice and liberation that he does. F. Douglas Powe, Jr., ‘A Tragic-Liberation Model: Hurston’s Perspective on Life and Systematic Evil’, *Black Theology* 5 (2007), pp. 81–93.

how our own actions contribute to the threats we perceive, and how we might lessen those threats with the least diminution of other-creaturally flourishing possible. In our relationship with *R. sinicus* and other bats, such a response would involve reducing our exposure to the multitude of viruses they carry in ways that benefit both bats and human beings. This would entail placing limits on our own behaviour by limiting encroachment into bat habitats in order to reduce both human and non-human suffering. This would benefit human beings, by reducing the likelihood of infections while maintaining the population of helpful insectivores, and it would benefit bats, by reducing their exposure to human-borne pathogens and development that interferes with their hunting and migration. We can both resist our own suffering from diseases and avoid becoming the causes of massive other-than-human suffering by embracing our creaturely finitude within the context of an interdependent world.

Conclusion: responding to suffering

This project should be understood as theodicy in its broader usage. It does not seek to explain the origin of either suffering or evil. It largely avoids the topic of moral evil, although the arguments advanced can be extended to apply to moral evil as well. Instead, it offers a way of understanding suffering and its relationship to creaturely interdependence that promotes compassion for suffering creatures and encourages constructive human action to relieve this suffering. Human beings are not the impartial arbiters of good and evil, responsible for holding the world in existence. We are finite creatures loved by a faithful God, dependent for our own flourishing on the lives of others who are also loved by the same faithful God. We can seek to minimise the suffering our species introduces into the world – both through our intentional actions and the unintended consequences of our unreflective practices – while also seeking to alleviate the suffering our own species endures.