

The Canadian Field-Naturalist

Book Reviews

Book Review Editor's Note: *The Canadian Field-Naturalist* is a peer-reviewed scientific journal publishing papers on ecology, behaviour, taxonomy, conservation, and other topics relevant to Canadian natural history. In line with this mandate, we review books with a Canadian connection, including those on any species (native or non-native) that inhabits Canada, as well as books covering topics of global relevance, including climate change, biodiversity, species extinction, habitat loss, evolution, and field research experiences.

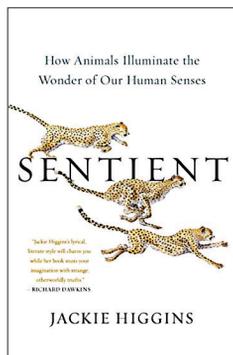
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BIOLOGY

Sentient: How Animals Illuminate the Wonder of our Human Senses

By Jackie Higgins. 2021. Atria Books. 320 pages and 13 black and white illustrations, 37.00 CAD, Hardcover, 17.99 CAD, E-book.

This book is about sentience and the senses that comprise it. The author, Jackie Higgins, spins a wonderful tapestry of all the senses you have heard of and several more that you may not have thought about. Each sense, of the twelve listed, is expounded in a chapter that uses as its gateway the sentience of a particular species. Perhaps unsurprisingly, owls exemplify hearing and bloodhounds smell, while a sense of direction (ability to navigate) is demonstrated by Bar-tailed Godwit (*Limosa lapponica*), the amazing endurance of which allows it to navigate non-stop from Alaska to New Zealand. Others, however, are much less obvious: sense of colour is exemplified not by the peacock but by Peacock Mantis Shrimp (*Odontodactylus scyllarus*), an animal that I had not even heard of until Higgins brought it to my attention, but which I recently encountered on a coral reef off Sulawesi, Indonesia, much to my delight. Apart from an amazing colour perception, based on not three (as in humans) but 12 different colour receptors, the mantis shrimp also has the distinction of having the fastest strike of any animal (according to *Guinness World Records 2020; 2019*, Guinness World Records Limited), and they are known to smash the glass of their aquaria on occasion. I kept a respectful distance from the one I found in Indonesia.



Another mind-jolting exemplar, in this case for “pleasure and pain”, is Common Vampire Bat (*Desmodus rotundus*)—hardly a species that you would associate with pleasure. But vampire bats will gladly share a blood meal among adults in exchange for the comfort of another’s touch. This touch comes in the form of allogrooming, the licking, nibbling, and nuzzling that one bat performs on another. In addition to describing this fact of nature, Higgins uses it as a springboard for discussion of the importance of touch to humans, noting that we use the phrase “it touched me” to denote the arousal of any emotion, and highlighting the importance of touch among our array of senses—something that became excruciatingly clear during the distancing phase of the recent COVID-19 pandemic.

Other species used as exemplars are the four-eyed Brownsnout Spookfish (*Dolichopteryx longipes*) for ‘dark vision’, Star-nosed Mole (*Condylura cristata*) for ‘touch’, goliath catfishes for ‘taste’, Giant Peacock Moth (*Saturnia pyri*) for ‘desire’, Cheetah (*Acinonyx jubatus*) for ‘balance’, trashline orb-weaver spiders (*Cyclosa* spp.) for ‘time’, and Common Octopus (*Octopus vulgaris*) for ‘body’. The book incorporates a strong human element by telling the story of each example species through the history of its discovery and the research conducted on its senses. Higgins has interviewed many of the researchers she writes about and has visited their research facilities to see, not only the animals concerned, but also the ways in which their senses have been tested and described. This element of the book makes it clear how much

serendipity is involved in scientific discovery, as well as what prolonged and tedious hard work is sometimes necessary to tease out answers to simple questions we may pose about the acuity of the senses.

This is possibly the best popular science book I have read since David Quammen's *The Song of the Dodo* (1997, Touchstone)—and I read plenty of

popular science! It is beautifully written, contains a plethora of information on every aspect of sentience, and is bang up-to-date in terms of the scholarship on show. It is hard to see where popular science can go to improve on this.

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