

Publication

The Last Butterflies: A Scientist's Quest to Save a Rare and Vanishing Creature by Nick Haddad (2019) 264 pp., Princeton University Press, Princeton, USA. ISBN 978-0-691-16500-4 (hbk), USD 24.95/GBP 22.00.

I was very pleased when I was asked to review this book. I may not be a butterfly fan, but I am an entomologist interested in conservation and science communication. This book addresses both of these interests.

When reviewing a book, I have a short mental list of questions that I answer as I read it.

1. Would I buy it?
2. Would I recommend a colleague to buy it?
3. Would I recommend it to students as worth buying?
4. Would I ask the library to buy it?
5. Would I recommend anyone else to buy it?

All these have the same subsidiary questions attached to them: If not, why not, and if yes, why?

They say you shouldn't judge a book by its cover but first off, I would like to say that the cover of this book, although starkly simple and largely white, is very effective and strangely attractive. I would advise potential owners not to carry it around for a prolonged time unprotected; my copy became rather grubby. What about the contents? Nick Haddad describes the life and death stories of eight butterfly species, seven from North America and one from the UK, six of which he has personally worked on or at least encountered. This is what makes this book such a great read: hearing about these butterflies and the immense efforts involved in their conservation directly from the protagonist had a huge impact on this reader, at least.

As someone who has spent a lot of time in the field I really feel the frustration that at times Nick expresses when wondering why, despite their best efforts, the populations of the evocatively named, St Francis' Satyr *Neonympha mitchellii francisci*, failed to respond to his team's conservation efforts, and the epiphany brought about by his observations of the effects of artillery fire on the butterfly outside his conservation sites. As the subheading in that chapter points out, sometimes you have to kill butterflies to save them. Sometimes conservation needs to disturb the status quo; it is not always about preservation. In this case the butterfly relied on dynamic and sometimes destructive processes, including a surprising interaction with beavers, to prevent plant succession degrading the butterfly's habitat.

Not all the stories Nick tells are destined to have such a happy ending. The Miami blue, *Cyclargus thomasi bethunebakeri*, is one such example. A once common sight in southern Florida (Nick describes it as the butterfly equivalent of a weed), it declined almost to extinction in the late 1980s and by 1992 was present in only one isolated island population off the eastern coast of Florida. Breeding programmes and reintroductions failed to remove the species from the list of critically endangered species because the problem was not only attributable to habitat degradation by the increasing urbanization of the area but also to climate change, resulting in more frequent and intense storms causing cataclysmic damage to the few remaining islands that should provide refuges for the butterflies. Despite now having a great understanding of the natural history of the species, Nick's assessment of its future is bleak. This species is almost certainly doomed to become extinct.

The message that emerges very strongly from this book is that habitat degradation, fragmentation and destruction are the biggest perils that all these species face and that before conservation efforts can be successful a full understanding of the natural history, not just of the species in danger but of the areas they inhabit, is essential. Conservation is hard work and requires dedication, adequate funding and a great deal of cooperation.

Returning to my original five questions:

1. *Would I buy it?* Most definitely; this is a fantastic read told in a personal and engaging manner. My only quibble is that I would have liked to see more photographs of the field sites.
2. *Would I recommend a colleague to buy it?* Yes, for exactly the same reasons.
3. *Would I recommend it to students as worth buying?* In terms of being of direct relevance to their studies, and in this case I am thinking of my MSc entomology students, probably not. But I have told them to put it on their Christmas or birthday wish lists. The description of the work involved in insect conservation and research is something that will be of great use to them in their future careers.
4. *Would I ask the library to buy it?* Yes, and I have done so.
5. *Would I recommend anyone to buy it?* Yes, if they have an interest in natural history. This is a very accessible book, as well as being very tactile, and definitely worth the investment.

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