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Who is afraid of insect capital? Rethinking the role of nature in economic history.

The natural capital of our planet is in decline. Species diversity and abundance are shrinking.¹ This erosion of biodiversity is not only an ecological crisis; it is also a crisis of perception and measurement. While public awareness and media coverage have grown, they tend to focus on large, charismatic species, such as wolves or black-tailed godwits.² As a result, declines among less ‘cuddly’ animals such as insects, spiders, fungi and algae go largely unnoticed.³ This is reinforced by the negative reputation of many insect species as economic pests or as posing health risks. Crucially, this selective attention extends to academic research and conservation funding. Compared with other species, the historical decline in diversity and biomass of insects has received relatively little attention.⁴ These declines are driven by habitat destruction, pesticides, urbanisation and climate change.⁵ This neglect is striking given insects’ fundamental ecological importance in pollination, soil fertility, food webs, biological control and decomposition.

Historically, the situation is notably different. Pre-modern sources reflect that insects were abundant and human-insect relations central to everyday rural life. This gap underscores the uncertainty surrounding past insect populations and their ecological and economic significance. Although pre-modern actors did not conceptualise insects in terms of ‘capital’, this essay reconstructs their historical value by analysing daily human-insect interactions. By examining historical sources through the new analytical lens of ‘insect capital’, the essay argues that it is possible to reconstruct how these interactions evolved and how it shaped the presence and economic and ecological significance of insect capital.

The concept of ‘shifting baselines’ attracted a lot of attention in this context.⁶ Ecologists and historians have explicitly sought interdisciplinary collaboration to address this, as the concept

¹ IPBES, “Global Assessment Report on Biodiversity and Ecosystem Services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services,” eds. Eduardo Brondizio et al. (Zenodo, 2019).; IUCN, *The IUCN Red List of Threatened Species*. International Union for Conservation of Nature. 2024, accessed 23/01/2026, <https://www.iucnredlist.org>.; Robyn E. Shaw et al., “Global Meta-Analysis Shows Action Is Needed to Halt Genetic Diversity Loss,” *Nature* 638, nr. 8051 (2025): 704–10.

² Julien Troudet et al., “Taxonomic Bias in Biodiversity Data and Societal Preferences,” *Scientific Reports* 7, nr. 1 (2017): 9132.

³ Charlotte Klein, “Plant- en diersoorten waarmee het slecht gaat missen een fanclub,” *NOS Nieuws*, 22/05/2025, accessed 21/01/2026, <https://nos.nl/collectie/13871/artikel/2568238-plant-en-diersoorten-waarmee-het-slecht-gaat-missen-een-fanclub>.

⁴ Benoit Guénard et al., “Limited and Biased Global Conservation Funding Means Most Threatened Species Remain Unsupported,” *Proceedings of the National Academy of Sciences* 122, nr. 9 (2025): e2412479122.

⁵ Mumuni Abudulai et al., “Agricultural Intensification Causes Decline in Insect Biodiversity,” in *Global Decline of Insects*, ed. Hamadttu Abdel Farag El-Shafie (IntechOpen, 2022).; Keith W. Sockman, “Long-term Decline in Montane Insects under Warming Summers,” *Ecology* 106, nr. 9 (2025): e70187.

⁶ First introduced by marine Biologist Daniel Pauly in, “Anecdotes and the Shifting Baseline Syndrome of Fisheries,” *Trends in Ecology & Evolution* 10, nr. 10 (1995): 430. The phenomenon describes how collective

demonstrates the necessity of historical perspectives for understanding ecological crises. This yielded interesting results and a better understanding of past species presence.⁷ Nonetheless, the meaning of ‘biodiversity’ is frequently reduced to the mere presence or absence of particular species. As a result, historical information is translated into a point of data on a map. This approach risks not taking into account crucial context information and source criticism. To fully understand historical ecosystems, we must consider ecosystems and their diversity as a whole, not only individual species.

A similar reductionism can be observed in economic historiography. Economic development is primarily measured through indicators such as GDP, market integration, crop yields and wages. Although highly relevant, the role of nature is largely erased. Even when included, attention tends to focus narrowly on natural resources. This overlooks a fundamental point: humans and their economic systems are themselves part of nature. This insight has been articulated by Partha Dasgupta through the concept of ‘natural capital’.⁸ Natural capital refers to the stock of the world’s ecosystem services and goes beyond the supply of goods that we can harvest or extract (e.g., timber) and incorporates maintenance and regulating services (e.g., pollination) and the supply of cultural services (e.g., recreation). Although societies depend entirely on maintenance and regulating services, these processes remain largely invisible and therefore underestimated.⁹ The case of the highly important, yet silently vanishing, insects exemplifies this particularly well.

Applying natural capital to insects provides a lens to examine the historical ‘insect capital’. The essay draws on the *Staat van den Landbouw* as a revealing source for examining insect presence and socioeconomic impact.¹⁰ These agricultural summaries were published between 1806 and 1828 and contain a section, ‘natural disasters and vermin’, that documents agricultural damage caused by various animals.¹¹ The source shows how caterpillars, larvae, beetles and other insects highly influenced the agricultural economy, posing a daily concern for rural communities. Descriptions of insects ‘darkening the sky’ or the destruction of 24 million Maybugs testify their abundance and a perceptual framework in which insect life was

knowledge of nature’s richness fades over generations because new generations do not know what the environment looked like in the past and therefore perceive the conditions of their own time as ‘normal’ and use them as a baseline. See Masashi Soga and Kevin J Gaston, “Shifting Baseline Syndrome: Causes, Consequences, and Implications,” *Frontiers in Ecology and the Environment* 16, nr. 4 (2018): 222.; Loren McClenachan, Francesco Ferretti and Julia K. Baum, “From Archives to Conservation: Why Historical Data Are Needed to Set Baselines for Marine Animals and Ecosystems,” *Conservation Letters* 5, nr. 5 (2012): 349.

⁷ Simon Pooley, “Historians Are from Venus, Ecologists Are from Mars:,” *Conservation Biology* 27, nr. 6 (2013): 1481–83.; Thomas van Goethem and Jan Luiten van Zandem, “Who Is Afraid of Biodiversity? Proposal for a Research Agenda for Environmental History,” *Environment and History* 25, nr. 4 (2019): 613–47.; Marc Argeloo, *Natuuramnesie: hoe we vergeten zijn hoe de natuur er vroeger uitzag* (Amsterdam: Atlas Contact, 2022).

⁸ Partha Dasgupta, *On Natural Capital: The Value of the World around Us* (London: Witness Books, 2025).

⁹ Dasgupta, *On Natural Capital*, 21-31.

¹⁰ Jan Kops, *Staat van den landbouw in het Koninkrijk der Nederlanden 1806-1828*.

¹¹ Compiled by commissioner of agriculture Jan Kops (1765-1849) and published with the exception of 1811–1813 due to the Napoleonic wars ; J. Baert, *Jan Kops: pionier van Hollands landbouw* (’s-Gravenhage: Martinus Nijhoff, 1943).

impossible to ignore.¹² Although historical actors did not interpret this in ecological terms, the fluctuations and abundance recorded allow us to assess the vitality of insect populations and their responsiveness to environmental and climatological conditions.

Approaching insects through the lens of natural capital enables historians to move beyond static reconstructions of species distribution towards a more dynamic understanding of ecological interaction. When qualitative historical information is reduced to a number, much of the socioeconomic and ecological context that shaped human–insect relations risks being lost. While ecologists can demonstrate that insect populations are declining, historians can contextualise and explain when, why and how this decline unfolded over time. Recent tools and concepts developed by ecologists and environmental economists create new momentum for historians to extend their perspective from natural resources to natural capital.

¹² *Staat van den Landbouw in het Koninkrijk der Nederlanden gedurende den jare 1819*, eds. Jan Kops ('Sgravenhage: ter Algemene Landsdrukkerij, 1822), 133.; "Staat van den Landbouw in het Koninkrijk van Holland, gedurende den jare 1808, opgemaakt in Zomermaand 1810" in *Magazijn van Vaderlandschen Landbouw*, vol. 6, eds. Jan Kops (Haarlem: A. Loosjes, 1810), 140.