

## Beyond the needle *Reimagining firebugs through artistic exploration*

CHARLOTTE DORN

This article explores the limitations of traditional scientific representations of firebugs and argues for a more dynamic, artistic approach to the study and representation of these insects. Scientific images, often based on deceased specimens, focus on anatomical precision and standardised views, which can reduce firebugs to static, lifeless models, overlooking their individuality, vitality and ecological interconnectedness. In contrast, artistic research can highlight the sentient and relational aspects of insects, in line with contemporary biological perspectives that see organisms as dynamic, processual beings embedded in ecosystems. Using methods such as life observation and drawing, the author demonstrates how art can foster a more empathetic understanding of firebugs. This creative approach balances scientific inquiry with a holistic and compassionate portrayal of these often overlooked creatures, encouraging both scientific and ethical engagement.

Keywords: insects, firebugs, drawing, printmaking

*Este artigo explora as limitações das representações científicas tradicionais dos percevejos de fogo e defende uma abordagem artística mais dinâmica para estudar e retratar esses insetos. As imagens científicas, muitas vezes baseadas em espécimes mortos, focam na precisão anatômica e em visões padronizadas, o que pode reduzir os percevejos de fogo a modelos estáticos e sem vida, ignorando sua individualidade, vitalidade e interconexão ecológica. Em contraste, a pesquisa artística pode destacar os aspectos sensíveis e relacionais dos insetos, alinhando-se com as perspectivas biológicas contemporâneas que vêem os organismos como seres dinâmicos e processuais, inseridos nos ecossistemas. Através de métodos como a observação da vida e o registro em desenho, a autora demonstra como a arte pode promover compreensões mais profundas e empáticas dos percevejos de fogo, capturando seus movimentos, comportamentos e individualidade. Essa abordagem criativa equilibra a investigação científica ao oferecer uma representação holística e compassiva dessas criaturas frequentemente negligenciadas, promovendo tanto o envolvimento científico quanto o ético.*

*Palavras-chave: insetos, insetos de fogo, desenho, gravura*

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## THE NEED FOR NEW IMAGES OF FIREBUGS AND THE IMPORTANCE OF ARTISTIC RESEARCH ON INSECTS

When insects are encountered in a scientific context, they are usually removed from their natural environment, captured or killed and preserved. They are mounted on a needle and, after the body has been dissected for DNA analysis, placed in a box with other specimens. The deceased or captured beings then form the basis of scientific representations of insects. Such representations of crawling creatures are characterised by precision, anatomical detail and standardised views to help identify and classify the animals or to study individual features such as wings, mouthparts or reproductive organs. Homogenous angles such as dorsal, ventral and lateral perspectives are used to show body symmetry and structural details. Images of insects are also often accompanied by descriptions and symbols to help structure the animal body. The pictures typically have a neutral background in white or black and the lighting is usually even and diffused to enhance clarity and precision. Diagrams or cross sections of internal organs or systems are also common.

The scientific value of such precise and detailed images is undeniable, enabling identification or taxonomy and ensuring that knowledge of insects can be systematically built upon and verified. However, they also have certain weaknesses:

“Biological imagery both informs and is informed by the orthodox treatment of biological systems as things. Traditional two-dimensional representations of biological entities or activities almost inevitably present a snapshot of dynamic reality and can easily encourage inappropriately static interpretations of the phenomena depicted”. (Dupré, Andersen Tempini 2023: 1)

Because images of insects in a scientific context are almost all based on dead specimens, they don't convey the actual liveliness of the animals. The static, standardised views universalise whole species into one model, unable to show the great diversity of existences. Also, the dissection and representation of separate body parts of an insect reinforces the prejudice of these beings as interchangeable, lifeless, mechanical things. By isolating organisms from their environment and interactions, by depicting them as fixed, discrete entities as in anatomical drawings, it is easy to overlook the dynamic, relational and processual nature of existence. Karen Barad, for example, emphasises through her concept of *agential realism* (Barad 2007: 140) that entities do not pre-exist their interactions, but emerge through relationships and intra-actions with their surroundings. Traditional

scientific representations, by fragmenting insects into isolated specimens and body parts, obscure the entangled, dynamic processes through which insects live. Similarly, Jane Bennett's (2009) *vital materialism* challenges a mechanistic perspective by arguing that all matter possesses vitality and agency. Static, objectifying images of insects therefore risk obscuring their active participation in ecological processes. Reducing insects to mere specimens disregards their capacity to affect and be affected by the world around them, reinforcing a perception of them as insignificant, replaceable and devoid of their own trajectories of existence. Moreover, scientific labels and structured descriptions encourage categorization rather than open engagement. Clear labels can cause the image to lose its ambiguity, and can also distract from the fact that much is still unknown or uncertain.

Therefore, although scientific representations are crucial for classifying and studying creatures, they should be balanced by images that focus on the lively, dynamic and individual aspects of insects. Artistic representations in particular can reveal the complexity of biological processes and the interconnectedness of organisms within ecosystems.

This need for diverse representations aligns with contemporary biology's shift from viewing organisms as discrete entities to understanding them as dynamic, symbiotic systems. The concept of holobionts directly challenges the rigid framework of traditional representations by redefining organisms as multi-species assemblages shaped by symbiotic relationships (Andersen-Tempini: 2023: xx) A holobiont is an organism composed of multiple species, existing as a single, integrated system. A cow, for example, relies on gut microbes to digest grass, illustrating mutual scaffolding (Chiu & Gilbert, 2015, 2020)<sup>1</sup>.

Similarly, organisms are now seen as developmental, metabolic, and symbiotic processes rather than fixed structures. This shift demands new visual approaches to represent biological relationships more accurately (Andersen-Tempini 2023: 3).

The question now is how to represent the relationships between multiple such processes. (Gilbert, p. 2023: xx)

### ARTISTIC REPRESENTATIONS AND CHALLENGES OF COMBINING SCIENTIFIC AND ARTISTIC IMAGERY

Such new images should be based on actual encounters with living insects in their environment, engaging with them through observation rather than capture. Meeting crawling creatures makes you aware of the differences between distinct beings of a species and the way they engage with the world around them. It encourages experimentation with other-than-hu-

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<sup>1</sup> Andersen-Tempini (2023). *Drawing Processes of Life*. Bristol: Intellect Books. P. xx)

man, language-centred modes of communication (Andersen 2017: 21) and explorations of behaviors and interactions. Within the creative practice, observing the lives of firebugs is a way of working against the problem addressed in the book *The feminist care tradition in animal ethics* (2007). One problem with ethical reasoning is precisely the lack of physical and emotional involvement:

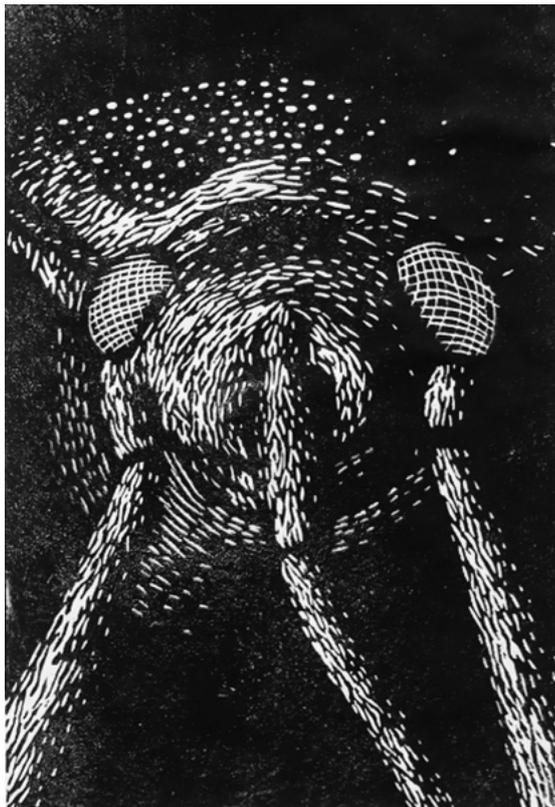
“When we are physically removed from the direct impact of our moral decisions - that is, when we cannot see, smell, or hear their results - we deprive ourselves of important sensory stimuli, which may be important in guiding us in our ethical choices.” (Donovan & Adams 2007: 49).

be fully understood without acknowledging and representing its interactions with microbes, plants and other insects, all of which co-constitute its existence. Representing animals as sentient beings also encourages a more compassionate and ethically aware approach to studying and interacting with them. It can evoke curiosity, empathy and appreciation for these creatures. This emotional connection can be a powerful tool in fostering a sense of responsibility and consideration.

In my research, I explored various visual strategies in drawing and printmaking, ranging from figuration to abstraction.

Figure 1 shows a portrait of a firebug. Because portraiture is a mode of representation usually used to

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To contribute to a holistic understanding of insects, visual representations should emphasize behavior, individuality, and process. This approach is consistent with the concept of holobionts, where living things are dynamic, symbiotic processes embedded in ecological networks. For example, while anatomical drawings of dissected specimens show form, more dynamic images reveal function: seeing the detailed anatomy of an insect's wings is important, but observing those wings in flight shows purpose and gives meaning. Similarly, the existence of a firebug cannot

show individuality, representing firebugs in this way could help them to be perceived as subjective beings.

The second visualisation stems from actual observations of insects. The subject is represented within an environment, interacting with and existing through it. Such a narrative form, in which firebugs are depicted in their natural habitat, is a way of showing them as agents of their own lives.

Abstraction is interesting because we tend to think of animals as a closed form, beings separated from their surroundings through their skin. But this

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Fig. 1 Linocut,  
10,5x14,8cm, 2024  
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Fig. 2 Linocut,  
10,5x14,8, 2024.  
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separation is not really accurate. Insects are not only holobionts, but also symbionts, existing in co-dependent relationships and there is constant exchange between the 'inside' and the 'outside'. Breathing for example, reveals such porosity of animal bodies. In order to make visible this fundamental intra-relatedness of things, an abstract representation may be more appropriate. In figure 3, it occurs by dissolving the boundaries created by the skin, reflecting the fluidity of the entanglements between actants, making visible the ways in which firebugs are part of an ongoing exchange of matter.

The final visual explorations consist of imagining the perspective of a firebug. this fourth picture is developed through a process of empathising, trying

provide the detail and structure required for classification or anatomical study. Nevertheless, the subjective element in artistic images does not necessarily undermine their value. It can offer an alternative perspective that can complement, not replace, scientific representation. Art has the potential to expand the way in which insects are perceived, making visible aspects of their existence such as process, intra-action and individuality.

Firebugs were chosen for this study precisely because they are familiar yet overlooked.

Firebugs have not been extensively bred, yet they live in central Europe for thousands of years and can be seen in rural areas, towns, gardens and along roadsides, especially during the summer months.



to step into the shoes of a firebug and understand their vision.

By exploring these different visual approaches, one can engage with multiple levels of understanding firebugs. However, tensions can arise when attempting to bridge the different modes of representation between art and science. Artistic approaches that aim to capture vibrancy, and interconnectedness run the risk of being perceived as overly subjective or ambiguous compared to scientific images. While art can evoke the agency of insects, it may not always

Through not being overlaid with symbolic meanings, there lays the opportunity to perceive better the firebug as a living being that stands for its own. (Weil 1947: 137)

Additionally, their presence in my daily surroundings, whether in Brussels or Saarland, allows for extended observation and spontaneous encounters, seamlessly integrating research into everyday life.

“Cette manière d’entrer en relation avec le vivant, tissée à la vie quotidienne, dans le lieu où l’on vit,

Fig. 3 Linocut,  
10,5x14,8, 2024.  
© Charlotte Dorn.

Fig. 4 Linocut,  
10,5x14,8, 2024.  
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permet à la pratique naturaliste de déborder de la seule pratique de l'identification: il devient possible d'apercevoir les vivants autour de soi comme possédant des moeurs et des habitudes, parce qu'on les suit saison après saison." (Zhong Mengual 2021: p. 69)

#### DRAWING AS A WAY TO INVESTIGATE AND REPRESENT THE FIREBUG

Drawing is the primary method used for studying firebugs.

Engaging with insects through drawing "*brings a deep sense of embodiment and connection to our experience of the world, providing a space to hold and to unfold complexity. There are constant changes: pausing to observe, choosing direction, changing tempo, transitioning between focused and wider attention, inside and outside the line, of selecting what to take forward and what to let go.*" (Andersen 2017: 22)

It requires longer attention spans in which the shape is grasped and captured. Also, the physical effort and concentration required to perceive through drawing creates intense moments of engagement and intimacy with others, referencing Willa Cather's aesthetics of care, where the artist "*must thus be personally and emotionally immersed in a conversation with the world she transcribes*". (Donovan 2016: 56)

Drawing also allows for a personal interpretation of the subject, where some features or qualities of the observed can be highlighted as well as fostering creativity. (Andersen 2017: 18 and 20) Besides, the fact that these beings can disappear from the field of vision when they decide to, shows the artist's dependence on the subject and the agency of other-than-human life forms, and contributes to "*reconceive reality as a 'subject-subject continuum' instead of a 'subject-object dualism'*" (Freya Mathews cited by Donovan 2016: 79).

The firebug is an actant in the creative process because its presence influences the existence of the drawing itself and the drawn line. When it moves fast, the hand and pen react by tracing lines accordingly, if deciding to stand still, also the hand stops moving.

Finally, the unpredictability and surprises that happen when drawing living, individual beings challenges processes of classification. (Andersen 2017: 19). Haraway's concept of *becoming-with* (Haraway 2008: 3) is embedded in the practice of drawing. The method here is an act of co-creation, where I engage with the insect's rhythms. This more interactive method of representation embraces an entangled way of knowing, where drawing is itself an intra-action that generates understanding through shared presence. In summary, drawing challenges the visual conven-

tions of scientific images, that include drawing from cadavers, working with standardised views, segmentation and neutral backgrounds. Experimental drawing, on the other hand, embraces subjectivity, movement and unpredictability, capturing firebugs as processual beings in dynamic relationships.

#### ADDRESSING THE CRITIQUE OF ANTHROPOCENTRISM

A common critique of the ethics of care framework is its potential anthropocentrism, suggesting that firebugs are merely subjects of artistic exploration, much as scientists use them as objects of study. However, this critique assumes that anthropocentrism is entirely avoidable, rather than something to be acknowledged and navigated. In a relational worldview, there is no singular centre, rather each participant, human, firebug or other, is driven by their own concerns and interests. My artistic motivation to create compelling drawings interacts with the wants and needs of the firebugs, that likely and amongst others, includes survival and avoidance of harm. These different interests inevitably overlap and shape each other. Rather than denying my perspective, it seems more helpful to recognise the negotiation that is taking place. Limited in my ability to fully understand the firebug's perspective, I rely on careful observation, speculative empathy and responsive interaction to engage with firebugs in a respectful way. The act of negotiation, of attempting to balance artistic goals with the firebug's autonomy, creates a more ethically aware engagement with the subject. Thus, while it is true that the firebug may remain unaware that he is being drawn, and that I also occupy a position of interpretation and control, this does not reduce the relationship to extraction or objectification. Instead, the process of drawing is a site of correspondence.

#### DRAWING EXPERIMENTS TO INVESTIGATE FIREBUG MOVEMENT

Various drawing experiments have been carried out throughout the research. One of them consists of blind drawing on a wooden plate, later printed as a woodcut. The process starts with finding a location where firebugs congregate and attuning to this environment. Then, a specific vision frame is selected, within which the movements of one or more firebugs are followed for a period of around five minutes. While keeping the gaze fixed on the animals, the hands translated their movements into line drawings on the plate. If more than one insect appears, both hands sketch their gestures simulta-

Fig. 5 Woodcut,  
9,5x17cm, 2024.  
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neously. These drawings are then carved into the wood and printed in the studio.

Blind drawing is more about the process of engaging with the subject (Ingold 2015) instead of accuracy. The focus on the observed is not interrupted by judging the sketched lines. It also relies on an embodied understanding of drawing, where the hand intuitively follows the eye without conscious control or visual feedback from the paper. This type of drawing taps into tacit knowledge (Polanyi 1966), working through feel and instinct developed through practice.

Unlike scientific methods, which often rely on fixed observation points or technological mediation, blind drawing captures the relational experience of movement as it is felt rather than as it is measured. Furthermore, in contrast to the assumed neutrality of scientific methods, blind drawing highlights how perception is always embodied and influenced by the observer's physical engagement with the world. This challenges the assumption that knowledge of insects is through detached observation alone, suggesting instead that understanding emerges through interaction and intra-action. On the other hand, the

inability to adjust the drawing during the process may not capture the movement in proportion to the firebug's actual path, resulting in a distorted or exaggerated record of its journey. The image is also more difficult to analyse or reproduce. But it is precisely this unpredictability that allows blind drawing to offer alternative insights: rather than striving for exact replication, it traces the subjective, fluid experience of witnessing movement, complementing, rather than replacing, scientific analysis.

Finally, when drawing without looking at the marks, the visual information travels through the body, translating the sensory experience looking into movement of the hand. In this way, it offers a way of perceiving firebug movement that is more participatory and immersive, challenging scientific conventions that separate the observer from the observed and reinforcing the idea that understanding also comes through interaction.

Developing the drawings into graphic works helps to reconnect with the experience of observing the firebug and becoming aware of the image-making itself. The physicality of the carving adds a tactile dimension to the activity of observation, where each line becomes a permanent mark on the plate. Carving serves as a form of embodied memory, where the gestures made during the initial drawing are repeated and solidified. (Andersen 2017) Through this layered approach, printmaking offers a representational form, that emphasises how perception, memory and materiality interact. The prints do not simply reproduce the movement of the firebug, but embody the entire sensory and cognitive process of engaging with it, shifting the perspective from mere representation to an exploration of relational knowledge-making.

#### CONCLUSION

Drawing is an interactive, embodied process that unfolds in time, fostering an understanding of insects that is not only visual, but also kinaesthetic, sensory and relational.

By drawing the insect's path, the artist's hand becomes an extension of its movement. The knowledge gained from this practice is one of process and rhythm, and foregrounds the relational aspect of perceiving and knowing. Artistic methods such as drawing contribute to a broader epistemological shift in the perception of more than human life. They emphasise the individuality and unpredictability of insects, embracing complexity and variation, aligning with contemporary ecological thinking, which views organisms as entangled within changing relationships. Printmaking deepens this shift in perspective.

The process of engraving the lines reinforces the idea that knowledge is shaped and reinterpreted through material engagement. Each stage, from the initial drawing to the final print, requires a renewed negotiation with the subject, reinforcing the presence of the firebug in different ways.

Balancing traditional biological images with artistic representations allows for a more nuanced understanding of insects. It helps to convey not only their anatomical and biological significance, but also their role as living, responsive, entangled beings, worthy of empathy and respect.

Practically, encouraging artist-scientist collaborations in research, museums and ecological storytelling can foster multimodal representations that challenge fixed perspectives<sup>2</sup>.

Ultimately, how we represent insects shapes how we value them. By integrating artistic approaches into scientific discourse, we are better able to cultivate a more respectful, affective engagement with other beings, fostering responsibility and care. So, the next step is not only to recognise the value of artistic perspectives, but to actively integrate them into the way knowledge is produced, shared and acted upon.

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<sup>2</sup> For example, projects such as Oliver Thie's collaboration with biologists studying freshwater snails called *Tylomelania* demonstrate how artistic inquiry complements scientific study, offering phenomenological perspectives that enrich our understanding of other-than-human life. See: <https://www.galeriew-ernerklein.de/exhib.php?p=1&id=185&l=1&exy=2025>