

wild silks

endangerment of West Africa's socio-ecosystem

Laurence Douny, Nikolai Rosenthal, Rodolphe Rougerie, and Salif Sawadogo – September 24, 2026

•wild silks •trees •rural •biology •cycle •Burkina Faso •Marka-Dafing •craft •matter •multi-species •environmental change •disappearance
•material science •entomology •anthropology

Amid accelerating climate change and growing human pressure on natural environments, the socioecosystem of West African wild silk is increasingly endangered. The processionary caterpillars that produce the silk filament, the material itself, and the traditional techniques and knowledge held by the Marka-Dafing communities in Burkina Faso are all at risk of disappearing.

This visual essay examines the uncertain world of wild silks produced by caterpillars of the *Epanaphe* moths¹, considering ecological vulnerability alongside cultural resilience. In contexts of depletion, Marka-Dafing women have developed alternative yarns as adaptive strategies that illustrate how the Marka-Dafing sustain their craft and ensure the continuity of their heritage in the absence of the original material.

Drawing on the anthropological method of the “operational sequence”, the essay visually traces the continuum from silk spinning by the insect to the disentangling of fibers for yarn and textile production, including the making of substitute materials. This approach emphasizes the co-construction of knowledge across human and non-human actors, bridging traditional expertise, scientific analysis, cultural heritage, and material adaptation.

At the ecosystem scale, processionary caterpillars construct large communal silk nests in the South Sudanian savannas. These nests, composed of multiple protective layers, shield the insects from predators and environmental stress during their growth and their metamorphosis. Despite their ecological importance, these structures are largely under-investigated in entomology and beyond.

From a materials science perspective, from micro- to mesoscale, light microscopy and microcomputed tomography reveal the architectural complexity, which is then placed in dialogue with the material knowledge

of Marka-Dafing wild silk producers. The nests exhibit distinct hierarchical architectures, beginning at the molecular level: fibroin, a protein, and its structural organisation confers silk's mechanical and optical properties, while sericin functions as the adhesive binding the silk fibers together and to the substrate while protecting them from environmental conditions. At the micro level, these two primary components, with two fibroin brins and sericin as sheath, form the silk bave, which constitutes a fiber composite in itself. The filament is spun into meso-scale layers of varying composition and architecture, dependent on environmental conditions and species, ultimately building the final macro-scale silk nest.

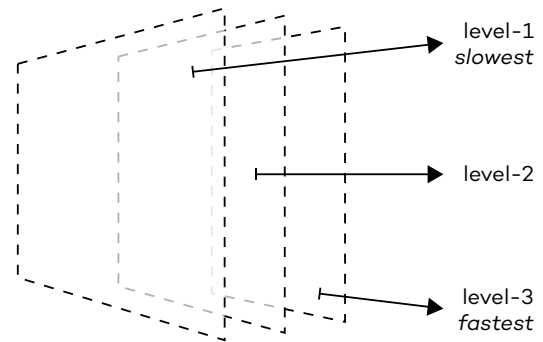
At the human scale, the ethnographic focus centers on collectors such as Abdoulaye Tamboura and Dramane Toro and artisans who are Afissata Fofana, Badoro Séré, Bièni Damba, Awa Zina, Orokia Sako and Souleyman Sakira from Safané and Hézita Dayo from Nounou, whose work embodies generations of expertise in producing *tuntun pon*. According to oral tradition, while the silk has been traded across West Africa, these prestigious textiles have been produced for at least four centuries, forming a cultural heritage for the Marka-Dafing. Once exclusive to royalty and elites, and now worn by any woman who can acquire the silk, these textiles' value lies in the proportion of indigenous wild silk incorporated into them. Strips of beige or light brown silk alternate with indigo-dyed and plain white cotton, materializing both cultural identity and social prestige. With the declining availability of wild silk, Marka-Dafing women have resorted to long-established innovative substitutes, producing yarns through fermentation using cow dung and *Acacia nilotica* pods. While more affordable, these yarns that mimic the properties of wild silk color and sheen also reflect resilience, allowing the continuation of weaving practices while navigating ecological and cultural loss.

1. *Epanaphe* and *Anaphe* moths feature in this essay.

This contribution was published on www.able-journal.org in a pan.able format:

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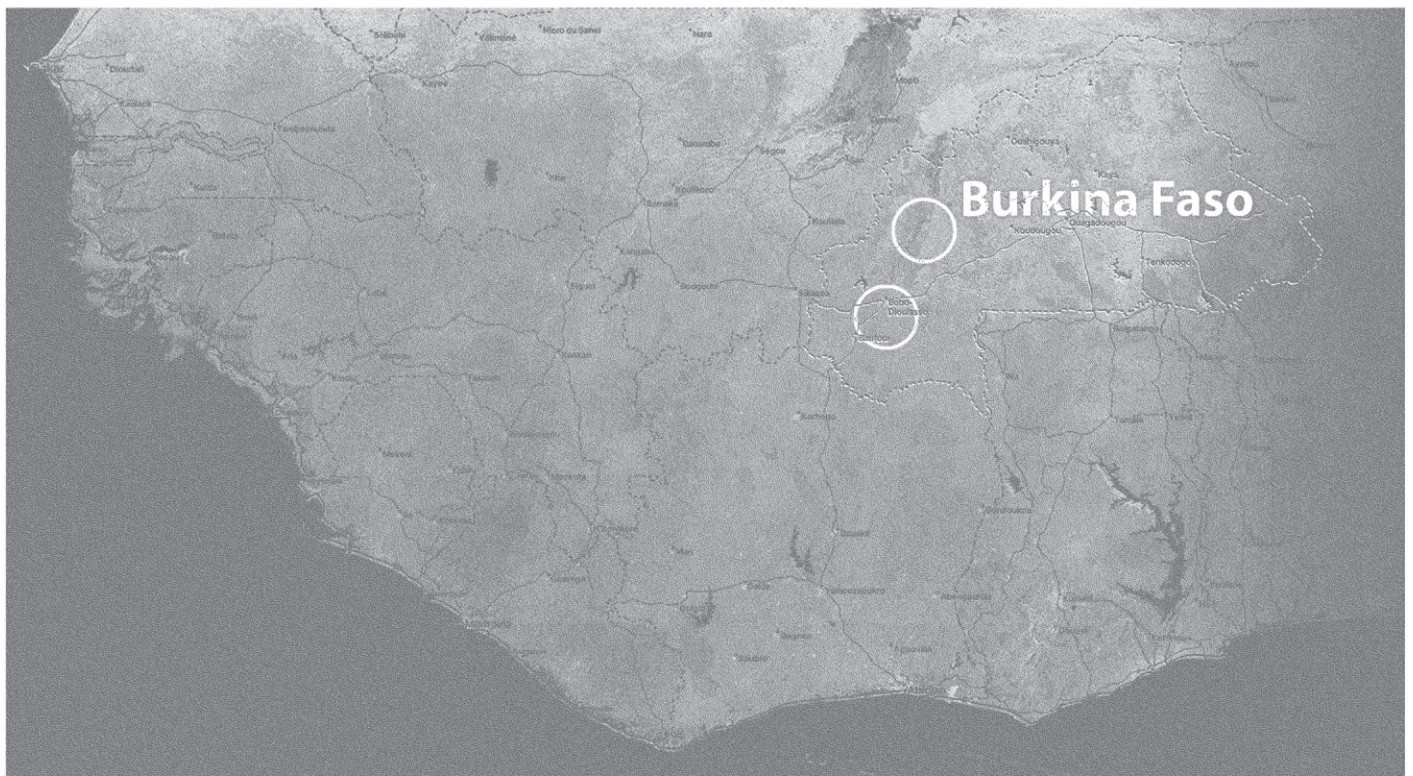
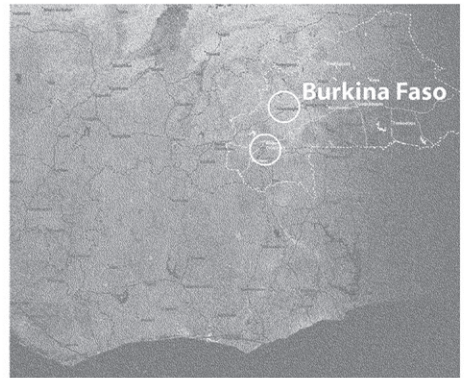
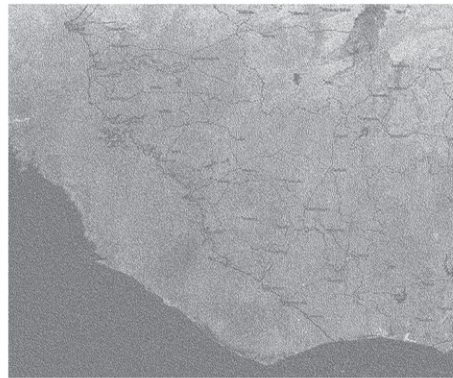
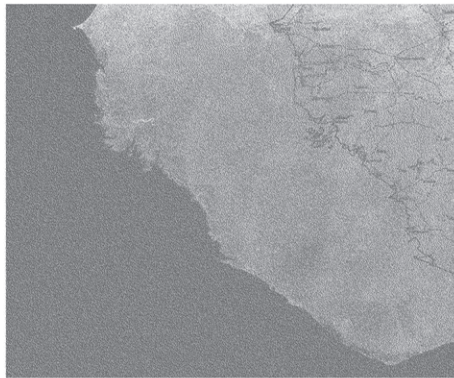
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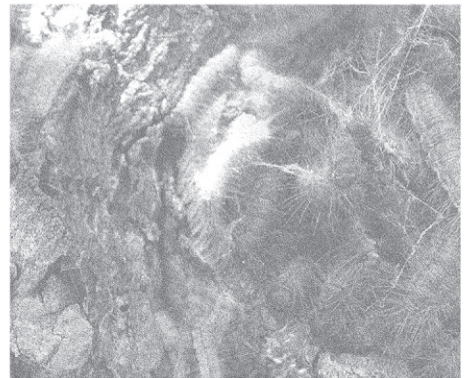
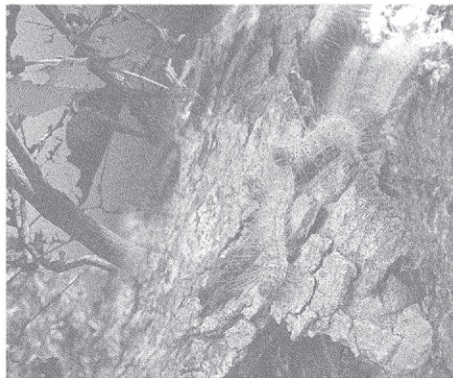
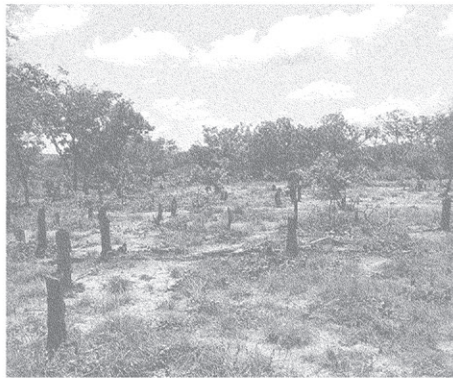
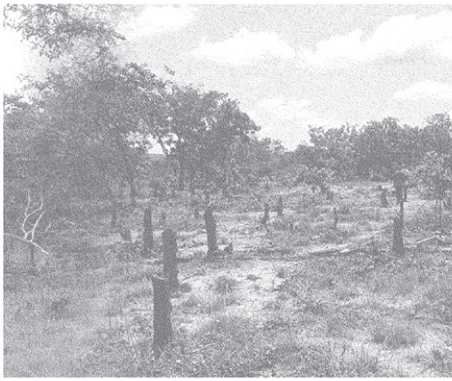
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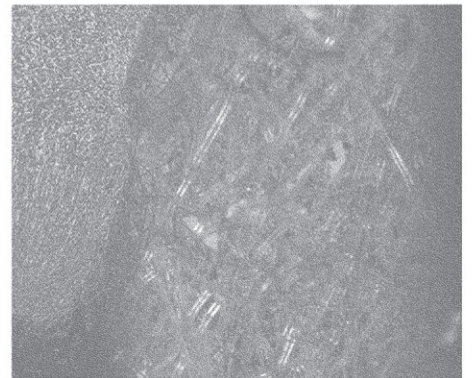
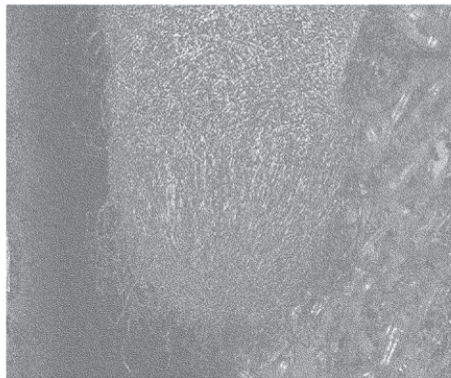
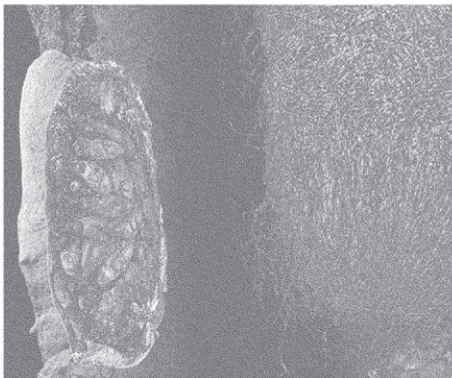
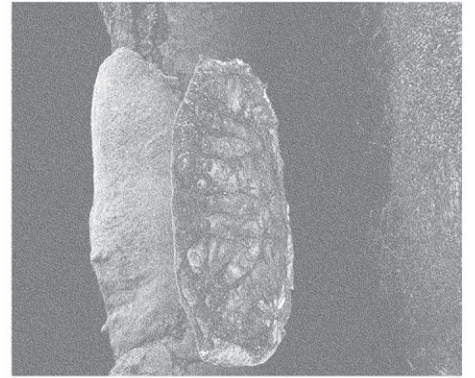
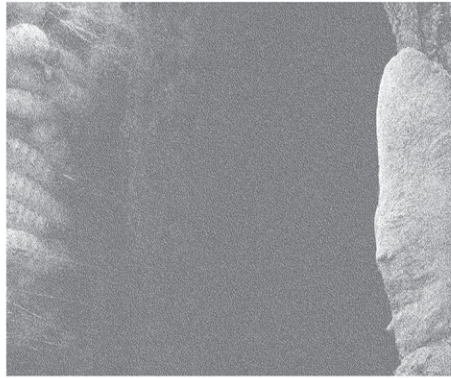
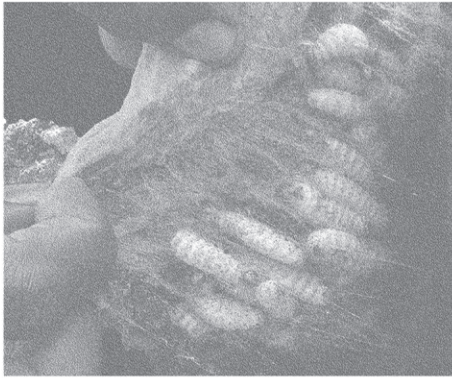
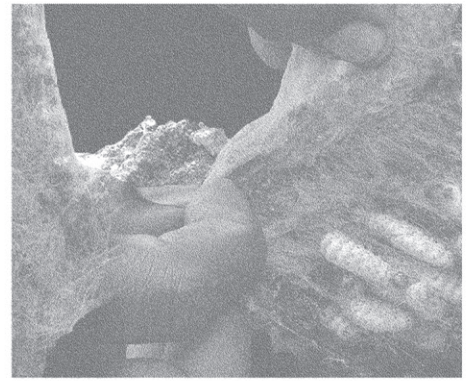
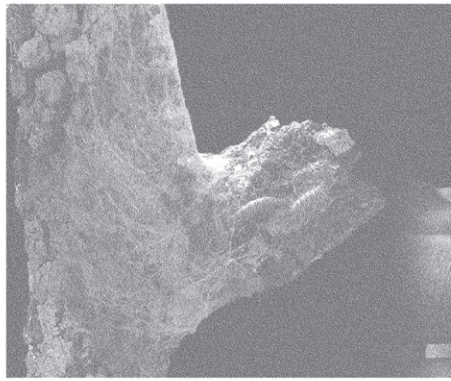
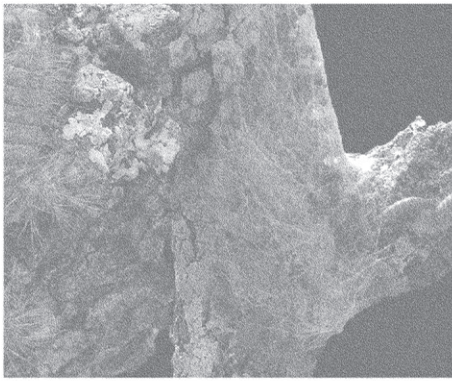
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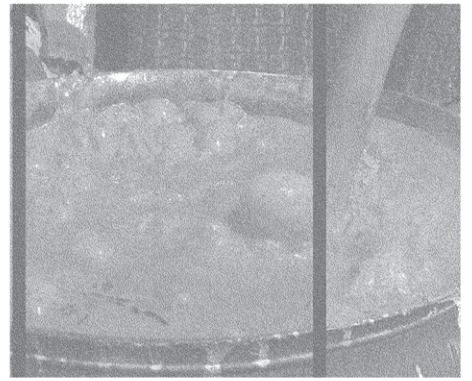
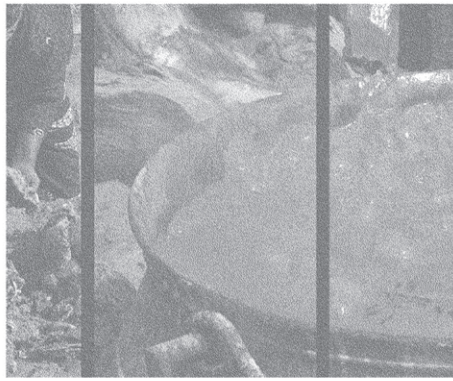
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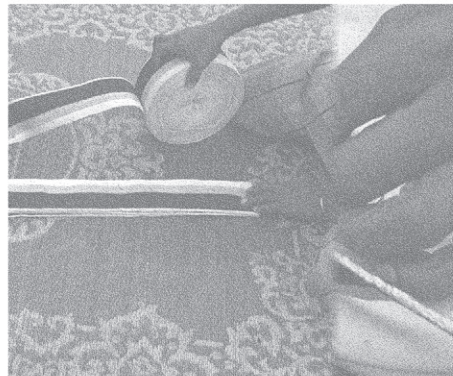


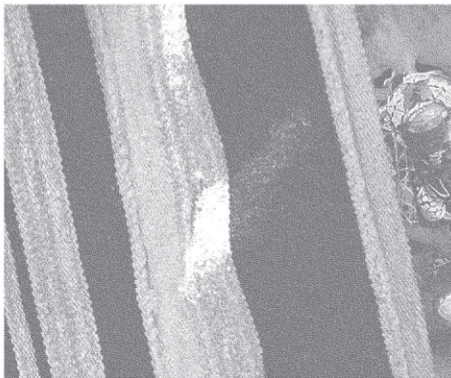
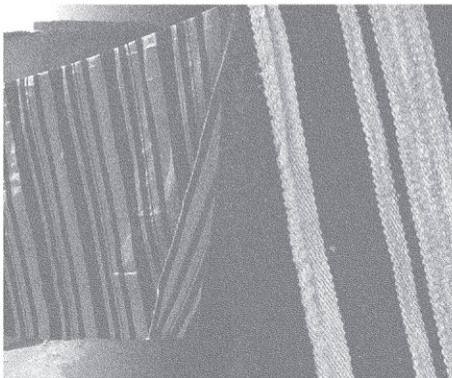






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