

Study claims forensic examiners—and not plant ecologists—first to recognize 'ecological succession'

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For generations, students have been taught the concept of "ecological succession" with examples from the plant world, such as the progression over time of plant species that establish and grow following a forest fire. Indeed, succession is arguably plant ecology's most enduring scientific contribution, and its origins with early 20th-century plant ecologists have been uncontested. Yet, this common narrative may actually be false. As posited in an article published in the March 2015 issue of *The Quarterly Review of Biology*, two decades before plant scientists explored the concept, it was forensic examiners who discovered ecological succession.

According to Jean-Philippe Michaud, Kenneth Schoenly, and Gaétan Moreau, the first formal definition and testable mechanism of ecological succession originated in the late 1800s with Pierre Mégnin, a French veterinarian and entomologist who, while assisting medical examiners to develop methodology for estimating time-since-death of the deceased, recognized the predictability of carrion-arthropod succession and its use in forensic analysis. By comparison, studies generally cited by modern ecology textbooks as the earliest examples of succession were published in the early 1900s.

Michaud and colleagues found no evidence that plant and carrion ecologists were initially aware of each other's contributions. Instead, they describe the case as an example of multiple independent discovery,

similar to how Darwin and Wallace each developed the theory of evolution by natural selection independent of one another. "[G]iven their disparity in subject matter, training, and institutional structures," the authors assert, "these two groups were unaware of each other's publications."

Despite marked differences between the two disciplines, however, [plant ecology](#) and carrion ecology accumulated strikingly similar parallel histories and contributions. Both groups used succession-related concepts to refute the theory of spontaneous generation, for example, and both offered a qualitative framework of the mechanisms involved. As well, both placed high importance on typological concepts (e.g., "seres" in plant ecology and "squads" and decay stages in carrion ecology) and the roles of site and climate in shaping successional outcomes.

Although side-by-side examinations of the histories of carrion ecology and plant ecology, especially under a lens of succession, reveal the clear paradigm shifts that formed each discipline and emphasize the different objectives and cultures that kept them apart, Michaud and colleagues believe these comparisons can ultimately serve to benefit each field. "By comparing the contributions of plant and carrion ecologists, we hope to stimulate future crossover research that leads to a general theory of ecological succession."

More information: Jean-Philippe Michaud, Kenneth G. Schoenly, and Gaétan Moreau, "Rewriting ecological succession history: did carrion ecologists get there first?" *The Quarterly Review of Biology* Vol. 90, No. 1 (March 2015): pp. 45–66. www.jstor.org/stable/10.1086/679763

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