

Freshwater snails are surprisingly fast-moving invaders

December 4 2006



In a peaceful tropical stream in Martinica, the ecologist's boot meets with a crawling army of invading snails *Tarebia granifera*. Credit: Courtesy Facon and David

A new study from *The American Naturalist* studies some very fast snails and their success at long-distance colonization. Introduced into the rivers

of the Martinique islands less than twelve years ago, the freshwater snails have already colonized the watersheds, an astounding feat considering that the snails need to rely on passive dispersal by birds, cars, and cattle to jump over the dry land that separates the riverways.

"Obviously," says Benoît Facon (University of Lausanne), "little can be done to stop [the snails] from invading all Martinican rivers now."

Landscape fragmentation is a common feature to many invasions, and even apparently continuous terrestrial landscapes, when examined at a certain scale, end up looking heterogeneous and patchy. The classical deterministic diffusion paradigm fails to incorporate this feature and ignores the random nature of long-distance colonization events.

Taking the snails into account, Facon and Patrice David (Centre d'Ecologie Fonctionnelle et Evolutive, CNRS) have created a new method for studying colonization. This method takes both terrain and random events into account. The real benefit of the method "is that we can use the parameters estimated in real datasets to re-play the invasion by simulation.

Thus, they showed the invasion of *Tarebia granifera* in Martinique would have been much slower had it started from a more peripheral introduction point; or had the numbers and sizes of rivers been lower. Researchers "can tell how much of the invasion is influenced by chance events," explain the authors.

Adds Facon: "The method itself can be used for any species as soon as one has got a clear description of the landscape, in terms of favorable patches, and a few years of survey. Therefore we are optimistic that this method will prove useful for other invasive species that represent important conservation issues."

Source: University of Chicago

Citation: Freshwater snails are surprisingly fast-moving invaders (2006, December 4) retrieved 25 April 2024 from

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