



Phnom La'Ang, the jewel of the Mekong Delta Limestones

Dr. J.J. Vermeulen & K. Anker, March 2018

Phnom La'Ang is the **largest and most intact** hill of the Mekong Delta Limestones (MDL), a string of limestone hills along the southwest flank of the Mekong Delta from Kampot Province in Cambodia to Hon Chong in Kien Giang Province in Vietnam.

The biodiversity of the MDL is extraordinary because of the **high percentage of endemic species** (i.e., found only on the MDL and nowhere else in the world). To demonstrate this, land snails are used as an indicator group. A total of 119 snail species are recorded from the MDL, of which 65 (54%) are endemic to the MDL.

Biologically, the high rate of endemism is explained by the **extreme isolation** of the MDL, in terms of distance to other limestone areas, combined with the extreme environmental conditions prevailing on limestone hills in general. The MDL are several hundreds of kilometres distant from any other limestone hills (Fig. 1).

Moreover, the individual hills of the MDL occur in clusters that are separated by tens of kilometres. An organism colonizing a limestone hill will have to adapt to the environment and, as a result, **evolves into a new species** over many generations and many years. The new species is not only distinct from the ancestral species living around the hill, but also from populations of the same ancestral species that have colonized other hills and have developed into different new species.

Biologists see groups of limestone hills like the MDL as factories of new, endemic species. The **extreme isolation of the MDL has caused extreme rates of endemism**.

Figs. 2, 3 and 4 show the distribution of the species of a few snail groups in the MDL. Dots of one colour show the distribution of one species. Some endemic species occur on several MDL hills (**local-endemics**), others on a single hill (**site-endemics**). From a biodiversity conservation perspective, site-endemics are most important because they are the most vulnerable. Quarrying a limestone hill, or even an accidental bushfire, may drive such species to extinction.

Phnom La'Ang is **home to 10 species of site-endemic land snails**, a higher number than on any other hill of the MDL (Nui Chua Hang in Vietnam: 5; Kampong Trach group: 3; all other hills: at most 1). Protection of Phnom La'Ang, next to Nui Chua Hang, which is already a protected area, would protect 60% (15 out of 25) of the MDL's site-endemic snail species. It would also protect 55% (22 out of 40) of the MDL's local-endemic snail species.

If Phnom La'Ang in Cambodia, in addition to Nui Chua Hang in Vietnam, were protected, a further sharp increase in endemic species conservation would be achieved by protecting a selection of less prominent hills, all of which already enjoy a degree of protection because either they harbour places of worship or they are targeted as set-asides or offset areas by the cement companies active in the region.

Thus, **protection of Phnom La'Ang is a cornerstone of a program to minimize biodiversity loss** in the MDL.

Finally, we highlight a local-endemic plant species, *Ornithoboa emarginata* (Gesneriaceae, IUCN Red Listed as Critically Endangered). It is known from four localities in the MDL: three in Vietnam and from Phnom La'Ang. In two Vietnam localities the species is in serious decline; only on the third Vietnam hill is the species still luxuriant. However, that hill is vulnerable to quarrying. Recently discovered localities on Phnom La'Ang may save the species from extinction. Protective measures will be needed, because its preferred habitat is on the peripheral cliffs of limestone hills, where the risk of human impacts is greatest.

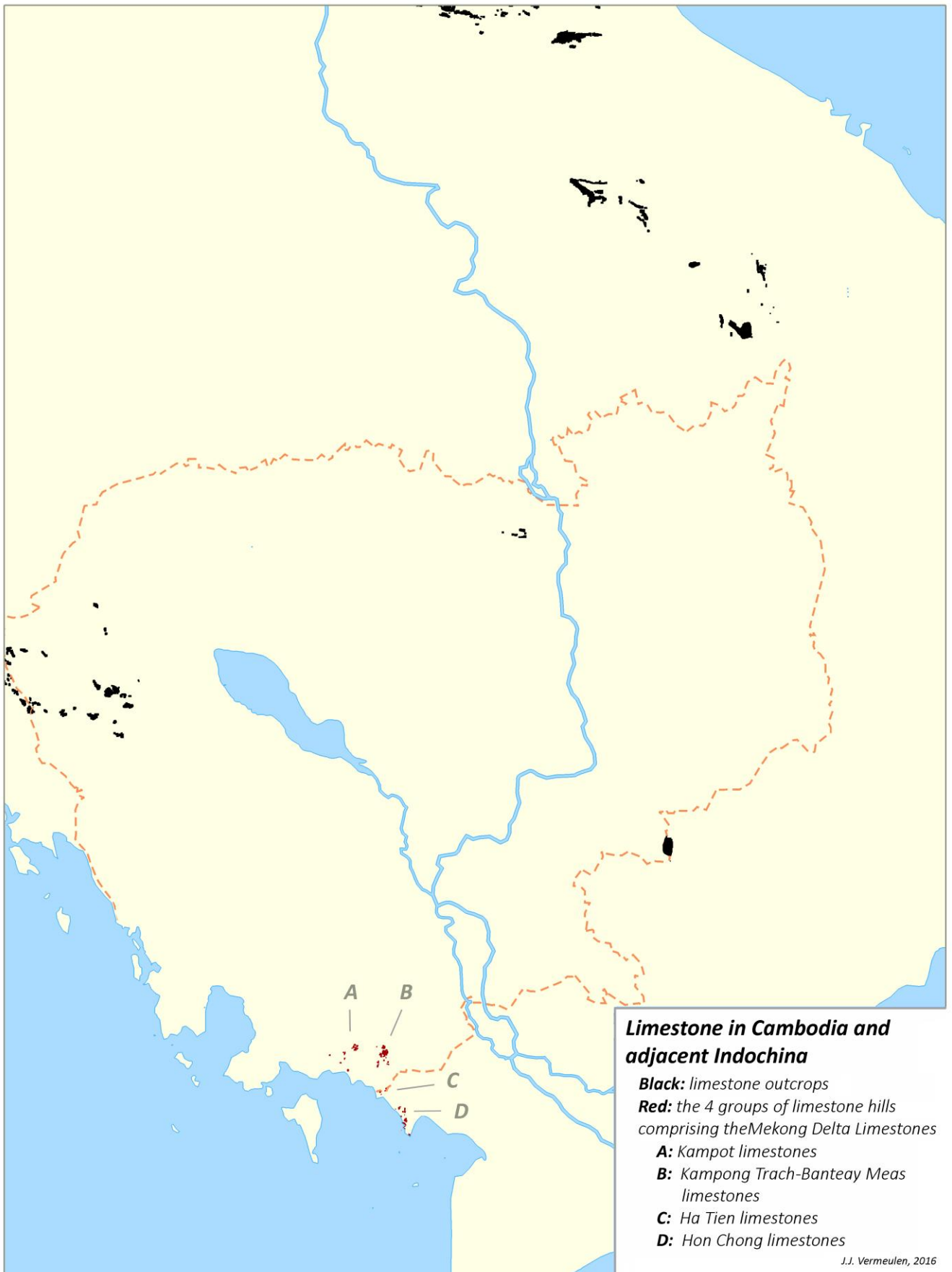


Fig. 1. Distribution of limestone (black) in and around Cambodia. MDL in red.

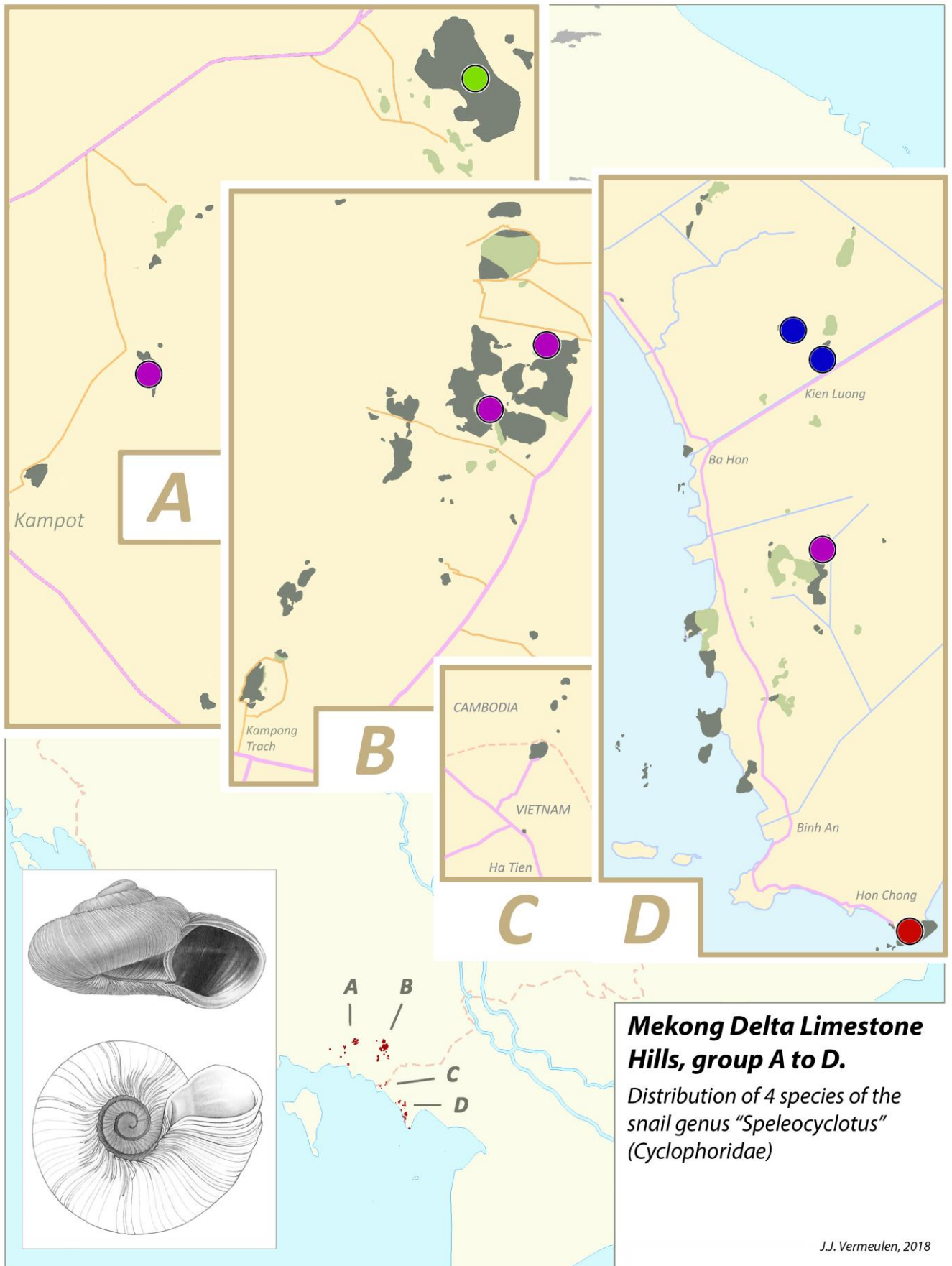


Fig. 2. Distribution of 4 species of the snail genus 'Speleocyclotus'. Dots of one colour indicate the distribution of one species. In this group, Phnom La'Ang has 1 site-endemic species.

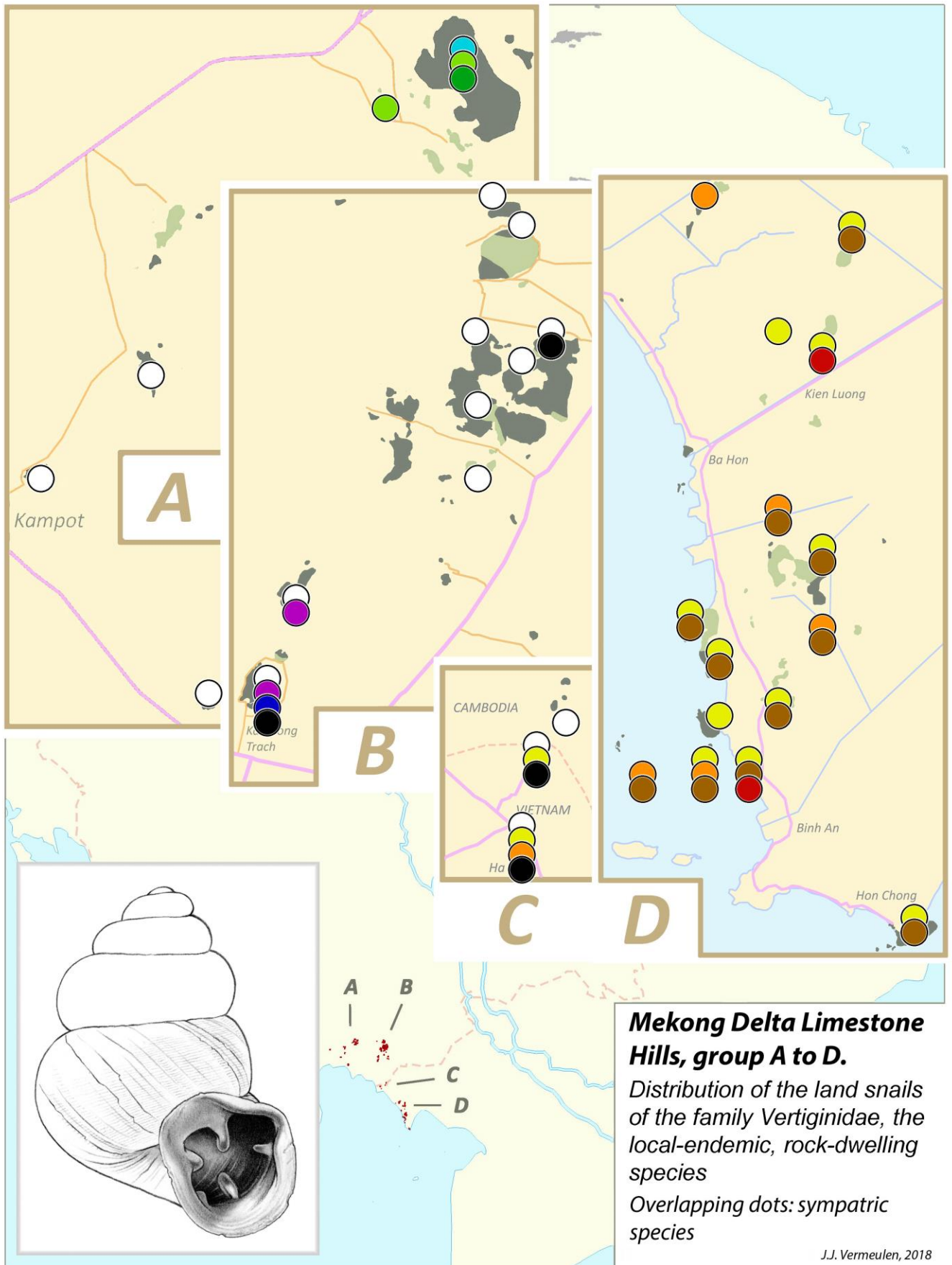


Fig. 3. Distribution of 11 species of the snail family Vertiginidae (the rock-dwelling species); dots of 1 colour indicate the distribution of 1 species. In this group, Phnom La'Ang has 3 site-endemic species (one has been found on a satellite hill of Phnom La'Ang as well; this satellite hill is now destroyed).

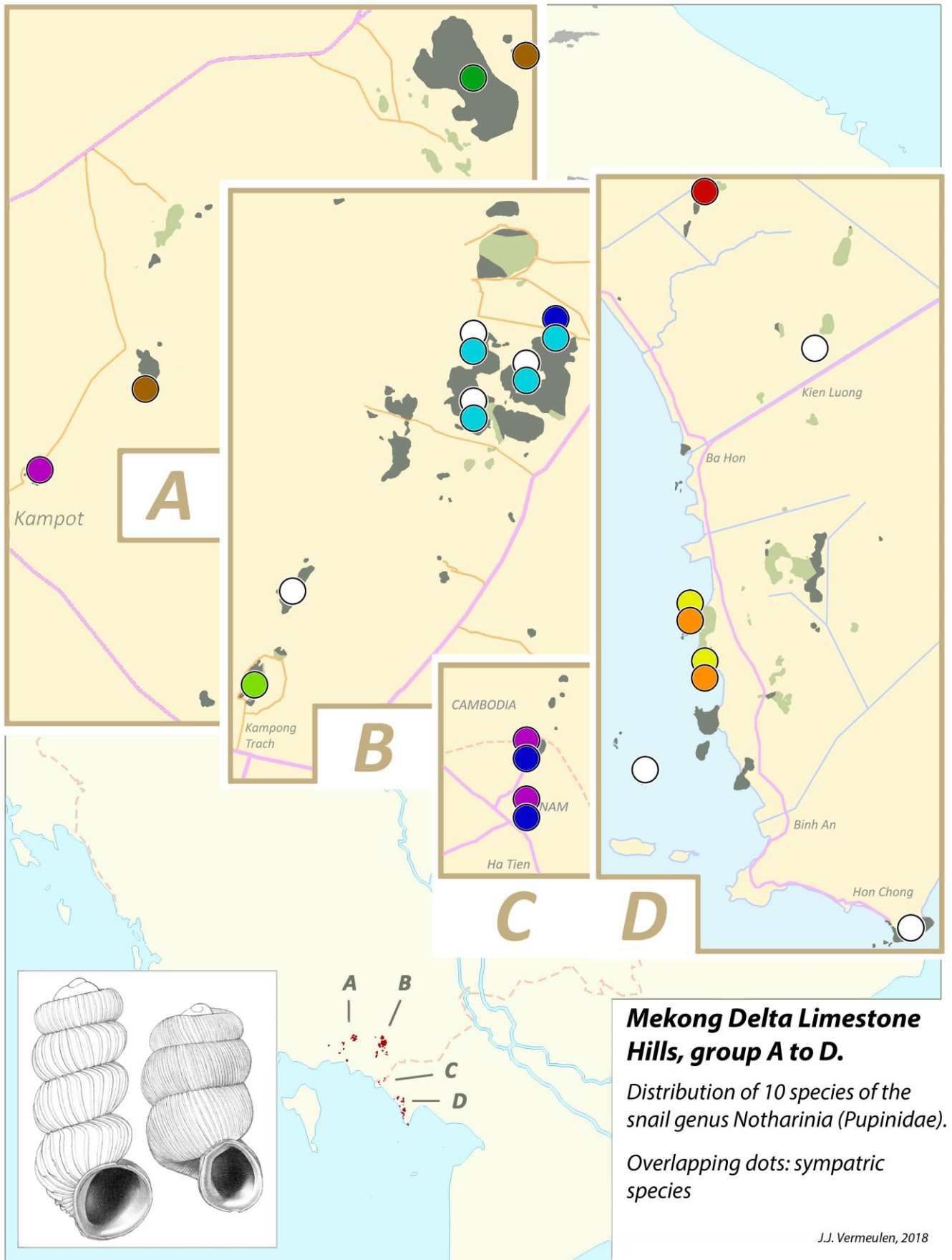


Fig. 4. Distribution of 10 species of the snail genus *Notharinia*; dots of 1 colour indicate the distribution of 1 species; in this group, Phnom La'Ang has 1 site-endemic species.