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## The story of the snail and the gecko egg

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## The story of the snail and the gecko egg

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During a recent fieldwork trip to the Cradock region the lead author came across what he thought was a snail actively predated on a gecko egg (Fig. 1). The observation was made at Farm Waaiplaatz south of Cradock, Eastern Cape Province, South Africa (32° 28'04.4"S 25° 40'34.0"E, 1290 m above sea level) on 3 May 2016. Upon breaking open the egg the dead embryo was positively identified as a Spotted Thick-toed Gecko (*Pachydactylus maculatus*) based on the characteristic dorsal spots (Branch 1998). The snail was later identified as juvenile *Afrorhytida knysnaensis* (Family Rhytididae) by the second author.



Figure 1: A juvenile *Afrorhytida knysnaensis* extracting calcium from a gecko egg.

In the case of the juvenile *Afrorhytida knysnaensis* snail and the gecko egg it seems probable that the snail fortuitously encountered the gecko egg, and innately recognised it to be an object rich in calcium carbonate. It then proceeded to treat it, as it would a dead snail shell or a calcium carbonate nodule, as an exploitable source of a much-needed mineral. The image shows the snail with its foot extended and the sole wrapped around well over one third of the egg. Elsewhere the surface of the egg is clearly patchily eroded, indicating that the snail has been progressively moving around the egg, etching away at the surface, dissolving and absorbing its substance. Therefore, the gecko egg is a very unusual calcium carbonate source, as the usual source of calcium consists of other snail shells. The observed behaviour is thus well-known and typical of a rhytidid snail (Herbert & Moussalli 2010), but this is the first

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reported case of inter-species interaction we are aware of. It is also quite possible that the snail may have gone on to consume the dead gecko embryo inside the egg had the process been allowed to continue, but this would have been a bonus additional to the primary goal. Opportunism and adaptability are key to survival.

Except in areas where the underlying geology includes limestone deposits, environmental calcium in southern Africa is often in short supply. This mineral is needed by almost all animals for a multitude of physiological processes and is key to normal growth and reproduction. It is particularly important for snails, since they need it in relative abundance, in the form of calcium carbonate, for shell construction. As a result snails are known to take opportunistic advantage of any source of calcium carbonate that they encounter. This includes ingesting soil and by rasping soft calcareous rocks and the empty shells of dead snails. Calcium carbonate may also be obtained by means of acidic secretions from the sole of the foot that dissolve calcareous materials, such that these can be absorbed through the skin of the sole. This etching tactic is frequently used by cannibal snails of the family Rhytididae so that they can extract every bit of nutriment out of their prey, including its shell.

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