

## Carcasses of an invasive mammal (*Rattus rattus*) and foraging activity of *Podarcis hispanica* in an insular population

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**RESUMEN:** Los ecosistemas insulares ofrecen numerosos ejemplos de adaptación y conductas que son menos frecuentes en poblaciones continentales. En esta nota se documenta la observación de varios adultos de *Podarcis hispanica* alimentándose de diferentes especies de insectos atraídos por cadáveres en descomposición de rata negra (*Rattus rattus*). Esta especie es invasora y cuenta con poblaciones muy numerosas en cada una de las islas que forman el archipiélago de Cíes, y sus cadáveres pueden servir de forma indirecta como recurso trófico para las poblaciones insulares de *P. hispanica*.

The combination of particular characteristics in island systems (e.g., isolation, age, size, among others) make each island unique and thus islands offer excellent scenarios to evolve particular interactions between species that are less common or not present in mainland populations. For instance, the way how species access to food in insular environments may change due to ecological constrains (e.g., predators,

competitors, poorness of trophic resources), forcing species to show some degree of adaptation or flexibility to those particular island conditions, which includes singular cases of ecological relationships among insular species.

Lizards are among the most common vertebrates on islands, partly due to their ability to occupy a wide range of habitats (see Losos, 2009) and to use food resources (see Van Damme, 1999;



Figure 1. Adult of *P. hispanica* next to a carcass of *R. rattus*.

Figura 1. *P. hispanica* adulto junto a un cadáver de *R. rattus*.

Carretero, 2004). Lacertid lizards are mostly insectivorous, although many species can eat plant matter, being herbivory mainly associated with insularity (Pérez-Mellado & Corti, 1993; Van Damme, 1999). As a result, mutualistic interactions of lizard-plant species (seed dispersal and pollination) have been observed on islands (e.g., *Podarcis lilfordi* [Pérez-Mellado & Traveset, 1999; Pérez-Mellado *et al.*, 2000; Riera *et al.*, 2002; Olessen & Valido, 2003]). An interesting example of commensalism is found on several Mediterranean islets where adults belonging to the genera *Podarcis* (*Podarcis cretensis*; *Podarcis erhardii*; *P. lilfordi*; *Podarcis raffonei*; *Podarcis tiliguerta*) and *Chalcides* (*Chalcides ocellatus*) take advantage of the nests of *Falco eleonorae* by feeding on carcasses, remains of killed preys, and insects attracted to them while reducing the levels of parasites on their chicks (see Delaunoy *et al.*, 2012 for a review). A different interaction between species is the opportunism. For instance, some lacertid lizards display necrophagy (e.g., *P. lilfordi* [Pérez-Mellado, 1989, 2005]; *Podarcis sicula* [Capula & Aloise, 2011]) and may also feed on insects attracted to the dead bodies.

On 15th of October 2011, during fieldwork on the islands of Faro and Monteagudo (Cíes archipelago; Galicia; NW Spain; latitude: 42.23°; longitude: -8.91°; 90 masl), I found two carcasses of black rat (*Rattus rattus*) in an early stage of decomposition. Next to the carcasses I observed a few adults of the wall

lizard (*Podarcis hispanica*; Figure 1) displaying an opportunistic behaviour by actively searching and feeding on the insects attracted to the dead animal tissue, and video recorded this behaviour (<<http://youtube.com/watch?v=ISa1Kjur07A>; [youtu.be/beTD7jmGZS4](http://youtu.be/beTD7jmGZS4)>). I observed this behaviour for the following two days I stayed on these islands. During these observations I did not see lizards feeding on the rat carcasses but only on small flies and terrestrial insects. Although wall lizards are common opportunistic feeders, this note highlights the indirect food resource provided by the carcasses of an invasive mammal species (*R. rattus*) to a native population of lizards (*P. hispanica*) in a small island archipelago. *R. rattus* probably colonized these islands with sailors hundreds or few thousands of years ago and currently there is a large population of rats in each of the three islands that form Cíes archipelago. Hence, carcasses of *R. rattus* are numerous across the islands and provide regular opportunities for lizards to prey on the insects attracted to them.

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