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Obama nungara: A flatworm from South America invades Germany

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In their *Letter* “Biosecurity for humanitarian aid” (*Science* 372, p. 581–582; 2021), M. P. van den Burg et al. wrote that “Invasive alien species are among the greatest threats to global biodiversity and ecosystem health, often causing multimillion dollar impacts”. As detailed by the authors, this truism clearly applies to the aftermath of natural disasters, such as the eruption of La Soufriere volcano on the Caribbean island of St. Vincent. Here, we briefly summarize a current European “biosecurity”-problem: the invasion of large, predatory land flatworms of the genus *Obama*, imported from South America.



Land planarians (Geoplanidae), which are hermaphroditic “tricladid flatworms” (Platyhelminthes) have been studied since the 19th century, and fascinated biologists ever since (1). Most of these bizarre, sometimes colorful slimy invertebrates inhabit moist terrestrial areas in tropical regions of the world. More than 800 species have been described, with taxa as small as a few millimetres, to the spectacular “hammerhead worms” (genus *Bipalium*) that can reach a body length of up to 25 cm (2).

Since 2008, numerous individuals of ca. 5 to 10 cm long exotic land planaria have been found in samples of garden soil in several European countries (France, Spain, etc.). These relatively large predators were first assigned to the species *Geoplana marmorata* (3). However, in 2013, a molecular phylogeny and re-classification of the Geoplanidae resulted in the establishment of the new genus *Obama* gen. n. (not related to the former US-President Barack Obama). As Carbayo et al. (2) explained, the “name Obama is a composition of the Tupi (indigenous Brazilian language) words ‘oba’ (leaf) and ‘ma’ (animal)”. Hence, it denotes

the flattened, leaf-shaped body form of members of this genus. *Obama*'s "gender is female" (2).

Accordingly, Carbayo et al. (2016) published a paper entitled "The true identity of *Obama* (Platyhelminthes: Geoplanidae) flatworm spreading across Europe", wherein the species found in South America (Brazil) and, as an invader, in Europe, was described as *Obama nungara* sp. nov. (3).

Finally, Justine et al. (2020) published their comprehensive article "Obama chez moi! The invasion of metropolitan France by the land planarian *Obama nungara* (Platyhelminthes, Geoplanidae) (4). In this study, the authors document that *O. nungara* is in fact an invasive land planarian. The population that now occurs, in its evolutionary descendants, in European countries (Great Britain, Spain, Portugal, Belgium, Italy and France) was imported via the soil in potted plants from Argentina. Justine et al. (2020) pointed out that "No record is known from Germany, or any country east of Germany" (4).

On April 28, 2021, a conspicuous, ca. 4 cm long, brown "leaf-like flatworm" was found in a soil sample in Regensburg (Bavaria, Germany). A close inspection of this land planarian revealed that it is morphologically indistinguishable from *Obama nungara*, as described by Carbayo et al. (3) and Justine et al. (4). We studied the behavior of this *O. nungara* -individual and observed that it rapidly creeps out of water to live on land (moist soil, leaves etc.), where it voraciously feeds on small earthworms.

Taken together, these facts and observations document that *O. nungara* is a predatory, invasive alien "earthworm-killer", with negative impacts on soil ecosystems and biosecurity throughout Europe (3, 4).

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