INVASION OF THE BEAUTY RAT SNAKE, Elaphe taeniura Cope, 1861 IN BELGIUM

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We report on the establishment of the beauty rat snake, Elaphe taeniura Cope, 1861, a large, oviparous colubrid native to Southeastern Asia, in Belgium. The snakes have invaded a railroad system next to the city of Hasselt in the northeast of the country (Limburg province), successfully reproduce and spread. Our report is based on validated citizen science observations, supplemented with targeted surveys performed on site. The species has been recorded in the wild since 2006, most probably following an introduction linked to the pet trade. Genetic identification, based on the COI gene, confirms that the sampled individuals belong to E. taeniura. In addition, the snakes recorded in Belgium phenotypically match E. t. taeniura, a Chinese subspecies. So far, only the Taiwanese subspecies E. t. friesi was reported to be invasive and have an impact on endemic mammals and birds, in Japan. Exact date of introduction, spatial extent and population size are currently unknown, but the number of observations increased in recent years. Sightings exist from an area as large as 208 km², yet the core distribution is currently estimated to be no more than 2 km². Based on what is known on its ecology and distribution, we classified the species as a watchlist species with moderate environmental risk, currently occurring in isolated populations. However, the species' distribution and invasive potential in Belgium remain largely unknown, and a full risk assessment would require more data on its ecology. As management of more widely established snake populations is notoriously difficult, we advocate rapid eradication as the most appropriate risk management strategy. As experience with the species is limited, this would require testing a combination of removal methods (hand capture, specific traps) in an adaptive management strategy. The conditions of an active railway, inaccessible to the public, pose a particular management challenge. Dedicated snake surveys to determine invasion extent are urgently needed to inform such response.

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