

# Initial estimation of lizard population densities on the selected islands of the Lastovo Archipelago, Croatia

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## Introduction

Nature Park Lastovo islands is located in the Croatian part of the Adriatic Sea and consist of the southernmost Croatian populated island of Lastovo with unpopulated adjoining islands. On several islands in the archipelago of Lastovo, it has been observed that introduced mammal species might have an impact on native species populations. One of the invasive species found on the islands is the Black rat. Rats are predators, and evidence from other parts of the world are conflicting, some research indicates that rat predation may be the cause of the population decline of lizards, and others that rats do not have an influence on lizards. Rat eradication is planned on some islands of Lastovo Archipelago as part of LIFE Artina - "Seabird Conservation Network in the Adriatic" project (LIFE17 NAT/HR/000594) and with this study we wanted to make an initial assessment of the lizard population densities on them before eradication. Assessment was conducted on two species: Dalmatian Wall Lizard, *Podarcis melisellensis* (Fig. 1) and Sharp-snouted Rock Lizard, *Dalmatolacerta oxycephala* (Fig. 2).



Figure 1. Adult Dalmatian Wall Lizard, *Podarcis melisellensis* from Lastovo Archipelago.



Figure 2. Adult Sharp-snouted Rock Lizard, *Dalmatolacerta oxycephala* from Lastovo Archipelago.

## Methodology

Two field trips to the Lastovo Archipelago were made in May and June 2019 on selected 14 islands where the Black rats are present (Fig. 3). Islands range in size from 0,35 to 47,42 hectares. During three field visits to each island, a linear transect with a length of 500–1000 m was established, where lizards were observed twice in a single day. Distance sampling was used to estimate the density, and each specimen's perpendicular distance was measured. We recognized four main habitat categories on the islands. The first habitat type A, was characterised by a vegetation higher than 50 cm, the second one B, was characterised by vegetation less than 50 cm, the third C, were rock formations, and the fourth named D, was rocky island edge. Each island's data from the transects were analysed separately with the program Distance 7.3.



Figure 3. Island Smokvica in the Lastovo Archipelago.

## Results and discussion

A total of 4164 adult individuals, including 2287 Dalmatian Wall Lizard individuals and 1877 Sharp-snouted Rock Lizard individuals, were observed. Both species were recorded on all the islands visited.

The density of the *D. oxycephala*, is 22 - 282 individuals per hectare, while the *P. melisellensis* is 28 - 251 individuals per hectare. The highest density of the *D. oxycephala* was recorded on the island Mali Maslovnjak and the smallest on Bratin (Fig. 3). On the island Srednji Vlačnik was recorded the highest density of the *P. melisellensis*, and the smallest on the Zaklopatica (Fig. 4). *P. melisellensis* is more numerous on the islands where habitat type A and B prevails, but on islands where habitat type C and D prevails a greater number of *D. oxycephala* was recorded.

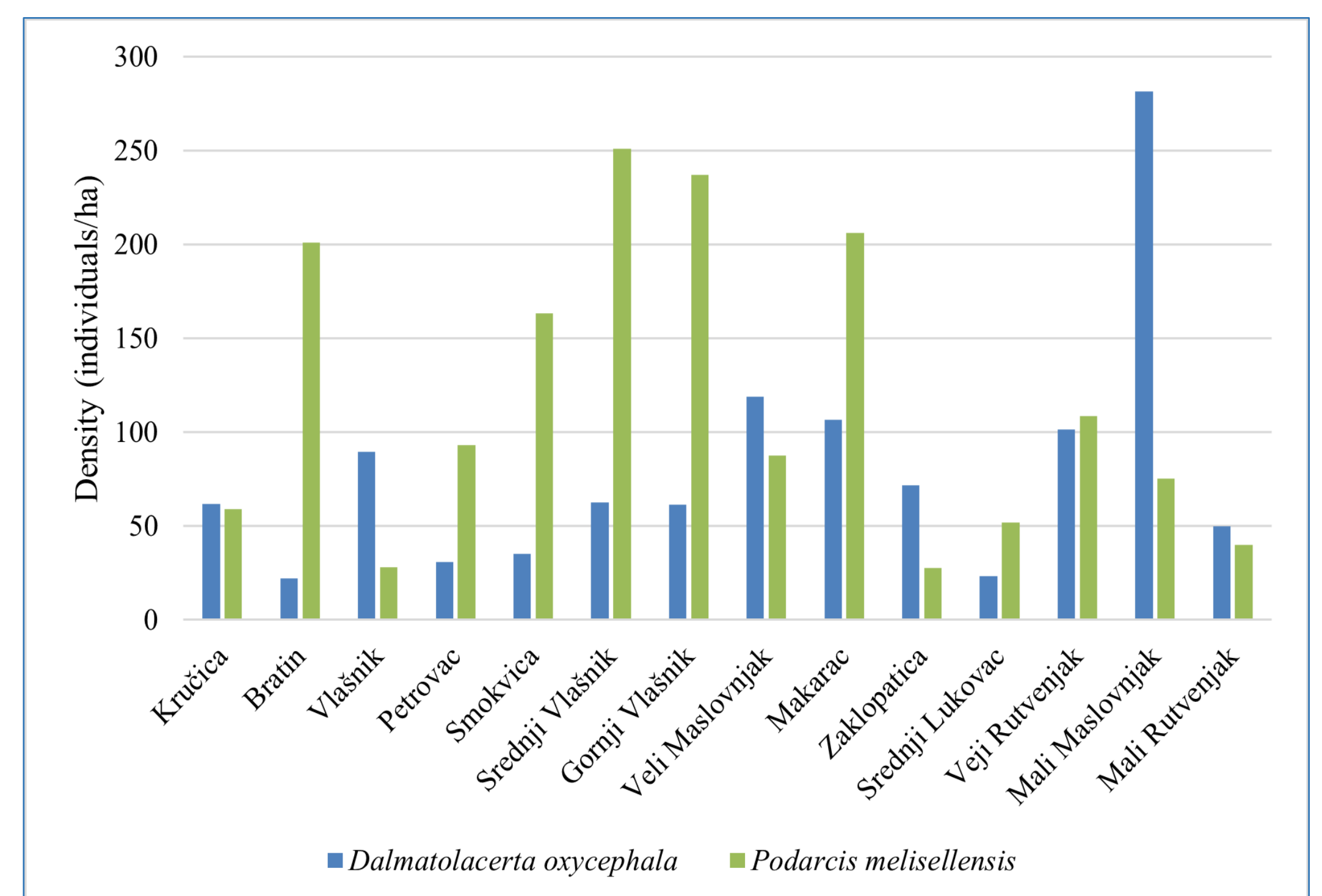


Figure 4. The density of the *D. oxycephala* and *P. melisellensis* per hectare on individual islands.

## Conclusions

These numbers represent initial values, and this assessment must be repeated following eradication to compare the situation before and after so it can be determined what kind of influence will rat eradication have on lizard populations on islands of Lastovo Archipelago.

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