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Inconsistent patterns of body size evolution in co-occurring island reptiles

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Short running title: Body size evolution in insular reptiles 23

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ABSTRACT 31

Aim Animal body sizes are often remarkably variable across islands, but despite much research we still poorly understand both patterns and drivers of body-size evolution. Theory predicts that interspecific competition and predation pressures are relaxed on small, remote islands, and that these conditions promote body-size evolution. We studied body size variation across multiple insular populations of 16 reptile species co-occurring in the same archipelago and tested which island characteristics primarily drive body-size evolution, what the common patterns are, and whether co-occurring species respond similarly to insular conditions.

Location Aegean Sea islands.

Time period 1984-2016.

Major taxa studied Reptiles.

Methods We combined field work, museum measurements, and a comprehensive literature survey to collect data on nearly 10,000 individuals representing eight lizard and eight snake species across 273 islands. We also quantified a large array of predictors to directly assess the effects of island area, isolation (both spatial and temporal), predation and inter-specific competition on body size evolution. We used linear models and meta-analyses to determine which predictors are informative for all reptiles, for lizards and snakes separately, and for each single species.

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3 **Results** Body size varies with different predictors across the species we studied, and 55
4 patterns differ within families and between lizards and snakes. While each predictor 56
5 influenced body size in at least one species, no general trend was recovered. As a 57
6 group, lizards are hardly affected by any of the predictors we tested, whereas snake 58
7 size generally increases with area, competitor and predator richness, and decreases 59
8 with isolation. 60

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18 **Main conclusions** No factor emerges as a predominant driver of Aegean reptile sizes. 62
19 This contradicts theories of general body-size evolutionary trajectories on islands. We 63
20 conclude that overarching generalizations over-simplify patterns and processes of 64
21 reptile body-size evolution on islands. Instead, species' autecology and island 65
22 particularities interact to drive the course of size evolution. 66
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INTRODUCTION

Identifying general pathways in the evolution of body size variation among insular populations has received decades of attention, and multiple patterns and drivers have been proposed and contradicted. Trait evolution on islands is often perceived as strong, predictable and consistent across taxa (Van Valen, 1973; Lomolino, 2005; Köhler et al., 2008). The most debated pattern is the “island rule”, suggesting insular animals tend to evolve a medium body size (Van Valen, 1973; Lomolino, 2005; Faubry & Svenning, 2016 cf. Meiri, 2007; Itescu et al., 2014; Leisler & Winkler, 2015). Insular faunas are generally depauperate, becoming species-poor as islands become smaller and more isolated (e.g., Darlington, 1957; MacArthur & Wilson, 1963). Therefore, insular animals are thought to experience relaxed interspecific competition and predation pressures, which, in turn, promote higher population densities and consequently stronger intraspecific competition (Melton, 1982). Together with resource limitation, these ecological processes are commonly thought to drive body size evolution on islands (Case, 1978; Melton, 1982; Lomolino, 2005). Heaney (1978) suggested that the effect of each of these factors changes with the size of the focal island and animal. He hypothesized that interspecific competition is more important to small animals than to large ones and that food limitation is more important to large animals than to small ones. He also hypothesized that the effect of predation is equally important at all sizes, but produces different trends at different body sizes. Additionally, he hypothesized that food limitation is the most important selection agent on small islands, predation on medium-sized islands, and interspecific competition on large islands and the mainland. Alternative explanations for body size variation on islands, suggesting indirect selection of these ecological factors on body

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3 size, via direct selection on life history traits, have also been proposed (Adler & 91
4 Levins, 1994; Palkovacs, 2003). 92
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8 Area and isolation are the two main island characteristics thought to affect animal 93
9 body size. Lomolino (2005) suggested that small species increase in size on smaller 94
10 and more isolated islands while large species become smaller on such islands. Other 95
11 studies, however, found minor support for such relationships in mammals (Meiri et 96
12 al., 2005, 2006), snakes (Boback, 2003), and lizards (Meiri, 2007). Heaney (1978) 97
13 predicted the body size of small mammals decreases while that of large mammals 98
14 increases with increasing area (see also Melton, 1982; Marquet & Taper, 1998). He 99
15 further predicted that medium sized animals are largest on intermediate-sized islands, 100
16 becoming smaller on both smaller and larger islands (Heaney, 1978). However, Meiri 101
17 et al. (2005) found no support for Heaney's prediction, or for a linear response of size 102
18 to island area. 103
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23 Isolation can be defined both in space and in time. Spatial isolation, usually calculated 104
24 as island distance from the nearest mainland (e.g., Anderson & Handley, 2002, Meik 105
25 et al., 2010), reduces immigration (i.e., gene flow) rates and makes *in situ* adaptations 106
26 more likely (Heaney, 2000). The effect of spatial isolation on body size is possibly 107
27 indirect, reflecting factors such as predation and competition pressures (Heaney, 108
28 1978; Arnold, 1979). Anderson & Handley (2002) suggested that, where over-water 109
29 dispersal is unlikely (as in the case of Aegean Sea reptiles, Foufopoulos & Ives, 110
30 1999), body sizes on close and far islands would not differ. Temporal isolation is 111
31 thought to be associated with body size in systems where sufficient time since 112
32 isolation has not yet passed to allow a unidirectional change towards an optimum to 113
33 be completed (Anderson & Handley, 2002). However, accelerated trait evolution on 114
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3 recently isolated islands has also been suggested (Aubret, 2015). As increased 115
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5 isolation is expected to drive the same phenotypic changes as decreasing island area 116
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7 (Adler & Levins, 1994), Heaney's (1978) prediction for island area is possibly true for 117
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9 isolation as well (i.e., that intermediate-sized species are smallest at intermediate 118
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11 isolation, and larger at low and high degrees of isolation). Furthermore, as Heaney 119
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13 suggested, island area reflects predation and interspecific competition and therefore 120
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15 the pattern suggested for island area should apply to predation and interspecific 121
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17 competition, with the later possibly showing a stronger effect in small species. 122
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21 Reptiles are well-known for their extreme-sized insular forms: giant tortoises and 123
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23 Komodo dragons on one hand, and the world's smallest lizards (*Sphaerodactylus* 124
24
25 geckos and *Brookesia* chameleons; Hedges & Thomas, 2001; Glaw et al., 2012) and 125
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27 snakes (Caribbean *Tetracheilostoma* threadsnakes; Hedges, 2008) on the other. 126
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30 Whether reptile body sizes tend to grow or diminish on islands compared to the 127
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32 mainland seems to be a clade-specific characteristic (see e.g., Case, 1978; Boback & 128
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34 Guyer, 2003; Meiri, 2007, 2008). How island area and isolation affect reptile body 129
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36 size evolution is unclear. Previous studies provided inconsistent results (cf. Soulé, 130
37
38 1966; Hasegawa & Moriguchi, 1989; Boback, 2003; Meiri, 2007; Meik et al., 2010; 131
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40 Donihue et al., 2016). Release from predation is thought to drive size increase in small 132
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42 species and size decrease in large species by relaxing direct selection on size-related 133
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44 anti-predatory adaptations (Heaney, 1978; Vervust et al., 2007). Relaxed interspecific 134
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46 competition allows niche shifts and promotes size changes (Soulé, 1966; Schoener, 135
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48 1970; Case, 1978; Hasegawa, 2003; but see Dunham et al., 1978). Ecological release 136
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50 (both from predators and interspecific competitors) is also thought to promote higher 137
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52 population densities, and consequently stronger intraspecific competition and 138
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54 aggressiveness (Pafilis et al., 2009; Donihue et al., 2016), which in turn favors large 139
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3 sizes, although smaller size is expected where early maturity is advantageous (Melton, 140
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5 1982; Palkovacs, 2003). 141
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8 To date, insular reptile body size evolution studies either contrasted mainland and 142
9 island species or populations (e.g., Case, 1978; Boback & Guyer, 2003; Meiri, 2007; 143
10 Itescu et al., 2014), or examined the effects of some predictors across populations of a 144
11 single species (e.g., Soulé, 1966; Meik et al., 2010) or genus (Dunham et al., 1978). It 145
12 remains unclear which island characteristics primarily drive body size evolution, what 146
13 the common patterns are, and whether co-occurring species respond similarly to 147
14 insular conditions. Which factor is most influential is sometimes debated even for a 148
15 single species (cf. Calsbeek & Cox, 2010, 2011; Losos & Pringle, 2011). Therefore, 149
16 we approached these questions by directly quantifying the effect of multiple potential 150
17 selection agents across multiple island populations of multiple reptile species within a 151
18 single archipelago. Comparing species co-occurring within the same archipelago 152
19 allows one to eliminate island-specific factors that vary across different regions such 153
20 as latitude, climate, vegetation, primary productivity, etc., but remain relatively 154
21 uniform among such co-occurring species (Meiri et al., 2008). This study design 155
22 potentially enables us to distinguish between patterns driven by the island conditions 156
23 we studied and those that are species-specific. 157
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44 We assembled a database of unprecedented coverage encompassing body size data for 158
45 nearly 10,000 individuals of 16 reptile species (eight lizard and eight snake species), 159
46 from 273 islands in the Aegean Sea. These islands vary widely in area, isolation and 160
47 faunal composition. Body size in reptile populations on these islands also varies 161
48 greatly (and in some species even reaches the maximal documented size, Itescu et al., 162
49 2016), making this system ideal to study size evolution on islands. We aimed to test 163
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several hypotheses: 1. Small species increase in size while large species become smaller as islands decrease in area, increase in isolation (in time and space), and harbor fewer predators and competitors for the focal species (Heaney, 1978; Lomolino, 2005); 2. Medium sized species are largest on intermediate-sized islands and intermediate degrees of isolation, predation and competition (Heaney, 1978); 3. Interspecific competition affects small species more strongly than large species while the effect of predation is not size-dependent (Heaney, 1978); 4. Body size patterns on islands are consistent across taxa (Lomolino, 2005; Köhler et al., 2008).

METHODS

Study system

The Aegean Sea has several thousand islands varying across six orders of magnitude in area. Their geological histories are diverse (Lymberakis & Poulakakis, 2010) and the landscapes are a patchwork of dwarf Mediterranean scrub (locally called ‘phrygana’), sclerophyllous evergreen maquis and agricultural areas (Fielding et al., 2005). Consequently, faunal composition and resource availability vary greatly across islands. Fifty reptile species inhabit Aegean Sea islands, with the gecko *Mediodactylus kotschy* and the lacertid *Podarcis erhardii* being most common, inhabiting even very small islets (Valakos et al., 2008).

Data collection

We measured specimens in the field during spring and summer periodically over 33 years (1984-2016). We further measured specimens in eight museum collections (Zoologische Staatssammlung München, Zoologische Forschungsmuseum Alexander Koenig in Bonn, Natural History Museum of Crete, Goulandris Natural History

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 3 Museum, British Natural History Museum, French National Museum of Natural 187
 4 History, Museum of Comparative Zoology at Harvard University, and Yale Peabody 188
 5 Museum of Natural History). Finally, we comprehensively surveyed literature and 189
 6 recorded body size information for as many Aegean island reptiles as possible (data 190
 7 were extracted from 97 sources; see Appendix 1 for a list). We recorded sex and body 191
 8 size for 9951 adult individuals of eight lizard and eight snake species originating from 192
 9 273 islands (Table 1, Appendix 2). We used the most commonly reported size indices: 193
 10 snout-vent length (SVL) for lizards, and total length for snakes. Mean body mass for 194
 11 each species was calculated from data we recorded in the field and from the literature. 195
 12 To ensure our use of multiple data sources did not bias the results, we compared the 196
 13 mean body size of specimens measured in museum collections and specimens 197
 14 measured in the field for several islands. We compared only islands from which we 198
 15 recorded body size data of at least five males and five females for each data source. 199
 16 For the two species with sufficient data we found no differences between sources (*P.* 200
 17 *erhardii*: field mean SVL=61.05 mm, museum=60.43 mm, n=38 islands, t=1.22, 201
 18 p=0.23; *M. kotschyi*: field=43.35 mm, museum=43.68 mm, n=25, t=-1.05, p=0.30). 202
 19 We therefore pooled museum, literature and field data in all further analyzes. 203
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 21 Following most island biogeography studies (studies of body size included; e.g., 204
 22 Boback, 2003; Lomolino, 2005; Meiri et al., 2005), we tested the distance from the 205
 23 nearest mainland as an index of spatial isolation. However, for land-bridge island 206
 24 systems this index may not adequately quantify effective isolation (Itescu, 2017), 207
 25 especially in the Aegean Sea archipelago (Foufopoulos & Ives, 1999). Therefore we 208
 26 also studied the distance from the closest larger island and a temporal isolation index, 209
 27 the time since isolation. Distances were calculated using Google Earth tools. Periods 210
 28 of isolation for islands isolated during the past 20,000 years (since the end of the last 211

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3 glacial maximum – "LGM") were calculated by crossing data for the maximum depth 212
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5 between a focal island and the last landmass to which it was connected with regional- 213
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7 specific charts of sea-level change since the LGM (see Foufopoulos & Ives, 1999; 214
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9 Foufopoulos et al., 2011). Maximum depths were drawn from fine resolution 215
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11 bathymetric maps of the Hellenic Navy Hydrographic Service 216
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13 (www.hnhs.gr/geoindex/). Estimations were calculated to a one year resolution, and 217
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15 we did not round values although we acknowledge and do not presume our method 218
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17 can accurately estimate isolation time at such a fine resolution. Temporal isolation of 219
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19 islands isolated earlier than the LGM were assembled from the literature (Appendix 220
21
22 3). We assembled island-specific faunal lists based on the literature and our own field 221
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24 observations to count the potential predator and competitor species of each focal 222
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26 population. Predators were defined as all mammals and reptiles likely to prey upon 223
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28 focal species (Appendix 4). Birds were excluded since their mobility across islands 224
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30 and their seasonal migration allows them to hunt well away from their breeding sites, 225
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32 making it impossible to create reliable island-specific lists. To ensure that excluding 226
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34 birds did not significantly affect our predator richness values we tested the correlation 227
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36 between predatory bird richness values and the combined counts of predatory 228
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38 mammal and predatory reptiles across 41 islands for which we did have reasonably 229
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40 reliable predatory bird lists (Itescu et al., 2017). The correlation coefficient (r) was 230
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42 0.90 ($p < 0.01$). We therefore feel confident to exclude bird counts from our database. 231
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45 We could not quantify potential predatory arthropods (e.g., spiders, scorpions, 232
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47 centipedes) since reports on either predation on reptiles by arthropods, and island 233
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49 specific faunal list for them are too rare. Competitors were defined as other lizards 234
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51 (for lizards) or other snakes (for snakes), assuming that juveniles of large species 235
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53 potentially compete with adults of smaller species. 236
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Analyses 237

We examined 16 reptile species for which we had measurements of at least three individuals per population sampled across at least eight islands. This approach allowed us to maximize the number of species and populations as well as the range of islands and hence, maximize variation in the predictor variables. To avoid size biases due to sexual size dimorphism, we calculated population mean body size by averaging male and female means. Only for *Ablepharus kitaibelii* we used a mean of all individuals regardless of sex since reliably determining their sex in the field in a non-invasive manner is extremely difficult.

We first explored for each species whether the relationship of body size with each of the six island characteristics (island area, distance from the mainland, distance from the closest larger island, time since isolation, predator richness, and competitor richness) is linear or curvilinear. To test Heaney's (1978) prediction that the relationship between size evolution of species and each of the predictor variables is affected by the species body size we regressed the correlation coefficient of the relationship between body size (i.e. body length) and each of the six predictor variables, against log-transformed body mass of each species. We expected to find a positive relationship where Heaney's prediction holds, since it asserts small species would show negative body size-predictor slopes, medium-sized species would have slopes equal to zero, and large species show positive slopes (see Meiri et al., 2005). To test Heaney's prediction that interspecific competition is more important for small species than for large species while predation is equally important across all size classes, we regressed the absolute value of the correlation coefficients against log-transformed body mass. Here we expected to find a significant negative trend for

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2 interspecific competition and no trend for predation if the prediction holds. We used 261
3 body mass as the predictor variable in these analyses since it is comparable across 262
4 taxa, eliminating biases driven by body shape, and therefore is more suitable for inter- 263
5 specific comparisons than body length (Feldman & Meiri, 2013; Feldman et al., 264
6 2016). We then took a meta-analytic approach to explore whether any island 265
7 characteristic significantly affects body size across all reptiles we studied in general or 266
8 across each suborder (snakes and lizards) separately. We conducted DerSimonian- 267
9 Laird random-effect meta-analysis of correlation coefficients (r) of the linear 268
10 regressions of body size against each predictor variable in all species as effect sizes, 269
11 for each group separately. We used the correlation coefficients from regressions of 270
12 log₁₀-transformed body size (against tested predictors) for all species, to standardize 271
13 the r values we analyzed. The meta-analyses were performed using the 'metacor' R 272
14 package (Laliberté, 2011). Finally, we examined for each species which of the six 273
15 island characteristics comprise the model that best predicts its body size on islands 274
16 and compared the selected best models across species. To this end we performed a 275
17 multiple regression test for each species, followed by a backward-stepwise model 276
18 selection procedure based on p -values ($\alpha < 0.05$), using both linear and quadratic terms. 277
19 We avoided using the Akaike information criteria for model selection (AIC or AICc 278
20 scores) because the models with the lowest scores often had predictors which were 279
21 poorly associated with size (i.e. had p values > 0.05 when significance levels were 280
22 estimated), making them non-informative (models with the lowest scores merely 281
23 being the best of a collection of poor models; Arnold, 2010; Mac Nally et al., 2017). 282
24 Thus, the much maligned p -value approach proved more conservative. Nevertheless, 283
25 we present the AICc-based best models for each species in Appendix 5 to highlight 284
26 that our general conclusions are robust for using different model-selection approaches. 285
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3 We avoided over-parameterization by limiting models to include a maximum of three 286
4 data points (i.e., islands) per tested predictor. We discarded predictors which were 287
5 highly co-linear with others (variance inflation factor ≥ 5) in the same model. To meet 288
6 the assumptions of parametric tests we log₁₀-transformed island area, time since 289
7 isolation, and where needed, body size (residual distributions of six of the 16 species 290
8 were not normal before transformation; Shapiro-Wilk normality test) in all analyses. 291
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10 In all cases where we analyzed correlation coefficients (r) as the dependent variable 292
11 we used the r values from regressions of log₁₀-transformed body size (against tested 293
12 predictors) for all species to standardize the analyzed values. 294
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23 **RESULTS** 295

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26 The best models for body size were highly inconsistent across species. Each of the 296
27 predictors we tested was correlated with the body size of at least one species, but most 297
28 predictor-body size relationships were non-significant, and no predictor was important 298
29 for all species (Table 1). We found 15 different models (in terms of variables included 299
30 and trend signs) across the 16 studied species. Only the snakes *Elaphe quatuorlineata* 300
31 and *Vipera ammodytes* shared a similar model. For two snake species (*Eirenis* 301
32 *modestus* and *Natrix natrix*) no predictors were significant. Explanatory power and 302
33 effect sizes of each predictor varied greatly across the 16 species examined, within 303
34 snakes and lizards separately, and even within families (Table 2). In only one out of 304
35 16 reptile species (the snake *Telescopus fallax*) was a quadratic model of body size for 305
36 island area significant, and only five species showed a significant linear relationship 306
37 (three positive and two negative) between size and area, when area was tested in 307
38 univariate models (Fig. 1; see full univariate model statistics in Appendix 6). 308
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Following model selection, *T. fallax* still showed the same quadratic pattern, and 309

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3 significant linear relationships emerged only in lizards (positive in two species and 310
4 negative in four). In fact, for lizards island area was the most frequently significant 311
5 predictor. For snakes, distance from the mainland was the most frequently significant 312
6 predictor, negatively correlated with body size in three species and positively so in 313
7 one. 314

14 When we regressed the correlation coefficient (r) from the regression of body size 315
15 against each predictor variable in each study species against its log body mass, we 316
16 found a significant negative relationship for the three isolation indices (distance from 317
17 the mainland, distance from the closest larger island and time since isolation). The 318
18 results for island area, predator richness and competitor richness in this analysis were 319
19 non-significant (Table 3, Fig. 2). Regressing the absolute values of the correlation 320
21 coefficients from body length-predator richness and body length-competitor richness 321
22 regressions against body mass ($n=16$) showed that the importance of both predation 322
23 (slope= 0.06 ± 0.07 , $p=0.40$, $R^2=0.05$) and interspecific competition (slope= 0.08 ± 0.06 , 323
24 $p=0.23$, $R^2=0.10$) for body size variation is not size-dependent (Fig. 3). 324

36 The meta-analyses (Table 4) revealed that none of the predictors we tested had a 325
37 significant effect on body size in reptiles overall. Only the distance from the closest 326
38 larger island seemed to have a general (positive) effect on lizards (and a weak one at 327
39 that). Snake body size, however, significantly increased with island area, as well as 328
40 with competitor and predator richness, and declined with the distance from the 329
41 mainland and with time since isolation. The only predictor variable that did not 330
42 significantly affect snake body size was the distance from the closest larger island 331
43 (i.e., the opposite of the lizard pattern). 332

54 **DISCUSSION** 333

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3 Aegean island reptiles show great idiosyncrasy in the way their sizes respond to the 334
4 factors we studied. We found great pattern diversity among the species we studied, 335
5 with effects of the predictor variables varying in sign, shape (linear, curvilinear) and 336
6 significance. None of the predictor variables consistently affected even the majority of 337
7 species, and a comparison of the best models across species showed that nearly all 338
8 species were affected by a different combination of factors. Very few consistent 339
9 patterns emerged, except that most predictors were uninformative for most species (a 340
10 consistency of sorts). In line with this finding, the meta-analysis of effect sizes 341
11 showed that none of the three isolation indices significantly drives insular body size of 342
12 the studied reptiles in a particular direction (i.e., patterns are inconsistent across 343
13 species). Island area, predator richness, and competitor richness likely have no general 344
14 effect on insular reptile body size. Our results also revealed striking differences in the 345
15 response of body size on islands to environmental conditions in lizards and those in 346
16 snakes. That said, small reptile species tend to become larger on more isolated islands, 347
17 while large species tend to become smaller as geographic and temporal isolation 348
18 increases 349
19
20 A common perception in island biogeography is that as islands get smaller and more 350
21 isolated, the effects of the insular environment on the traits of their inhabitants 351
22 intensify (Melton, 1982; Filin & Ziv, 2004; Lomolino, 2005). However, when the 352
23 effects of area and isolation on reptile body size are directly tested, results are often 353
24 inconsistent. For snakes, Hasegawa & Moriguchi (1989) found a negative correlation 354
25 between body size and island area, Boback's (2003) meta-analysis revealed no 355
26 correlation between them, and Meik et al. (2010, 2012) found a strong positive 356
27 correlation in speckled rattlesnakes (*Crotalus mitchellii*). Our meta-analysis results for 357
28 snakes in general support the findings of Meik et al. (2010, 2012), but for most 358
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3 species we studied (seven out of the eight species) island area is not a particularly 359
4 important predictor of body size according to model selection (for *Telescopus fallax* it 360
5 is, but the relationship with body size is hump-shaped). Boback (2003) and Meiri et al. 361
6 (2010) found no association between size and either temporal or geographic isolation 362
7 whereas we found a negative relationship. The frequent inclusion of island area in the 363
8 best models of lizards (for seven out of eight species) is somewhat surprising 364
9 considering results of previous studies (Soulè, 1966; Dunham et al., 1978; Losos et 365
10 al., 2004; Meiri, 2007, but see Donihue et al., 2016). However, the fact that the 366
11 direction of the relationship changes across species points to no general trend. 367
12
13 We cannot support most of Heaney's (1978) predictions in the case of reptiles. It is 368
14 clear that none of the island characteristics we examined drives reptile body size 369
15 patterns in the predicted way. Moreover, isolation, regardless of the index tested, 370
16 shows the opposite patterns. These results highlight a role of island isolation in 371
17 driving reptile body size evolution (Van Valen, 1973; Lomolino, 2005). Island area, 372
18 however, in contrast to theory (Heaney, 1978; Lomolino, 2005), has no overall effect 373
19 on patterns of reptile body size variation on islands, at least in the Aegean Sea 374
20 archipelago. Our results also refute Heaney's (1978) prediction that interspecific 375
21 competition influences small species more strongly than large species, but supports 376
22 his prediction that the importance of predation for size variation on island is not size- 377
23 biased. 378
24
25 Surprisingly, we only found few, weak effects of biotic interactions. As others have 379
26 used island area and isolation as proxies for biotic effects and found significant 380
27 associations with body size (Lomolino, 2005), we expected that testing the effect of 381
28 the biotic interactions directly would result in stronger patterns. This, however, 382
29 proved false. Predator and competitor richness did not affect body size of most of our 383

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3 study species (less than a quarter of the species had these factors included in their best 384
4
5 model). For snakes, but not for lizards or for reptiles in general (i.e., as a group), the 385
6
7 meta-analysis showed a tendency towards larger sizes where predator and competitor 386
8
9 richness is greater. We think the weak effect of competitor and predator richness 387
10
11 implies that maybe many, possibly inefficient, competitors and predators do not 388
12
13 necessarily impose a stronger selection pressure than one or two dominant 389
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15 competitors\predators. Therefore, we suspect that despite its common use as a 390
16
17 predation pressure index in the literature (e.g., Pérez-Mellado et al., 1997; Cooper et 391
18
19 al., 2004), predator richness poorly reflects predation intensity (Meiri et al., 2005; 392
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21 Itescu et al., 2017). Similarly, competitor richness may be a weak index of 393
22
23 competition intensity (Meiri et al., 2014). Another possibility is that significant 394
24
25 evolutionary changes are apparent only on predator-free, rather than predator-poor, 395
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27 islands. 396
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31 Two important factors that we did not test in this study but are often thought to shape 397
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33 body size evolution on islands are intraspecific competition and resource limitation 398
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35 (Case, 1978; Melton, 1982). For example, gigantism on islands has been explained by 399
36
37 the need to evolve a large size under conditions of stronger intra-specific competition, 400
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39 where predation pressure is low (Pafilis et al., 2009). Territoriality, which involves 401
40
41 defending resources against conspecifics and characterizes some of our study species, 402
42
43 is also thought to be associated with larger sizes on islands (Case, 1978; Keehn et al., 403
44
45 2013, but see Case & Schwaner, 1993). Richer resources, in terms of prey size, prey 404
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47 diversity, and prey availability are usually associated in reptiles with increased body 405
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49 sizes on islands as well, especially for snakes (Schwaner, 1985; Shine, 1987; 406
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51 Hasegawa & Moriguchi, 1989; Hasegawa, 2003; Boback, 2003; Meiri, 2007, 2008). 407
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3 Furthermore, resource limitation may drive cannibalism in insular reptiles, 408
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5 consequently selecting for larger body sizes (Pafilis et al., 2009). 409
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8 While body size variation on islands is commonly examined under a framework of 410
9
10 adaptations, one cannot rule out alternative possibilities such as habitat-driven plastic 411
11
12 phenotypic responses (in contrast to adaptive genetic response) or founder effects. 412
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14 These possibilities seem especially relevant in our study system, considering the 413
15
16 minor effect commonly suggested selection agents have on reptile body size patterns. 414
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18 For example, individual growth rates can vary as a result of genetic changes (i.e., 415
19
20 adaptation) or plastic changes (e.g., more food permits faster growth). There are 416
21
22 indications that plastic growth rate variability across insular populations resulting 417
23
24 from variation in resource availability may produce non-adaptive body size 418
25
26 differences (Case, 1976; Forsman, 1991; Madsen & Shine, 1993). Additionally, where 419
27
28 predators are rare, foraging and basking times may increase, thereby allowing 420
29
30 enhanced growth. Of course, direct selection on growth rates rather than on body size 421
31
32 *per se* (e.g., due to ontogenetic differences in food limitation, competition intensity or 422
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34 size-biased predation pressure) may also drive population-level body size variation 423
35
36 (Aubret, 2012). Vincent et al. (2009) proposed that body size variation in snakes is no 424
37
38 more than an evolutionary spandrel, with gape size being the true trait under selection. 425
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41 Another alternative non-adaptive explanation for body size variation across 426
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43 populations is that where adult mortality rates are low (e.g., where predation is low) 427
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45 larger adult sizes are attained because individuals survive longer and reptiles grow 428
46
47 throughout their lives (King, 1989; Hasegawa & Mori, 2008). Founder effects may 429
48
49 also have a role in shaping body size patterns, especially in small, remote and young 430
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51 islands (Kolbe et al., 2012). Thus body size variation is not necessarily or solely 431
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3 adaptive, and novel approaches (Diniz-Filho & Raia, 2017) may allow better 432
4
5 discrimination between adaptive and non-adaptive patterns in the near future. 433
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8 An interesting and important pattern that emerged from our results is that lizards and 434
9
10 snakes, at the sub-order level, differ markedly in how their sizes respond to the factors 435
11
12 we studied. In fact, we found they show an exactly opposite picture to each other. 436
13
14 Lizard body size shows no general response to island conditions, except for a weak 437
15
16 tendency to decline with distance from the closest larger island. In contrast, snake 438
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18 body size responds to most factors apart from distance from the closest larger island. 439
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20 It tends to increase with island area, competitor richness and predator richness, and to 440
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22 decline with distance from the mainland and with time since isolation. Generally, the 441
23
24 patterns found for snakes follow the common predictions regarding insular evolution 442
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26 in large species (Heaney, 1978). Interestingly, however, those of lizards do not follow 443
27
28 the patterns predicted for small species (Heaney, 1978), in the most part. The patterns 444
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30 we found for each of the two groups separately, suggest that the overall effect of 445
31
32 isolation on reptile body size is somewhat complex. Likely, the negative trend in the 446
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34 cases of the distance from the mainland and time since isolation are driven by the 447
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36 tendency of snakes (i.e., generally larger species) towards dwarfism as these factors 448
37
38 increase. In contrast, the negative trend for the distance from the closest larger island 449
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40 is probably driven by the tendency of lizards (i.e., generally smaller species) to grow 450
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42 larger on more remote islands. At this point we cannot discern the reasons different 451
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44 isolation indices affect one group more strongly than the other. However, we 452
45
46 speculate that either the effect of isolation reflects another factor or combination of 453
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48 factors that affect lizards and snakes differently (e.g., the absence of rats on remote 454
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50 islands, which offer quality food for snakes, but possibly prey upon lizards and their 455
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52 eggs), or that the variation of one group is adaptive, while that of the other is led by 456
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3 strong founder effect signals or is non-adaptive. Inconsistent patterns of lizard and 457
4 snake body size evolution on islands have been shown before (e.g., the island rule, cf. 458
5 Boback & Guyer, 2003 for snakes and Meiri, 2007 for lizards). 459
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10 Conducting a comparative study of such a wide scope as this one will always create 460
11 logistic and methodological challenges and several caveats should be noted. The role 461
12 of shared ancestral condition in shaping body size variation on islands needs to be 462
13 addressed by comparing phylogenetic and non-phylogenetic models. However, the 463
14 population-level phylogenies currently available for the studied species did not allow 464
15 us to robustly examine this aspect. Therefore, we highlight the importance of island- 465
16 level molecular studies, which will generally facilitate further investigation of 466
17 evolutionary patterns. The nature of some of our predictors (e.g., competitor richness, 467
18 predator richness) necessitates some general assumptions (e.g., that a predator species 468
19 preys upon its prey species wherever they co-exist, and that we can correctly identify 469
20 all important competitors and predators). Since we consistently kept these 470
21 assumptions regarding all species and islands, we are confident they have not biased 471
22 our results. Perhaps the most important drawback, and most challenging to face, is 472
23 small sample sizes. With almost 10,000 adult reptiles examined we still came quite 473
24 short in samples for some populations and for certain species. Several species (e.g., 474
25 *Macrovipera schweizeri*, *Blanus strauchi*, *Podarcis levendis*) simply occur on too few 475
26 islands to be properly analyzed. For the rest, an inherent trade-off exists between the 476
27 numbers of sampled islands and sampled individuals per island. Our main unit of 477
28 analysis was the population and therefore we aimed to maximize the number of 478
29 islands for each species (thus also maximizing the variance in predictor values). This, 479
30 however, may come at the expense of accurately assessing population-level mean 480
31 body sizes because for some islands we only had data from few individuals. We 481
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3 acknowledge the possibility that low statistical power may have affected our results in 482
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5 some cases. Yet, the general patterns and inconsistencies we found across species are 483
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7 apparent even across the few best-sampled species, thus we have confidence our 484
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9 conclusions are valid. Moreover, the number of species we examined and the number 485
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11 of insular populations we sampled within each of these species are both of 486
12
13 unprecedented scope, at least for reptiles. We think this enables us to robustly draw 487
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15 valid conclusions from our results. 488
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19 Our results provide a compelling example for the statistical issue of which model- 489
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21 selection approach to prefer. The best AIC (or AICc) models are often poor overall 490
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23 and thus relying on AIC scores alone can be problematic for biological inference. For 491
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25 example, using p-values we infer that none of the predictors we tested explains the 492
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27 variation in body size of *Natrix natrix* and *Eirenis modestus*. Using AICc, we could 493
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29 only show that there are multiple predictors that are equally good (i.e. equally bad in 494
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31 these cases). In many cases the AICc method simply proves far less conservative than 495
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33 the p-value based one (cf. models in Table 2 to those in Appendix 5). In no case did 496
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35 the model, or undistinguishable group of models, with the lowest AICc contain fewer 497
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37 predictors than the best model with only significant predictors (at $p < 0.05$). Often, 498
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39 however, the models with the lowest AICc contained more predictors – including 499
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41 predictors that the p-value based method rejected as uninformative (Appendix 5). We 500
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43 think that, if anything, $p = 0.05$ is not conservative enough (e.g., Johnson, 2013; 501
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45 Benjamin et al., 2017). Using a model selection method that is even more liberal 502
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47 would have made us infer that many variables, that have the most tenuous relationship 503
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49 with animal size evolution on islands, are actually important. We thus use p values not 504
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51 because of any theoretical views about its merit, but because we prefer to err on the 505
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53 side of caution. 506
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3 The results of this study indicate that to a large extent different species respond 507
4 idiosyncratically to the insular environment. Thus, reptile body size variation seems to 508
5 be affected more by species identity than by island conditions, at least in this study 509
6 system. This contradicts the theory asserting that evolutionary patterns of body size on 510
7 islands are general across different taxa. The fact that none of the predictors we tested 511
8 consistently affected a majority of the species, and that the best models differed 512
9 greatly across species, highlights the importance of testing several potential driving 513
10 mechanisms simultaneously, as we did, to prevent unjustified generalizations from 514
11 being reached. We thus conclude that body size evolution on island is probably 515
12 species- and island-specific, and generalizations over-simplify the complex patterns 516
13 and processes of size evolution. This study elucidates the need for a major re-thinking 517
14 of the insular evolution paradigm, away from island characteristics as monotonous 518
15 predictors of animal trait evolution, and into the need to quantify relevant ecological 519
16 effects for different study systems. 520

31 32 33 34 **ACKNOWLEDGMENTS** 521

35
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13 **SUPPORTING INFORMATION** 537

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17 **Appendix 1.** Reference list for literature containing body size data. 538
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20 **Appendix 2.** Data used for analyses. 539
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23 **Appendix 3.** Literature sources for isolation time of islands isolated before LGM. 540
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26 **Appendix 4.** A list of potential predator species included in our analyses. 541
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29 **Appendix 5.** Best models for each species based on AICc scores. 542
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32 **Appendix 6.** Full statistics of single-predictor linear and curvilinear models. 543
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34 **DATA ACCESSIBILITY** 544

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36 All the data analyzed in this study is available in Appendix 2. 545
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39 **BIOSKETCH** 546

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41
42 Yuval Itescu is a PhD candidate interested in the biogeographic patterns and the 547
43 processes driving the evolution of morphological and life history trait variation of 548
44 animals in general and insular animals specifically. He is also fascinated by the 549
45 implications of the insular environment on the ecology of insular fauna. 550
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Table 1. Summary of data and the effects of each predictor on each species. (+) marks a positive correlation; (-) a negative correlation; (U) a positive quadratic relationship; (∩) a negative quadratic relationship; (NS) non-significant correlation; Full statistics of all models (with sample sizes) are given in Table 2. Population mean size range refers to SVL in lizards and total length in snakes. 747
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Group	Family	Species	Islands	Individuals	Population mean size range (mm)	Species mean body mass (g)	Area	Distance from the mainland	Distance from closest larger island	Time since isolation	Predators	Competitors
Lizards	Gekkonidae	<i>Hemidactylus turcicus</i>	27	270	42.04 – 59.89	3.3	+	NS	NS	NS	NS	NS
		<i>Mediodactylus kotschyi</i>	86	2071	33.52 – 49.88	2.8	-	NS	NS	NS	NS	∩
	Lacertidae	<i>Podarcis erhardii</i>	118	5323	52.87 – 75.23	6.0	-	-	+	NS	NS	NS
		<i>Podarcis gaigeae</i>	14	641	57.37 – 77.67	8.4	NS	-	+	-	NS	NS
		<i>Podarcis milensis</i>	8	116	53.65 – 67.09	4.1	-	NS	NS	+	NS	NS
		<i>Lacerta trilineata</i>	16	231	107.33 – 141.85	69.9	-	+	NS	NS	NS	NS
		<i>Ophisops elegans</i>	14	143	40.10 – 48.53	2.0	+	NS	NS	NS	-	NS
	Scincidae	<i>Ablepharus kitaibelii</i>	24	180	35.66 – 44.84	1.4	NS	+	NS	NS	NS	NS
Snakes	Boidae	<i>Eryx jaculus</i>	8	48	269.79 – 516.33	52.5	NS	-	NS	NS	-	NS
	Colubridae	<i>Dolichophis caspius</i>	11	72	1085.40 – 1886.00	625.2	NS	NS	NS	NS	-	+
		<i>Eirenis modestus</i>	8	33	386.00 – 543.00	19.8	NS	NS	NS	NS	NS	NS
		<i>Elaphe quatuorlineata</i>	11	70	1036.20 – 1525.61	846.9	NS	-	NS	NS	NS	NS
		<i>Natrix natrix</i>	11	55	566.25 – 910.00	91.6	NS	NS	NS	NS	NS	NS
		<i>Telescopus fallax</i>	12	56	477.43 – 903.33	44.9	∩	NS	NS	NS	NS	NS
	Viperidae	<i>Vipera ammodytes</i>	15	152	281.33 – 592.25	28.1	NS	-	NS	NS	NS	NS
		<i>Vipera xanthina</i>	8	51	490.78 – 1493.33	276.0	NS	NS	NS	U	NS	NS

Table 2. Best models by species. n is island sample size. Body size was log10-transformed in species marked with (*).

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Group	Family	Species	n	Predictor	Slope	SE	Intercept	SE	P	Adjusted R ²	
Lizards	Gekkonidae	<i>Hemidactylus turcicus</i>	27	log area	1.91	0.59	46.37	1.01	<0.01	0.26	
		<i>Mediodactylus kotschyi</i>	86	log area competitor richness competitor richness (^2)	-0.86 2.81 -0.38	0.44 0.81 0.12	39.64	0.88	0.05 <0.01 <0.01	0.10	
	Lacertidae	<i>Podarcis erhardii</i> *	118	log area distance from the mainland log distance from closest larger landmass	(-)<0.01 (-)<0.01 0.01	<0.01 <0.01 <0.01	1.80	<0.01	0.02 0.01 0.04	0.07	
			14	<i>Podarcis gaigeae</i> *	distance from the mainland log distance from closest larger landmass log time since isolation	(-)<0.01 0.07 -0.08	<0.01 0.02 0.02	2.53	0.19	<0.01 0.01 <0.01	0.51
				<i>Podarcis milensis</i>	8	log area log time since isolation	-2.23 2.06	0.74 0.68	48.63	3.80	0.03 0.03
		<i>Lacerta trilineata</i>	16	log area distance from the mainland	-7.28 0.14	3.01 0.05	136.02	7.45	0.03 0.01	0.43	
		<i>Ophisops elegans</i>	14	log area predator richness	3.06 -0.67	1.00 0.28	41.61	1.28	0.01 0.04	0.36	
			Scincidae	<i>Ablepharus kitaibelii</i>	24	distance from the mainland	0.03	0.01	39.13	0.73	<0.01
	Snakes	Boidae	<i>Eryx jaculus</i>	8	distance from the mainland predator richness	-5.77 -26.20	0.55 3.56	1302.57	89.63	<0.01 <0.01	0.94
		Colubridae	<i>Dolichophis caspius</i>	11	predator richness competitor richness	-326.08 447.95	88.43 116.38	2751.25	391.42	0.01 <0.01	0.58
				<i>Eirenis modestus</i>	8	none	-	-	-	-	-
<i>Elaphe quatuorlineata</i>			11	distance from the mainland	-2.79	0.48	1482.29	37.59	<0.01	0.77	
			<i>Natrix natrix</i> *	11	none	-	-	-	-	-	-
<i>Telescopus fallax</i> *			12	log area (log area)^2	0.55 -0.09	0.21 0.04	2.04	0.26	0.03 0.04	0.43	
		Viperidae	<i>Vipera</i>	15	distance from the mainland	(-)<0.01	<0.01	2.74	0.04	<0.01	0.63

Group	Family	Species	n	Predictor	Slope	SE	Intercept	SE	P	Adjusted R ²
		<i>ammodytes*</i>								
		<i>Vipera</i>	8	log time since isolation	-6.94	1.86	19.42	4.39	0.01	0.65
		<i>xanthina*</i>		(log time since isolation) ²	0.71	0.19			0.01	

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Table 3. Results of the regression of the correlation coefficient (r) between body size and each predictor variable in each of the 16 study species against its log body mass (g). Significant results are highlighted in bold.

Predictors	Slope	SE	Intercept	SE	P	R ²
Log area	0.14	0.13	-0.11	0.21	0.32	0.07
Distance from the mainland	-0.30	0.12	0.22	0.20	0.03	0.29
Log Distance from closest larger island	-0.20	0.08	0.33	0.13	0.03	0.30
Log Time since isolation	-0.30	0.09	0.36	0.15	0.01	0.42
Predator richness	0.20	0.11	-0.18	0.19	0.11	0.17
Competitor richness	0.13	0.11	-0.04	0.18	0.27	0.08

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Table 4. Meta-analysis results for all reptiles, only lizards and only snakes. P values are for $H_0: r=0$. Significant results are highlighted in bold.

Predictors	All reptiles			Lizards			Snakes		
	Mean r	Range (r)	P	Mean r	Range (r)	P	Mean r	Range (r)	P
Log area (km ²)	0.108	-0.106 – 0.313	0.16	-0.082	-0.326 – 0.173	0.27	0.410	0.146 – 0.620	<0.01
Distance from the mainland (km)	-0.201	-0.433 – 0.055	0.06	0.130	-0.129 – 0.372	0.16	-0.581	-0.777 – -0.281	<0.01
Log distance from closest larger island (km)	0.068	-0.070 – 0.204	0.17	0.152	-0.028 – 0.323	0.05	-0.124	-0.361 – 0.128	0.17
Log time since isolation (years)	-0.042	-0.224 – 0.142	0.33	0.077	-0.134 – 0.282	0.24	-0.263	-0.536 – 0.058	0.05
Predator richness	0.096	-0.098 – 0.284	0.16	-0.088	-0.278 – 0.108	0.19	0.443	0.182 – 0.645	<0.01
Competitor richness	0.147	-0.035 – 0.320	0.06	0.003	-0.190 – 0.196	0.49	0.423	0.179 – 0.618	<0.01

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Figure 1. Body size as a function of island area: **a** – *Mediodactylus kotschyi*; **b** – 764
Hemidactylus turcicus; **c** – *Podarcis erhardii*; **d** – *Podarcis gaigeae*; **e** – *Podarcis* 765
milensis; **f** – *Ophisops elegans*; **g** – *Lacerta trilineata*; **h** – *Ablepharus kitaibelii*; **i** – 766
Dolichophis caspius; **j** – *Eryx jaculus*; **k** – *Eirenis modestus*; **l** – *Elaphe* 767
quatuorlineata; **m** – *Natrix natrix*; **n** – *Telescopus fallax*; **o** – *Vipera ammodytes*; **p** – 768
Vipera xanthina. Body size index is: SVL for species a, b, e, f, g, h; Log SVL for 769
species c, d; Total length for species i, j, k, l; Log total length for species m, n, o, p. 770
Full trend lines indicate a significant relationship ($p < 0.05$). 771

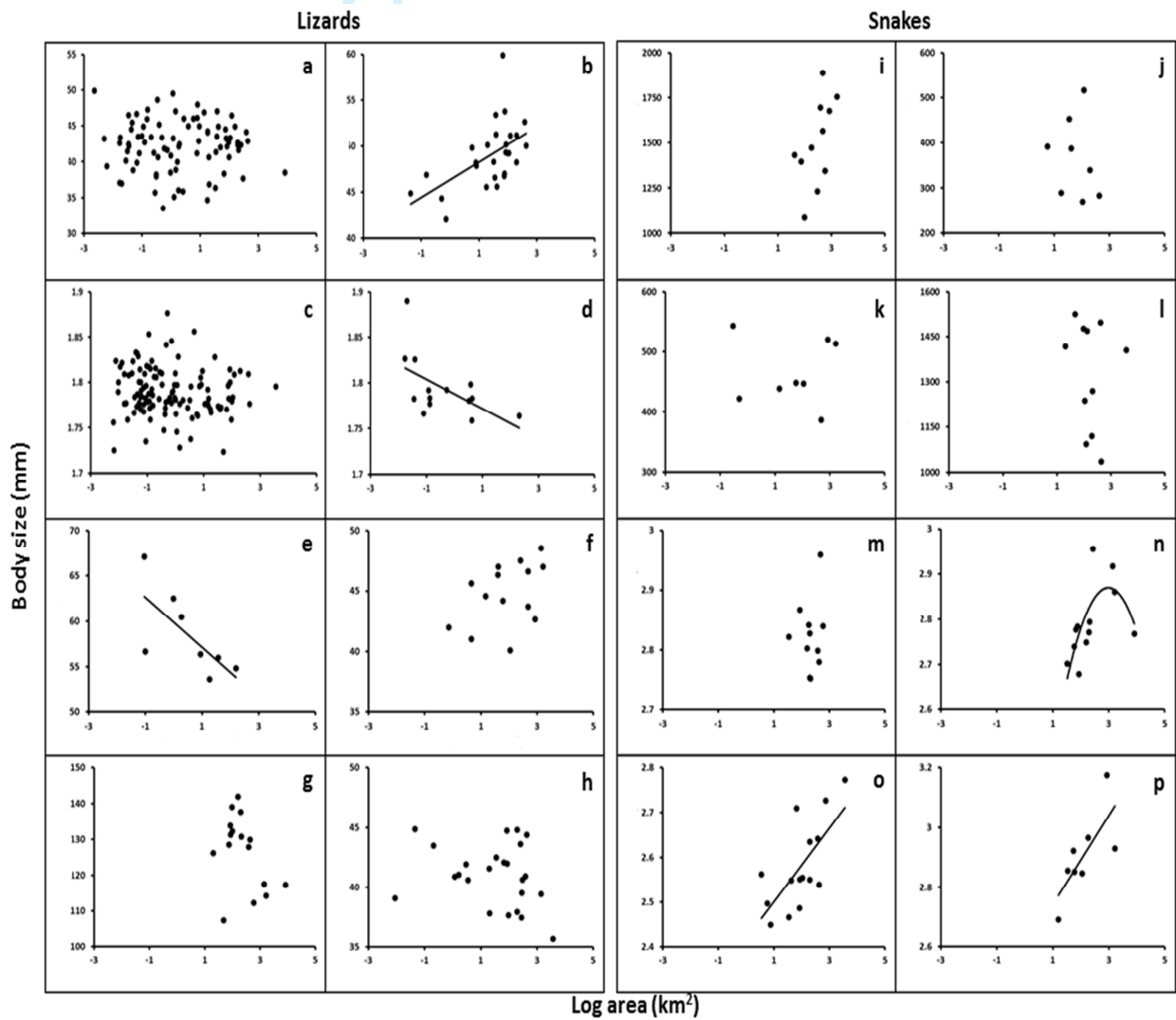
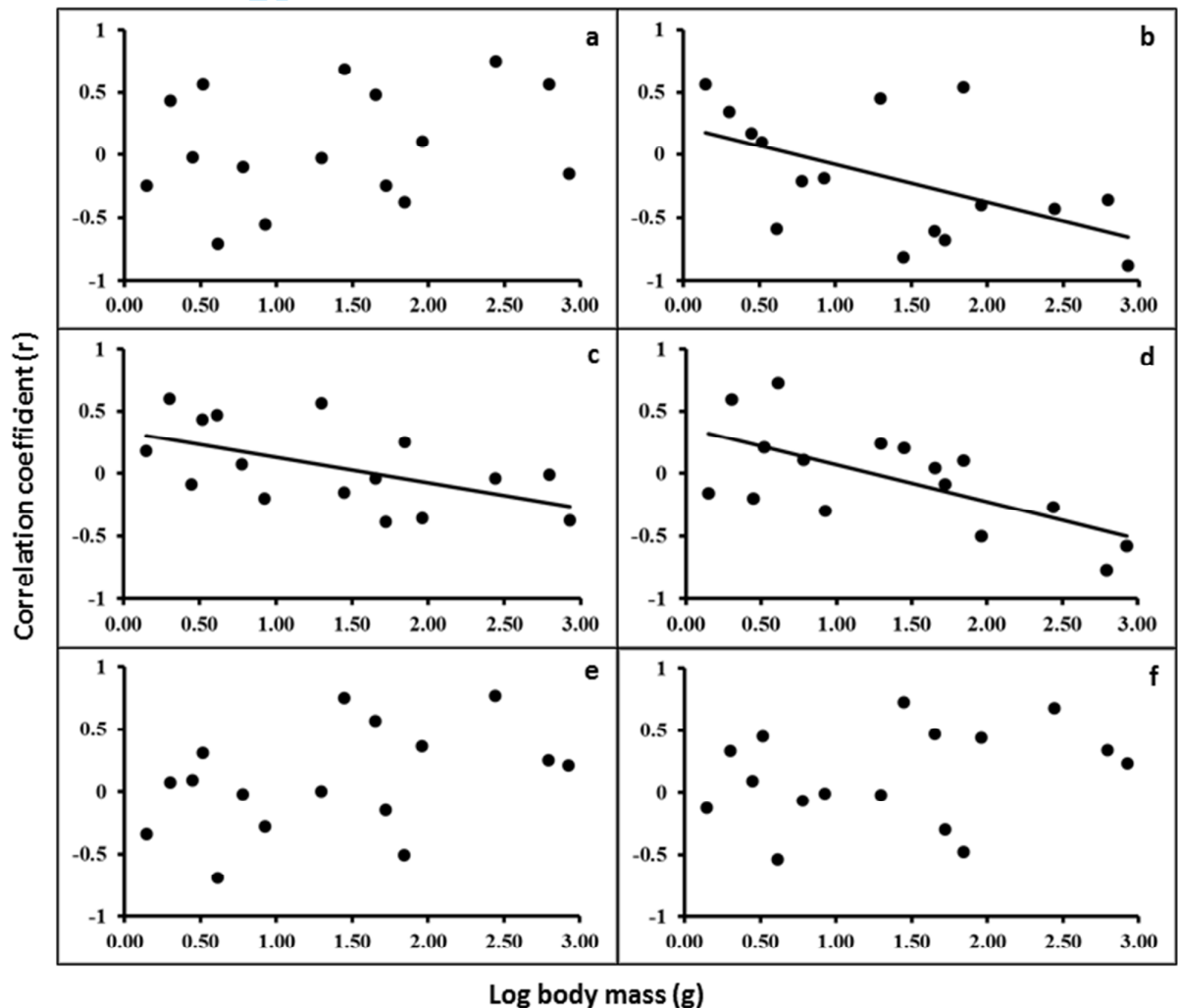
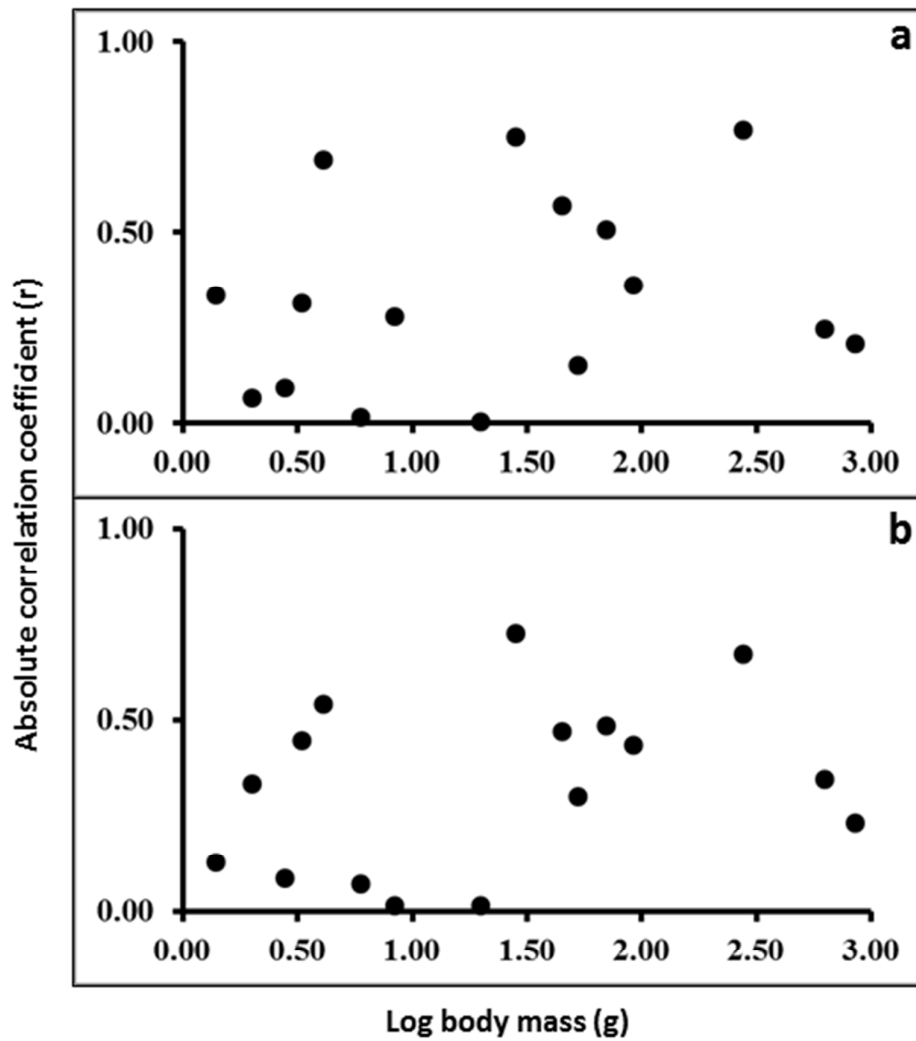


Figure 2. The relationship between the correlation coefficient (r) of body length (mm; SVL for lizards, total length for snakes, see text) against each predictor variable and the log mean body mass (g) of each species. Panels show: **a** – log island area (km^2); **b** – distance from the mainland (km); **c** – log distance from the closest larger island (km); **d** - log time since isolation (years); **e** – predator richness; **f** – competitor richness. $n=16$ species in all cases. Trend lines are shown only if they are statistically significant. $n=16$ species in all cases. Trend lines are shown only if they are statistically significant.



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1
2
3 **Figure 3.** The relationship between the absolute value of the correlation coefficient (r) 780
4 of body length (mm; SVL for lizards, total length for snakes, see text) against predator 781
5 richness (**a**) and competitor richness (**b**) and the log mean body mass (g) of each 782
6 species. 783
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Appendix S1. Reference list for literature containing additional body size data.

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Appendix 2. Data used for analyses.

Table S1. Data used for analyses. Body size values for lizards are for SVL, and for snakes are for total length. Variable unit descriptions are detailed in the main text.

species	lizard\snake	island	latitude	longitудe	n	body size (mm)	island area (km ²)	distance from the mainland (km)	distance from the closest larger island (km)	time since isolation (years)	predators	competitors
<i>A. kitaibelii</i>	lizard	Andros	37.858	24.848	3	40.94	383.022	54.89	54.89	13020	6	4
<i>A. kitaibelii</i>	lizard	Antikythira	35.865	23.304	33	41.56	19.6785	59.30	32	525000	1	2
<i>A. kitaibelii</i>	lizard	Antiparos	37.000	25.054	8	42.51	35.09	113.13	0.94	5500	4	5
<i>A. kitaibelii</i>	lizard	Astypalea	36.552	26.312	3	37.65	96.42	79.80	38.12	3200000	0	3
<i>A. kitaibelii</i>	lizard	Dilos	37.394	25.271	4	40.63	3.536	109.60	0.64	3273	2	4
<i>A. kitaibelii</i>	lizard	Euboea	38.556	23.794	5	35.66	3661.637	0.04	0.04	6215	12	8
<i>A. kitaibelii</i>	lizard	Fanari	35.203	25.732	10	44.84	0.0445	220.00	0.58	2500	0	2
<i>A. kitaibelii</i>	lizard	Glaropounda	36.979	25.110	3	43.48	0.2068	120.20	0.35	2500	1	1
<i>A. kitaibelii</i>	lizard	Ikaria	37.596	26.152	6	43.61	255.32	51.00	18.26	18664	2	6
<i>A. kitaibelii</i>	lizard	Karpathos	35.505	27.150	15	40.65	300.152	95.47	46	3000000	4	3
<i>A. kitaibelii</i>	lizard	Kassos	35.391	26.921	13	42.08	66.419	141.19	6	10275	1	4
<i>A. kitaibelii</i>	lizard	Kos	36.818	27.134	5	39.54	287.611	4.70	4.7	8380	10	8
<i>A. kitaibelii</i>	lizard	Kythira	36.248	22.983	10	37.45	277.228	13.84	13.84	200000	5	4
<i>A. kitaibelii</i>	lizard	Mykonos	37.443	25.381	7	41.98	86.125	110.80	8.2	12131	4	5
<i>A. kitaibelii</i>	lizard	Naxos	37.061	25.484	10	44.37	430.174	130.00	105.5	2000000	5	6
<i>A. kitaibelii</i>	lizard	Paros	37.060	25.192	4	37.94	196.755	114.76	5.1	8417	6	4
<i>A. kitaibelii</i>	lizard	Pergoussa	36.588	27.038	4	40.91	1.1632	30.16	6.97	150000	0	2
<i>A. kitaibelii</i>	lizard	Psoradia	36.152	29.596	3	39.10	0.0088	3.60	0.09	6123	0	0
<i>A. kitaibelii</i>	lizard	Rodos	36.185	27.952	5	39.45	1401.459	17.36	17.36	2100000	7	8
<i>A. kitaibelii</i>	lizard	Spetses	37.263	23.132	5	37.80	20.263	2.20	2.2	8147	6	3

species	lizard/ snake	island	latitude	longitudde	n	body size (mm)	island area (km ²)	distance from the mainland (km)	distance from the closest larger island (km)	time since isolation (years)	predators	competitors
<i>A. kitaibelii</i>	lizard	Stira	38.174	24.162	4	41.93	2.99	6.31	1.54	10222	1	1
<i>A. kitaibelii</i>	lizard	Stroggylo (AntP)	36.950	24.961	5	41.07	1.624	113.00	0.78	6857	1	1
<i>A. kitaibelii</i>	lizard	Syros	37.433	24.914	7	44.74	84.069	73.50	16.6	12723	5	5
<i>A. kitaibelii</i>	lizard	Tinos	37.585	25.184	8	44.79	197.044	78.88	1.5	9242	8	5
<i>H. turcicus</i>	lizard	Agia Kyriaki (Kal.)	36.976	26.911	9	46.89	0.1501	29.00	1.05	10000	0	1
<i>H. turcicus</i>	lizard	Amorgos	36.847	25.903	18	51.16	121.464	102.50	25	200000	3	3
<i>H. turcicus</i>	lizard	Anafi	36.367	25.782	9	51.25	38.636	138.70	21.6	400000	0	2
<i>H. turcicus</i>	lizard	Andros	37.858	24.848	5	52.65	383.022	54.89	54.89	13020	6	4
<i>H. turcicus</i>	lizard	Antikythira	35.865	23.304	8	50.12	19.6785	59.30	32	525000	1	2
<i>H. turcicus</i>	lizard	Antiparos	37.000	25.054	11	46.61	35.09	113.13	0.94	5500	4	5
<i>H. turcicus</i>	lizard	Apano Kufonisi	36.941	25.607	11	49.82	5.77	142.50	4.2	8333	2	3
<i>H. turcicus</i>	lizard	Aspronisi (Sch.)	36.855	25.546	3	44.88	0.0427	151.11	0.22	6000	0	2
<i>H. turcicus</i>	lizard	Despotiko (Cyc.)	36.962	25.003	23	48.23	7.754	113.00	0.73	1800	4	4
<i>H. turcicus</i>	lizard	Folegandros	36.615	24.930	7	48.28	32.384	131.50	9.6	12599	2	2
<i>H. turcicus</i>	lizard	Ios	36.722	25.327	17	49.23	108.713	145.90	18.2	11784	3	3
<i>H. turcicus</i>	lizard	Iraklia	36.840	25.454	11	45.57	18.078	152.00	5.5	10071	3	2
<i>H. turcicus</i>	lizard	Kassos	35.391	26.921	3	59.90	66.419	141.19	6	10275	1	4
<i>H. turcicus</i>	lizard	Kimolos	36.808	24.559	11	53.40	37.426	100.80	1	6490	5	4
<i>H. turcicus</i>	lizard	Kythnos	37.406	24.424	7	49.22	99.432	39.00	11.5	600000	4	4
<i>H. turcicus</i>	lizard	Mykonos	37.443	25.381	10	50.19	86.125	110.80	8.2	12131	4	5
<i>H. turcicus</i>	lizard	Naxos	37.061	25.484	12	50.05	430.174	130.00	105.5	2000000	5	6
<i>H. turcicus</i>	lizard	Nera	36.914	26.939	3	44.35	0.5013	28.12	0.87	10923	0	2
<i>H. turcicus</i>	lizard	Paros	37.060	25.192	10	48.27	196.755	114.76	5.1	8417	6	4
<i>H. turcicus</i>	lizard	Plati	36.942	27.095	3	42.04	0.7238	14.40	0.96	6213	0	2
<i>H. turcicus</i>	lizard	Schinoussa	36.873	25.521	36	47.86	8.144	151.00	2.17	9333	2	2
<i>H. turcicus</i>	lizard	Serifos	37.161	24.481	7	46.75	74.331	63.00	13.2	200000	4	4

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<i>H. turcicus</i>	lizard	Sifnos	36.972	24.702	6	53.78	77.371	37.40	21.4	200000	3	4
<i>H. turcicus</i>	lizard	Sikinos	36.680	25.121	10	45.60	41.676	142.50	5.75	13647	2	2
<i>H. turcicus</i>	lizard	Syros	37.433	24.914	12	49.30	84.069	73.50	16.6	12723	5	5
<i>H. turcicus</i>	lizard	Thira	36.388	25.454	3	47.04	76.194	185.50	17.95	200000	2	2
<i>H. turcicus</i>	lizard	Tinos	37.585	25.184	5	51.18	197.044	78.88	1.5	9242	8	5
<i>L. trilineata</i>	lizard	Andros	37.858	24.848	32	127.89	383.022	54.89	54.89	13020	6	4
<i>L. trilineata</i>	lizard	Crete	35.233	24.847	37	117.37	8261.183	97.14	97.14	5200000	4	7
<i>L. trilineata</i>	lizard	Korfu	39.710	19.750	5	112.25	585.312	2.03	2.03	10235	12	10
<i>L. trilineata</i>	lizard	Kythnos	37.406	24.424	5	132.26	99.432	39.00	11.5	600000	4	4
<i>L. trilineata</i>	lizard	Lesvos	39.193	26.029	8	114.28	1635.998	9.01	9.01	9427	10	5
<i>L. trilineata</i>	lizard	Milos	36.708	24.490	16	141.85	158.403	103.00	57.2	600000	6	4
<i>L. trilineata</i>	lizard	Mykonos	37.443	25.381	3	131.25	86.125	110.80	8.2	12131	4	5
<i>L. trilineata</i>	lizard	Naxos	37.061	25.484	37	129.93	430.174	130.00	105.5	2000000	5	6
<i>L. trilineata</i>	lizard	Rodos	36.185	27.952	4	117.50	1401.459	17.36	17.36	2100000	7	8
<i>L. trilineata</i>	lizard	Serifos	37.161	24.481	7	128.50	74.331	63.00	13.2	200000	4	4
<i>L. trilineata</i>	lizard	Skiathos	39.169	23.456	11	107.33	47.212	4.13	4.13	7739	6	4
<i>L. trilineata</i>	lizard	Skopelos	39.129	23.691	5	138.98	95.684	20.55	20.55	14696	3	4
<i>L. trilineata</i>	lizard	Skyros	38.808	24.622	24	130.75	208.594	73.43	34.5	4500000	4	4
<i>L. trilineata</i>	lizard	Spetses	37.263	23.132	14	126.21	20.263	2.20	2.2	8147	6	3
<i>L. trilineata</i>	lizard	Syros	37.433	24.914	3	133.83	84.069	73.50	16.6	12723	5	5
<i>L. trilineata</i>	lizard	Tinos	37.585	25.184	14	137.67	197.044	78.88	1.5	9242	8	5
<i>M. kotschy</i>	lizard	Adelphopoula	39.126	23.988	4	45.16	0.391	54.72	0.28	6435	1	1
<i>M. kotschy</i>	lizard	Agia Kyriaki (Ast.)	36.547	26.403	17	41.24	0.2552	87.08	1.2	8666	0	1
<i>M. kotschy</i>	lizard	Agios Eustathios	36.775	24.582	34	43.58	0.0996	108.34	0.5	6408	0	1
<i>M. kotschy</i>	lizard	Agios Georgios (Mil.)	36.757	24.577	3	44.92	0.112	110.52	1.83	6898	0	0

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<i>M. kotschy</i>	lizard	Amorgos	36.847	25.903	45	46.44	121.464	102.50	25	200000	3	3
<i>M. kotschy</i>	lizard	Anafi	36.367	25.782	28	47.03	38.636	138.70	21.6	400000	0	2
<i>M. kotschy</i>	lizard	Andreas	36.862	25.622	9	45.46	0.045	144.20	1.22	7004	0	1
<i>M. kotschy</i>	lizard	Andros	37.858	24.848	40	44.15	383.022	54.89	54.89	13020	6	4
<i>M. kotschy</i>	lizard	Antikythira	35.865	23.304	42	40.64	19.6785	59.30	32	525000	1	2
<i>M. kotschy</i>	lizard	Antimilos	36.789	24.239	4	42.89	8.8054	95.00	9	320000	1	1
<i>M. kotschy</i>	lizard	Antiparos	37.000	25.054	58	41.32	35.09	113.13	0.94	5500	4	5
<i>M. kotschy</i>	lizard	Anydros (Cyc.)	36.626	25.683	6	49.53	1.1385	145.60	17.3	400000	0	1
<i>M. kotschy</i>	lizard	Anydros (Pat.)	37.410	26.493	9	38.23	0.3078	53.45	4.63	15044	0	0
<i>M. kotschy</i>	lizard	Apano Kufonisi	36.941	25.607	46	45.99	5.77	142.50	4.2	8333	2	3
<i>M. kotschy</i>	lizard	Armathia	35.438	26.861	12	35.87	2.5765	144.15	2.6	7280	1	1
<i>M. kotschy</i>	lizard	Aspronisi (Sch.)	36.855	25.546	33	44.49	0.0427	151.11	0.22	6000	0	2
<i>M. kotschy</i>	lizard	Astypalea	36.552	26.312	18	42.69	96.42	79.80	38.12	3200000	0	3
<i>M. kotschy</i>	lizard	Christiana	36.250	25.203	21	43.27	1.1887	180.43	17.43	1000000	1	1
<i>M. kotschy</i>	lizard	Crete	35.233	24.847	3	38.47	8261.183	97.14	97.14	5200000	4	7
<i>M. kotschy</i>	lizard	Despotiko (Cyc.)	36.962	25.003	41	41.18	7.754	113.00	0.73	1800	4	4
<i>M. kotschy</i>	lizard	Diavates (Southwest)	38.789	24.513	8	36.97	0.02	73.83	1.2	8610	0	1
<i>M. kotschy</i>	lizard	Donoussa	37.109	25.814	7	46.90	13.652	119.70	15.7	13810	1	2
<i>M. kotschy</i>	lizard	Gavdopoula	34.930	24.003	3	36.00	1.775	180.67	7.13	10549	0	0
<i>M. kotschy</i>	lizard	Gavdos	34.842	24.089	27	36.33	33.025	191.90	35.5	3000000	2	2
<i>M. kotschy</i>	lizard	Glaronisi	36.916	25.605	53	47.24	0.1565	145.00	0.55	5400	0	1
<i>M. kotschy</i>	lizard	Glaropounda	36.979	25.110	34	43.42	0.2068	120.20	0.35	2500	1	1
<i>M. kotschy</i>	lizard	Gyaros	37.611	24.712	5	34.64	17.5502	51.70	14.61	19149	1	3
<i>M. kotschy</i>	lizard	Hydra	37.334	23.468	7	41.99	49.586	6.00	6	14892	2	5

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<i>M. kotschy</i>	lizard	Ikaria	37.596	26.152	10	42.35	255.32	51.00	18.26	18664	2	6
<i>M. kotschy</i>	lizard	Ios	36.722	25.327	38	43.30	108.713	145.90	18.2	11784	3	3
<i>M. kotschy</i>	lizard	Iraklia	36.840	25.454	42	44.09	18.078	152.00	5.5	10071	3	2
<i>M. kotschy</i>	lizard	Kalogeri	36.742	24.645	5	43.23	0.005	114.47	0.09	5000	0	0
<i>M. kotschy</i>	lizard	Karpathos	35.505	27.150	47	37.67	300.152	95.47	46	3000000	4	3
<i>M. kotschy</i>	lizard	Karyofyllo	35.459	26.912	6	41.48	0.0315	140.09	0.72	6248	0	0
<i>M. kotschy</i>	lizard	Kassos	35.391	26.921	73	38.35	66.419	141.19	6	10275	1	4
<i>M. kotschy</i>	lizard	Kato Fira	37.056	25.081	25	41.59	0.728	113.20	0.14	242	0	1
<i>M. kotschy</i>	lizard	Kato Kufonisi	36.910	25.576	26	44.98	3.8996	149.80	0.44	6258	1	2
<i>M. kotschy</i>	lizard	Katzika	36.326	26.730	4	37.05	0.0171	69.14	3.35	14007	0	0
<i>M. kotschy</i>	lizard	Kimolos	36.808	24.559	83	43.51	37.426	100.80	1	6490	5	4
<i>M. kotschy</i>	lizard	Kitriani	36.903	24.726	8	38.52	0.9396	103.20	0.35	5000	0	1
<i>M. kotschy</i>	lizard	Kopria	36.987	25.638	6	45.92	0.1462	141.40	6.4	12000	0	1
<i>M. kotschy</i>	lizard	Kounoupi	36.536	26.468	3	38.89	1.4452	81.93	3.95	12723	0	1
<i>M. kotschy</i>	lizard	Kythnos	37.406	24.424	15	40.65	99.432	39.00	11.5	600000	4	4
<i>M. kotschy</i>	lizard	Lakonisi	38.849	24.475	5	42.60	0.0169	77.20	0.68	11659	0	1
<i>M. kotschy</i>	lizard	Liadi	36.908	26.166	3	48.61	0.334	95.70	6.85	13951	0	1
<i>M. kotschy</i>	lizard	Lytra	35.430	26.824	12	38.85	0.0485	146.30	0.57	6616	0	0
<i>M. kotschy</i>	lizard	Makronisi (Kas.)	35.452	26.894	12	37.94	0.3086	146.00	1.97	6104	0	0
<i>M. kotschy</i>	lizard	Marathi	37.367	26.725	5	40.64	0.355	40.80	0.57	8695	0	1
<i>M. kotschy</i>	lizard	Megali Fteno	36.311	25.800	43	46.67	0.0646	145.72	3.6	9510	0	1
<i>M. kotschy</i>	lizard	Megalo Fokionisi	36.608	26.351	5	41.81	0.573	90.18	1.7	6066	0	0
<i>M. kotschy</i>	lizard	Megalo Karavonisi	36.001	26.435	18	40.14	0.028	112.00	5.23	4500000	0	0
<i>M. kotschy</i>	lizard	Megalo Ounio	35.826	26.466	15	35.69	0.279	124.84	20.5	4500000	0	0
<i>M. kotschy</i>	lizard	Megalo Pontikonisi	35.431	26.838	5	43.48	0.073	145.60	0.54	6616	0	0

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<i>M. kotschyi</i>	lizard	Megalo Zofrano	36.074	26.401	17	35.07	1.2736	109.07	37	4950000	0	1
<i>M. kotschyi</i>	lizard	Melissa	39.293	24.091	4	49.88	0.0023	64.83	0.97	12947	0	1
<i>M. kotschyi</i>	lizard	Mikri Fteno	36.312	25.795	29	46.52	0.0344	146.10	0.08	3600	0	1
<i>M. kotschyi</i>	lizard	Mikro Karavonisi	35.995	26.436	3	39.37	0.0062	113.12	0.5	200000	0	0
<i>M. kotschyi</i>	lizard	Milos	36.708	24.490	117	44.89	158.403	103.00	57.2	600000	6	4
<i>M. kotschyi</i>	lizard	Mykonos	37.443	25.381	32	43.12	86.125	110.80	8.2	12131	4	5
<i>M. kotschyi</i>	lizard	Naxos	37.061	25.484	81	42.87	430.174	130.00	105.5	2000000	5	6
<i>M. kotschyi</i>	lizard	Nikouria	36.882	25.917	5	45.98	2.7513	116.70	0.23	6250	1	1
<i>M. kotschyi</i>	lizard	Ofidousa (Ast.)	36.555	26.140	3	42.46	1.9173	109.40	10.29	15921	0	1
<i>M. kotschyi</i>	lizard	Pachia (Anf.)	36.272	25.831	17	47.04	1.4239	143.74	7.51	12695	0	1
<i>M. kotschyi</i>	lizard	Palakida	36.286	26.745	15	33.52	0.5231	70.54	6.45	200000	0	1
<i>M. kotschyi</i>	lizard	Panteronisi	36.971	25.119	46	43.36	0.477	122.00	1.93	7633	1	1
<i>M. kotschyi</i>	lizard	Paros	37.060	25.192	60	42.67	196.755	114.76	5.1	8417	6	4
<i>M. kotschyi</i>	lizard	Paximadi (Mil.)	36.632	24.317	3	42.15	0.0353	101.70	1.35	6980	0	0
<i>M. kotschyi</i>	lizard	Polyaigos	36.767	24.637	18	44.27	18.1157	109.00	1.75	8367	4	2
<i>M. kotschyi</i>	lizard	Pontikoussa	36.556	26.225	5	40.85	0.9745	102.00	2.58	10508	0	1
<i>M. kotschyi</i>	lizard	Prasouda	38.665	24.250	10	39.84	0.0671	49.00	8.17	4500000	0	1
<i>M. kotschyi</i>	lizard	Preza	36.989	25.101	57	43.37	0.0179	119.20	0.57	6123	1	1
<i>M. kotschyi</i>	lizard	Saria	35.864	27.220	12	36.87	20.429	85.10	0.1	6240	0	0
<i>M. kotschyi</i>	lizard	Schinoussa	36.873	25.521	57	47.99	8.144	151.00	2.17	9333	2	2
<i>M. kotschyi</i>	lizard	Serifos	37.161	24.481	39	44.50	74.331	63.00	13.2	200000	4	4
<i>M. kotschyi</i>	lizard	Sifnos	36.972	24.702	44	43.26	77.371	37.40	21.4	200000	3	4
<i>M. kotschyi</i>	lizard	Sikinos	36.680	25.121	28	44.92	41.676	142.50	5.75	13647	2	2
<i>M. kotschyi</i>	lizard	Skyros	38.808	24.622	27	41.60	208.594	73.43	34.5	4500000	4	4
<i>M. kotschyi</i>	lizard	Stroggylo (AntP)	36.950	24.961	19	40.00	1.624	113.00	0.78	6857	1	1

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<i>M. kotschy</i>	lizard	Syrna	36.345	26.676	11	46.12	7.9359	70.60	29.6	4500000	0	1
<i>M. kotschy</i>	lizard	Syros	37.433	24.914	27	42.09	84.069	73.50	16.6	12723	5	5
<i>M. kotschy</i>	lizard	Thirasia	36.434	25.341	4	44.94	9.246	176.77	1.89	7714	1	2
<i>M. kotschy</i>	lizard	Tinos	37.585	25.184	42	42.31	197.044	78.88	1.5	9242	8	5
<i>M. kotschy</i>	lizard	Tourlos	36.996	25.098	35	42.46	0.0344	118.25	1.35	6417	2	2
<i>M. kotschy</i>	lizard	Tsimintiri	36.976	25.018	23	41.20	0.0801	114.40	0.14	1800	0	1
<i>M. kotschy</i>	lizard	Velopoula	36.917	23.460	7	42.12	1.848	33.80	33.8	4500000	0	1
<i>M. kotschy</i>	lizard	Venetiko	36.855	25.485	43	42.73	0.1217	155.60	0.35	8083	0	1
<i>O. elegans</i>	lizard	Chios	38.383	26.079	3	42.67	842.796	6.67	6.67	6837	8	7
<i>O. elegans</i>	lizard	Giali	36.664	27.121	3	45.64	4.558	19.50	3.43	160000	0	1
<i>O. elegans</i>	lizard	Ikaria	37.596	26.152	15	47.52	255.32	51.00	18.26	18664	2	6
<i>O. elegans</i>	lizard	Kalymnos	36.991	26.973	23	40.10	110.581	16.43	10.65	10923	7	4
<i>O. elegans</i>	lizard	Lesvos	39.193	26.029	12	46.98	1635.998	9.01	9.01	9427	10	5
<i>O. elegans</i>	lizard	Limnos	39.920	25.136	7	46.61	476.288	56.96	56.96	11718	4	4
<i>O. elegans</i>	lizard	Nisyros	36.588	27.168	19	46.99	41.263	16.93	13.48	150000	4	6
<i>O. elegans</i>	lizard	Plati	36.942	27.095	16	41.99	0.7238	14.40	0.96	6213	0	2
<i>O. elegans</i>	lizard	Psara	38.573	25.583	6	46.33	40.467	60.73	18.44	300000	0	2
<i>O. elegans</i>	lizard	Pserimos	36.942	27.142	8	44.57	14.615	8.00	3.13	8805	1	3
<i>O. elegans</i>	lizard	Rodos	36.185	27.952	3	48.53	1401.459	17.36	17.36	2100000	7	8
<i>O. elegans</i>	lizard	Samos	37.734	26.811	11	43.72	477.942	1.62	1.62	8284	9	8
<i>O. elegans</i>	lizard	Telendos	37.008	26.908	10	41.03	4.648	27.30	0.73	1400	0	1
<i>O. elegans</i>	lizard	Tilos	36.431	27.372	7	44.20	61.487	20.39	20.39	600000	3	5
<i>P. erhardii</i>	lizard	Adelphi	39.111	23.979	36	60.35	1.027	143.60	4.42	17306	1	1
<i>P. erhardii</i>	lizard	Agia Paraskevi (Makares)	37.080	25.706	19	64.69	0.2766	133.00	0.08	2182	1	0
<i>P. erhardii</i>	lizard	Agios Ioannis (Fol.)	36.609	24.958	47	60.79	0.0355	141.60	0.19	6180	0	1

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<i>P. erhardii</i>	lizard	Agios Nikolaos (Makares)	37.086	25.697	18	62.67	0.9131	132.75	6.69	12328	0	0
<i>P. erhardii</i>	lizard	Agriou	36.834	25.524	66	60.59	0.088	153.30	0.4	8083	0	1
<i>P. erhardii</i>	lizard	Alonissos	39.210	23.910	80	58.93	65.32	40.20	3.65	12105	5	4
<i>P. erhardii</i>	lizard	Ammouliani	40.329	23.910	8	62.50	7.136	2.40	2.4	5828	0	0
<i>P. erhardii</i>	lizard	Amorgos	36.847	25.903	171	64.35	121.464	102.50	25	200000	3	3
<i>P. erhardii</i>	lizard	Anafi	36.367	25.782	31	58.90	38.636	138.70	21.6	400000	0	2
<i>P. erhardii</i>	lizard	Andreas	36.862	25.622	41	67.84	0.045	144.20	1.22	7004	0	1
<i>P. erhardii</i>	lizard	Andros	37.858	24.848	271	64.42	383.022	54.89	54.89	13020	6	4
<i>P. erhardii</i>	lizard	Ano Antikeros	36.846	25.681	12	55.64	1.1174	138.25	2.71	15771	1	1
<i>P. erhardii</i>	lizard	Anydros (Cyc.)	36.626	25.683	49	62.68	1.1385	145.60	17.3	400000	0	1
<i>P. erhardii</i>	lizard	Apano Kufonisi	36.941	25.607	76	58.18	5.77	142.50	4.2	8333	2	3
<i>P. erhardii</i>	lizard	Aspronisi (Nax.)	37.047	25.351	93	65.63	0.0109	133.50	1.35	6366	0	1
<i>P. erhardii</i>	lizard	Aspronisi (Sch.)	36.855	25.546	33	59.30	0.0427	151.11	0.22	6000	0	2
<i>P. erhardii</i>	lizard	Aspronisi (Syr.)	37.393	24.993	27	71.27	0.113	87.12	1.75	7726	0	1
<i>P. erhardii</i>	lizard	Astakida	35.888	26.818	13	64.52	0.985	100.50	31.73	5125000	0	1
<i>P. erhardii</i>	lizard	Avoladonisi	36.685	25.086	13	53.11	0.0067	142.05	0.27	5000	0	0
<i>P. erhardii</i>	lizard	Baos	37.443	25.306	17	59.67	0.076	111.90	0.12	1582	0	0
<i>P. erhardii</i>	lizard	Chamili	35.864	26.231	4	58.17	0.429	278.60	26.53	4500000	0	1
<i>P. erhardii</i>	lizard	Chersonisi	37.371	25.263	22	63.13	0.0518	111.00	0.08	546	0	0
<i>P. erhardii</i>	lizard	Chondro	36.565	26.402	3	55.89	0.385	86.53	0.36	7416	0	1
<i>P. erhardii</i>	lizard	Dasia	39.116	23.638	20	64.54	0.329	26.00	0.73	7826	0	0
<i>P. erhardii</i>	lizard	Daskalio (Ker.)	36.888	25.604	25	59.86	0.0177	146.90	0.09	2000	0	1
<i>P. erhardii</i>	lizard	Diaporos	40.214	23.780	40	60.31	3.25	0.27	0.27	6414	0	0
<i>P. erhardii</i>	lizard	Dilos	37.394	25.271	27	62.44	3.536	109.60	0.64	3273	2	4

species	lizard\snake	island	latitude	longitudde	n	body size (mm)	island area (km ²)	distance from the mainland (km)	distance from the closest larger island (km)	time since isolation (years)	predators	competitors
<i>P. erhardii</i>	lizard	Donoussa	37.109	25.814	42	59.89	13.652	119.70	15.7	13810	1	2
<i>P. erhardii</i>	lizard	Euboea	38.556	23.794	8	62.43	3661.637	0.04	0.04	6215	12	8
<i>P. erhardii</i>	lizard	Fagrou	39.313	24.038	15	63.97	0.177	60.54	0.36	12632	0	0
<i>P. erhardii</i>	lizard	Folegandros	36.615	24.930	134	59.36	32.384	131.50	9.6	12599	2	2
<i>P. erhardii</i>	lizard	Gaidaronisi (Alo.)	39.068	23.951	8	63.08	0.0095	53.42	4.58	200000	0	1
<i>P. erhardii</i>	lizard	Gaidouronisi (Par.)	37.158	25.269	19	66.55	0.1439	120.60	0.36	6667	0	1
<i>P. erhardii</i>	lizard	Gioura	39.391	24.166	41	59.73	11.0522	59.49	3.9	18849	2	1
<i>P. erhardii</i>	lizard	Glaronisi	36.916	25.605	51	61.06	0.1565	145.00	0.55	5400	0	1
<i>P. erhardii</i>	lizard	Grabonisi	36.880	25.894	15	59.47	0.16	67.80	0.21	6800	0	1
<i>P. erhardii</i>	lizard	Gramvoussa	36.808	25.746	35	61.70	0.8201	120.30	0.48	6575	1	1
<i>P. erhardii</i>	lizard	Gyaros	37.611	24.712	83	58.93	17.5502	51.70	14.61	19149	1	3
<i>P. erhardii</i>	lizard	Hydra	37.334	23.468	8	52.88	49.586	6.00	6	14892	2	5
<i>P. erhardii</i>	lizard	Ios	36.722	25.327	152	60.70	108.713	145.90	18.2	11784	3	3
<i>P. erhardii</i>	lizard	Iraklia	36.840	25.454	136	58.47	18.078	152.00	5.5	10071	3	2
<i>P. erhardii</i>	lizard	Kalogeros	36.633	25.055	29	54.29	0.089	145.30	0.37	7877	0	0
<i>P. erhardii</i>	lizard	Kardiotissa	36.630	25.019	13	53.45	1.418	142.70	2.59	11049	0	1
<i>P. erhardii</i>	lizard	Kato Antikeros	36.841	25.666	13	58.25	1.0515	140.00	0.17	5400	1	2
<i>P. erhardii</i>	lizard	Kato Fira	37.056	25.081	47	70.07	0.728	113.20	0.14	242	0	1
<i>P. erhardii</i>	lizard	Kato Kufonisi	36.910	25.576	32	57.58	3.8996	149.80	0.44	6258	1	2
<i>P. erhardii</i>	lizard	Kelifos	40.061	23.726	8	59.88	0.723	4.41	4.41	18229	0	0
<i>P. erhardii</i>	lizard	Keros	36.889	25.647	13	60.53	15.0873	146.80	8.91	9917	1	1
<i>P. erhardii</i>	lizard	Kinaros	36.977	26.280	8	71.79	4.577	81.40	9.7	200000	1	1
<i>P. erhardii</i>	lizard	Kiriagos	39.083	24.086	41	66.28	0.0126	64.54	1.16	10769	0	0
<i>P. erhardii</i>	lizard	Kissiri (Amo.)	36.790	25.740	34	59.80	0.0155	135.50	0.09	6250	0	1

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<i>P. erhardii</i>	lizard	Kitriani	36.903	24.726	26	60.64	0.9396	103.20	0.35	5000	0	1
<i>P. erhardii</i>	lizard	Koikinonisi	39.161	23.904	24	61.58	0.0094	47.85	0.14	6087	0	0
<i>P. erhardii</i>	lizard	Kopria	36.987	25.638	84	61.97	0.1462	141.40	6.4	12000	0	1
<i>P. erhardii</i>	lizard	Korakas	39.035	24.062	22	60.13	0.12	63.53	1.56	18171	0	0
<i>P. erhardii</i>	lizard	Koutsomyti	36.548	26.442	4	60.03	0.4567	83.00	1.17	10508	0	1
<i>P. erhardii</i>	lizard	Kyra Panagia	39.331	24.066	17	67.26	24.973	61.18	6.82	200000	1	1
<i>P. erhardii</i>	lizard	Kythnos	37.406	24.424	13	60.12	99.432	39.00	11.5	600000	4	4
<i>P. erhardii</i>	lizard	Levitha	37.003	26.478	8	64.90	9.121	64.50	30.33	600000	0	1
<i>P. erhardii</i>	lizard	Liadi	36.908	26.166	15	62.73	0.334	95.70	6.85	13951	0	1
<i>P. erhardii</i>	lizard	Loumboudiaris	36.871	25.636	7	60.10	0.101	142.80	0.62	7417	0	1
<i>P. erhardii</i>	lizard	Makria (Anf.)	36.269	25.886	4	60.20	0.5631	139.09	3.45	17448	0	1
<i>P. erhardii</i>	lizard	Makronisi (Par.)	37.005	25.258	24	68.01	0.039	129.40	1.01	6490	0	1
<i>P. erhardii</i>	lizard	Manolas	39.202	23.863	18	62.52	0.092	43.95	0.17	6696	0	1
<i>P. erhardii</i>	lizard	Megali Fteno	36.311	25.800	27	60.83	0.0646	145.72	3.6	9510	0	1
<i>P. erhardii</i>	lizard	Megali Plaka (Ker.)	36.878	25.627	41	66.52	0.0308	143.77	0.37	6996	0	0
<i>P. erhardii</i>	lizard	Megalo Gaidaronisi (Syr.)	37.427	24.973	10	69.38	0.471	84.05	1.04	7642	0	2
<i>P. erhardii</i>	lizard	Megalo Revmatiaris	37.395	25.261	19	65.76	0.095	109.65	0.13	1000	0	0
<i>P. erhardii</i>	lizard	Megalo Zofrano	36.074	26.401	9	67.32	1.2736	109.07	37	4950000	0	1
<i>P. erhardii</i>	lizard	Megalos Adelfos (Fol.)	36.612	24.987	46	61.18	0.045	143.00	2.09	11259	0	1
<i>P. erhardii</i>	lizard	Megalos Avelas	36.829	25.407	26	60.80	0.058	151.58	0.41	8417	0	1
<i>P. erhardii</i>	lizard	Mikri Fteno	36.312	25.795	32	58.37	0.0344	146.10	0.08	3600	0	1
<i>P. erhardii</i>	lizard	Mikro Gaidaronisi (Syr.)	37.425	24.985	12	65.17	0.055	85.66	0.2	6135	0	1
<i>P. erhardii</i>	lizard	Mikro Revmatiaris	37.401	25.262	15	57.40	0.0201	109.65	0.16	1000	0	0
<i>P. erhardii</i>	lizard	Mikronisi (Sko.)	39.141	23.810	20	64.47	0.081	39.73	0.35	6522	0	0
<i>P. erhardii</i>	lizard	Mikroskandili	39.054	24.083	9	57.00	0.0064	64.65	0.06	6087	0	0

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<i>P. erhardii</i>	lizard	Mykonos	37.443	25.381	92	63.08	86.125	110.80	8.2	12131	4	5
<i>P. erhardii</i>	lizard	Naxos	37.061	25.484	953	59.70	430.174	130.00	105.5	2000000	5	6
<i>P. erhardii</i>	lizard	Nea Kameni	36.404	25.397	53	54.64	3.4295	183.50	1.43	310	0	1
<i>P. erhardii</i>	lizard	Nikouria	36.882	25.917	47	59.12	2.7513	116.70	0.23	6250	1	1
<i>P. erhardii</i>	lizard	Ofidousa (Sch.)	36.846	25.520	76	60.69	0.6318	153.20	0.04	600	1	1
<i>P. erhardii</i>	lizard	Ovriokastro (Par.)	37.152	25.297	49	65.58	0.116	123.75	0.74	4900	1	1
<i>P. erhardii</i>	lizard	Pachia (Anf.)	36.272	25.831	6	59.70	1.4239	143.74	7.51	12695	0	1
<i>P. erhardii</i>	lizard	Palakida	36.286	26.745	7	75.23	0.5231	70.54	6.45	200000	0	1
<i>P. erhardii</i>	lizard	Panagia (Nax.)	37.029	25.361	33	66.56	0.0076	135.14	0.32	6025	0	1
<i>P. erhardii</i>	lizard	Perati	37.918	24.042	15	63.09	0.0598	0.37	0.37	5455	0	0
<i>P. erhardii</i>	lizard	Peristera	39.188	23.970	4	59.50	14.513	50.78	0.6	8957	0	1
<i>P. erhardii</i>	lizard	Petalida (Amo.)	36.819	25.793	17	62.22	0.074	130.13	0.53	6083	0	0
<i>P. erhardii</i>	lizard	Piperi (Cyc.)	37.303	24.526	14	59.09	0.433	58.50	7.01	200000	0	0
<i>P. erhardii</i>	lizard	Plaka (Amor.)	36.901	26.170	8	61.83	0.061	95.53	0.35	2800	0	1
<i>P. erhardii</i>	lizard	Platourada	38.183	24.103	3	67.40	0.0474	2.54	0.17	6755	0	0
<i>P. erhardii</i>	lizard	Plero	39.136	23.620	25	64.42	0.0156	23.76	1.14	10385	0	0
<i>P. erhardii</i>	lizard	Polemika	39.102	24.100	24	61.24	0.112	65.19	0.45	8696	0	0
<i>P. erhardii</i>	lizard	Prasso (N.Sp.)	39.072	24.096	12	60.50	0.262	65.39	0.27	6957	0	0
<i>P. erhardii</i>	lizard	Psathonisi (Ios)	36.749	25.364	17	58.84	0.06	154.40	0.03	1500	1	1
<i>P. erhardii</i>	lizard	Psathoura	39.497	24.180	26	61.47	0.763	51.78	6.92	13579	0	1
<i>P. erhardii</i>	lizard	Rinia	37.405	25.233	16	61.90	13.904	103.39	4.29	10943	1	3
<i>P. erhardii</i>	lizard	Schinonisi	37.381	24.875	22	59.87	0.051	78.25	0.31	5238	0	0
<i>P. erhardii</i>	lizard	Schinoussa	36.873	25.521	121	62.72	8.144	151.00	2.17	9333	2	2
<i>P. erhardii</i>	lizard	Serifopoula	37.258	24.597	36	60.32	1.852	65.50	7.83	200000	0	0
<i>P. erhardii</i>	lizard	Serifos	37.161	24.481	125	62.55	74.331	63.00	13.2	200000	4	4

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<i>P. erhardii</i>	lizard	Sfiga	39.360	24.079	14	59.61	0.052	64.86	0.06	2250	0	0
<i>P. erhardii</i>	lizard	Shino	37.421	25.244	13	65.32	0.127	107.40	0.15	2182	0	0
<i>P. erhardii</i>	lizard	Sifnos	36.972	24.702	59	62.71	77.371	37.40	21.4	200000	3	4
<i>P. erhardii</i>	lizard	Sikinos	36.680	25.121	52	59.20	41.676	142.50	5.75	13647	2	2
<i>P. erhardii</i>	lizard	Skandili	39.049	24.082	31	63.87	0.21	64.70	1.4	11077	0	0
<i>P. erhardii</i>	lizard	Skantzoura	39.078	24.111	25	57.95	6.2288	65.57	12.82	4500000	1	1
<i>P. erhardii</i>	lizard	Skopelos	39.129	23.691	125	57.38	95.684	20.55	20.55	14696	3	4
<i>P. erhardii</i>	lizard	Stroggylo (Sko.)	39.114	23.626	30	64.20	0.022	24.94	0.54	10000	0	1
<i>P. erhardii</i>	lizard	Stroggylo (Syr.)	37.375	24.873	7	64.54	0.029	78.42	0.35	6716	0	0
<i>P. erhardii</i>	lizard	Syrna	36.345	26.676	8	63.82	7.9359	70.60	29.6	4500000	0	1
<i>P. erhardii</i>	lizard	Syros	37.433	24.914	85	65.17	84.069	73.50	16.6	12723	5	5
<i>P. erhardii</i>	lizard	Thira	36.388	25.454	85	60.58	76.194	185.50	17.95	200000	2	2
<i>P. erhardii</i>	lizard	Tigani (Ast.)	36.547	26.449	3	58.57	0.075	82.90	0.1	1200	0	1
<i>P. erhardii</i>	lizard	Tinos	37.585	25.184	138	64.93	197.044	78.88	1.5	9242	8	5
<i>P. erhardii</i>	lizard	Venetiko	36.855	25.485	39	59.10	0.1217	155.60	0.35	8083	0	1
<i>P. erhardii</i>	lizard	Voulgari	36.879	25.688	19	57.38	0.127	138.23	0.08	1500	0	1
<i>P. erhardii</i>	lizard	Vous	37.143	24.562	10	65.33	0.197	72.92	1.83	11780	0	1
<i>P. gaigeae</i>	lizard	Aziza	38.915	24.463	23	60.58	0.036	82.75	0.12	1800	0	0
<i>P. gaigeae</i>	lizard	Diavates (north)	38.797	24.525	80	66.91	0.0384	75.37	0.32	6435	0	1
<i>P. gaigeae</i>	lizard	Diavates (Southwest)	38.789	24.513	111	77.67	0.02	73.83	1.2	8610	0	1
<i>P. gaigeae</i>	lizard	Erinia	38.830	24.431	15	61.98	0.5326	72.70	4.19	200000	0	1
<i>P. gaigeae</i>	lizard	Exo Podies	38.994	24.482	8	61.93	0.12	91.12	0.92	2400	0	0
<i>P. gaigeae</i>	lizard	Kozile	38.930	24.455	40	58.40	0.079	83.60	0.21	6696	0	0
<i>P. gaigeae</i>	lizard	Lakonisi	38.849	24.475	79	67.05	0.0169	77.20	0.68	11659	0	1
<i>P. gaigeae</i>	lizard	Mesa Podies	39.003	24.485	29	60.75	0.131	92.00	1.73	6696	0	0

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<i>P. gaigeae</i>	lizard	Northern Podies	39.019	24.468	8	59.82	0.1308	92.50	3.63	9132	0	0
<i>P. gaigeae</i>	lizard	Piperi (N.Sp.)	39.349	24.324	30	57.37	4.166	70.26	12.04	600000	0	0
<i>P. gaigeae</i>	lizard	Sarakino	38.756	24.610	10	60.34	3.337	76.20	0.5	8871	0	1
<i>P. gaigeae</i>	lizard	Skyropoula	38.837	24.354	22	62.87	3.827	69.35	6.52	200000	0	1
<i>P. gaigeae</i>	lizard	Skyros	38.808	24.622	156	58.05	208.594	73.43	34.5	4500000	4	4
<i>P. gaigeae</i>	lizard	Valaxa	38.824	24.496	30	60.69	4.3333	73.60	0.14	6435	1	3
<i>P. milensis</i>	lizard	Agios Eustathios	36.775	24.582	13	56.67	0.0996	108.34	0.5	6408	0	1
<i>P. milensis</i>	lizard	Ananes	36.513	24.132	7	67.09	0.091	83.27	22.5	3000000	0	1
<i>P. milensis</i>	lizard	Antimilos	36.789	24.239	12	56.38	8.8054	95.00	9	320000	1	1
<i>P. milensis</i>	lizard	Falkonera	36.842	23.887	4	62.50	0.97	68.15	29.01	4500000	0	1
<i>P. milensis</i>	lizard	Kimolos	36.808	24.559	9	55.99	37.426	100.80	1	6490	5	4
<i>P. milensis</i>	lizard	Milos	36.708	24.490	37	54.83	158.403	103.00	57.2	600000	6	4
<i>P. milensis</i>	lizard	Polyaigos	36.767	24.637	28	53.65	18.1157	109.00	1.75	8367	4	2
<i>P. milensis</i>	lizard	Velopoula	36.917	23.460	6	60.48	1.848	33.80	33.8	4500000	0	1
<i>D. caspius</i>	snake	Chios	38.383	26.079	6	1675.83	842.796	6.67	6.67	6837	16	9
<i>D. caspius</i>	snake	Karpathos	35.505	27.150	10	1231.50	300.152	95.47	46	3000000	10	4
<i>D. caspius</i>	snake	Korfu	39.710	19.750	7	1345.00	585.312	2.03	2.03	10235	21	12
<i>D. caspius</i>	snake	Kythnos	37.406	24.424	5	1085.40	99.432	39.00	11.5	600000	9	3
<i>D. caspius</i>	snake	Lesvos	39.193	26.029	9	1755.56	1635.998	9.01	9.01	9427	18	11
<i>D. caspius</i>	snake	Limnos	39.920	25.136	5	1886.00	476.288	56.96	56.96	11718	9	4
<i>D. caspius</i>	snake	Nisyros	36.588	27.168	3	1431.33	41.263	16.93	13.48	150000	8	3
<i>D. caspius</i>	snake	Samos	37.734	26.811	11	1565.55	477.942	1.62	1.62	8284	17	10
<i>D. caspius</i>	snake	Samothraki	40.454	25.585	9	1471.11	180.364	35.84	35.84	10855	13	7
<i>D. caspius</i>	snake	Serifos	37.161	24.481	3	1396.67	74.331	63.00	13.2	200000	8	3
<i>D. caspius</i>	snake	Thassos	40.685	24.653	4	1695.00	383.672	6.63	6.63	8189	12	6
<i>E. jaculus</i>	snake	Amorgos	36.847	25.903	6	516.33	121.464	102.50	25	200000	7	2

species	lizard\snake	island	latitude	longitudte	n	body size (mm)	island area (km ²)	distance from the mainland (km)	distance from the closest larger island (km)	time since isolation (years)	predators	competitors
<i>E. jaculus</i>	snake	Antiparos	37.000	25.054	4	452.30	35.09	113.13	0.94	5500	8	3
<i>E. jaculus</i>	snake	Apano Kufonisi	36.941	25.607	4	391.00	5.77	142.50	4.2	8333	4	1
<i>E. jaculus</i>	snake	Ios	36.722	25.327	7	269.79	108.713	145.90	18.2	11784	6	2
<i>E. jaculus</i>	snake	Iraklia	36.840	25.454	7	289.43	18.078	152.00	5.5	10071	5	2
<i>E. jaculus</i>	snake	Naxos	37.061	25.484	12	283.17	430.174	130.00	105.5	2000000	11	5
<i>E. jaculus</i>	snake	Paros	37.060	25.192	5	339.80	196.755	114.76	5.1	8417	11	5
<i>E. jaculus</i>	snake	Sikinos	36.680	25.121	3	387.17	41.676	142.50	5.75	13647	4	1
<i>E. modestus</i>	snake	Alatsonisi	37.532	26.416	3	543.00	0.2954	53.38	3.75	200000	0	0
<i>E. modestus</i>	snake	Chios	38.383	26.079	3	520.00	842.796	6.67	6.67	6837	16	9
<i>E. modestus</i>	snake	Kalymnos	36.991	26.973	6	446.67	110.581	16.43	10.65	10923	11	8
<i>E. modestus</i>	snake	Lesvos	39.193	26.029	3	513.33	1635.998	9.01	9.01	9427	18	11
<i>E. modestus</i>	snake	Nera	36.914	26.939	3	421.67	0.5013	28.12	0.87	10923	0	0
<i>E. modestus</i>	snake	Pserimos	36.942	27.142	6	438.33	14.615	8.00	3.13	8805	3	1
<i>E. modestus</i>	snake	Samos	37.734	26.811	3	386.00	477.942	1.62	1.62	8284	17	10
<i>E. modestus</i>	snake	Symi	36.593	27.833	6	448.17	57.865	6.67	6.67	600000	8	6
<i>E. quatuorlineata</i>	snake	Amorgos	36.847	25.903	4	1092.75	121.464	102.50	25	200000	7	2
<i>E. quatuorlineata</i>	snake	Euboea	38.556	23.794	13	1404.92	3661.637	0.04	0.04	6215	23	12
<i>E. quatuorlineata</i>	snake	Ios	36.722	25.327	4	1237.50	108.713	145.90	18.2	11784	6	2
<i>E. quatuorlineata</i>	snake	Kea	37.613	24.332	3	1470.00	131.693	19.02	19.02	17647	10	5
<i>E. quatuorlineata</i>	snake	Naxos	37.061	25.484	5	1036.20	430.174	130.00	105.5	2000000	11	5
<i>E. quatuorlineata</i>	snake	Paros	37.060	25.192	6	1120.50	196.755	114.76	5.1	8417	11	5
<i>E. quatuorlineata</i>	snake	Skiathos	39.169	23.456	13	1525.62	47.212	4.13	4.13	7739	11	5
<i>E. quatuorlineata</i>	snake	Skopelos	39.129	23.691	9	1476.89	95.684	20.55	20.55	14696	7	2
<i>E. quatuorlineata</i>	snake	Skyros	38.808	24.622	5	1269.00	208.594	73.43	34.5	4500000	9	3
<i>E. quatuorlineata</i>	snake	Spetses	37.263	23.132	4	1417.50	20.263	2.20	2.2	8147	8	5
<i>E. quatuorlineata</i>	snake	Zakynthos	37.785	20.774	4	1497.50	406.619	16.35	14.44	12990	13	5

species	lizard\snake	island	latitude	longitudde	n	body size (mm)	island area (km ²)	distance from the mainland (km)	distance from the closest larger island (km)	time since isolation (years)	predators	competitors
<i>N. natrix</i>	snake	Antiparos	37.000	25.054	3	663.67	35.09	113.13	0.94	5500	8	3
<i>N. natrix</i>	snake	Korfu	39.710	19.750	3	691.00	585.312	2.03	2.03	10235	21	12
<i>N. natrix</i>	snake	Milos	36.708	24.490	7	635.00	158.403	103.00	57.2	600000	9	5
<i>N. natrix</i>	snake	Mykonos	37.443	25.381	3	736.00	86.125	110.80	8.2	12131	8	3
<i>N. natrix</i>	snake	Naxos	37.061	25.484	3	603.33	430.174	130.00	105.5	2000000	11	5
<i>N. natrix</i>	snake	Paros	37.060	25.192	7	672.86	196.755	114.76	5.1	8417	11	5
<i>N. natrix</i>	snake	Samos	37.734	26.811	3	910.00	477.942	1.62	1.62	8284	17	10
<i>N. natrix</i>	snake	Samothraki	40.454	25.585	11	694.91	180.364	35.84	35.84	10855	13	7
<i>N. natrix</i>	snake	Skyros	38.808	24.622	8	566.25	208.594	73.43	34.5	4500000	9	3
<i>N. natrix</i>	snake	Thassos	40.685	24.653	4	629.25	383.672	6.63	6.63	8189	12	6
<i>N. natrix</i>	snake	Tinos	37.585	25.184	3	567.83	197.044	78.88	1.5	9242	14	7
<i>T. fallax</i>	snake	Crete	35.233	24.847	6	585.83	8261.183	97.14	97.14	5200000	13	3
<i>T. fallax</i>	snake	Gavdos	34.842	24.089	4	503.75	33.025	191.90	35.5	3000000	4	1
<i>T. fallax</i>	snake	Kassos	35.391	26.921	5	598.00	66.419	141.19	6	10275	3	1
<i>T. fallax</i>	snake	Kythira	36.248	22.983	3	903.33	277.228	13.84	13.84	200000	11	5
<i>T. fallax</i>	snake	Lesvos	39.193	26.029	3	725.00	1635.998	9.01	9.01	9427	18	11
<i>T. fallax</i>	snake	Milos	36.708	24.490	6	560.83	158.403	103.00	57.2	600000	9	5
<i>T. fallax</i>	snake	Mykonos	37.443	25.381	7	477.43	86.125	110.80	8.2	12131	8	3
<i>T. fallax</i>	snake	Rodos	36.185	27.952	3	826.33	1401.459	17.36	17.36	2100000	16	7
<i>T. fallax</i>	snake	Skyros	38.808	24.622	10	622.10	208.594	73.43	34.5	4500000	9	3
<i>T. fallax</i>	snake	Symi	36.593	27.833	3	549.33	57.865	6.67	6.67	600000	8	6
<i>T. fallax</i>	snake	Thira	36.388	25.454	3	607.67	76.194	185.50	17.95	200000	7	1
<i>T. fallax</i>	snake	Tinos	37.585	25.184	3	590.33	197.044	78.88	1.5	9242	14	7
<i>V. ammodytes</i>	snake	Alonissos	39.210	23.910	4	512.75	65.32	40.20	3.65	12105	9	4
<i>V. ammodytes</i>	snake	Andros	37.858	24.848	6	438.00	383.022	54.89	54.89	13020	11	6
<i>V. ammodytes</i>	snake	Antiparos	37.000	25.054	10	292.40	35.09	113.13	0.94	5500	8	3

species	lizard/ snake	island	latitude	longitudde	n	body size (mm)	island area (km ²)	distance from the mainland (km)	distance from the closest larger island (km)	time since isolation (years)	predators	competitors
<i>V. ammodytes</i>	snake	Apano Kufonisi	36.941	25.607	43	314.02	5.77	142.50	4.2	8333	4	1
<i>V. ammodytes</i>	snake	Despotiko (Cyc.)	36.962	25.003	6	281.33	7.754	113.00	0.73	1800	7	3
<i>V. ammodytes</i>	snake	Dilos	37.394	25.271	12	365.45	3.536	109.60	0.64	3273	6	1
<i>V. ammodytes</i>	snake	Euboea	38.556	23.794	4	592.25	3661.637	0.04	0.04	6215	23	12
<i>V. ammodytes</i>	snake	Ios	36.722	25.327	19	358.54	108.713	145.90	18.2	11784	6	2
<i>V. ammodytes</i>	snake	Kefalonia	38.223	20.575	3	533.33	734.014	33.93	33.93	200000	18	7
<i>V. ammodytes</i>	snake	Mykonos	37.443	25.381	8	356.00	86.125	110.80	8.2	12131	8	3
<i>V. ammodytes</i>	snake	Naxos	37.061	25.484	9	346.51	430.174	130.00	105.5	2000000	11	5
<i>V. ammodytes</i>	snake	Paros	37.060	25.192	8	355.07	196.755	114.76	5.1	8417	11	5
<i>V. ammodytes</i>	snake	Sikinos	36.680	25.121	3	353.67	41.676	142.50	5.75	13647	4	1
<i>V. ammodytes</i>	snake	Syros	37.433	24.914	7	306.49	84.069	73.50	16.6	12723	10	4
<i>V. ammodytes</i>	snake	Tinos	37.585	25.184	10	431.70	197.044	78.88	1.5	9242	14	7
<i>V. xanthina</i>	snake	Chios	38.383	26.079	3	1493.33	842.796	6.67	6.67	6837	16	9
<i>V. xanthina</i>	snake	Kalymnos	36.991	26.973	3	702.33	110.581	16.43	10.65	10923	11	8
<i>V. xanthina</i>	snake	Leros	37.108	26.859	9	833.56	54.052	30.03	1.94	10615	11	8
<i>V. xanthina</i>	snake	Lesvos	39.193	26.029	4	850.00	1635.998	9.01	9.01	9427	18	11
<i>V. xanthina</i>	snake	Lipsi	37.301	26.744	9	490.78	15.842	35.70	8.16	12316	6	3
<i>V. xanthina</i>	snake	Patmos	37.353	26.593	5	716.60	34.142	48.68	19.62	13474	9	5
<i>V. xanthina</i>	snake	Samothraki	40.454	25.585	5	923.00	180.364	35.84	35.84	10855	13	7
<i>V. xanthina</i>	snake	Symi	36.593	27.833	13	710.85	57.865	6.67	6.67	600000	8	6

Appendix 3. Literature sources for isolation time of islands isolated before LGM.

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3 **Appendix 4.** A list of potential predator species included in our analyses (with
4 references for sources indicating their potential as reptile predators).

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7 Mammals:

8
9 *Martes foina* (Padial et al. 2002)

10
11 *Mustela nivalis* (Erlinge 1975)

12
13 *Meles meles* (Martín et al. 1995)

14
15 *Vulpes vulpes* (Lanszki & Heltai 2002; Padial et al. 2002)

16
17 *Canis aureus* (Lanszki & Heltai 2002)

18
19 *Erinaceus concolor* (Schoenfeld & Yom-Tov 1985)

20
21 *Felis (sylvestris) catus* (Bonnaud et al. 2007)

22
23 Reptiles:

24
25 *Dolichophis caspius* (Cattaneo 2010)

26
27 *Elaphe quatuorlineata* (Cattaneo 2010)

28
29 *Eryx jaculus* (Cattaneo 2010)

30
31 *Hierophis gemonensis*

32
33 *Macrovipera schweizeri* (Adampoulo et al. 1997)

34
35 *Malpolon insignitus* (Cattaneo 1998)

36
37 *Natrix natrix* (Cattaneo 2010)

38
39 *Platyceps najadum* (Cattaneo 1990)

40
41 *Telescopus fallax* (Cattaneo 2010)

42
43 *Vipera ammodytes* (Cattaneo 2010)

44
45 *Zamenis situla* (Cattaneo 2010)

46
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Appendix 5. Full statistics of the single-predictor linear and curvilinear models.

Table S2. Predictor variables included in the best model of each species according to model selection based on AICc scores. We present here all models with $\Delta AICc \leq 2$ and the single model that has a $\Delta AICc > 2$ that is the closest to 2 for each species. The models selected based on p values (that are presented in Table 2 of the main text) are highlighted in bold, if their AICc score qualified them to be included in this table.

Species	Predictors in the model	AICc	$\Delta AICc$	Predictor p values	Adjusted R ²
<i>Hemidactylus turcicus</i>	Log area	141.53	0	<0.01	0.26
	Log area	143.54	2.01	0.01	0.26
	Predator richness			0.41	
<i>Mediodactylus kotschy</i>	Log area	458.19	0	0.12	0.03
	Distance from the mainland			0.06	
	Predator richness			0.65	
	Competitor richness			0.18	
	Log area	459.51	1.32	0.05	0.10

	Competitor richness			<0.01	
	Competitor richness (^2)			<0.01	
	Distance from the mainland	460.43	2.24	0.09	0.08
	Competitor richness			<0.01	
	Competitor richness (^2)			0.01	
<i>Podarcis erhardii</i>	Log area	-523.30	0	0.02	
	Distance from the mainland			0.01	0.07
	Log distance from closest larger island			0.04	
	Distance from the mainland	-523.18	0.13	0.27	0.06
	Distance from the mainland (^2)			0.04	
	Log area	-522.56	0.75	0.22	0.06
	Distance from the mainland			0.36	
	Distance from the mainland (^2)			0.06	
	Log area	-521.96	1.34	0.05	0.06

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	Distance from the mainland			0.01	
	Log time since isolation			0.08	
	Distance from the mainland	-521.79	1.51	0.31	0.06
	Distance from the mainland (^2)			0.05	
	Competitor richness			0.38	
	Log area	-521.22	2.08	0.02	0.06
	Distance from the mainland			0.01	
	Log distance from closest larger island			0.23	
	Log time since isolation			0.71	
<i>Podarcis gaigeae</i>	Log area	-54.89	0	<0.01	0.46
	Distance from the mainland			0.03	
	Log area	-54.50	0.39	<0.01	0.44
	Competitor richness			0.04	
	Log area	-54.48	0.41	<0.01	0.51

	Competitor richness			0.01	
	Competitor richness (^2)			<0.01	
	Log area	-52.76	2.13	0.04	0.24
<i>Podarcis milensis</i>	Log time since isolation	52.26	0	0.05	0.42
	Log area	52.36	0.10	0.05	0.41
	Predator richness	52.97	0.71	0.06	0.37
	Log area	53.32	1.07	0.03	0.75
	Log time since isolation			0.03	
	Log area	54.38	2.13	0.06	0.41
	Log distance from closest larger island			0.42	
<i>Lacerta trilineata</i>	Log area	118.73	0	0.03	0.43
	Distance from the mainland			0.01	
	Log area	119.12	0.39	0.03	0.52
	Distance from the mainland			0.02	

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	Distance from the mainland (^2)			0.09	
	Distance from the mainland	119.35	0.62	0.02	0.01
	Competitor richness			0.04	
	Distance from the mainland	121.05	2.31	0.03	0.24
<i>Ophisops elegans</i>	Log distance from closest larger island	67.43	0	0.02	0.31
	Log time since isolation	67.65	0.22	0.02	0.30
	Log area	68.84	1.41	0.14	0.38
	Log time since isolation			0.03	
	Log distance from closest larger island	69.01	1.58	0.16	0.37
	Log time since isolation			0.17	
	Log area	69.17	1.74	0.01	0.36
	Predator richness			0.04	
	Distance from the mainland	70.12	2.69	0.27	0.32
	Log time since isolation			0.04	

<i>Ablepharus kitaibelii</i>	Distance from the mainland	110.34	0	<0.01	0.30
	Distance from the mainland	112.56	2.21	<0.01	0.28
	Log distance from closest larger island			0.44	
<i>Eryx jaculus</i>	Distance from the mainland	89.41	0	<0.01	0.94
	Predator richness			<0.01	
	Distance from the mainland	92.06	2.66	<0.01	0.92
	Competitor richness			<0.01	
<i>Dolichophis caspius</i>	Log time since isolation	150.79	0	0.01	0.52
	Log time since isolation	151.34	0.55	<0.01	0.65
	Log distance from closest larger island			0.07	
	Log time since isolation	152.56	1.77	<0.01	0.61
	Distance from the mainland			0.12	
	Log time since isolation	152.68	1.89	<0.01	0.60
	Predator richness			0.13	

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	Predator richness	153.4	2.45	<0.01	0.58
	Competitor richness			<0.01	
<i>Eirenis modestus</i>	Log distance from closest larger island	94.91	0	0.17	0.17
	Distance from the mainland	95.69	0.78	0.24	0.08
	Log time since isolation	97.18	2.27	0.57	-0.10
<i>Elaphe quatuorlineata</i>	Distance from the mainland	136.39	0	<0.01	0.77
	Distance from the mainland	139.46	3.07	<0.01	0.79
	Competitor richness			0.22	
<i>Natrix natrix</i>	Log time since isolation	-26.28	0	0.11	0.17
	Competitor richness	-25.41	0.87	0.18	0.10
	Distance from the mainland	-25.04	1.24	0.22	0.07
	Predator richness	-24.64	1.65	0.27	0.03
	Log distance from closest larger island	-24.61	1.67	0.28	0.03
	Log area	-23.23	3.05	0.74	-0.10

<i>Telescopus fallax</i>	Distance from the mainland	-23.70	0	0.03	0.31
	Predator richness	-22.72	0.98	0.05	0.25
	Log area	-22.37	1.33	0.03	0.43
	Log area (^2)			0.04	
	Log area	-21.16	2.54	0.11	0.15
<i>Vipera ammodytes</i>	Distance from the mainland	-36.90	0	<0.01	0.70
	Distance from the mainland (^2)			0.06	
	Distance from the mainland	-36.32	0.58	<0.01	0.63
	Log area	-35.12	1.78	0.16	0.67
	Distance from the mainland			0.01	
	Distance from the mainland	-34.19	2.71	<0.01	0.65
<i>Vipera xanthina</i>	Log time since isolation			0.25	
	Predator richness	-5.26	0	0.03	0.52
	Log area	-4.73	0.53	0.03	0.49

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	Competitor richness	-3.03	2.23	0.07	0.37
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For Peer Review

Appendix 6. Full statistics of the single-predictor linear and curvilinear models.

Table S3. Full statistics of the single-predictor linear and curvilinear models for each species. Sample size (n) is the number of islands.

Significant predictors are marked in bold.

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
<i>M. kotschy</i> (n=86)	SVL	Log area	-0.06	0.27	42.28	0.39	0.81	<0.01
		Log area	-0.08	0.30	42.23	0.53	0.90	<0.01
		(Log area) ²	0.02	0.18				
		Distance from the mainland	0.02	0.01	40.52	1.14	0.11	0.03
		Distance from the mainland	0.04	0.04	39.35	2.26	0.35	0.03
		(Distance from the mainland) ²	(-)<0.01	<0.01			0.55	
		Log distance from closest larger landmass	-0.37	0.49	42.45	0.46	0.46	0.01
		Log distance from closest larger landmass	-0.28	0.76	42.48	0.52	0.72	0.01
(Log distance from closest larger landmass) ²	-0.10	0.61	0.87					
		Log time since isolation	-0.63	0.36	45.10	1.66	0.08	0.03

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Log time since isolation	5.36	3.98	30.85	9.55	0.18	0.06
		(Log time since isolation) ²	-0.60	0.39			0.13	
		Predator richness	0.14	0.20	42.06	0.47	0.48	0.01
		Predator richness	0.31	0.57	42.00	0.51	0.59	0.01
		(Predator richness) ²	-0.03	0.10			0.76	
		Competitor richness	0.16	0.23	41.96	0.57	0.49	0.01
Competitor richness	1.99	0.70	40.65	0.73	<0.01	0.09		
(Competitor richness)²	-0.34	0.12			0.01			
<i>P. erhardii</i> (n=118)	Log10 (SVL)	Log area	(-)<0.01	<0.01	1.79	<0.01	0.29	0.01
		Log area	(-)<0.01	<0.01	1.79	<0.01	0.28	0.01
		(Log area) ²	<0.01	<0.01			0.77	
		Distance from the mainland	(-)<0.01	<0.01	1.80	<0.01	0.02	0.04
		Distance from the mainland	<0.01	<0.01	1.79	<0.01	0.27	0.08

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Distance from the mainland) ²	(-)<0.01	<0.01			0.04	
		Log distance from closest larger landmass	<0.01	<0.01	1.79	<0.01	0.47	<0.01
		Log distance from closest larger landmass	<0.01	<0.01	1.79	<0.01	0.34	0.01
		(Log distance from closest larger landmass) ²	(-)<0.01	<0.01			0.46	
		Log time since isolation	<0.01	<0.01	1.77	0.01	0.24	0.01
		Log time since isolation	<0.01	<0.01	1.77	<0.01	0.85	0.01
		(Log time since isolation) ²	(-)<0.01	<0.01			0.97	
		Predator richness	(-)<0.01	0.01	1.79	<0.01	0.86	<0.01
		Predator richness	(-)<0.01	<0.01	1.79	<0.01	0.23	0.01
		(Predator richness) ²	<0.01	<0.01			0.21	
		Competitor richness	(-)<0.01	0.01	1.79	<0.01	0.43	<0.01
		Competitor richness	(-)<0.01	<0.01	1.79	<0.01	0.43	0.01
		(Competitor richness) ²	<0.01	<0.01			0.60	

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
<i>H. turcicus</i> (n=27)	SVL	Log area	1.91	0.59	46.37	1.01	<0.01	0.29
		Log area	1.69	1.00	46.24	1.12	0.10	0.29
		(Log area) ²	0.15	0.54			0.79	
		Distance from the mainland	0.01	0.01	48.34	1.67	0.66	0.01
		Distance from the mainland	0.14	0.06	43.51	2.67	0.03	0.18
		(Distance from the mainland)²	(-)<0.01	<0.01			0.04	
		Log distance from closest larger landmass	2.16	0.97	47.39	0.97	0.03	0.17
		Log distance from closest larger landmass	3.10	2.14	47.36	0.98	0.16	0.17
		(Log distance from closest larger landmass) ²	-0.69	1.39			0.62	
		Log time since isolation	0.85	0.86	45.25	3.88	0.33	0.04
Log time since isolation	6.24	13.23	32.79	30.78	0.64	0.04		
(Log time since isolation) ²	-0.56	1.38			0.69			
Predator richness		0.48	0.32	47.62	1.14	0.15	0.08	

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
<i>A. kitaibelii</i> (n=24)	SVL	Predator richness	0.75	0.91	47.37	1.41	0.42	0.09
		(Predator richness) ²	-0.04	0.13			0.75	
		Competitor richness	1.17	0.48	45.20	1.69	0.02	0.19
		Competitor richness	5.32	2.66	39.16	4.15	0.06	0.27
		(Competitor richness) ²	-0.61	0.38			0.13	
		Log area	-0.45	0.38	41.69	0.76	0.24	0.06
Log area	0.05	0.53	42.21	0.85	0.92	0.13		
(Log area) ²	-0.31	0.24			0.20			
Distance from the mainland	0.03	0.01	39.13	0.73	<0.01	0.33		
Distance from the mainland	0.04	0.02	38.88	0.87	0.10	0.34		
(Distance from the mainland) ²	(-)<0.01	<0.01			0.60			
Log distance from closest larger landmass	0.48	0.61	40.74	0.65	0.44	0.03		
Log distance from closest larger landmass	1.03	0.78	41.18	0.75	0.20	0.08		

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Log distance from closest larger landmass) ²	-0.69	0.61			0.27	
		Log time since isolation	-0.40	0.52	42.84	2.40	0.45	0.03
		Log time since isolation	-3.06	7.84	49.13	18.67	0.70	0.03
		(Log time since isolation) ²	0.27	0.78			0.74	
		Predator richness	-0.25	0.16	41.97	0.78	0.13	0.10
		Predator richness	0.38	0.43	41.18	0.91	0.39	0.19
		(Predator richness) ²	-0.06	0.04			0.14	
		Competitor richness	-0.13	0.24	41.55	1.08	0.58	0.01
		Competitor richness	0.82	0.83	40.11	1.62	0.34	0.08
		(Competitor richness) ²	-0.11	0.09			0.25	
<i>L. trilineata</i>	SVL	Log area	-5.98	3.77	140.85	9.24	0.14	0.15
(n=16)		Log area	24.66	24.00	103.81	30.05	0.32	0.25
		(Log area) ²	-5.90	4.57			0.22	

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Distance from the mainland	0.13	0.05	119.70	3.68	0.03	0.29
		Distance from the mainland	0.41	0.18			0.04	
		(Distance from the mainland) ²	(-)<0.01	<0.01	115.60	4.25	0.12	0.41
		Log distance from closest larger landmass	4.18	4.53	121.96	5.78	0.37	0.06
		Log distance from closest larger landmass	6.07	18.95			0.75	
		(Log distance from closest larger landmass) ²	-0.86	8.30	121.18	9.61	0.92	0.06
		Log time since isolation	0.81	2.40	122.75	12.14	0.74	0.01
		Log time since isolation	78.47	42.37			0.09	
		(Log time since isolation) ²	-7.47	4.07	-69.79	105.49	0.09	0.21
		Predator richness	-2.09	0.97	139.05	6.14	0.05	0.25
		Predator richness	-0.82	5.54			0.88	
		(Predator richness) ²	-0.09	0.37	135.04	18.27	0.82	0.25
		Competitor richness	-2.71	1.30	140.65	7.05	0.06	0.24

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Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Competitor richness	2.62	8.66			0.77	
		(Competitor richness) ²	-0.42	0.67	125.55	25.27	0.54	0.26
<i>O. elegans</i> (n=14)	SVL	Log area	1.09	0.65	42.70	1.40	0.12	0.19
		Log area	1.21	2.43			0.63	
		(Log area) ²	-0.03	0.70	42.64	1.91	0.96	0.19
		Distance from the mainland	0.05	0.04	43.64	1.09	0.21	0.13
		Distance from the mainland	-0.02	0.18			0.89	
		(Distance from the mainland) ²	<0.01	<0.01	44.37	2.05	0.68	0.14
		Log distance from closest larger landmass	2.82	1.07	42.39	1.08	0.02	0.36
		Log distance from closest larger landmass	3.99	3.24			0.24	
(Log distance from closest larger landmass) ²	-0.79	2.06	42.19	1.23	0.71	0.37		
		Log time since isolation	1.68	0.65	37.23	2.99	0.02	0.35
		Log time since isolation	8.20	7.73	22.26	17.95	0.31	0.39

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Log time since isolation) ²	-0.68	0.81			0.42	
		Predator richness	0.05	0.20	44.57	1.08	0.81	<0.01
		Predator richness	0.49	0.77	44.20	1.28	0.53	0.04
		(Predator richness) ²	-0.05	0.08			0.56	
		Competitor richness	0.36	0.29	43.17	1.46	0.24	0.11
		Competitor richness	0.65	1.34	42.71	2.61	0.64	0.12
		(Competitor richness) ²	-0.03	0.15			0.83	
		Log area	-0.02	0.01	1.79	0.01	0.04	0.31
		Log area	-0.02	0.01	1.78	0.01	0.03	0.41
		(Log area) ²	0.01	<0.01			0.21	
		Distance from the mainland	(-)<0.01	<0.01	1.86	0.09	0.51	0.04
		Distance from the mainland	0.02	0.03	1.10	1.40	0.61	0.06
		(Distance from the mainland) ²	(-)<0.01	<0.01			0.60	
<i>P. gaigeae</i> (n=14)	Log10 (SVL)							

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Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Log distance from closest larger landmass	-0.01	0.01	1.79	0.01	0.50	0.04
		Log distance from closest larger landmass	<0.01	0.01	1.81	0.01	0.78	0.25
		(Log distance from closest larger landmass) ²	-0.03	0.02			0.10	
		Log time since isolation	-0.01	0.01	1.84	0.04	0.30	0.09
		Log time since isolation	0.09	0.11	1.61	0.25	0.42	0.15
		(Log time since isolation) ²	-0.01	0.01			0.37	
		Predator richness	-0.01	0.01	1.80	0.01	0.34	0.08
		Predator richness	-0.02	0.05	1.80	0.01	0.74	0.08
		(Predator richness) ²	<0.01	0.01			0.87	
		Competitor richness	(-)<0.01	0.01	1.79	0.01	0.96	<0.01
Competitor richness			0.05	0.02	1.79	0.01	0.03	0.40
(Competitor richness)²			-0.01	<0.01			0.02	
<i>P. milensis</i>	SVL	Log area	-2.72	1.11	59.87	1.36	0.05	0.50

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
(n=8)		Log area	-2.64	1.70	59.96	1.97	0.18	0.50
		(Log area) ²	-0.09	1.27			0.95	
		Distance from the mainland	-0.10	0.06	67.30	5.38	0.14	0.33
		Distance from the mainland	0.61	0.30	45.24	9.90	0.09	0.69
		(Distance from the mainland) ²	(-)<0.01	<0.01			0.06	
		Log distance from closest larger landmass	2.71	2.08	56.07	2.38	0.24	0.22
		Log distance from closest larger landmass	5.00	7.57	56.12	2.59	0.54	0.24
		(Log distance from closest larger landmass) ²	-1.57	4.96			0.76	
		Log time since isolation	2.50	1.01	45.10	5.53	0.05	0.50
		Log time since isolation	-22.45	14.85	106.17	36.60	0.19	0.68
		(Log time since isolation) ²	2.41	1.43			0.15	
Predator richness	-1.20	0.53	60.85	1.66	0.06	0.46		
Predator richness	-3.95	2.58	61.42	1.71	0.18	0.56		

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Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Predator richness) ²	0.51	0.46			0.32	
		Competitor richness	-1.79	1.16	61.80	2.62	0.17	0.28
		Competitor richness	-14.84	10.69	72.84	9.34	0.22	0.45
		(Competitor richness) ²	2.62	2.13			0.27	
<i>D. caspius</i> (n=11)	Total length	Log area	286.80	135.70	979.90	339.50	0.06	0.33
		Log area	-671.6	1402.4	1898.9	1640.9	0.64	0.37
		(Log area) ²	200.70	292.2			0.51	
		Distance from the mainland	-2.64	2.43	1583.65	102.56	0.30	0.12
		Distance from the mainland	-0.87	8.46	1566.45	133.75	0.92	0.12
		(Distance from the mainland) ²	-0.02	0.09			0.83	
		Log distance from closest larger landmass	11.15	159.12	1491.98	181.58	0.946	<0.01
Log distance from closest larger landmass	-168.60	673.02	1560.61	313.77	0.81	0.01		
		(Log distance from closest larger landmass) ²	90.61	327.97			0.79	

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Log time since isolation	-194.79	56.33	2397.59	263.30	<0.01	0.57
		Log time since isolation	-509.22	932.49	3154.82	2258.23	0.60	0.58
		(Log time since isolation) ²	31.40	92.92			0.74	
		Predator richness	11.77	17.13	1352.73	231.75	0.51	0.05
		Predator richness	159.21	138.60	435.13	886.35	0.28	0.17
		(Predator richness) ²	-5.31	4.96			0.31	
		Competitor richness	22.00	21.94	1359.53	160.65	0.34	0.10
		Competitor richness	216.44	136.71	817.70	406.02	0.15	0.29
		(Competitor richness) ²	-13.63	9.47			0.19	
<i>E. quatuorlineata</i> (n=11)	Total length	Log area	-47.91	100.97	1429.81	232.85	0.65	0.02
		Log area	-760.10	585.90	2250.30	703.00	0.23	0.18
		(Log area) ²	145.50	118.00			0.25	
		Distance from the mainland	-2.79	0.48	1482.29	37.59	<0.01	0.79

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Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Distance from the mainland	-4.85	2.21	1505.95	45.19	0.06	0.81
		(Distance from the mainland) ²	0.01	0.01			0.37	
		Log distance from closest larger landmass	-73.45	61.33	1390.94	77.70	0.26	0.14
		Log distance from closest larger landmass	-39.01	64.66	1470.39	96.38	0.56	0.29
		(Log distance from closest larger landmass) ²	-69.46	53.14			0.23	
		Log time since isolation	-100.57	47.41	1783.13	221.99	0.06	0.33
		Log time since isolation	-824.55	882.06	3566.81	2181.64	0.38	0.39
		(Log time since isolation) ²	69.86	84.98			0.43	
		Predator richness	8.03	12.50	1237.89	143.06	0.54	0.04
		Predator richness	18.69	71.21	1173.41	449.77	0.80	0.05
		(Predator richness) ²	-0.37	2.40			0.88	
		Competitor richness	14.84	20.66	1253.79	110.54	0.49	0.05
		Competitor richness	38.31	83.68	1194.38	235.44	0.66	0.06

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Competitor richness) ^{^2}	-1.72	5.93			0.78	
<i>E. jaculus</i> (n=8)	Total length	Log area	-28.37	58.23	416.59	108.67	0.64	0.04
		Log area	204.75	355.65	240.80	287.77	0.59	0.12
		(Log area) ^{^2}	-68.61	103.11			0.53	
		Distance from the mainland	-3.37	1.40	805.97	184.43	0.05	0.49
		Distance from the mainland	-34.10	30.29	2729.43	1903.00	0.31	0.58
		(Distance from the mainland) ^{^2}	0.12	0.12			0.36	
		Log distance from closest larger landmass	-47.40	54.88	410.48	60.28	0.42	0.11
		Log distance from closest larger landmass	-84.63	180.76	423.40	88.46	0.66	0.12
		(Log distance from closest larger landmass) ^{^2}	18.16	83.21			0.83	
Log time since isolation	-3.91	39.81	383.43	179.30	0.32	<0.01		
Log time since isolation	757.38	702.00	-1442.63	1690.47	0.33	0.19		
(Log time since isolation) ^{^2}	-76.04	70.01			0.33			

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Predator richness	-4.27	12.53	395.99	93.78	0.74	0.02
		Predator richness	89.34	96.68			0.40	
		(Predator richness) ²	-6.17	6.32	86.09	331.03	0.37	0.18
		Competitor richness	-16.09	21.41	408.35	64.67	0.48	0.09
		Competitor richness	46.41	134.12			0.74	
		(Competitor richness) ²	-10.03	21.21	335.82	168.29	0.66	0.12
<i>N. natrix</i> (n=11)	Log10 (Total length)	Log area	0.02	0.05	2.78	0.13	0.74	0.01
		Log area	-0.53	0.57			0.38	
		(Log area) ²	0.13	0.13	3.37	0.62	0.36	0.12
		Distance from the mainland	(-)<0.01	<0.01	2.85	0.03	0.22	0.16
		Distance from the mainland	(-)<0.01	<0.01			0.13	
		(Distance from the mainland) ²	<0.01	<0.01	2.87	0.03	0.20	0.33
		Log distance from closest larger landmass	-0.03	0.02	2.85	0.03	0.28	0.13

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Log distance from closest larger landmass	0.01	0.10	2.83	0.04	0.92	0.15
		(Log distance from closest larger landmass) ²	-0.02	0.05			0.70	
		Log time since isolation	-0.03	0.01	2.94	0.07	0.11	0.25
		Log time since isolation	0.16	0.38	2.49	0.93	0.69	0.27
		(Log time since isolation) ²	-0.02	0.04			0.64	
		Predator richness	<0.01	<0.01	2.76	0.06	0.27	0.13
		Predator richness	(-)<0.01	0.03	2.82	0.21	0.89	0.14
		(Predator richness) ²	<0.01	<0.01			0.77	
		Competitor richness	0.01	<0.01	2.77	0.04	0.18	0.19
		Competitor richness	-0.01	0.03	2.81	0.10	0.84	0.21
		(Competitor richness) ²	<0.01	<0.01			0.64	
<i>T. fallax</i>	Log10 (Total length)	Log area	0.06	0.03	2.66	0.08	0.11	0.23
(n=12)		Log area	0.55	0.21	2.04	0.26	0.03	0.53

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Log area)²	-0.09	0.04			0.04	
		Distance from the mainland	(-)<0.01	<0.01	2.86	0.03	0.03	0.38
		Distance from the mainland	(-)<0.01	<0.01	2.88	0.04	0.12	0.44
		(Distance from the mainland)²	<0.01	<0.01			0.33	
		Log distance from closest larger landmass	(-)<0.01	0.05	2.80	0.07	0.91	<0.01
		Log distance from closest larger landmass	0.16	0.20	2.72	0.11	0.43	0.08
		(Log distance from closest larger landmass)²	-0.08	0.87			0.40	
		Log time since isolation	<0.01	0.02	2.77	0.13	0.90	<0.01
		Log time since isolation	0.25	0.36	2.14	0.92	0.50	0.05
		(Log time since isolation)²	-0.02	0.03			0.50	
		Predator richness	0.01	<0.01	2.69	0.05	0.05	0.32
		Predator richness	<0.01	0.02	2.72	0.11	0.89	0.33
		(Predator richness)²	<0.01	<0.01			0.75	

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Competitor richness	0.01	0.01	2.73	0.04	0.12	0.22
		Competitor richness	0.02	0.03			0.54	
		(Competitor richness) ²	(-)<0.01	<0.01	2.73	0.06	0.87	0.22
<i>V. ammodytes</i> (n=15)	Log10 (Total length)	Log area	0.08	0.02	2.42	0.05	<0.01	0.47
		Log area	-0.06	0.09			0.54	
		(Log area) ²	0.04	0.02	2.53	0.09	0.14	0.56
		Distance from the mainland	(-)<0.01	<0.01	2.74	0.04	<0.01	0.66
		Distance from the mainland	(-)<0.01	<0.01			<0.01	
		(Distance from the mainland) ²	<0.01	<0.01	2.81	<0.01	0.07	0.75
		Log distance from closest larger landmass	-0.02	0.03	2.59	0.03	0.60	0.02
		Log distance from closest larger landmass	-0.05	0.03			0.13	
		(Log distance from closest larger landmass) ²	0.04	0.02	2.56	0.03	0.08	0.25
		Log time since isolation	0.03	0.04	2.47	0.15	0.47	0.04

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Log time since isolation	0.61	0.37	1.11	0.86	0.12	0.21
		(Log time since isolation) ²	-0.06	0.04			0.13	
		Predator richness	0.01	<0.01	2.44	0.04	<0.01	0.56
		Predator richness	<0.01	0.01	2.49	0.09	0.82	0.58
		(Predator richness) ²	<0.01	<0.01			0.49	
		Competitor richness	0.02	0.01	2.48	0.03	<0.01	0.53
Competitor richness	0.01	0.02	2.50	0.05	0.57	0.54		
(Competitor richness) ²	<0.01	<0.01			0.54			
<i>V. xanthine</i> (n=8)	Log10 (Total length)	Log area	0.15	0.05	2.59	0.12	0.03	0.56
		Log area	0.66	0.40	2.07	0.43	0.16	0.67
		(Log area) ²	-0.11	0.09			0.26	
		Distance from the mainland	(-)<0.01	<0.01	2.99	0.09	0.29	0.18
		Distance from the mainland	-0.01	0.02	3.06	0.16	0.48	0.23

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		(Distance from the mainland) ²	<0.01	<0.01			0.62	
		Log distance from closest larger landmass	-0.01	0.15	2.92	0.15	0.92	<0.01
		Log distance from closest larger landmass	-0.23	0.65	3.00	0.30	0.74	0.02
		(Log distance from closest larger landmass) ²	0.11	0.34			0.74	
		Log time since isolation	-0.06	0.09	3.15	0.37	0.51	0.07
		Log time since isolation	-6.94	1.86	19.42	4.39	0.01	0.75
		(Log time since isolation)²	0.71	0.19			0.01	
		Predator richness	0.02	0.01	2.60	0.11	0.03	0.59
		Predator richness	0.10	0.06	2.21	0.32	0.14	0.69
		(Predator richness) ²	(-)<0.01	<0.01			0.25	
		Competitor richness	0.04	0.02	2.64	0.12	0.07	0.46
		Competitor richness	0.13	0.09	2.36	0.29	0.20	0.56
		(Competitor richness) ²	-0.01	0.01			0.33	

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
<i>E. modestus</i> (n=8)	Total length	Log area	-1.23	15.71	466.64	32.91	0.94	<0.01
		Log area	-57.01	38.53	461.50	29.78	0.20	0.33
		(Log area) ²	21.78	14.00			0.18	
		Distance from the mainland	1.49	1.16	440.43	26.34	0.24	0.22
		Distance from the mainland	-1.29	5.12	459.69	44.33	0.81	0.26
		(Distance from the mainland) ²	0.05	0.09			0.60	
		Log distance from closest larger landmass	77.42	49.52	417.72	34.79	0.17	0.29
		Log distance from closest larger landmass	179.09	175.53	406.67	41.04	0.35	0.34
		(Log distance from closest larger landmass) ²	-102.48	168.89			0.57	
		Log time since isolation	17.40	29.04	388.87	128.05	0.57	0.06
		Log time since isolation	688.97	969.47	-1169.64	2252.73	0.51	0.14
(Log time since isolation) ²	-70.23	101.33	0.52					
Predator richness	0.04	2.96	464.26	34.14	0.99	<0.01		

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R ²
		Predator richness	-7.84	12.87			0.57	
		(Predator richness) ²	0.45	0.71	476.91	41.19	0.55	0.07
		Competitor richness	-0.14	4.82	465.46	34.21	0.98	<0.01
		Competitor richness	-11.83	22.69			0.62	
		(Competitor richness) ²	1.15	2.18	473.23	39.32	0.62	0.05

For Peer Review