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Complete List of Authors:	Itescu, Yuval; Tel Aviv University, Zoology Schwarz, Rachel; Tel Aviv University, Department of Zoology Donihue, Colin; Harvard University Department of Organismic and Evolutionary Biology, Department of Organismic and Evolutionary Biology Slavenko, Alex; Tel Aviv University, Department of Zoology Roussos, Stephanos; University of North Texas, Department of Biological Sciences; Texas Tech University, Department of Biological Sciences Sagonas, Kostas; Queen Mary University of London, School of Biological and Chemical Sciences Valakos, Efstratios; National and Kapodistrian University of Athens Faculty of Physics, Department of Biology Foufopoulos, Johannes; University of Michigan, School of Natural Resources and Environment Pafilis, Panayiotis; University of Athens, Biology Meiri, Shai; Tel Aviv University, Zoology

Keywords:	body size, competition, island area, isolation, lizards, predation, snakes

Research paper

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

Yuval Itescu[1] (yuvitescu@gmail.com), Rachel Schwarz[1] (rachelschwarz13@gmail.com), Colin Donihue[2] (colin_donihue@fas.harvard.edu), Alex Slavenko[1] (slavenko@mail.tau.ac.il), Stephanos A. Roussos[3,4] (stephanos.roussos@unt.edu), Kostas Sagonas[5] (k.sagonas@qmul.ac.uk), Efstratios D. Valakos[6] (evalakos@biol.uoa.gr), Johannes Foufopoulos[7] (jfoufop@umich.edu), Panayiotis Pafilis[6] (ppafil@biol.uoa.gr), Shai Meiri[1] (uncshai@post.tau.ac.il)

[1] *School of Zoology, Tel Aviv University, Tel Aviv 6997801, Israel*

[2] *Department of Organismic and Evolutionary Biology, Harvard University, Cambridge, MA 02138, USA*

[3] *Department of Biological Sciences, University of North Texas, Denton, TX 76203, USA*

[4] *Department of Biological Sciences, Texas Tech University, Lubbock, TX 79409, USA*

[5] *School of Biological and Chemical Sciences, Queen Mary University of London, London E1 4NS, UK*

[6] *Department of Biology, National and Kapodistrian University of Athens, Athens 157-84, Greece*

[7] *School of Natural Resources and Environment, University of Michigan, Ann Arbor, Ann Arbor, MI 48109, USA*

Key words: body size, competition, island area, isolation, lizards, predation, snakes.

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Corresponding Author: Yuval Itescu, Department of Zoology, Tel Aviv University, Tel Aviv 6997801, Israel; phone: +972 640 9811, fax: +972 640 9403; yuvitescu@gmail.com

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ABSTRACT

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.

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

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

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, 2015Insular 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 size, via direct selection on life history traits, have also been proposed (Adler & Levins, 1994; Palkovacs, 2003).

Area and isolation are the two main island characteristics thought to affect animal body size. Lomolino (2005) suggested that small species increase in size on smaller and more isolated islands while large species become smaller on such islands. Other studies, however, found minor support for such relationships in mammals (Meiri et al., 2005, 2006), snakes (Boback, 2003), and lizards (Meiri, 2007). Heaney (1978) predicted the body size of small mammals decreases while that of large mammals increases with increasing area (see also Melton, 1982; Marquet & Taper, 1998). He further predicted that medium sized animals are largest on intermediate-sized islands, becoming smaller on both smaller and larger islands (Heaney, 1978). However, Meiri et al. (2005) found no support for Heaney's prediction, or for a linear response of size to island area.

Isolation can be defined both in space and in time. Spatial isolation, usually calculated as island distance from the nearest mainland (e.g., Anderson & Handley, 2002, Meik et al., 2010), reduces immigration (i.e., gene flow) rates and makes *in situ* adaptations more likely (Heaney, 2000). The effect of spatial isolation on body size is possibly indirect, reflecting factors such as predation and competition pressures (Heaney, 1978; Arnold, 1979). Anderson & Handley (2002) suggested that, where over-water dispersal is unlikely (as in the case of Aegean Sea reptiles, Foufopoulos & Ives, 1999), body sizes on close and far islands would not differ. Temporal isolation is thought to be associated with body size in systems where sufficient time since isolation has not yet passed to allow a unidirectional change towards an optimum to be completed (Anderson & Handley, 2002). However, accelerated trait evolution on recently isolated islands has also been suggested (Aubret, 2015). As increased isolation is expected to drive the same phenotypic changes as decreasing island area (Adler & Levins, 1994), Heaney's (1978) prediction for island area is possibly true for isolation as well (i.e., that intermediate-sized species are smallest at intermediate isolation, and larger at low and high degrees of isolation). Furthermore, as Heaney suggested, island area reflects predation and interspecific competition and therefore the pattern suggested for island area should apply to predation and interspecific competition, with the later possibly showing a stronger effect in small species.

Reptiles are well-known for their extreme-sized insular forms: giant tortoises and Komodo dragons on one hand, and the world's smallest lizards (*Sphaerodactylus* geckos and *Brookesia* chameleons; Hedges & Thomas, 2001; Glaw et al., 2012) and snakes (Caribbean *Tetracheilostoma* threadsnakes; Hedges, 2008) on the other. Whether reptile body sizes tend to grow or diminish on islands compared to the mainland seems to be a clade-specific characteristic (see e.g., Case, 1978; Boback & Guyer, 2003; Meiri, 2007, 2008). How island area and isolation affect reptile body size evolution is unclear. Previous studies provided inconsistent results (cf. Soulé, 1966; Hasegawa & Moriguchi, 1989; Boback, 2003; Meiri, 2007; Meik et al., 2010; Donihue et al., 2016). Release from predation is thought to drive size increase in small species and size decrease in large species by relaxing direct selection on size-related anti-predatory adaptations (Heaney, 1978; Vervust et al., 2007). Relaxed interspecific competition allows niche shifts and promotes size changes (Soulé, 1966; Schoener, 1970; Case, 1978; Hasegawa, 2003; but see Dunham et al., 1978). Ecological release (both from predators and interspecific competitors) is also thought to promote higher population densities, and consequently stronger intraspecific competition and aggressiveness (Pafilis et al., 2009; Donihue et al., 2016), which in turn favors large sizes, although smaller size is expected where early maturity is advantageous (Melton, 1982; Palkovacs, 2003).

To date, insular reptile body size evolution studies either contrasted mainland and island species or populations (e.g., Case, 1978; Boback & Guyer, 2003; Meiri, 2007; Itescu et al., 2014), or examined the effects of some predictors across populations of a single species (e.g., Soulé, 1966; Meik et al., 2010) or genus (Dunham et al., 1978). It remains unclear which island characteristics primarily drive body size evolution, what the common patterns are, and whether co-occurring species respond similarly to insular conditions. Which factor is most influential is sometimes debated even for a single species (cf. Calsbeek & Cox, 2010, 2011; Losos & Pringle, 2011). Therefore, we approached these questions by directly quantifying the effect of multiple potential selection agents across multiple island populations of multiple reptile species within a single archipelago. Comparing species co-occurring within the same archipelago allows one to eliminate island-specific factors that vary across different regions such as latitude, climate, vegetation, primary productivity, etc., but remain relatively uniform among such co-occurring species (Meiri et al., 2008). This study design potentially enables us to distinguish between patterns driven by the island conditions we studied and those that are species-specific.

We assembled a database of unprecedented coverage encompassing body size data for nearly 10,000 individuals of 16 reptile species (eight lizard and eight snake species), from 273 islands in the Aegean Sea. These islands vary widely in area, isolation and faunal composition. Body size in reptile populations on these islands also varies greatly (and in some species even reaches the maximal documented size, Itescu et al., 2016), making this system ideal to study size evolution on islands. We aimed to test 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 kotschyi* 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

Museum, British Natural History Museum, French National Museum of Natural History, Museum of Comparative Zoology at Harvard University, and Yale Peabody Museum of Natural History). Finally, we comprehensively surveyed literature and recorded body size information for as many Aegean island reptiles as possible (data were extracted from 97 sources; see Appendix 1 for a list). We recorded sex and body size for 9951 adult individuals of eight lizard and eight snake species originating from 273 islands (Table 1, Appendix 2). We used the most commonly reported size indices: snout-vent length (SVL) for lizards, and total length for snakes. Mean body mass for each species was calculated from data we recorded in the field and from the literature. To ensure our use of multiple data sources did not bias the results, we compared the mean body size of specimens measured in museum collections and specimens measured in the field for several islands. We compared only islands from which we recorded body size data of at least five males and five females for each data source. For the two species with sufficient data we found no differences between sources (*P. erhardii*: field mean SVL=61.05 mm, museum=60.43 mm, n=38 islands, t=1.22, p=0.23; *M. kotschyi*: field=43.35 mm, museum=43.68 mm, n=25, t=-1.05, p=0.30). We therefore pooled museum, literature and field data in all further analyzes.

Following most island biogeography studies (studies of body size included; e.g., Boback, 2003; Lomolino, 2005; Meiri et al., 2005), we tested the distance from the nearest mainland as an index of spatial isolation. However, for land-bridge island systems this index may not adequately quantify effective isolation (Itescu, 2017), especially in the Aegean Sea archipelago (Foufopoulos & Ives, 1999). Therefore we also studied the distance from the closest larger island and a temporal isolation index, the time since isolation. Distances were calculated using Google Earth tools. Periods of isolation for islands isolated during the past 20,000 years (since the end of the last glacial maximum – "LGM") were calculated by crossing data for the maximum depth between a focal island and the last landmass to which it was connected with regional-specific charts of sea-level change since the LGM (see Foufopoulos & Ives, 1999; Foufopoulos et al., 2011). Maximum depths were drawn from fine resolution bathymetric maps of the Hellenic Navy Hydrographic Service (www.hnhs.gr/geoindex/). Estimations were calculated to a one year resolution, and we did not round values although we acknowledge and do not presume our method can accurately estimate isolation time at such a fine resolution. Temporal isolation of islands isolated earlier than the LGM were assembled from the literature (Appendix 3). We assembled island-specific faunal lists based on the literature and our own field observations to count the potential predator and competitor species of each focal population. Predators were defined as all mammals and reptiles likely to prey upon focal species (Appendix 4). Birds were excluded since their mobility across islands and their seasonal migration allows them to hunt well away from their breeding sites, making it impossible to create reliable island-specific lists. To ensure that excluding birds did not significantly affect our predator richness values we tested the correlation between predatory bird richness values and the combined counts of predatory mammal and predatory reptiles across 41 islands for which we did have reasonably reliable predatory bird lists (Itescu et al., 2017). The correlation coefficient (r) was 0.90 ($p<0.01$). We therefore feel confident to exclude bird counts from our database. We could not quantify potential predatory arthropods (e.g., spiders, scorpions, centipedes) since reports on either predation on reptiles by arthropods, and island specific faunal list for them are too rare. Competitors were defined as other lizards (for lizards) or other snakes (for snakes), assuming that juveniles of large species potentially compete with adults of smaller species.

Analyses

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 interspecific competition and no trend for predation if the prediction holds. We used body mass as the predictor variable in these analyses since it is comparable across taxa, eliminating biases driven by body shape, and therefore is more suitable for inter-specific comparisons than body length (Feldman & Meiri, 2013; Feldman et al., 2016). We then took a meta-analytic approach to explore whether any island characteristic significantly affects body size across all reptiles we studied in general or across each suborder (snakes and lizards) separately. We conducted DerSimonian-Laird random-effect meta-analysis of correlation coefficients (r) of the linear regressions of body size against each predictor variable in all species as effect sizes, for each group separately. We used the correlation coefficients from regressions of log10-transformed body size (against tested predictors) for all species, to standardize the r values we analyzed. The meta-analyses were performed using the 'metacor' R package (Laliberté, 2011). Finally, we examined for each species which of the six island characteristics comprise the model that best predicts its body size on islands and compared the selected best models across species. To this end we performed a multiple regression test for each species, followed by a backward-stepwise model selection procedure based on p-values ($\alpha<0.05$), using both linear and quadratic terms. We avoided using the Akaike information criteria for model selection (AIC or AICc scores) because the models with the lowest scores often had predictors which were poorly associated with size (i.e. had p values >0.05 when significance levels were estimated), making them non-informative (models with the lowest scores merely being the best of a collection of poor models; Arnold, 2010; Mac Nally et al., 2017). Thus, the much maligned p-value approach proved more conservative. Nevertheless, we present the AICc-based best models for each species in Appendix 5 to highlight that our general conclusions are robust for using different model-selection approaches.

We avoided over-parameterization by limiting models to include a maximum of three data points (i.e., islands) per tested predictor. We discarded predictors which were highly co-linear with others (variance inflation factor ≥ 5) in the same model. To meet the assumptions of parametric tests we log10-transformed island area, time since isolation, and where needed, body size (residual distributions of six of the 16 species were not normal before transformation; Shapiro-Wilk normality test) in all analyses. In all cases where we analyzed correlation coefficients (r) as the dependent variable we used the r values from regressions of log10-transformed body size (against tested predictors) for all species to standardize the analyzed values.

RESULTS

The best models for body size were highly inconsistent across species. Each of the predictors we tested was correlated with the body size of at least one species, but most predictor-body size relationships were non-significant, and no predictor was important for all species (Table 1). We found 15 different models (in terms of variables included and trend signs) across the 16 studied species. Only the snakes *Elaphe quatuorlineata* and *Vipera ammodytes* shared a similar model. For two snake species (*Eirenis modestus* and *Natrix natrix*) no predictors were significant. Explanatory power and effect sizes of each predictor varied greatly across the 16 species examined, within snakes and lizards separately, and even within families (Table 2). In only one out of 16 reptile species (the snake *Telescopus fallax*) was a quadratic model of body size for island area significant, and only five species showed a significant linear relationship (three positive and two negative) between size and area, when area was tested in univariate models (Fig. 1; see full univariate model statistics in Appendix 6). Following model selection, *T. fallax* still showed the same quadratic pattern, and significant linear relationships emerged only in lizards (positive in two species and negative in four). In fact, for lizards island area was the most frequently significant predictor. For snakes, distance from the mainland was the most frequently significant predictor, negatively correlated with body size in three species and positively so in one.

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

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

DISCUSSION

Aegean island reptiles show great idiosyncrasy in the way their sizes respond to the factors we studied. We found great pattern diversity among the species we studied, with effects of the predictor variables varying in sign, shape (linear, curvilinear) and significance. None of the predictor variables consistently affected even the majority of species, and a comparison of the best models across species showed that nearly all species were affected by a different combination of factors. Very few consistent patterns emerged, except that most predictors were uninformative for most species (a consistency of sorts). In line with this finding, the meta-analysis of effect sizes showed that none of the three isolation indices significantly drives insular body size of the studied reptiles in a particular direction (i.e., patterns are inconsistent across species). Island area, predator richness, and competitor richness likely have no general effect on insular reptile body size. Our results also revealed striking differences in the response of body size on islands to environmental conditions in lizards and those in snakes. That said, small reptile species tend to become larger on more isolated islands, while large species tend to become smaller as geographic and temporal isolation increases

A common perception in island biogeography is that as islands get smaller and more isolated, the effects of the insular environment on the traits of their inhabitants intensify (Melton, 1982; Filin & Ziv, 2004; Lomolino, 2005). However, when the effects of area and isolation on reptile body size are directly tested, results are often inconsistent. For snakes, Hasegawa & Moriguchi (1989) found a negative correlation between body size and island area, Boback's (2003) meta-analysis revealed no correlation between them, and Meik et al. (2010, 2012) found a strong positive correlation in speckled rattlesnakes (*Crotalus mitchellii*). Our meta-analysis results for snakes in general support the findings of Meik et al. (2010, 2012), but for most species we studied (seven out of the eight species) island area is not a particularly important predictor of body size according to model selection (for *Telescopus fallax* it is, but the relationship with body size is hump-shaped). Boback (2003) and Meik et al. (2010) found no association between size and either temporal or geographic isolation whereas we found a negative relationship. The frequent inclusion of island area in the best models of lizards (for seven out of eight species) is somewhat surprising considering results of previous studies (Soulè, 1966; Dunham et al., 1978; Losos et al., 2004; Meiri, 2007, but see Donihue et al., 2016). However, the fact that the direction of the relationship changes across species points to no general trend.

We cannot support most of Heaney's (1978) predictions in the case of reptiles. It is clear that none of the island characteristics we examined drives reptile body size patterns in the predicted way. Moreover, isolation, regardless of the index tested, shows the opposite patterns. These results highlight a role of island isolation in driving reptile body size evolution (Van Valen, 1973; Lomolino, 2005). Island area, however, in contrast to theory (Heaney, 1978; Lomolino, 2005), has no overall effect on patterns of reptile body size variation on islands, at least in the Aegean Sea archipelago. Our results also refute Heaney's (1978) prediction that interspecific competition influences small species more strongly than large species, but supports his prediction that the importance of predation for size variation on island is not size-biased.

Surprisingly, we only found few, weak effects of biotic interactions. As others have used island area and isolation as proxies for biotic effects and found significant associations with body size (Lomolino, 2005), we expected that testing the effect of the biotic interactions directly would result in stronger patterns. This, however, proved false. Predator and competitor richness did not affect body size of most of our study species (less than a quarter of the species had these factors included in their best model). For snakes, but not for lizards or for reptiles in general (i.e., as a group), the meta-analysis showed a tendency towards larger sizes where predator and competitor richness is greater. We think the weak effect of competitor and predator richness implies that maybe many, possibly inefficient, competitors and predators do not necessarily impose a stronger selection pressure than one or two dominant competitors\predators. Therefore, we suspect that despite its common use as a predation pressure index in the literature (e.g., Pérez-Mellado et al., 1997; Cooper et al., 2004), predator richness poorly reflects predation intensity (Meiri et al., 2005; Itescu et al., 2017). Similarly, competitor richness may be a weak index of competition intensity (Meiri et al., 2014). Another possibility is that significant evolutionary changes are apparent only on predator-free, rather than predator-poor, islands.

Two important factors that we did not test in this study but are often thought to shape body size evolution on islands are intraspecific competition and resource limitation (Case, 1978; Melton, 1982). For example, gigantism on islands has been explained by the need to evolve a large size under conditions of stronger intra-specific competition, where predation pressure is low (Pafilis et al., 2009). Territoriality, which involves defending resources against conspecifics and characterizes some of our study species, is also thought to be associated with larger sizes on islands (Case, 1978; Keehn et al., 2013, but see Case & Schwaner, 1993). Richer resources, in terms of prey size, prey diversity, and prey availability are usually associated in reptiles with increased body sizes on islands as well, especially for snakes (Schwaner, 1985; Shine, 1987; Hasegawa & Moriguchi, 1989; Hasegawa, 2003; Boback, 2003; Meiri, 2007, 2008).

Furthermore, resource limitation may drive cannibalism in insular reptiles, consequently selecting for larger body sizes (Pafilis et al., 2009). 408 409

While body size variation on islands is commonly examined under a framework of adaptations, one cannot rule out alternative possibilities such as habitat-driven plastic phenotypic responses (in contrast to adaptive genetic response) or founder effects. These possibilities seem especially relevant in our study system, considering the minor effect commonly suggested selection agents have on reptile body size patterns. For example, individual growth rates can vary as a result of genetic changes (i.e., adaptation) or plastic changes (e.g., more food permits faster growth). There are indications that plastic growth rate variability across insular populations resulting from variation in resource availability may produce non-adaptive body size differences (Case, 1976; Forsman, 1991; Madsen & Shine, 1993). Additionally, where predators are rare, foraging and basking times may increase, thereby allowing enhanced growth. Of course, direct selection on growth rates rather than on body size *per se* (e.g., due to ontogenetic differences in food limitation, competition intensity or size-biased predation pressure) may also drive population-level body size variation (Aubret, 2012). Vincent et al. (2009) proposed that body size variation in snakes is no more than an evolutionary spandrel, with gape size being the true trait under selection. Another alternative non-adaptive explanation for body size variation across populations is that where adult mortality rates are low (e.g., where predation is low) larger adult sizes are attained because individuals survive longer and reptiles grow throughout their lives (King, 1989; Hasegawa & Mori, 2008). Founder effects may also have a role in shaping body size patterns, especially in small, remote and young islands (Kolbe et al., 2012). Thus body size variation is not necessarily or solely 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 adaptive, and novel approaches (Diniz-Filho & Raia, 2017) may allow better discrimination between adaptive and non-adaptive patterns in the near future.

An interesting and important pattern that emerged from our results is that lizards and snakes, at the sub-order level, differ markedly in how their sizes respond to the factors we studied. In fact, we found they show an exactly opposite picture to each other. Lizard body size shows no general response to island conditions, except for a weak tendency to decline with distance from the closest larger island. In contrast, snake body size responds to most factors apart from distance from the closest larger island. It tends to increase with island area, competitor richness and predator richness, and to decline with distance from the mainland and with time since isolation. Generally, the patterns found for snakes follow the common predictions regarding insular evolution in large species (Heaney, 1978). Interestingly, however, those of lizards do not follow the patterns predicted for small species (Heaney, 1978), in the most part. The patterns we found for each of the two groups separately, suggest that the overall effect of isolation on reptile body size is somewhat complex. Likely, the negative trend in the cases of the distance from the mainland and time since isolation are driven by the tendency of snakes (i.e., generally larger species) towards dwarfism as these factors increase. In contrast, the negative trend for the distance from the closest larger island is probably driven by the tendency of lizards (i.e., generally smaller species) to grow larger on more remote islands. At this point we cannot discern the reasons different isolation indices affect one group more strongly than the other. However, we speculate that either the effect of isolation reflects another factor or combination of factors that affect lizards and snakes differently (e.g., the absence of rats on remote islands, which offer quality food for snakes, but possibly prey upon lizards and their eggs), or that the variation of one group is adaptive, while that of the other is led by strong founder effect signals or is non-adaptive. Inconsistent patterns of lizard and snake body size evolution on islands have been shown before (e.g., the island rule, cf. Boback & Guyer, 2003 for snakes and Meiri, 2007 for lizards).

Conducting a comparative study of such a wide scope as this one will always create logistic and methodological challenges and several caveats should be noted. The role of shared ancestral condition in shaping body size variation on islands needs to be addressed by comparing phylogenetic and non-phylogenetic models. However, the population-level phylogenies currently available for the studied species did not allow us to robustly examine this aspect. Therefore, we highlight the importance of island-level molecular studies, which will generally facilitate further investigation of evolutionary patterns. The nature of some of our predictors (e.g., competitor richness, predator richness) necessitates some general assumptions (e.g., that a predator species preys upon its prey species wherever they co-exist, and that we can correctly identify all important competitors and predators). Since we consistently kept these assumptions regarding all species and islands, we are confident they have not biased our results. Perhaps the most important drawback, and most challenging to face, is small sample sizes. With almost 10,000 adult reptiles examined we still came quite short in samples for some populations and for certain species. Several species (e.g., *Macrovipera schweizeri, Blanus strauchi, Podarcis levendis*) simply occur on too few islands to be properly analyzed. For the rest, an inherent trade-off exists between the numbers of sampled islands and sampled individuals per island. Our main unit of analysis was the population and therefore we aimed to maximize the number of islands for each species (thus also maximizing the variance in predictor values). This, however, may come at the expense of accurately assessing population-level mean body sizes because for some islands we only had data from few individuals. We acknowledge the possibility that low statistical power may have affected our results in some cases. Yet, the general patterns and inconsistencies we found across species are apparent even across the few best-sampled species, thus we have confidence our conclusions are valid. Moreover, the number of species we examined and the number of insular populations we sampled within each of these species are both of unprecedented scope, at least for reptiles. We think this enables us to robustly draw valid conclusions from our results.

Our results provide a compelling example for the statistical issue of which model-selection approach to prefer. The best AIC (or AICc) models are often poor overall and thus relying on AIC scores alone can be problematic for biological inference. For example, using p-values we infer that none of the predictors we tested explains the variation in body size of *Natrix natrix* and *Eirenis modestus*. Using AICc, we could only show that there are multiple predictors that are equally good (i.e. equally bad in these cases). In many cases the AICc method simply proves far less conservative than the p-value based one (cf. models in Table 2 to those in Appendix 5). In no case did the model, or undistinguishable group of models, with the lowest AICc contain fewer predictors than the best model with only significant predictors (at $p < 0.05$). Often, however, the models with the lowest AICc contained more predictors – including predictors that the p-value based method rejected as uninformative (Appendix 5). We think that, if anything, $p = 0.05$ is not conservative enough (e.g., Johnson, 2013; Benjamin et al., 2017). Using a model selection method that is even more liberal would have made us infer that many variables, that have the most tenuous relationship with animal size evolution on islands, are actually important. We thus use p values not because of any theoretical views about its merit, but because we prefer to err on the side of caution.

The results of this study indicate that to a large extent different species respond idiosyncratically to the insular environment. Thus, reptile body size variation seems to be affected more by species identity than by island conditions, at least in this study system. This contradicts the theory asserting that evolutionary patterns of body size on islands are general across different taxa. The fact that none of the predictors we tested consistently affected a majority of the species, and that the best models differed greatly across species, highlights the importance of testing several potential driving mechanisms simultaneously, as we did, to prevent unjustified generalizations from being reached. We thus conclude that body size evolution on island is probably species- and island-specific, and generalizations over-simplify the complex patterns and processes of size evolution. This study elucidates the need for a major re-thinking of the insular evolution paradigm, away from island characteristics as monotonous predictors of animal trait evolution, and into the need to quantify relevant ecological effects for different study systems.

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SUPPORTING INFORMATION

Appendix 1. Reference list for literature containing body size data.

Appendix 2. Data used for analyses.

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

Appendix 4. A list of potential predator species included in our analyses.

Appendix 5. Best models for each species based on AICc scores.

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

DATA ACCESSIBILITY

All the data analyzed in this study is available in Appendix 2.

BIOSKETCH

Yuval Itescu is a PhD candidate interested in the biogeographic patterns and the processes driving the evolution of morphological and life history trait variation of animals in general and insular animals specifically. He is also fascinated by the implications of the insular environment on the ecology of insular fauna.

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Appendices containing references for data sources

Appendix 1 - Reference list for literature containing body size data

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

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

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.

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	*Hemidactylus turcicus*	27	270	42.04 – 59.89	3.3	+	NS	NS	NS	NS	NS
		Mediodactylus kotschyi	86	2071	33.52 – 49.88	2.8	-	NS	NS	NS	NS	∩
	Lacertidae	*Podarcis erhardii*	118	5323	52.87 – 75.23	6.0	-	-	+	NS	NS	NS
		Podarcis gaigeae	14	641	57.37 – 77.67	8.4	NS	-	+	-	NS	NS
		Podarcis milensis	8	116	53.65 – 67.09	4.1	-	NS	NS	+	NS	NS
		Lacerta trilineata	16	231	107.33 – 141.85	69.9	-	+	NS	NS	NS	NS
		Ophisops elegans	14	143	40.10 – 48.53	2.0	+	NS	NS	NS	-	NS
	Scincidae	*Ablepharus kitaibelii*	24	180	35.66 – 44.84	1.4	NS	+	NS	NS	NS	NS
Snakes	Boidae	*Eryx jaculus*	8	48	269.79 – 516.33	52.5	NS	-	NS	NS	-	NS
	Colubridae	*Dolichophis caspius*	11	72	1085.40 – 1886.00	625.2	NS	NS	NS	NS	-	+
		Eirenis modestus	8	33	386.00 – 543.00	19.8	NS	NS	NS	NS	NS	NS
		Elaphe quatuorlineata	11	70	1036.20 – 1525.61	846.9	NS	-	NS	NS	NS	NS
		Natrix natrix	11	55	566.25 – 910.00	91.6	NS	NS	NS	NS	NS	NS
		Telescopus fallax	12	56	477.43 – 903.33	44.9	∩	NS	NS	NS	NS	NS
	Viperidae	*Vipera ammodytes*	15	152	281.33 – 592.25	28.1	NS	-	NS	NS	NS	NS
		Vipera xanthina	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 (*).

Group	Family	Species	n	Predictor	Slope	SE	Intercept	SE	P	Adjusted R^2
Lizards	Gekkonidae	*Hemidactylus turcicus*	27	log area	1.91	0.59	46.37	1.01	<0.01	0.26
		Mediodactylus kotschyi	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	*Podarcis erhardii**	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
		*Podarcis gaigeae**	14	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
		Podarcis milensis	8	log area log time since isolation	-2.23 2.06	0.74 0.68	48.63	3.80	0.03 0.03	0.75
		Lacerta trilineata	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
		Ophisops elegans	14	log area predator richness	3.06 -0.67	1.00 0.28	41.61	1.28	0.01 0.04	0.36
	Scincidae	*Ablepharus kitaibelii*	24	distance from the mainland	0.03	0.01	39.13	0.73	<0.01	0.30
Snakes	Boidae	*Eryx jaculus*	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	*Dolichophis caspius*	11	predator richness competitor richness	-326.08 447.95	88.43 116.38	2751.25	391.42	0.01 <0.01	0.58
		Eirenis modestus	8	none	-	-	-	-	-	-
		Elaphe quatuorlineata	11	distance from the mainland	-2.79	0.48	1482.29	37.59	<0.01	0.77
		*Natrix natrix**	11	none	-	-	-	-	-	-
		*Telescopus fallax**	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	*Vipera*	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
		*ammodytes**								
		*Vipera xanthina**	8	log time since isolation (log time since isolation)^2	-6.94 0.71	1.86 0.19	19.42	4.39	0.01 0.01	0.65

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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

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**

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

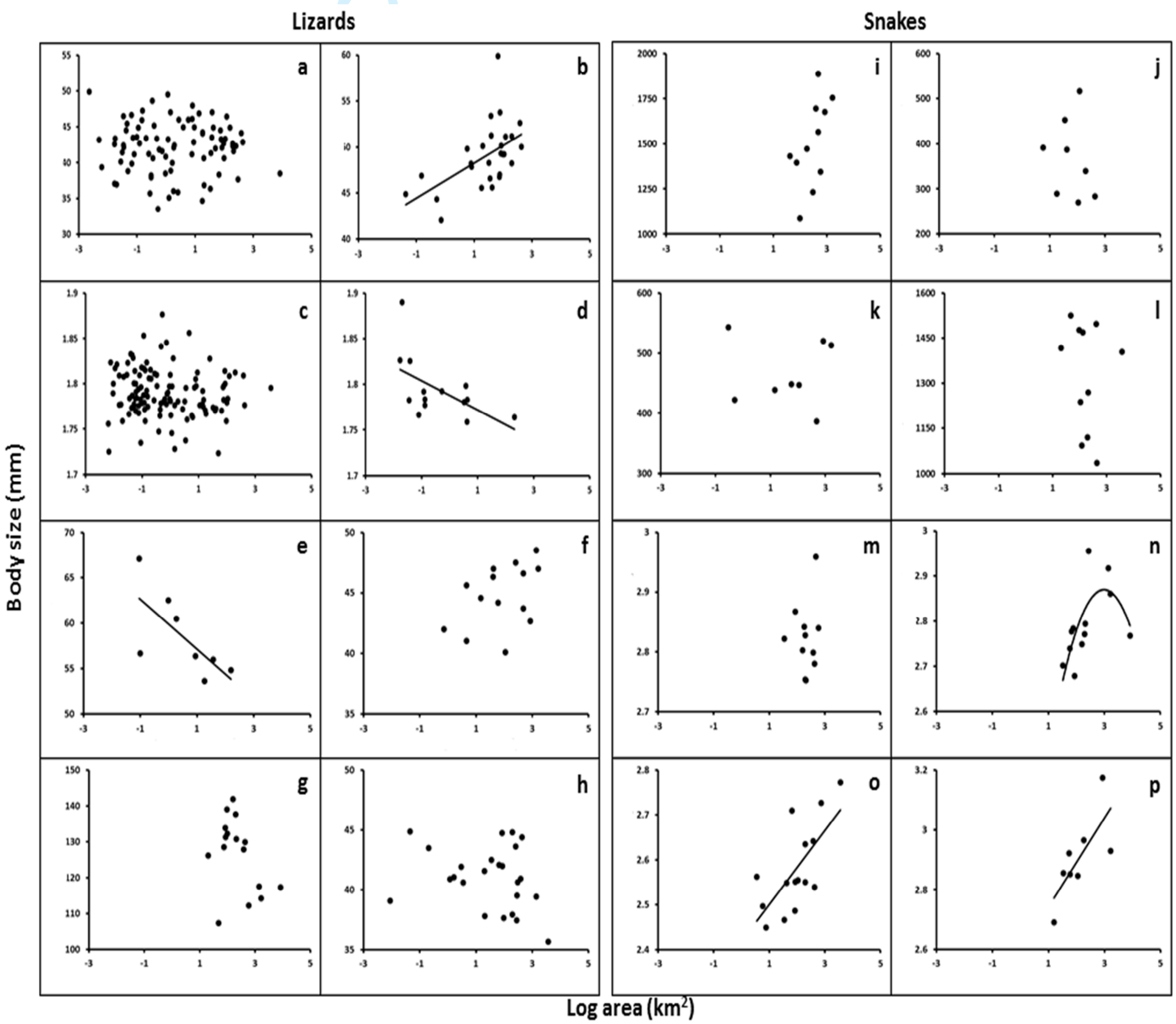


Figure 2. The relationship between the correlation coefficient (r) of body length (mm; SVL for lizards, total length for snakes, see text) against each predictor variable and the log mean body mass (g) of each species. Panels show: **a** – log island area (km^2); **b** – distance from the mainland (km); **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.

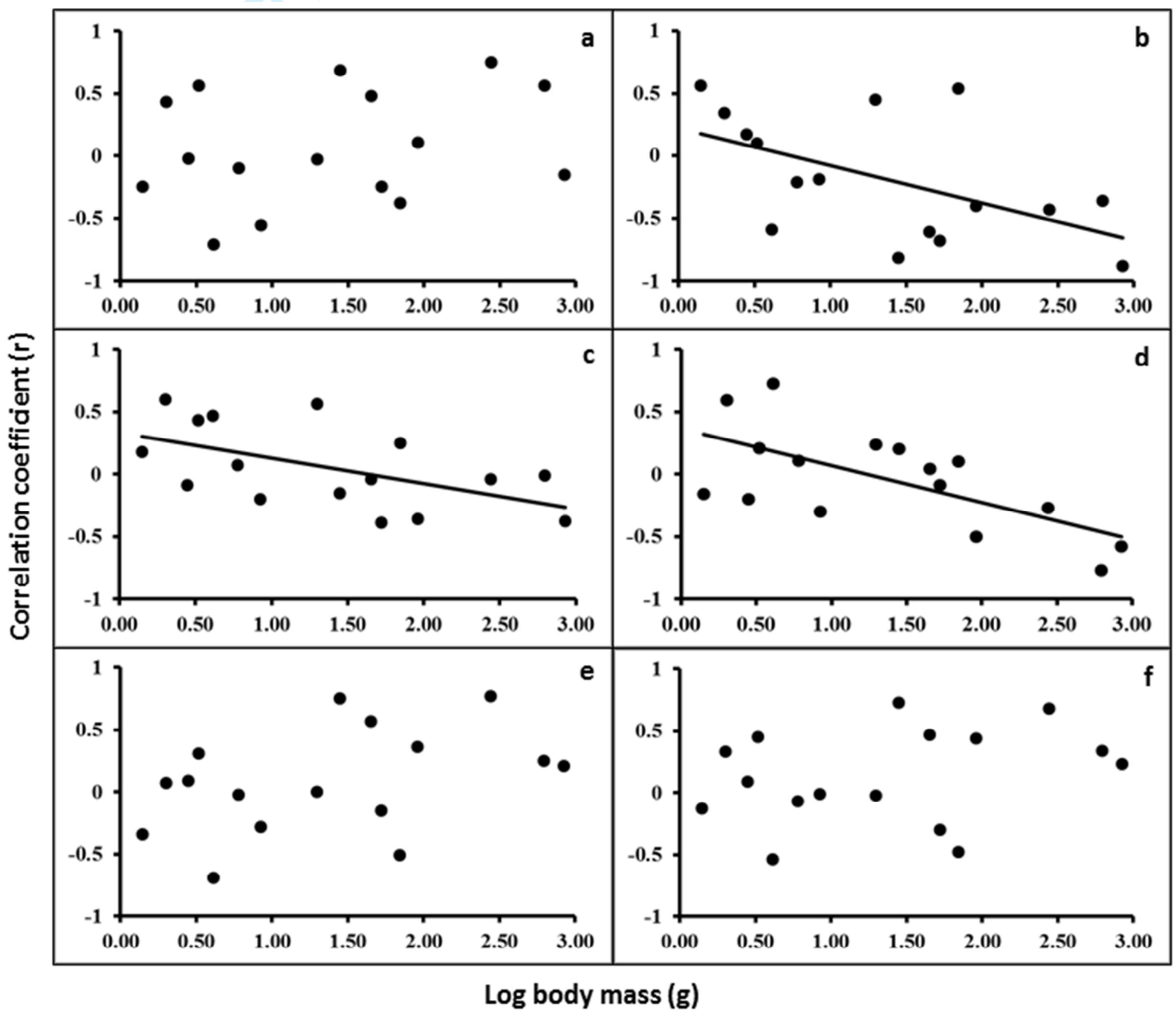
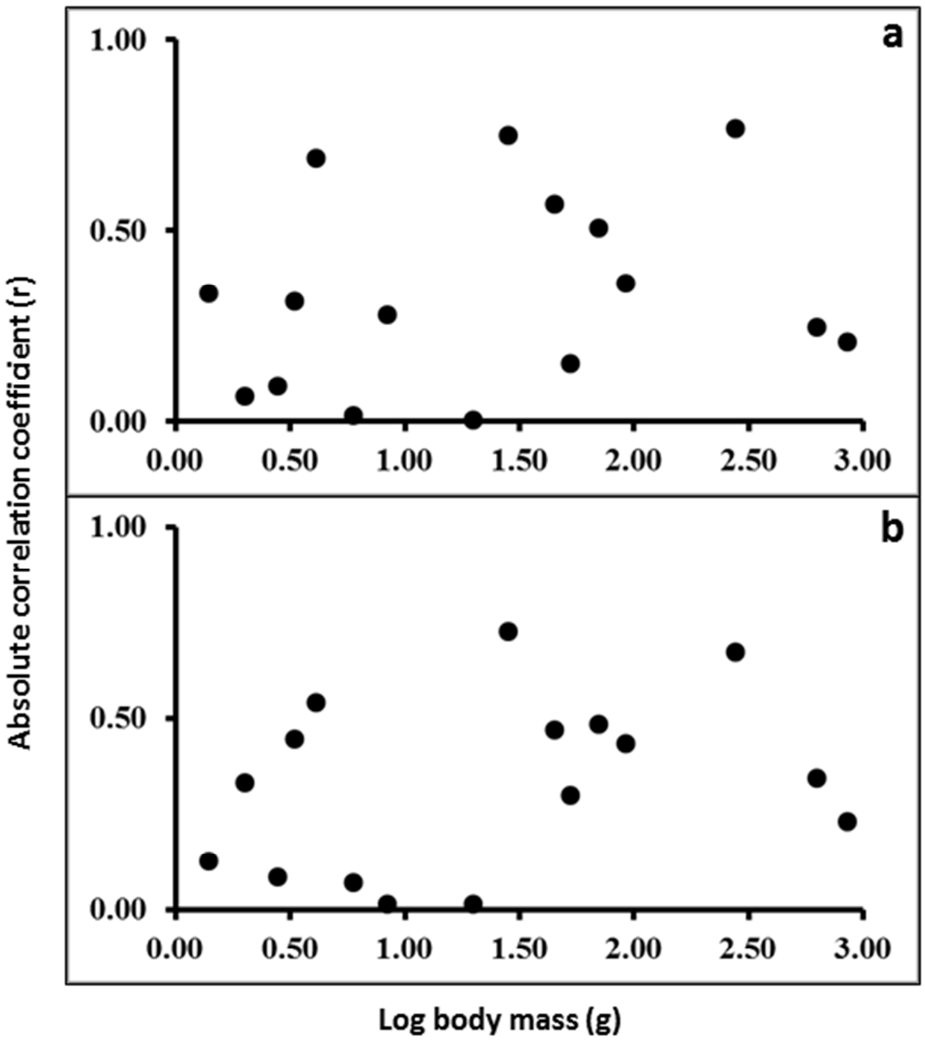


Figure 3. The relationship between the absolute value of the correlation coefficient (r) of body length (mm; SVL for lizards, total length for snakes, see text) against predator richness (**a**) and competitor richness (**b**) and the log mean body mass (g) of each species.



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

species	lizard\ snake	island	latitude	longitutde	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
V. ammodytes	snake	Apano Kufonisi	36.941	25.607	43	314.02	5.77	142.50	4.2	8333	4	1
V. ammodytes	snake	Despotiko (Cyc.)	36.962	25.003	6	281.33	7.754	113.00	0.73	1800	7	3
V. ammodytes	snake	Dilos	37.394	25.271	12	365.45	3.536	109.60	0.64	3273	6	1
V. ammodytes	snake	Euboea	38.556	23.794	4	592.25	3661.637	0.04	0.04	6215	23	12
V. ammodytes	snake	Ios	36.722	25.327	19	358.54	108.713	145.90	18.2	11784	6	2
V. ammodytes	snake	Kefalonia	38.223	20.575	3	533.33	734.014	33.93	33.93	200000	18	7
V. ammodytes	snake	Mykonos	37.443	25.381	8	356.00	86.125	110.80	8.2	12131	8	3
V. ammodytes	snake	Naxos	37.061	25.484	9	346.51	430.174	130.00	105.5	2000000	11	5
V. ammodytes	snake	Paros	37.060	25.192	8	355.07	196.755	114.76	5.1	8417	11	5
V. ammodytes	snake	Sikinos	36.680	25.121	3	353.67	41.676	142.50	5.75	13647	4	1
V. ammodytes	snake	Syros	37.433	24.914	7	306.49	84.069	73.50	16.6	12723	10	4
V. ammodytes	snake	Tinos	37.585	25.184	10	431.70	197.044	78.88	1.5	9242	14	7
V. xanthina	snake	Chios	38.383	26.079	3	1493.33	842.796	6.67	6.67	6837	16	9
V. xanthina	snake	Kalymnos	36.991	26.973	3	702.33	110.581	16.43	10.65	10923	11	8
V. xanthina	snake	Leros	37.108	26.859	9	833.56	54.052	30.03	1.94	10615	11	8
V. xanthina	snake	Lesvos	39.193	26.029	4	850.00	1635.998	9.01	9.01	9427	18	11
V. xanthina	snake	Lipsi	37.301	26.744	9	490.78	15.842	35.70	8.16	12316	6	3
V. xanthina	snake	Patmos	37.353	26.593	5	716.60	34.142	48.68	19.62	13474	9	5
V. xanthina	snake	Samothraki	40.454	25.585	5	923.00	180.364	35.84	35.84	10855	13	7
V. xanthina	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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Appendix 4. A list of potential predator species included in our analyses (with references for sources indicating their potential as reptile predators).

Mammals:

Martes foina (Padial et al. 2002)

Mustela nivalis (Erlinge 1975)

Meles meles (Martín et al. 1995)

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

Canis aureus (Lanszki & Heltai 2002)

Erinaceus concolor (Schoenfeld & Yom-Tov 1985)

Felis (sylvestris) catus (Bonnaud et al. 2007)

Reptiles:

Dolichophis caspius (Cattaneo 2010)

Elaphe quatuorlineata (Cattaneo 2010)

Eryx jaculus (Cattaneo 2010)

Hierophis gemonensis

Macrovipera schweizeri (Adampoulo et al. 1997)

Malpolon insignitus (Cattaneo 1998)

Natrix natrix (Cattaneo 2010)

Platyceps najadum (Cattaneo 1990)

Telescopus fallax (Cattaneo 2010)

Vipera ammodytes (Cattaneo 2010)

Zamenis situla (Cattaneo 2010)

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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 ΔAICc≤2 and the single model that has a ΔAICc >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	ΔAICc	Predictor p values	Adjusted R^2
Hemidactylus turcicus	**Log area**	**141.53**	**0**	**<0.01**	**0.26**
	Log area	143.54	2.01	0.01	0.26
	Predator richness			0.41	
Mediodactylus kotschyi	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 **Competitor richness (^2)**			**<0.01** **<0.01**	
	Distance from the mainland Competitor richness Competitor richness (^2)	460.43	2.24	0.09 <0.01 0.01	0.08
Podarcis erhardii	**Log area** **Distance from the mainland** **Log distance from closest larger island**	**-523.30**	**0**	**0.02** **0.01** **0.04**	**0.07**
	Distance from the mainland Distance from the mainland (^2)	-523.18	0.13	0.27 0.04	0.06
	Log area Distance from the mainland Distance from the mainland (^2)	-522.56	0.75	0.22 0.36 0.06	0.06
	Log area	-521.96	1.34	0.05	0.06

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

	Competitor richness Competitor richness (^2)			0.01 <0.01	
	Log area	-52.76	2.13	0.04	0.24
Podarcis milensis	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 **Log time since isolation**	**53.32**	**1.07**	**0.03** **0.03**	**0.75**
	Log area Log distance from closest larger island	54.38	2.13	0.06 0.42	0.41
Lacerta trilineata	**Log area** **Distance from the mainland**	**118.73**	**0**	**0.03** **0.01**	**0.43**
	Log area Distance from the mainland	119.12	0.39	0.03 0.02	0.52

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

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

	Predator richness **Competitor richness**	**153.4**	**2.45**	**<0.01** **<0.01**	**0.58**
Eirenis modestus	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
Elaphe quatuorlineata	**Distance from the mainland**	**136.39**	**0**	**<0.01**	**0.77**
	Distance from the mainland Competitor richness	139.46	3.07	<0.01 0.22	0.79
Natrix natrix	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

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

	Competitor richness	-3.03	2.23	0.07	0.37

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
M. kotschyi **(n=86)**	SVL	Log area	-0.06	0.27	42.28	0.39	0.81	<0.01
		Log area (Log area)^2	-0.08 0.02	0.30 0.18	42.23	0.53	0.90	<0.01
		Distance from the mainland	0.02	0.01	40.52	1.14	0.11	0.03
		Distance from the mainland (Distance from the mainland)^2	0.04 (-)<0.01	0.04 <0.01	39.35	2.26	0.35 0.55	0.03
		Log distance from closest larger landmass	-0.37	0.49	42.45	0.46	0.46	0.01
		Log distance from closest larger landmass (Log distance from closest larger landmass)^2	-0.28 -0.10	0.76 0.61	42.48	0.52	0.72 0.87	0.01
		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**	
P. erhardii (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 (Log distance from closest larger landmass)^2	<0.01 (-)<0.01	<0.01 <0.01	1.79	<0.01	0.34 0.46	0.01
		Log time since isolation	<0.01	<0.01	1.77	0.01	0.24	0.01
		Log time since isolation (Log time since isolation)^2	<0.01 (-)<0.01	<0.01 <0.01	1.77	<0.01	0.85 0.97	0.01
		Predator richness	(-)<0.01	0.01	1.79	<0.01	0.86	<0.01
		Predator richness (Predator richness)^2	(-)<0.01 <0.01	<0.01 <0.01	1.79	<0.01	0.23 0.21	0.01
		Competitor richness	(-)<0.01	0.01	1.79	<0.01	0.43	<0.01
		Competitor richness (Competitor richness)^{2}	(-)<0.01 <0.01	<0.01 <0.01	1.79	<0.01	0.43 0.60	0.01

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R^2
H. turcicus (n=27)	SVL	**Log area**	**1.91**	**0.59**	**46.37**	**1.01**	**<0.01**	**0.29**
		Log area (Log area)^2	1.69 0.15	1.00 0.54	46.24	1.12	0.10 0.79	0.29
		Distance from the mainland	0.01	0.01	48.34	1.67	0.66	0.01
		Distance from the mainland **(Distance from the mainland)^2**	**0.14** **(-)<0.01**	**0.06** **<0.01**	**43.51**	**2.67**	**0.03** **0.04**	**0.18**
		Log distance from closest larger landmass	**2.16**	**0.97**	**47.39**	**0.97**	**0.03**	**0.17**
		Log distance from closest larger landmass (Log distance from closest larger landmass)^2	3.10 -0.69	2.14 1.39	47.36	0.98	0.16 0.62	0.17
		Log time since isolation	0.85	0.86	45.25	3.88	0.33	0.04
		Log time since isolation (Log time since isolation)^2	6.24 -0.56	13.23 1.38	32.79	30.78	0.64 0.69	0.04
		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
		Predator richness (Predator richness)^2	0.75 -0.04	0.91 0.13	47.37	1.41	0.42 0.75	0.09
		Competitor richness	**1.17**	**0.48**	**45.20**	**1.69**	**0.02**	**0.19**
		Competitor richness (Competitor richness)^{2}	5.32 -0.61	2.66 0.38	39.16	4.15	0.06 0.13	0.27
A. kitaibelii (n=24)	SVL	Log area	-0.45	0.38	41.69	0.76	0.24	0.06
		Log area (Log area)^2	0.05 -0.31	0.53 0.24	42.21	0.85	0.92 0.20	0.13
		Distance from the mainland	**0.03**	**0.01**	**39.13**	**0.73**	**<0.01**	**0.33**
		Distance from the mainland (Distance from the mainland)^2	0.04 (-)<0.01	0.02 <0.01	38.88	0.87	0.10 0.60	0.34
		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 (Log time since isolation)^2	-3.06 0.27	7.84 0.78	49.13	18.67	0.70 0.74	0.03
		Predator richness	-0.25	0.16	41.97	0.78	0.13	0.10
		Predator richness (Predator richness)^2	0.38 -0.06	0.43 0.04	41.18	0.91	0.39 0.14	0.19
		Competitor richness	-0.13	0.24	41.55	1.08	0.58	0.01
		Competitor richness (Competitor richness)^2	0.82 -0.11	0.83 0.09	40.11	1.62	0.34 0.25	0.08
L. trilineata (n=16)	SVL	Log area	-5.98	3.77	140.85	9.24	0.14	0.15
		Log area (Log area)^2	24.66 -5.90	24.00 4.57	103.81	30.05	0.32 0.22	0.25

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 (Distance from the mainland)^2	0.41 (-)<0.01	0.18 <0.01	115.60	4.25	0.04 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 (Log distance from closest larger landmass)^2	6.07 -0.86	18.95 8.30	121.18	9.61	0.75 0.92	0.06
		Log time since isolation	0.81	2.40	122.75	12.14	0.74	0.01
		Log time since isolation (Log time since isolation)^2	78.47 -7.47	42.37 4.07	-69.79	105.49	0.09 0.09	0.21
		Predator richness	**-2.09**	**0.97**	**139.05**	**6.14**	**0.05**	**0.25**
		Predator richness (Predator richness)^2	-0.82 -0.09	5.54 0.37	135.04	18.27	0.88 0.82	0.25
		Competitor richness	-2.71	1.30	140.65	7.05	0.06	0.24

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R^2
		Competitor richness (Competitor richness)^2	2.62 -0.42	8.66 0.67	125.55	25.27	0.77 0.54	0.26
O. elegans (n=14)	SVL	Log area	1.09	0.65	42.70	1.40	0.12	0.19
		Log area (Log area)^2	1.21 -0.03	2.43 0.70	42.64	1.91	0.63 0.96	0.19
		Distance from the mainland	0.05	0.04	43.64	1.09	0.21	0.13
		Distance from the mainland (Distance from the mainland)^2	-0.02 <0.01	0.18 <0.01	44.37	2.05	0.89 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 (Log distance from closest larger landmass)^2	3.99 -0.79	3.24 2.06	42.19	1.23	0.24 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 (Predator richness)^2	0.49 -0.05	0.77 0.08	44.20	1.28	0.53 0.56	0.04
		Competitor richness	0.36	0.29	43.17	1.46	0.24	0.11
		Competitor richness (Competitor richness)^2	0.65 -0.03	1.34 0.15	42.71	2.61	0.64 0.83	0.12
P. gaigeae (n=14)	Log10 (SVL)	**Log area**	**-0.02**	**0.01**	**1.79**	**0.01**	**0.04**	**0.31**
		Log area (Log area)^2	-0.02 0.01	0.01 <0.01	1.78	0.01	0.03 0.21	0.41
		Distance from the mainland	(-)<0.01	<0.01	1.86	0.09	0.51	0.04
		Distance from the mainland (Distance from the mainland)^2	0.02 (-)<0.01	0.03 <0.01	1.10	1.40	0.61 0.60	0.06

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 (Log distance from closest larger landmass)^2	<0.01 -0.03	0.01 0.02	1.81	0.01	0.78 0.10	0.25
		Log time since isolation	-0.01	0.01	1.84	0.04	0.30	0.09
		Log time since isolation (Log time since isolation)^2	0.09 -0.01	0.11 0.01	1.61	0.25	0.42 0.37	0.15
		Predator richness	-0.01	0.01	1.80	0.01	0.34	0.08
		Predator richness (Predator richness)^2	-0.02 <0.01	0.05 0.01	1.80	0.01	0.74 0.87	0.08
		Competitor richness	(-)<0.01	0.01	1.79	0.01	0.96	<0.01
		Competitor richness **(Competitor richness)^2**	**0.05** **-0.01**	**0.02** **<0.01**	**1.79**	**0.01**	**0.03** **0.02**	**0.40**
P. milensis	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 (Log area)^2	-2.64 -0.09	1.70 1.27	59.96	1.97	0.18 0.95	0.50
		Distance from the mainland	-0.10	0.06	67.30	5.38	0.14	0.33
		Distance from the mainland (Distance from the mainland)^2	0.61 (-)<0.01	0.30 <0.01	45.24	9.90	0.09 0.06	0.69
		Log distance from closest larger landmass	2.71	2.08	56.07	2.38	0.24	0.22
		Log distance from closest larger landmass (Log distance from closest larger landmass)^2	5.00 -1.57	7.57 4.96	56.12	2.59	0.54 0.76	0.24
		Log time since isolation	**2.50**	**1.01**	**45.10**	**5.53**	**0.05**	**0.50**
		Log time since isolation (Log time since isolation)^2	-22.45 2.41	14.85 1.43	106.17	36.60	0.19 0.15	0.68
		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

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 (Competitor richness)^2	-14.84 2.62	10.69 2.13	72.84	9.34	0.22 0.27	0.45
D. caspius (n=11)	Total length	Log area	286.80	135.70	979.90	339.50	0.06	0.33
		Log area (Log area)^2	-671.6 200.70	1402.4 292.2	1898.9	1640.9	0.64 0.51	0.37
		Distance from the mainland	-2.64	2.43	1583.65	102.56	0.30	0.12
		Distance from the mainland (Distance from the mainland)^2	-0.87 -0.02	8.46 0.09	1566.45	133.75	0.92 0.83	0.12
		Log distance from closest larger landmass	11.15	159.12	1491.98	181.58	0.946	<0.01
		Log distance from closest larger landmass (Log distance from closest larger landmass)^2	-168.60 90.61	673.02 327.97	1560.61	313.77	0.81 0.79	0.01

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

Species	Body size index	Predictors	Slope	SE	Intercept	SE	P	R^2
		Distance from the mainland (Distance from the mainland)^2	-4.85 0.01	2.21 0.01	1505.95	45.19	0.06 0.37	0.81
		Log distance from closest larger landmass	-73.45	61.33	1390.94	77.70	0.26	0.14
		Log distance from closest larger landmass (Log distance from closest larger landmass)^2	-39.01 -69.46	64.66 53.14	1470.39	96.38	0.56 0.23	0.29
		Log time since isolation	-100.57	47.41	1783.13	221.99	0.06	0.33
		Log time since isolation (Log time since isolation)^2	-824.55 69.86	882.06 84.98	3566.81	2181.64	0.38 0.43	0.39
		Predator richness	8.03	12.50	1237.89	143.06	0.54	0.04
		Predator richness (Predator richness)^2	18.69 -0.37	71.21 2.40	1173.41	449.77	0.80 0.88	0.05
		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	
E. jaculus (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 (Predator richness)^2	89.34 -6.17	96.68 6.32	86.09	331.03	0.40 0.37	0.18
		Competitor richness	-16.09	21.41	408.35	64.67	0.48	0.09
		Competitor richness (Competitor richness)^2	46.41 -10.03	134.12 21.21	335.82	168.29	0.74 0.66	0.12
N. natrix (n=11)	Log10 (Total length)	Log area	0.02	0.05	2.78	0.13	0.74	0.01
		Log area (Log area)^2	-0.53 0.13	0.57 0.13	3.37	0.62	0.38 0.36	0.12
		Distance from the mainland	(-)<0.01	<0.01	2.85	0.03	0.22	0.16
		Distance from the mainland (Distance from the mainland)^2	(-)<0.01 <0.01	<0.01 <0.01	2.87	0.03	0.13 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	
T. fallax (n=12)	Log10 (Total length)	Log area	0.06	0.03	2.66	0.08	0.11	0.23
		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**	$\mathbf{R^2}$
		Competitor richness	0.01	0.01	2.73	0.04	0.12	0.22
		Competitor richness (Competitor richness)^2	0.02 (-)<0.01	0.03 <0.01	2.73	0.06	0.54 0.87	0.22
V. ammodytes (n=15)	Log10 (Total length)	**Log area**	**0.08**	**0.02**	**2.42**	**0.05**	**<0.01**	**0.47**
		Log area (Log area)^2	-0.06 0.04	0.09 0.02	2.53	0.09	0.54 0.14	0.56
		Distance from the mainland	**(-)<0.01**	**<0.01**	**2.74**	**0.04**	**<0.01**	**0.66**
		Distance from the mainland (Distance from the mainland)^2	(-)<0.01 <0.01	<0.01 <0.01	2.81	<0.01	<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 (Log distance from closest larger landmass)^2	-0.05 0.04	0.03 0.02	2.56	0.03	0.13 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 (Log time since isolation)^2	0.61 -0.06	0.37 0.04	1.11	0.86	0.12 0.13	0.21
		Predator richness	**0.01**	**<0.01**	**2.44**	**0.04**	**<0.01**	**0.56**
		Predator richness (Predator richness)^2	<0.01 <0.01	0.01 <0.01	2.49	0.09	0.82 0.49	0.58
		Competitor richness	**0.02**	**0.01**	**2.48**	**0.03**	**<0.01**	**0.53**
		Competitor richness (Competitor richness)^{2}	0.01 <0.01	0.02 <0.01	2.50	0.05	0.57 0.54	0.54
V. xanthine (n=8)	Log10 (Total length)	**Log area**	**0.15**	**0.05**	**2.59**	**0.12**	**0.03**	**0.56**
		Log area (Log area)^2	0.66 -0.11	0.40 0.09	2.07	0.43	0.16 0.26	0.67
		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 (Log distance from closest larger landmass)^2	-0.23 0.11	0.65 0.34	3.00	0.30	0.74 0.74	0.02
		Log time since isolation	-0.06	0.09	3.15	0.37	0.51	0.07
		Log time since isolation **(Log time since isolation)^2**	**-6.94** **0.71**	**1.86** **0.19**	**19.42**	**4.39**	**0.01** **0.01**	**0.75**
		Predator richness	**0.02**	**0.01**	**2.60**	**0.11**	**0.03**	**0.59**
		Predator richness (Predator richness)^2	0.10 (-)<0.01	0.06 <0.01	2.21	0.32	0.14 0.25	0.69
		Competitor richness	0.04	0.02	2.64	0.12	0.07	0.46
		Competitor richness (Competitor richness)^{2}	0.13 -0.01	0.09 0.01	2.36	0.29	0.20 0.33	0.56

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