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First record of *Hemidactylus turcicus* (Linnaeus, 1758) from Piperi Island, Northern Sporades, Greece

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Abstract

New records of species distribution help advance our understanding of species biogeographical dynamics and, potentially, local adaptations. Here, we report for the first time the presence of the Mediterranean house gecko (*Hemidactylus turcicus*) on a small, isolated Aegean island from which only one other reptile species has been previously documented. This discovery contributes new distribution data, enriching future assessments of both the species and its habitat.

Key Words

distribution, Gekkonidae, Mediterranean, reptiles

Introduction

The "Mediterranean" or "Turkish" house gecko, *Hemidactylus turcicus* (Linnaeus, 1758), is a nocturnal and insectivorous lizard that frequents habitats with rocks and boulders and even house walls (Valakos et al. 2008). It is a member of the family Gekkonidae and one of the most widespread gecko species around the Mediterranean basin (Rato et al. 2011). Genetic uniformity among most of the Mediterranean populations, in contrast to the high genetic diversity of the species in the Levant area, indicates a recent, rapid, and probably human-mediated dispersal throughout the Mediterranean Basin (Carranza and Arnold 2006). Due to human-induced transportation, the species has been introduced to the New World since 1915, initially in Florida (Fowler 1915), then spreading to North, Central, and South America (Martínez-Hernández et al. 2017; Weterings and Vetter 2018; Ruhe and Laduke 2019). Such human translocations complementing its incredible hitchhiking abilities have led to a steady increase in its geographic range, yet recent distribution models based on climate and elevation data predict an even greater future expansion (Ceia-Hasse et al. 2014).

In Greece, the species ranges across the mainland and on most Aegean and Ionian islands; however, it is notably scarce or absent at higher elevations, possibly due to its intolerance for low temperatures (Pafilis et al. 2020). While numerous records of *H. turcicus* for both the mainland and most of the islands are available (e.g., Cattaneo 1997; Foufopoulos 1997; Carranza and Arnold 2006; Mario 2010; Uhrin and Benda 2018), new reports come to enhance our knowledge on the species range and biology being reported (Itescu et al. 2016; Cattaneo 2018; Sindaco and Rossi 2020). During the course of a herpetological survey on 9 July 2023, in the Northern Sporades (Fig. 1), we visited Piperi (39°20.900'N, 24°19.300'E), a rather small, isolated, and uninhabited island northeast of Alonissos with a surface area of 4,3 km^2, for three consecutive days. The island is an integral part of the National Marine Park of Alonissos and the Northern Sporades. Within Zone A, it is the park's core zone for the protection of the monk seal (*Monachus monachus*), and the island remains off-limits to the public unless a special permit is obtained for research purposes (Karantoni et al. 2023). Ondrias (1968) compiled the first checklist of reptiles and amphibians in Greece, interestingly omitting any mention

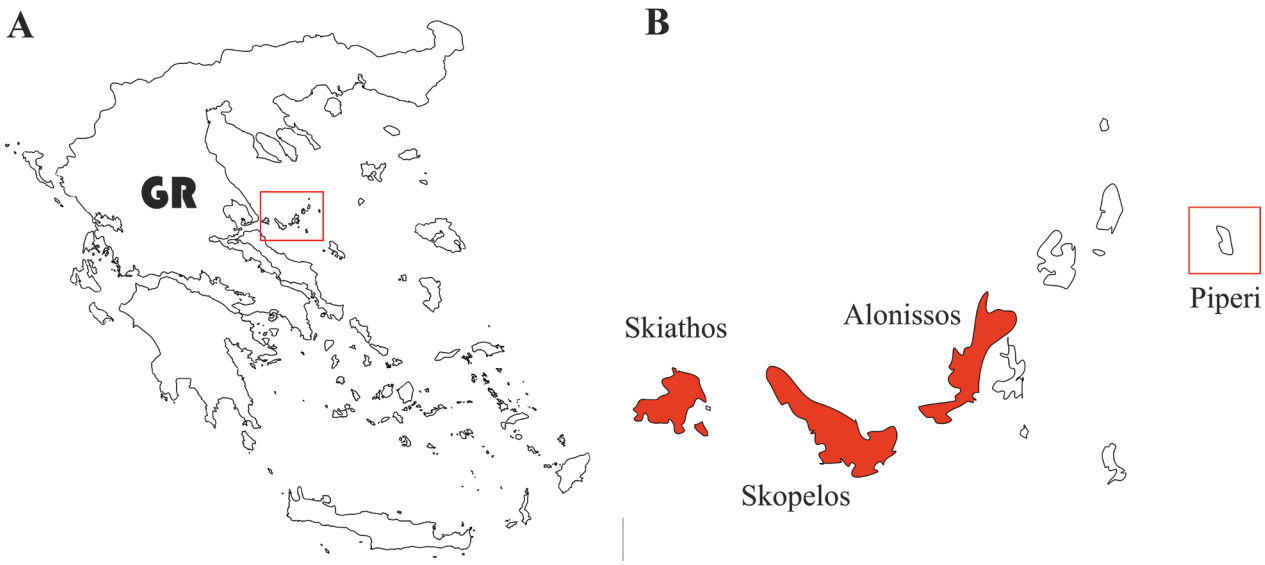

Figure 1. A. Map of Greece (GR) showing the location of the Northern Sporades Island Cluster in the Aegean Archipelago; **B.** The known distribution of the species in the Northern Sporades Islands is shown in red, and on the top right is Piperi Island (the sampling site).

of *H. turcicus* on Piperi Island despite having visited it. Likewise, dedicated surveys carried out by Grillitsch and Tiedemann (1984) or extensive literature reviews by Chondropoulos (1986), Foufopoulos and Ives (1999), and Lymberakis et al. (2018) reported only the endemic saurian subspecies *Podarcis gaigeae weigandii*, without mentioning the presence of any other lizard species.

On 9 July 2023, at approximately 22:15 hours, on a pile of limestone rubble remnants of a collapsed stone wall situated next to the island's abandoned but regularly maintained church (39°20.343'N, 24°19.192'E, 290 m a.s.l.), one adult *H. turcicus* individual was found. Further field work resulted in the observation of two more individuals hidden between stone rubble within a 50-meter radius of the first specimen. More individuals were found within 20 minutes, indicating the presence of a dense population of *H. turcicus* in the area (Fig. 2). We hypothesize that it is the nocturnal nature of the Turkish Gecko that prevented other researchers from observing it during their expeditions that were carried out during the daytime (Hitchcock and McBrayer 2006).

For each specimen, a voucher photograph was taken, and a tissue sample from the first individual was collected and deposited at the Zoological Museum of the Aristotle University of Thessaloniki, Greece (ZMAU30.10.74.1). No other gecko species were detected on the island during our expedition. Overall, this new record expands our knowledge of the species' distribution and the fauna composition of the isolated island of Piperi. Further research is needed to identify the demographic characteristics and phylogenetic affiliations of this population.

Figure 2. Adult *Hemidactylus turcicus* (Linnaeus, 1758), on the church wall in Piperi island, Northern Sporades, Greece.

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References

Carranza S, Arnold EN (2006) Systematics, biogeography, and evolution of *Hemidactylus* geckos (Reptilia: Gekkonidae) elucidated using mitochondrial DNA sequences. Molecular Phylogenetics and Evolution 38: 531–545. https://doi.org/10.1016/j.ympev.2005.07.012

Cattaneo A (2018) The herpetofauna of the Aegean islands of Oinousses (NE Aegean) and Lipsi (N Dodecanese). Naturalista Siciliano 42(2): 273–297.

Cattaneo A (1997) L' erpetofauna dell'isola greca di Skiathos. Atti della Societa italiana di Scienze naturali e del Museo civico di storia naturale di Milano 136(2): 145–156. https://biostor.org/reference/267193

Ceia-Hasse A, Sinervo B, Vicente L, Pereira HM (2014) Integrating ecophysiological models into species distribution projections of European reptile range shifts in response to climate change. Ecography 37: 679–688. https://doi.org/10.1111/j.1600-0587.2013.00600.x

Chondropoulos BP (1986) A checklist of the Greek reptiles. I. The lizards. Amphibia-Reptilia 7: 217–235. https://doi.org/10.1163/156853886X00028

Foufopoulos J (1997) The reptile fauna of the Northern Dodecanese (Aegean Islands, Greece). Herpetozoa 10(1/2): 3–12.

Foufopoulos J, Ives AR (1999) Reptile extinctions on land-bridge islands: Life-history attributes and vulnerability to extinction. The American Naturalist 153(1): 1–25. https://doi.org/10.1086/303149

Fowler HW (1915) Cold-Blooded Vertebrates from Florida, the West Indies, Costa Rica, and Eastern Brazil. Proceedings of the Academy of Natural Sciences of Philadelphia 67(2): 244–269. https://www.jstor.org/stable/4063584

Grillitsch H, Tiedemann F (1984) Zur Herpetofauna der griechischen Inseln Kea, Spanopoula, Kithnos, Sifnos, Kitriani (Cycladen), Alonissos und Piperi (Nördliche Sporaden). Annalen des Naturhistorischen Museums in Wien 86(B): 7–28.

Hitchcock MA, McBrayer LD (2006) Thermoregulation in Nocturnal Ecthotherms: Seasonal and Intraspecific Variation in the Mediterranean Gecko (*Hemidactylus turcicus*). Journal of Herpetology 40: 185–195. https://doi.org/10.1670/233-04A.1

Itescu Y, Schwarz R, Moses M, Pafilis P, Meiri S (2016) Record sizes for the Turkish house gecko, *Hemidactylus turcicus*, from Aegean islands, Greece. The Herpetological Bulletin 138: 24–26.

Karantoni ME, Panagopoulos T, Tampakis S, Karanikola P, Tampaki Z (2023) Stakeholder views on environmental protection policies in the National Marine Park of Alonissos Northern Sporades, Greece. Sustainable Horizons 7: 100065. https://doi.org/10.1016/j.horiz.2023.100065

Lymberakis P, Pafilis P, Poulakakis N, Sotiropoulos K, Valakos E (2018) The Amphibians and Reptiles of the Aegean Sea. Biogeography and biodiversity of the Aegean. Broken Hill Publishers Ltd., 169–189.

Mario B (2010) The herpetofauna of Alonissos (Northern Sporades, Greece) (Amphibia, Reptilia). Herpetozoa 23(1/2): 71–78.

Martínez-Hernández A, Pineda-Manzano U, Bauer AM, Margarita Vázquez-Villa B (2017) First Record of the Mediterranean House Gecko, *Hemidactylus turcicus* Linnaeus 1758, in the Metropolitan Area of San Luis Potosí, Mexico. Reptiles and Amphibians 24(2): 143–147. https://doi.org/10.17161/randa.v24i2.14172

Ondrias JC (1968) Liste des Amphibiens et des Reptiles de Gréce. Biologica Gallo-Hellenica 1: 111–135.

Pafilis P, Maragkou P, Deimezis-Tsikoutas A, Dimaki M, Ioannidis I, Karameta E, Spaneli V, Strachinis I, Toli EA, Christopoulos A, Psonis N, Vergetopoulos M, Vogiatzis N, Vlachopoulos N, Giatroudaki I, Koutsoumani A, Anastasiadou T, Chatzinikolaou D, Dorgiaki D, Iliopoulos G (2020) Greek Herp Atlas. Broken Hill Publishers Ltd.

Rato C, Carranza S, Harris DJ (2011) When selection deceives phylogeographic interpretation: The case of the Mediterranean house gecko, *Hemidactylus turcicus* (Linnaeus, 1758). Molecular Phylogenetics and Evolution 58: 365–373. https://doi.org/10.1016/j.ympev.2010.12.004

Ruhe B, Laduke TC (2019) The Mediterranean Gecko (*Hemidactylus turcicus*) in Pennsylvania, USA. Herpetological Review 50(3): 536–537.

Sindaco R, Rossi R (2020) First report on the herpetofauna of Meganissi Island (Lefkada, Ionian Islands, Greece). Herpetology Notes 13: 81–84.

Uhrin M, Benda P (2018) New records of *Mediodactylus kotschyi* and *Hemidactylus turcicus* (Squamata: Gekkonidae) from Astypalea Island, Greece. Herpetology Notes 11: 275–278.

Valakos E, Pafilis P, Sotiropoulos K, Lymberakis P, Maragou P, Foufopoulos J (2008) The Amphibians and Reptiles of Greece. Chimaira: Frankfurt am Main, 464 pp.

Weterings R, Vetter KC (2018) Invasive house geckos (*Hemidactylus* spp.): Their current, potential and future distribution. Current Zoology 64: 559–573. https://doi.org/10.1093/cz/zox052