

New tribes, genera and species within the North-west African and Iberian Lacertidae.

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ABSTRACT

The purpose of this paper is to describe some obviously unnamed lizards from North-west Africa and the Iberian Peninsula.

Until now the putative species *Atlantolacerta andreanskyi* (Werner, 1929) of Morocco has been treated as monotypic for the genus by all publishing authors.

In spite of this, it has been known for the last decade that there are species-level divisions within the putative taxon (Barata *et al.* 2012, 2015, Harris *et al.* 2023).

This paper formally recognizes and names three divergent lineages as new species (thereby assigning names to the four main clades) and flags at least three more that should ultimately be formally named as new species.

Additionally, a new tribe *Atlantolacertini* *tribe nov.* is created to accommodate the genus *Atlantolacerta* Arnold, Arribas and Carranza, 2007.

This action is taken due to its significant divergence, estimated at about 20 MYA from the rest of the nearest related members in the subfamily Lacertinae.

The genus *Psammodromus* Fitzinger, 1826 is split two ways, with the new genus *Anwarsadatus* *gen. nov.* erected to accommodate the divergent *Lacerta algira* Linnaeus, 1766 complex, with two species recognized herein, one formally named for the first time as *A. menachembegini* *sp. nov.*

A new tribe *Anwarsadatini* *tribe nov.* with *Anwarsadatus* *gen. nov.* as the type genus and also including *Psammodromus* Fitzinger, 1826 is erected to accommodate the two most divergent genera within the subfamily Gallotiinae.

Psammodromus microdactylus (Boettger, 1881) is formally split, with the divergent southern population named as a new species.

Psammodromus blanci (Lataste, 1880) is formally split with the population from Tunisia and far east Algeria formally named as a new species.

Psammodromus occidentalis Fitzinger, 1826 is formally split with the population from Tunisia and far east Algeria formally named as a new species.

The genus *Gallotia* Boulenger, 1920, type species *Lacerta galloti* Oudart in Webb and Berthelot, 1839 is split three ways with two highly divergent groups formally named as new genera being *Magnuscaput* *gen. nov.* and *Aquavariaparte* *gen. nov.*

Keywords: Morocco; Tunisia; Algeria; Lizard; Lacertidae; *Atlantolacerta*; *Gallotia*; *Psammodromus*; *Lacerta*; Africa; *andreanskyi*; *algira*; *blanci*; *microdactylus*; *occidentalis*; *galloti*; *stehlini*; Atlas Dwarf Lizard; new tribe; *Atlantolacertini*; *Anwarsadatini*; new genus; *Anwarsadatus*; *Magnuscaput*; *Aquavariaparte*; new species; *romani*; *maxinehoserae*; *lenhoseri*; *menachembegini*; *sahliatlatifa*; *tamaaltaghadienaha*; *comonosperdimoseste*; *unbuendescubrimiento*.

INTRODUCTION

It has now become an accepted mantra of scientists that undiscovered species of vertebrate must be sought out, formally described and named as soon as possible in order to avert a potential extinction catastrophe caused by the effects of human overpopulation.

There is absolutely no doubt at all that there is a serious human caused mass extinction of vertebrate species going on at the present time in the planet's history.

There are few places in the world, where this urgent need to describe potentially threatened forms is greater, than in the Muslim countries of north Africa, where human birth rates remain at historical highs.

With the benefits of oil money and modern technologies, populations have in the 20th century exploded in these countries. According to

<https://www.worldometers.info/world-population/morocco-population/>

on 3 March 2025, the population stood at about 38,315,602, being up from 8,935,450 in 1950.

According to

<https://www.worldometers.info/world-population/algeria-population/>

Algeria on 3 March 2025 had a population of about 47,230,461, being up from up from 11.42 million in 1950.

According to

<https://www.worldometers.info/world-population/tunisia-population/>

Tunisia on 3 March 2025 had a population of about 12,325,056, being up from up from 3,682,100 in 1950.

In all three countries, the population had tripled in 75 years and was likely to triple again in each over the following 100 years.

In a finite system such as planet earth and north Africa in particular, infinite human population growth can only spell disaster in terms of other species inhabiting these lands.

The purpose of this paper is to describe obviously unnamed forms in Morocco, Algeria, Tunisia and the Iberian Peninsula in south-west Europe.

For completeness sake, I also mention the ongoing population increases (of people) on the Iberian Peninsula.

According to

<https://www.worldometers.info/world-population/spain-population/>

Spain's population was 28,077,049 in 1950 and on 3 March 2025 was 47,896,673, or almost double the number of 75 years earlier.

According to

<https://www.worldometers.info/world-population/portugal-population/>

Portugal's population was 8,418,877 in 1950 and on 3 March 2025 was 10,416,221, which is the best result of all the relevant countries, but still represents an enormous increase in number of people in a small country of just 92,152 square km area in total.

Compare this to say 227,444 km for the Australian State of Victoria, a densely populated southern state in Australia claiming 7 million people (over 5 million of these in the greater Melbourne city area), giving it just half the population pressure on the local wildlife (assuming all other things to be equal, which they obviously are not).

Victoria's population density is also far greater than any other Australian state.

Until now the putative Moroccan Lacertid lizard species *Atlantolacerta andreanskyi* (Werner, 1929) has been treated as monotypic for the genus by all publishing authors.

However, it has been known for at least the last decade that there are species-level divisions within the putative taxon (Barata *et al.* 2012, 2015, Harris *et al.* 2023).

With the entire species complex range restricted and endemic to Morocco and each species-level lineage even more restricted, it is important that each be formally named and managed as separate biological entities.

This paper formally recognizes and names three divergent lineages as new species and flags that there are at least three

more that should ultimately be formally named as new species as spelt out explicitly in the paper of Harris *et al.* (2023).

Additionally, a new tribe *Atlantolacertini* *tribe nov.* is created to accommodate the genus *Atlantolacerta* Arnold, Arribas and Carranza, 2007 based on divergences outlined by Pyron *et al.* (2013) and other more recent works.

More recent calibrated works have estimated a divergence of about 20 MYA from the rest of the nearest related members in the subfamily Lacertinae.

The genus *Psammmodromus* Fitzinger, 1826 is split two ways, with the new genus *Anwarsadatus* *gen. nov.* erected to accommodate the divergent *Lacerta algira* Linnaeus, 1766 complex.

A new tribe *Anwarsadatini* *tribe nov.* with *Anwarsadatus* *gen. nov.* as the type genus and also including *Psammmodromus* Fitzinger, 1826 is erected to accommodate the two most divergent genera within the subfamily Gallotiinae.

Psammmodromus microdactylus (Boettger, 1881) is formally split, with the divergent southern population named as a new species. This taxon was flagged as a divergent species by Mendez *et al.* (2017) who claimed a 1.94 MYA divergence between the two forms.

Psammmodromus blanci (Lataste, 1880) is formally split with the population from Tunisia and far east Algeria formally named as a new species.

This taxon was flagged as a divergent species by Mendez *et al.* (2017) who claimed a 3.56 MYA divergence between the two forms.

The genus *Gallotia* Boulenger, 1920, type species *Lacerta galloti* Oudart in Webb and Berthelot, 1839 of the Canary Islands is split three ways with two highly divergent groups formally named as new genera.

These are the *Lacerta galloti* *var. stehlini* Schenkel, 1901 group believed to have diverged from the others about 14.5 MYA and the *Lacerta atlantica* Peters and Doria, 1882 group believed to have diverged from the others about 10 MYA (See Cox *et al.* 2010 at Fig.3 at about 10 MYA or Mendez *et al.* 2017 who found a divergence of 8.66 MYA at their Fig3).

MATERIALS AND METHODS

Available specimens of all species within the putative genera *Atlantolacerta* Arnold, Arribas and Carranza, 2007, *Gallotia* Boulenger, 1920 and *Psammmodromus* Fitzinger, 1826 were inspected as were quality photographs available online.

They were checked for morphological divergences and/or obvious biogeographical barriers separating the populations, including those flagged in papers such as those listed above and below.

Specimens inspected included dead and live specimens as well as images with good locality data.

Molecular studies involving species within the preceding genera and other similarly distributed reptiles and frogs from across north-west Africa's mountainous regions were also reviewed to flag likely speciation points for wider-ranging putative taxa.

Published references and taxonomic treatments relevant to the preceding three putative genera (*sensu lato*) being *Atlantolacerta* Arnold, Arribas and Carranza, 2007, *Gallotia* Boulenger, 1920 and *Psammmodromus* Fitzinger, 1826 and the taxa within them and those relevant to the taxonomic and nomenclatural conclusions in this paper included Arnold (1973), Arnold *et al.* (2007), Bannert (1998), Barata *et al.* (2012, 2015), Bauer and Günther (1995), Bedriaga (1886), Bischoff (1982, 1984, 1985a-d, 2005, 2007), Bischoff and in den Bosch (1991), Bloor and Dávila (2008), Bloor *et al.* (2006, 2008), Boettger (1881, 1883), Böhme (2014), Böhme and Bings (1977), Boulenger (1887, 1889, 1891, 1916, 1920), Busack and Lawson (2006), Busack *et al.* (2006), Castro-Exposito *et al.* (2021), Carretero (2002), Civantos *et al.* (1999), Comas (2020), Corti and Cascio (2002), Cox *et al.* (2010), Crochet *et al.* (2004), Díaz *et al.* (2005), Doumergue (1901), Duméril and Bibron (1839), El Bouhissi *et al.* (2019), Fischer (1887), Fitze *et al.* (2012), Fitzinger (1826a-b), Geniez *et al.* (1993), González *et al.* (1996), Harris *et al.* (2023), Helmdag (1992a-b, 1993, 1995), Hernández *et al.* (2000), Hoser (2015g,

2025), in den Bosch (1986, 2005), Kramer (1979), Lataste (1880), Lehrs (1909), Linnaeus (1758), López-Jurado (1991), López-Jurado *et al.* (1995), Lutzmann and Hulbert (2002), Malkmus (1981), Martín and Lopez (1998), Martínez del Marmol *et al.* (2019), Mayer and Bischoff (1996), Mediani *et al.* (2015), Mellado and Dakki (1988), Mellado and Mateo (1992), Mendes *et al.* (2017), Mertens (1928), Molina-Borja (2003), Molina Borja and Rodriguez-Dominguez (2004), Peters and Doria (1882), Reguera *et al.* (2014), Rivero-Suárez *et al.* (2016), Rouag *et al.* (2024), Santos *et al.* (2024), Schäberle and Schäberle (2019), Schenkel (1901), Schleich *et al.* (1996), Schlüter (2003, 2004), Sindaco and Jeremcenko (2008), Steindachner (1891), Thorpe (1985), Valido and Nogales (2003), Verdú-Ricoy *et al.* (2010), Werner (1894, 1929, 1931, 1935), Zawadzki (2013), Zulueta (1909) and sources cited therein.

RESULTS

These have been summed up already in both abstract and introduction.

In effect the review of the literature combined with the associated review of available or unavailable synonym names, followed up with inspections of relevant taxon specimens, gave rise to the results already spelt out.

Species named herein are readily identified as new and distinct species based on the combination of molecular divergence estimated at more than 1.5 MYA, geographic allopatric populations with intervening areas of apparently unsuitable habitat and/or competing species as well as consistent morphological divergence allowing the easy identification of the newly named species and separation from the nearest relative. The three species formally named, previously treated as *Atlantolacerta andreanskyi* (Werner, 1929) correspond to the green, purple and yellow clades identified in the paper of Harris *et al.* (2023), making the four main clades identified having formal names.

The study of Barata *et al.* (2015) found that the relevant lizards were divided into six genetically distinct lineages, which appeared to have diverged between 7.6 and 2.4 million years ago, making all species-level taxa (as in six separate species). Harris *et al.* (2023) found a seventh divergent lineage.

Psammodromus microdactylus (Boettger, 1881) is formally split, with the divergent southern population named as a new species. This taxon was flagged as a divergent species by Mendez *et al.* (2017) who claimed a 1.94 MYA divergence between the two forms.

Significantly in his detailed paper, in den Bosch (2005) spelt out the differences between the southern and northern taxa, which he mistakenly treated as being of the same species.

The differences spelt out in that paper form the basis of the morphological diagnosis for the new species.

The type locality for *P. microdactylus* is "prope urbes Casablanca, Tetuan, Tanger". This is in the far north of Morocco, making the southern taxon that which needed to be named.

I am surprised that no one else has until now done what seems in hindsight obvious, and married the papers of in den Bosch (2005) with Mendez *et al.* (2017) to diagnose and name the southern species as new.

Psammodromus blanci (Lataste, 1880) is formally split with the population from Tunisia and far east Algeria formally named as a new species.

This taxon was flagged as a divergent species by Mendez *et al.* (2017) who claimed a 3.56 MYA divergence between the two forms.

The type locality for *P. blanci* is Algiers, Algeria, corresponding to the western form of the species.

As for the splitting of *P. microdactylus*, I am surprised that putative *P. blanci* had not been split earlier.

The genus *Psammodromus* Fitzinger, 1826 is split two ways, with the new genus *Anwarsadatus gen. nov.* erected to accommodate the divergent *Lacerta algira* Linnaeus, 1766 complex, with two species recognized herein, one formally named for the first time as *A. menachembagini sp. nov.*

In terms of this taxon from south-east Spain Verdú-Ricoy *et al.* (2010) correctly wrote:

"the eastern lineage of *P. algirus* might represent a separate species."

See also the phylogenetic results of Cox *et al.* (2010) at Fig. 3. Mendez *et al.* (2017) shows a 12.9 MYA divergence between the groups *Psammodromus* Fitzinger, 1826 and *Anwarsadatus gen. nov.*

A new tribe *Anwarsadatini tribe nov.* with *Anwarsadatus gen. nov.* as the type genus and also including *Psammodromus* Fitzinger, 1826 is erected to accommodate the two most divergent genera within the subfamily Gallotiinae.

As mentioned above, *Psammodromus microdactylus* (Boettger, 1881) is formally split, with the divergent southern population named as a new species.

Also as mentioned above, *Psammodromus blanci* (Lataste, 1880) is formally split with the population from Tunisia and far east Algeria formally named as a new species.

Psammodromus occidentalis Fitzinger, Gonzalez-Jimena, San-Jose, San Mauro and Zardoya, 2012 is split three ways, with two new species formally named for the first time, one with a divergence in excess of 2 MYA from nearest relatives and the other at over 3 MYA.

The genus *Gallotia* Boulenger, 1920, type species *Lacerta galloti* Oudart in Webb and Berthelot, 1839 of the Canary Islands is split three ways with two highly divergent groups formally named as new genera.

These are the *Lacerta galloti var. stehlini* Schenkel, 1901 group believed to have diverged from the others about 14.5 MYA and the *Lacerta atlantica* Peters and Doria, 1882 group believed to have diverged from the others about 10 MYA (See Cox *et al.* 2010 at Fig.3).

A new tribe *Atlantolacertini tribe nov.* is herein created to accommodate the genus *Atlantolacerta* Arnold, Arribas and Carranza, 2007 based on divergences outlined by Pyron *et al.* (2013) and other more recent works, estimated as being in excess of 20 MYA.

As already stated, the genus *Psammodromus* Fitzinger, 1826 is split two ways, with the new genus *Anwarsadatus gen. nov.* erected to accommodate the divergent *Lacerta algira* Linnaeus, 1766 complex.

A new tribe *Anwarsadatini tribe nov.* with *Anwarsadatus gen. nov.* as the type genus and also including *Psammodromus* Fitzinger, 1826 is erected to accommodate the two most divergent genera within the subfamily Gallotiinae and with a divergence estimated at about 20 MYA from *Gallotia* Boulenger, 1920 and associated genera formally named herein.

INFORMATION RELEVANT TO THE FORMAL DESCRIPTIONS THAT FOLLOW

There is no conflict of interest in terms of this paper, or the conclusions arrived at herein.

Several people including anonymous peer reviewers who revised the manuscript prior to publication are also thanked as are relevant staff at museums who made specimens and records available in line with international obligations.

In terms of the following formal descriptions, spelling of names should not be altered in any way for any purpose unless expressly and exclusively called for by the rules governing Zoological Nomenclature as administered by the International Commission of Zoological Nomenclature (Ride *et al.* 1999 and ICZN 2012).

Material downloaded from the internet and cited anywhere in this paper was downloaded and checked most recently as of 3 March 2025, unless otherwise stated and were accurate in terms of the context cited herein as of that date.

Unless otherwise stated explicitly, colour descriptions apply to living adult male specimens of generally good health and not under any form of stress by means such as excessive cool, heat, dehydration, excessive aging or abnormal skin reaction to chemical or other input.

Note that there is ordinarily some sexual dimorphism between

adults of species within the relevant genera.

References to tails are of original ones unless otherwise stated.

While numerous texts and references were consulted prior to publication of this paper, the criteria used to separate the relevant species has already been spelt out and/or is done so within each formal description and does not rely on material within publications not explicitly cited herein.

In the unlikely event any "first reviser" seeks to merge two or more newly named taxa into one, then the name to be retained is that which is first by page priority as listed in the abstract keywords.

Some material within descriptions is repeated to ensure each fully complies with the *International Code of Zoological Nomenclature* (Ride *et al.* 1999) and the 2012 amendments (ICZN 2012).

The "version of record" is the printed version and not pdf version. Both are identical in all materially relevant ways except for the fact that the images in the printed version may be in black and white, as opposed to colour as seen in the pdf version.

The people who assisted with provision of photos and other materials used within this paper are also thanked for their assistances, for which they sought nothing in return.

CONSERVATION

Human overpopulation and its consequences are without doubt the greatest long-term threat to the relevant species as outlined in Hoser (1989, 1991, 1993 and 1996). Delays in recognition of these species could jeopardise the long-term survival of the taxa as outlined by Hoser (2019a, 2019b) and sources cited therein.

Some of these species are range restricted at high altitude locations (and more so than previously thought as there are more micro-endemic taxa involved) and therefore they are at particularly high risk of decline through global warming, even in the event of no obvious direct human impacts on the species.

Therefore attempts by taxonomic vandals, paedophiles, serial rapists, animal abusers and wildlife traffickers like the members of the Adam Britton and Wolfgang Wüster gang via Kaiser (2012a, 2012b, 2013, 2014a, 2014b) and Kaiser *et al.* (2013) (as frequently amended and embellished, e.g. Rhodin *et al.* 2015, Naish 2013, as regularly altered and amended, Thiele *et al.* 2020, Hammer and Thiele 2021, Wüster *et al.* 2021, Foley and Rutter 2020) to unlawfully suppress the recognition of these taxa on the basis they have a personal dislike for the person who formally named it/them should be resisted (e.g. Ceriaco *et al.* 2023, Cogger 2014, Dubois *et al.* 2019, Hoser 2001a, Mosyakin 2022, Wellington 2015, ICZN 2021).

Claims by the Wüster gang against this paper and the descriptions herein will no doubt be no different to those the gang have made previously, including for instance against Wells and Wellington (1984, 1985), (see for example Shine 1987, Shea 1987, Shea and Sadlier 1999), all of which were discredited long ago as outlined by Ceriaco *et al.* (2023), Cogger (2014), Cotton (2014), Dubois *et al.* (2019), Hawkeswood (2021), Holyński (1994, 2020), Hoser, (2001, 2007, 2009, 2012a-b, 2012d, 2013, 2015a-f, 2019a-b, 2020a-b, 2021a-b, 2023, 2024a-b), ICZN (1991, 2001, 2021), Jiménez-Mejías *et al.* (2024), Kok (2023), Mosyakin (2022), Pethigayoda (2023), Wellington (2015), Winkler (2024), Zheng and Gold (2020) and sources cited therein.

Attempts to engage in acts of scientific fraud to try to rename any of these newly named taxa should be exposed and dealt with appropriately, as was done with David Williams, when in 2001 he attempted to rename and/or claim name authority for the species *Pailsus rossignolii* Hoser, 2000 (see Hoser 2000a).

He did this in the first instance in 2001, by altering versions of his online "paper" (as seen in Williams and Starkey 1999a, 1999b and 1999c), all of which were different and changed versions of a single paper originally published in the first form in 1999, claiming (without any evidence) to refute the existence of the species *Pailsus pailsei* Hoser, 1998 (see Hoser 2001a for details).

Claims by Shea and Sadlier (1999) and similar elsewhere by the Wüster gang to the effect that earlier published names are

unavailable for zoological nomenclature are patently false and the making of these false claims is seriously counter to wildlife conservation (Hoser, 2007, Ceriaco *et al.* 2023, Cogger 2014, Cotton 2014, and so on).

Significantly, in terms of the relevant taxa, there are for most species are very few or alternatively no voucher specimens in museums around the world.

This seriously hampers ongoing and future research.

Noting that all relevant species appear to be locally abundant in their main areas of habitation (at the present time at least), it would be prudent for one or more targeted expeditions to be mounted to secure numbers of specimens of all candidate putative species for museums, collected judiciously and without causing significant long-term damage to currently viable and healthy populations.

I note that limited take from wild for captive breeding in Europe has not adversely impacted populations to date.

In recent years (the post 2000 period being the relevant time), the Moroccan authorities have been quite amenable to scientific take of specimens from their jurisdiction thereby assisting with conservation and research, with Morocco being the epicentre for many of the taxa discussed in this paper.

The desperate need for more voucher specimens of relevant taxa has also been stated recently by Santos *et al.* (2024).

Santos *et al.* (2024) noted for example a total of just 37 putative *Psammotromus occidentalis* in the four major natural history collections of Portugal.

Vert net (at: <http://portal.vertnet.org/search>) showed none in their entire database on 3 March 2025).

There were just 4950 reptile specimens (of all kinds) across all four major national museum facilities in Portugal.

The situation for the National collection in Morocco is particularly dire, with for example no *Atlantolacerta* held there at all!

The curators at these places all agreed that the lack of voucher specimens could hamper conservation efforts in future years.

Of course, the need for voucher specimens also depends on curatorial staff at these facilities not swapping holotype specimens and engaging in other unlawful conduct as recently exposed involving senior staff at the previously esteemed Australian Museum in Sydney (Hoser, 2025).

ATLANTOLACERTA ROMANI SP. NOV.

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Holotype: A preserved male specimen at the Reptiles and Amphibians collection (RA) of the Muséum national d'Histoire Naturelle, Paris, France, specimen number MNHN RA 1939.156 collected in 1938 from Djebel Targuedit, Morocco, (Eastern High Atlas Mountains) at 3,500 metres ASL.

This government-owned facility allows access to its holdings.

Diagnosis: Until now *Atlantolacerta andreanskyi* (Werner, 1929) has been treated by all publishing authors as a single species occupying the High Atlas Mountains of Morocco, Africa.

With the molecular data of (Barata *et al.* 2012, 2015, Harris *et al.* 2023) all showing deep divergences between proximal but separated populations, it is not tenable to treat all as a single species.

While it is reasonable to infer at least seven species are included within putative *A. andreanskyi*, within this paper and herein, four species are recognized and identified, thereby assigning names to the four main clades.

These are the nominate form of *Atlantolacerta andreanskyi* (Werner, 1929), with a type locality of "Tachdirt, Grand Atlas, 2500 m" in Morocco. It is located about 4 km south of Oukaïmeden and 10 km north of Jbel Toubkal, with this species known to occupy this entire area where suitable habitat exists.

Atlantolacerta romani sp. nov. is the species that occurs in the area generally near Djebel Targuedit, Morocco on the north-east part of the High Atlas Mountains.

Atlantolacerta lenhoseri sp. nov. is the species that occurs around and south of Jbel Awlime at the southern end of the High Atlas Mountains.

Atlantolacerta maxinehoserae sp. nov. is known from the type locality of Jbel Ayache, south-east to Outabati in the east High Atlas Mountains.

The three species and *Atlantolacerta andreanskyi* are separated from one another by the following unique combinations of characters:

For *Atlantolacerta romani* sp. nov. adult males are generally a light chocolate brown colour all over top and flanks, with tiny scattered semi-distinct black spots, slightly more prominent dorsally and slightly more numerous along the vertebral line. There is no dark line of any sort from snout, through eye and continuing along the flank and tail.

There are a few widely scattered small spots on the top or sides of the head.

The rectangular ventral plates on the body and anterior tail are white, each with a large oval shaped black spot within. Those under the chin and neck are not marked this way. Posterior (ventral) chin shields have tiny black dots only, while those of the neck (underside) are mainly all white.

On the anterior part of the (original) tail the underside has white scales, each with prominent black spots at the anterior edge. Upper surfaces of limbs are brown with irregularly shaped black spots.

Although there is a large black dot on the anal plate, it is no larger than other large spots proximal to it and therefore it is not prominent as seen in some other species.

The undersides of the hind limbs at the proximal parts have a series of raised scales with orange keels forming lines along the ventral edge, which contrast sharply with the otherwise mainly white adjoining plates.

Tiny black spots are only on some of the rear upper labials, most being white only.

Atlantolacerta lenhoseri sp. nov. adult males are a light brown colour all over top, with a single row of black spots running down the vertebral line, commencing posterior to the pelvic girdle and continuing onto the anterior part of the original tail, where the spots merge to form a proper line. At this point the colouration is dark brown, rather than black.

There are no paravertebral spots or lines.

There is a well-defined chocolate brown line running from snout, through eye and across the top half of the ear opening, completely above the axilla of the front leg and along the upper flank and onto the anterior part of the (original) tail, whereupon it becomes lighter in colour and thinner in diameter.

From behind the eye to the hind leg, the lower edge is bound by a thin and well-defined creamy white line, which is also distinct on the lower edge where the colour below is a very different greyish white.

Behind the ear and along the body is a similar, but slightly thinner yellow-white line on the upper edge of the upper flank band, forming a dorsolateral line on that edge.

This line ends near but before the pelvic girdle.

At the anterior end, the tail has a thin dark brown stripe along the vertical edge and slightly thicker ones along each side.

Otherwise, the colour is a light brownish beige colour.

The upper surface of the head is brown with a small number of scattered and well-defined black spots.

Upper labials are white, with most having small irregularly shaped black spots.

Upper surfaces of the limbs are light brown with dark pigment forming one or two dark stripes running longwise down the proximal part of the limb.

Ventrally, there is a general absence of spotting in or on any of the scales on the body belly.

Posteriorly only, some scales have scattered black spots on the edge, these being confined to the area along the edge of the two middle scale rows (taken as running longitudinally down the body).

On the lower body of the belly, lower surfaces of the hind limbs and underneath the anterior of the tail, there is a strong yellow colour of the scales.

This starts as a sort of wash through the posterior part of the belly on the middle scales and intensifies anterior to the anal plate. The colour is strongly yellow distally from the anterior plate on the underside of the tail and also under the hind limbs.

There is a single large black dot on the anal plate.

Atlantolacerta maxinehoserae sp. nov. is similar in most respects to *A. romani* sp. nov. as just described above, but is separated from that taxon by the fact that in females there is no vertebral line, there is a light line on the dorsolateral edge and there are few if any obvious spots on the upper surfaces of the head, versus an intense spotted pattern dorsally, laterally and ventrally, continuous or discontinuous bright dorsolateral lines and intense spotting on the anal plate in *A. romani* sp. nov..

Atlantolacerta andreanskyi males are generally a greyish to slightly brown colour all over the upper surfaces, with three rows of spots running down the dorsum, one on the vertebral line and the other two (uneven in nature), running down either side of the vertebral line but not on the dorsolateral edge (paravertebral arrangement).

This spotting is not on each scale (in series) and the spotting is of irregular shape as well.

The upper flank (slightly more than the top half) is dark brown, being a continuation of a stripe that starts at the snout, runs to the eye (this part is narrow and poorly defined), beyond which it is wide, runs over the top half of the ear opening, completely above the axilla of the front leg and along the upper flank and onto the anterior part of the (original) tail, whereupon it fades rapidly, making the tail a generally light greyish colour.

Below and above, this brown stripe on the upper flank is bounded by semi distinct whitish colour, but not in the form of a well-defined line, but rather as a rapid lightening of nearby scales.

Scattered black spots on the upper surfaces of the head are poorly defined, but those on the creamish white upper labials are on all labials and well defined.

Upper surfaces of the limbs are dark brown with poorly defined black spotting, while the lower surfaces are whitish with prominent and well-defined black markings comprised of black spots, often joined, forming a bar-like arrangement.

Ventrally, the middle two rows of plates are mainly unspotted, as in no well-defined black spots in the middle of each scale. Some scales may have small, irregularly positioned and dull black or dark brown spotting.

In each row to the sides of the mid two rows (being the only other fully ventral plates on the body) each scale has a small, ill-defined brownish spot, usually irregularly placed, but generally near the outer edge.

Under the anterior tail, some, but not all plates have ill-defined dark spots or blotches, being irregular in shape and position.

Under the chin and neck, the plates are generally immaculate white, except for a row across the chest, slightly anterior to the front limbs and behind the lower neck fold.

Each or most of these scales has a series of small, moderately well-defined, irregularly shaped black markings (spots of sorts, being one per scale) more or less in the centre of each scale.

The large plates under the anterior and anterior sides of the chin are not immaculate white, but rather also have poorly defined small black spots or marks on the prominent edges of each scale.

The four described species of *Atlantolacerta* Arnold, Arribas and Carranza, 2007 are separated from other members of the *Eremiadini* within the family Lacertidae by the following unique combination of characters:

Lacking a derived condition of the ulnar nerve, an armature and folded lobes in the hemipenis and from all other species except those in the genus *Omanosaura* Lutz, Bischoff and Mayer, 1986 in possessing a clavicle loop that is sometimes interrupted behind, and A and B-type caudal vertebrae. Other features that in combination help to distinguish *Atlantolacerta* from other genera of Eremiadini and of Lacertini include the following characters: Small body size, often high numbers of presacral vertebrae (26-

28 in males, 29 in females), sternal fontanelle sometimes weakly heart-shaped, edge of parietal scale reaching lateral border of parietal table both posteriorly and anteriorly, one postnasal scale, supranasal scale contacting anterior loreal above the nostril; narrow light supraciliary stripes often present; no blue spots on outer ventral scales; outer sulcal lips on lobes of hemipenis are large. Other more widely distributed features in Eremiadini and Lacertini include: Head and body not strongly depressed and supraocular osteoderms complete in adults, seven premaxillary teeth in adults, inscriptional ribs often present, tail brightly coloured in hatchlings, hemipenial microornamentation includes hook-shaped spines (derived from Arnold *et al.* 2007).

Atlantolacerta andreanskyi is depicted in life online at:

https://en.wikipedia.org/wiki/Atlas_dwarf_lizard#/media/File:Atlantolacerta_andreanskyi.jpg

and

https://www.flickr.com/photos/alberto_herpetology/28660787022/

and

https://www.flickr.com/photos/alberto_herpetology/28688785871/

and

https://www.flickr.com/photos/alberto_herpetology/28660787642/

and

http://www.moroccoherps.com/en/ficha/atlantolacerta_andreanskyi/

and

<https://www.inaturalist.org/observations/200325797>

and

<https://www.inaturalist.org/observations/253862641>

and

<https://www.inaturalist.org/observations/253862693>

Atlantolacerta romani sp. nov. is depicted in life in Harris *et al.*

(2023) on page 133 in Fig 3 a and b.

Atlantolacerta lenhoseri sp. nov. is depicted in life in Harris *et al.*

(2023) on page 133 in Fig 3 c and d.

Distribution: *Atlantolacerta romani* sp. nov. is the species that

occurs in the area generally near Djebel Targuedit, Morocco on the

north-east part of the High Atlas Mountains.

However, until further work is done on the genus, this species

should be taken as including all morphologically and genetically

similar populations that occur in an area bounded by Toumliline

in the north-east, Jbel Azourki in the north-west, Tizi n'Tichka in

the south-west and Lake Tamda in the south-east.

Etymology: *Atlantolacerta romani* sp. nov. is named in honour

of our family's Great Dane dog, aged about 20 months as of Feb

2025, named "Roman" in honour Roman Hulimka, a man who

made a significant contribution to herpetology (who has a genus

of elapid Australian snakes named in his honour, *Hulimkai* Hoser,

2012).

The dog "Roman" provides a valuable service in that he protects

our research facility from thieves.

ATLANTOLACERTA MAXINEHOSERAE SP. NOV.

LSIDDurn:lsid:zoobank.org:act:40C83E2A-C17F-4AD3-8B6F-

A4C315781D8A

Holotype: A preserved male specimen at the Reptiles and

Amphibians collection (RA) of the Muséum national d'Histoire

Naturelle, Paris, France, specimen number MNHN RA 1939.155

collected in 1938 from Djebel Ayachi, Morocco, Latitude 32.4778

N., Longitude 4.9269 W., (Eastern High Atlas Mountains) at an

altitude of between 3600 and 3800 metres above sea level.

This government-owned facility allows access to its holdings.

Diagnosis: Until now *Atlantolacerta andreanskyi* (Werner, 1929)

has been treated by all publishing authors as a single species

occupying the High Atlas Mountains of Morocco, Africa.

With the molecular data of (Barata *et al.* 2012, 2015, Harris *et*

al. 2023) all showing deep divergences between proximal but

separated populations, it is not tenable to treat all as a single

species.

While it is reasonable to infer at least seven species included

within putative *A. andreanskyi*, within this paper and herein, four

species are recognized and identified, thereby assigning names

to the four main clades.

These are the nominate form of *Atlantolacerta andreanskyi*

(Werner, 1929), with a type locality of "Tachdirt, Grand

Atlas, 2500 m" in Morocco. It is located about 4 km south of

Oukaimeden and 10 km north of Jbel Toubkal, with this species

known to occupy this entire area where suitable habitat exists.

Atlantolacerta romani sp. nov. is the species that occurs in the

area generally near Djebel Targuedit, Morocco on the north-east

part of the High Atlas Mountains.

Atlantolacerta lenhoseri sp. nov. is the species that occurs

around and south of Jbel Awlime at the southern end of the High

Atlas Mountains.

Atlantolacerta maxinehoserae sp. nov. is known from the type

locality of Jbel Ayache, south-east to Outabati in the east High

Atlas Mountains.

The three species and *Atlantolacerta andreanskyi* are separated

from one another by the following unique combinations of

characters:

For *Atlantolacerta romani* sp. nov. adult males are generally a

light chocolate brown colour all over top and flanks, with tiny

scattered semi-distinct black spots, slightly more prominent

dorsally and slightly more numerous along the vertebral line.

There is no dark line of any sort from snout, through eye and

continuing along the flank and tail.

There are a few widely scattered small spots on the top or sides

of the head.

The rectangular ventral plates on the body and anterior tail are

white, each with a large oval shaped black spot within. Those

under the chin and neck are not marked this way. Posterior

(ventral) chin shields have tiny black dots only, while those of the

neck (underside) are mainly all white.

On the anterior part of the (original) tail the underside has white

scales, each with prominent black spots at the anterior edge.

Upper surfaces of limbs are brown with irregularly shaped black

spots.

Although there is a large black dot on the anal plate, it is no

larger than other large spots proximal to it and therefore it is not

prominent as seen in some other species.

The undersides of the hind limbs at the proximal parts have a

series of raised scales with orange keels forming lines along the

ventral edge, which contrast sharply with the otherwise mainly

white adjoining plates.

Tiny black spots are only on some of the rear upper labials, most

being white only.

Atlantolacerta lenhoseri sp. nov. adult males are a light brown

colour all over top, with a single row of black spots running down

the vertebral line, commencing posterior to the pelvic girdle and

continuing onto the anterior part of the original tail, where the

spots merge to form a proper line. At this point the colouration is

dark brown, rather than black.

There are no paravertebral spots or lines.

There is a well-defined chocolate brown line running from

snout, through eye and across the top half of the ear opening,

completely above the axilla of the front leg and along the upper

flank and onto the anterior part of the (original) tail, whereupon it

becomes lighter in colour and thinner in diameter.

From behind the eye to the hind leg, the lower edge is bound by

a thin and well-defined creamy white line, which is also distinct

on the lower edge where the colour below is a very different

greyish white.

Behind the ear and along the body is a similar, but slightly thinner

yellow-white line on the upper edge of the upper flank band,

forming a dorsolateral line on that edge.

This line ends near but before the pelvic girdle.

At the anterior end, the tail has a thin dark brown stripe along

the vertical edge and slightly thicker ones along each side.

Otherwise, the colour is a light brownish beige colour.

The upper surface of the head is brown with a small number of

scattered and well-defined black spots.

Upper labials are white, with most having small irregularly

shaped black spots.

Upper surfaces of the limbs are light brown with dark pigment

forming one or two dark stripes running longwise down the proximal part of the limb.

Ventrally, there is a general absence of spotting in or on any of the scales on the body belly.

Posteriorly only, some scales have scattered black spots on the edge, these being confined to the area along the edge of the two middle scale rows (taken as running longitudinally down the body).

On the lower body of the belly, lower surfaces of the hind limbs and underneath the anterior of the tail, there is a strong yellow colour of the scales.

This starts as a sort of wash through the posterior part of the belly on the middle scales and intensifies anterior to the anal plate. The colour is strongly yellow distally from the anterior plate on the underside of the tail and also under the hind limbs.

There is a single large black dot on the anal plate.

Atlantolacerta maxinehoserae sp. nov. is similar in most respects to *A. romani* sp. nov. as just described above, but is separated from that taxon by the fact that in females there is no vertebral line, there is a light line on the dorsolateral edge and there are few if any obvious spots on the upper surfaces of the head, versus an intense spotted pattern dorsally, laterally and ventrally, continuous or discontinuous bright dorsolateral lines and intense spotting on the anal plate in *A. romani* sp. nov..

Atlantolacerta andreanskyi males are generally a greyish to slightly brown colour all over the upper surfaces, with three rows of spots running down the dorsum, one on the vertebral line and the other two (uneven in nature), running down either side of the vertebral line but not on the dorsolateral edge (paravertebral arrangement).

This spotting is not on each scale (in series) and the spotting is of irregular shape as well.

The upper flank (slightly more than the top half) is dark brown, being a continuation of a stripe that starts at the snout, runs to the eye (this part is narrow and poorly defined), beyond which it is wide, runs over the top half of the ear opening, completely above the axilla of the front leg and along the upper flank and onto the anterior part of the (original) tail, whereupon it fades rapidly, making the tail a generally light greyish colour.

Below and above, this brown stripe on the upper flank is bounded by semi distinct whitish colour, but not in the form of a well-defined line, but rather as a rapid lightening of nearby scales.

Scattered black spots on the upper surfaces of the head are poorly defined, but those on the creamish white upper labials are on all labials and well defined.

Upper surfaces of the limbs are dark brown with poorly defined black spotting, while the lower surfaces are whitish with prominent and well-defined black markings comprised of black spots, often joined, forming a bar-like arrangement.

Ventrally, the middle two rows of plates are mainly unspotted, as in no well-defined black spots in the middle of each scale. Some scales may have small, irregularly positioned and dull black or dark brown spotting.

In each row to the sides of the mid two rows (being the only other fully ventral plates on the body) each scale has a small, ill-defined brownish spot, usually irregularly placed, but generally near the outer edge.

Under the anterior tail, some, but not all plates have ill-defined dark spots or blotches, being irregular in shape and position.

Under the chin and neck, the plates are generally immaculate white, except for a row across the chest, slightly anterior to the front limbs and behind the lower neck fold.

Each or most of these scales has a series of small, moderately well-defined, irregularly shaped black markings (spots of sorts, being one per scale) more or less in the centre of each scale.

The large plates under the anterior and anterior sides of the chin are not immaculate white, but rather also have poorly defined small black spots or marks on the prominent edges of each scale.

The four described species of *Atlantolacerta* Arnold, Arribas

and Carranza, 2007 are separated from other members of the *Eremiadini* within the family Lacertidae by the following unique combination of characters:

Lacking a derived condition of the ulnar nerve, an armature and folded lobes in the hemipenis and from all other species except those in the genus *Omanosaura* Lutz, Bischoff and Mayer, 1986 in possessing a clavicle loop that is sometimes interrupted behind, and A and B-type caudal vertebrae. Other features that in combination help to distinguish *Atlantolacerta* from other genera of Eremiadini and of Lacertini include the following characters: Small body size, often high numbers of presacral vertebrae (26-28 in males, 29 in females), sternal fontanelle sometimes weakly heart-shaped, edge of parietal scale reaching lateral border of parietal table both posteriorly and anteriorly, one postnasal scale, supranasal scale contacting anterior loreal above the nostril; narrow light supraciliary stripes often present; no blue spots on outer ventral scales; outer sulcal lips on lobes of hemipenis are large. Other more widely distributed features in Eremiadini and Lacertini include: Head and body not strongly depressed and supraocular osteoderms complete in adults, seven premaxillary teeth in adults, inscripational ribs often present, tail brightly coloured in hatchlings, hemipenial microornamentation includes hook-shaped spines (derived from Arnold *et al.* 2007).

Atlantolacerta andreanskyi is depicted in life online at: https://en.wikipedia.org/wiki/Atlas_dwarf_lizard#/media/File:Atlantolacerta_andreanskyi.jpg

and

https://www.flickr.com/photos/alberto_herpetology/28660787022/

and

https://www.flickr.com/photos/alberto_herpetology/28688785871/

and

https://www.flickr.com/photos/alberto_herpetology/28660787642/

and

http://www.moroccoherps.com/en/ficha/atlantolacerta_andreanskyi/

and

<https://www.inaturalist.org/observations/200325797>

and

<https://www.inaturalist.org/observations/253862641>

and

<https://www.inaturalist.org/observations/253862693>

Atlantolacerta romani sp. nov. is depicted in life in Harris *et al.* (2023) on page 133 in Fig 3 a and b.

Atlantolacerta lenhoseri sp. nov. is depicted in life in Harris *et al.* (2023) on page 133 in Fig 3 c and d.

Distribution: *Atlantolacerta maxinehoserae* sp. nov. is the species that occurs in the area generally near Djebel Ayachi, Morocco, Latitude 32.4778 N., Longitude 4.9269 W, (Eastern High Atlas Mountains) at an altitude of between 3600 and 3800 metres above sea level southwest to about Outabati in the east High Atlas Mountains.

Etymology: *Atlantolacerta maxinehoserae* sp. nov. is named in honour my cousin Maxine Hoser, originally of Margate, United Kingdom, but who has spent the past two decades in Israel, in recognition of her contributions to herpetology in the 1960's.

More recently in 2024, her home, 3 km south of the Lebanese border was obliterated by a missile fired by Hezbollah terrorists. Fortunately, she was out shopping when the missile hit.

People she knew were also murdered in the 7 October 2023 terrorist attack on Israel, by Hamas terrorists who attacked from the Gaza strip and killed over 1,000 Israeli and foreign citizens.

Terrorism, practiced by non-State and State actors alike is something that simply should not be tolerated!

ATLANTOLACERTA LENHOSERI SP. NOV.

LSIDDurn:lsid:zoobank.org:act:7933ECC0-94F2-4D0D-A5EF-01475C318A02

Holotype: The live male specimen depicted in the image in Harris *et al.* (2023) on page 133 in Fig 3 c and d.

It was collected from Jbel Awlime (AKA Jbel Aoulime), Morocco, Latitude 30.8197 N., Longitude 8.8036 W. at the southern end of the High Atlas Mountains.

As far as is known, no natural history museums have any vouchers of this species.

Diagnosis: Until now *Atlantolacerta andreanskyi* (Werner, 1929) has been treated by all publishing authors as a single species occupying the High Atlas Mountains of Morocco, Africa. With the molecular data of (Barata *et al.* 2012, 2015, Harris *et al.* 2023) all showing deep divergences between proximal but separated populations, it is not tenable to treat all as a single species.

While it is reasonable to infer at least seven species included within putative *A. andreanskyi*, within this paper and herein, four species are recognized and identified, thereby assigning names to the four main clades.

These are the nominate form of *Atlantolacerta andreanskyi* (Werner, 1929), with a type locality of "Tachdirt, Grand Atlas, 2500 m" in Morocco. It is located about 4 km south of Oukaimeden and 10 km north of Jbel Toubkal, with this species known to occupy this entire area where suitable habitat exists.

Atlantolacerta romani sp. nov. is the species that occurs in the area generally near Djebel Targuedit, Morocco on the north-east part of the High Atlas Mountains.

Atlantolacerta lenhoseri sp. nov. is the species that occurs around and south of Jbel Awlime at the southern end of the High Atlas Mountains.

Atlantolacerta maxinehoserae sp. nov. is known from the type locality of Jbel Ayache, south-east to Outabati in the east High Atlas Mountains.

The three species and *Atlantolacerta andreanskyi* are separated from one another by the following unique combinations of characters:

For *Atlantolacerta romani sp. nov.* adult males are generally a light chocolate brown colour all over top and flanks, with tiny scattered semi-distinct black spots, slightly more prominent dorsally and slightly more numerous along the vertebral line. There is no dark line of any sort from snout, through eye and continuing along the flank and tail.

There are a few widely scattered small spots on the top or sides of the head.

The rectangular ventral plates on the body and anterior tail are white, each with a large oval shaped black spot within. Those under the chin and neck are not marked this way. Posterior (ventral) chin shields have tiny black dots only, while those of the neck (underside) are mainly all white.

On the anterior part of the (original) tail the underside has white scales, each with prominent black spots at the anterior edge. Upper surfaces of limbs are brown with irregularly shaped black spots.

Although there is a large black dot on the anal plate, it is no larger than other large spots proximal to it and therefore it is not prominent as seen in some other species.

The undersides of the hind limbs at the proximal parts have a series of raised scales with orange keels forming lines along the ventral edge, which contrast sharply with the otherwise mainly white adjoining plates.

Tiny black spots are only on some of the rear upper labials, most being white only.

Atlantolacerta lenhoseri sp. nov. adult males are a light brown colour all over top, with a single row of black spots running down the vertebral line, commencing posterior to the pelvic girdle and continuing onto the anterior part of the original tail, where the spots merge to form a proper line. At this point the colouration is dark brown, rather than black.

There are no paravertebral spots or lines.

There is a well-defined chocolate brown line running from snout, through eye and across the top half of the ear opening, completely above the axilla of the front leg and along the upper flank and onto the anterior part of the (original) tail, whereupon it becomes lighter in colour and thinner in diameter.

From behind the eye to the hind leg, the lower edge is bound by a thin and well-defined creamy white line, which is also distinct on the lower edge where the colour below is a very different

greyish white.

Behind the ear and along the body is a similar, but slightly thinner yellow-white line on the upper edge of the upper flank band, forming a dorsolateral line on that edge.

This line ends near but before the pelvic girdle.

At the anterior end, the tail has a thin dark brown stripe along the vertical edge and slightly thicker ones along each side.

Otherwise, the colour is a light brownish beige colour.

The upper surface of the head is brown with a small number of scattered and well-defined black spots.

Upper labials are white, with most having small irregularly shaped black spots.

Upper surfaces of the limbs are light brown with dark pigment forming one or two dark stripes running longwise down the proximal part of the limb.

Ventrally, there is a general absence of spotting in or on any of the scales on the body belly.

Posteriorly only, some scales have scattered black spots on the edge, these being confined to the area along the edge of the two middle scale rows (taken as running longitudinally down the body).

On the lower body of the belly, lower surfaces of the hind limbs and underneath the anterior of the tail, there is a strong yellow colour of the scales.

This starts as a sort of wash through the posterior part of the belly on the middle scales and intensifies anterior to the anal plate. The colour is strongly yellow distally from the anterior plate on the underside of the tail and also under the hind limbs.

There is a single large black dot on the anal plate.

Atlantolacerta maxinehoserae sp. nov. is similar in most respects to *A. romani sp. nov.* as just described above, but is separated from that taxon by the fact that in females there is no vertebral line, there is a light line on the dorsolateral edge and there are few if any obvious spots on the upper surfaces of the head, versus an intense spotted pattern dorsally, laterally and ventrally, continuous or discontinuous bright dorsolateral lines and intense spotting on the anal plate in *A. romani sp. nov.*

Atlantolacerta andreanskyi males are generally a greyish to slightly brown colour all over the upper surfaces, with three rows of spots running down the dorsum, one on the vertebral line and the other two (uneven in nature), running down either side of the vertebral line but not on the dorsolateral edge (paravertebral arrangement).

This spotting is not on each scale (in series) and the spotting is of irregular shape as well.

The upper flank (slightly more than the top half) is dark brown, being a continuation of a stripe that starts at the snout, runs to the eye (this part is narrow and poorly defined), beyond which it is wide, runs over the top half of the ear opening, completely above the axilla of the front leg and along the upper flank and onto the anterior part of the (original) tail, whereupon it fades rapidly, making the tail a generally light greyish colour.

Below and above, this brown stripe on the upper flank is bounded by semi distinct whitish colour, but not in the form of a well-defined line, but rather as a rapid lightening of nearby scales.

Scattered black spots on the upper surfaces of the head are poorly defined, but those on the creamish white upper labials are on all labials and well defined.

Upper surfaces of the limbs are dark brown with poorly defined black spotting, while the lower surfaces are whitish with prominent and well-defined black markings comprised of black spots, often joined, forming a bar-like arrangement.

Ventrally, the middle two rows of plates are mainly unspotted, as in no well-defined black spots in the middle of each scale. Some scales may have small, irregularly positioned and dull black or dark brown spotting.

In each row to the sides of the mid two rows (being the only other fully ventral plates on the body) each scale has a small, ill-defined brownish spot, usually irregularly placed, but generally near the outer edge.

Under the anterior tail, some, but not all plates have ill-defined dark spots or blotches, being irregular in shape and position. Under the chin and neck, the plates are generally immaculate white, except for a row across the chest, slightly anterior to the front limbs and behind the lower neck fold.

Each or most of these scales has a series of small, moderately well-defined, irregularly shaped black markings (spots of sorts, being one per scale) more or less in the centre of each scale. The large plates under the anterior and anterior sides of the chin are not immaculate white, but rather also have poorly defined small black spots or marks on the prominent edges of each scale.

The four described species of *Atlantolacerta* Arnold, Arribas and Carranza, 2007 are separated from other members of the *Eremiadini* within the family Lacertidae by the following unique combination of characters:

Lacking a derived condition of the ulnar nerve, an armature and folded lobes in the hemipenis and from all other species except those in the genus *Omanosaura* Lutz, Bischoff and Mayer, 1986 in possessing a clavicle loop that is sometimes interrupted behind, and A and B-type caudal vertebrae. Other features that in combination help to distinguish *Atlantolacerta* from other genera of *Eremiadini* and of Lacertini include the following characters: Small body size, often high numbers of presacral vertebrae (26-28 in males, 29 in females), sternal fontanelle sometimes weakly heart-shaped, edge of parietal scale reaching lateral border of parietal table both posteriorly and anteriorly, one postnasal scale, supranasal scale contacting anterior loreal above the nostril; narrow light supraciliary stripes often present; no blue spots on outer ventral scales; outer sulcal lips on lobes of hemipenis are large. Other more widely distributed features in *Eremiadini* and Lacertini include: Head and body not strongly depressed and supraocular osteoderms complete in adults, seven premaxillary teeth in adults, inscriptional ribs often present, tail brightly coloured in hatchlings, hemipenial microornamentation includes hook-shaped spines (derived from Arnold *et al.* 2007).

Atlantolacerta andreanskyi is depicted in life online at: https://en.wikipedia.org/wiki/Atlas_dwarf_lizard#/media/File:Atlantolacerta_andreanskyi.jpg

and https://www.flickr.com/photos/alberto_herpetology/28660787022/

and https://www.flickr.com/photos/alberto_herpetology/28688785871/

and https://www.flickr.com/photos/alberto_herpetology/28660787642/

and http://www.moroccoherps.com/en/ficha/atlantolacerta_andreanskyi/

and <https://www.inaturalist.org/observations/200325797>

and <https://www.inaturalist.org/observations/253862641>

and <https://www.inaturalist.org/observations/253862693>

Atlantolacerta romani sp. nov. is depicted in life in Harris *et al.* (2023) on page 133 in Fig 3 a and b.

Atlantolacerta lenhoseri sp. nov. is depicted in life in Harris *et al.* (2023) on page 133 in Fig 3 c and d.

Distribution: *Atlantolacerta lenhoseri* sp. nov. occurs around and south of Jbel Awlime (AKA Jbel Aoulime), Morocco, Latitude 30.8197 N., Longitude 8.8036 W. at the southern end of the High Atlas Mountains.

Etymology: *Atlantolacerta lenhoseri* sp. nov. is named in honour my late father Leonard Donald Hoser, AKA Len Hoser in recognition of many contributions to herpetology, mainly unrecognised, in the period from the late 1960's to the 1990's.

ATLANTOLACERTAINI TRIBE NOV.

LSIDurn:lsid:zoobank.org:act:FBCD0C1F-3CA5-4610-ADBA-3ED73FF45C77

Type genus: *Atlantolacerta* Arnold, Arribas and Carranza, 2007.

Diagnosis: The four described species of *Atlantolacerta* Arnold *et al.*, 2007, being the entirety of this tribe, are separated from other members of the *Eremiadini* within the family Lacertidae by the following unique combination of characters: Lacking a derived condition of the ulnar nerve, an armature and folded lobes in the hemipenis and from all other species except those in the genus *Omanosaura* Lutz, Bischoff and Mayer, 1986 in possessing a clavicle loop that is sometimes interrupted behind, and A and B-type caudal vertebrae. Other features that in combination help to distinguish *Atlantolacerta* from other genera of *Eremiadini* and of Lacertini include the following characters: Small body size, often high numbers of presacral vertebrae (26-28 in males, 29 in females), sternal fontanelle sometimes weakly heart-shaped, edge of parietal scale reaching lateral border of parietal table both posteriorly and anteriorly, one postnasal scale, supranasal scale contacting anterior loreal above the nostril; narrow light supraciliary stripes often present; no blue spots on outer ventral scales; outer sulcal lips on lobes of hemipenis are large. Other more widely distributed features in *Eremiadini* and Lacertini include: Head and body not strongly depressed and supraocular osteoderms complete in adults, seven premaxillary teeth in adults, inscriptional ribs often present, tail brightly coloured in hatchlings, hemipenial microornamentation includes hook-shaped spines (derived from Arnold *et al.* 2007).

Distribution: Endemic to The High Atlas region of Morocco, Africa.

Content: *Atlantolacerta* Arnold, Arribas and Carranza, 2007.

ANWARSADATUS GEN. NOV.

LSIDurn:lsid:zoobank.org:act:3CB6794E-DB41-49B1-B20C-33A2154AE945

Type species: *Anwarsadatus menachembegini* sp. nov.

Diagnosis: Lizards in the genus *Anwarsadatus* gen. nov.

are readily separated from the species within the genus *Psammmodromus* Fitzinger, 1826 by having the following unique combination of characters: No obvious collar (either absent or indistinct), ventral scales that are homogeneous, rounded and strongly imbricated; 200 mm or more in total adult length (to 310 mm) (vs under 150 mm in all species within the genus *Psammmodromus* Fitzinger, 1826, being under 120 mm for all species except for *Psammmodromus sahliatlatifa* sp. nov.).

In lizards in the genus *Psammmodromus* Fitzinger, 1826 (as defined herein) the ventral scales are always rounded with a polygonal shape, slightly imbricated and the two middle rows are smaller than the outer ones.

The two preceding genera *Anwarsadatus* gen. nov. and *Psammmodromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammmodromus* Fitzinger, 1826, are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in contact with the first labial or separated only by a narrow rim. Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact with the supraoccipital is usually smaller than the interparietal; temporal scales irregular, smooth or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger, 1887).

None of the available names *Algira* Cuvier, 1829, *Aspistis* Wagler, 1830, *Notopholis* Wiegmann, 1830, *Psammuros* Wagler, 1830, *Zerzoumia* Lataste, 1880 have the relevant species of *Lacerta algira* Linnaeus, 1766 as their type species and so all are unavailable as prior existing names for *Anwarsadatus gen. nov.*

Distribution: Northwest Africa and the Iberian Peninsula in south-west Europe, extending slightly north-west near the coast.

Etiymology: *Anwarsadatus gen. nov.* is named in recognition of Anwar Sadat Anwar El-Sadat (25 December 1918 - 6 October 1981), a military officer and former president of Egypt.

He served as the third president of Egypt, from 15 October 1970 until his assassination by fundamentalist army officers on 6 October 1981. Sadat was a senior member of the Free Officers who overthrew King Farouk I in the Egyptian Revolution of 1952, and a close confidant of President Gamal Abdel Nasser, under whom he served as vice president twice and whom he succeeded as president in 1970. In 1978, Sadat and Menachem Begin, Prime Minister of Israel, signed a peace treaty in cooperation with United States President Jimmy Carter, for which they were recognized with the Nobel Peace Prize.

Significant in the year of 2025, a period of warfare between Jews and Arabs in the Middle East is that two supposedly hard-line politicians on either side (Sadat and Begin) were able to broker a peace deal between two bitter enemies at war.

This action for better or worse avoided Egypt and Israel being at war for some decades after (to at least 2025) the result being the saving of a great many human lives and the avoidance of associated human misery that comes with modern state to state warfare.

Content: *Anwarsadatus menachembegini sp. nov.*; *Anwarsadatus algira* (Linnaeus, 1766).

LSIDurn:lsid:zoobank.org:act:CA5D25EB-BF7B-4B4E-B95F-1C598CF8F447

Holotype: A preserved specimen at the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA, specimen number MCZ Herp R-15746 collected from Godolleta, Valencia, Spain, Europe, Latitude 39.4236 N., Longitude -0.6880 W.

This facility allows access to its holdings.

Paratypes: Three preserved specimens at the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, USA, specimen numbers MCZ Herp R-15749, MCZ Herp R-15754 and MCZ Herp R-15755 all collected from Godolleta, Valencia, Spain, Europe, Latitude 39.4236 N., Longitude -0.6880 W.

Diagnosis: Until now *Anwarsadatus menachembegini sp. nov.* has been treated by all authors as an eastern population of *Anwarsadatus algira* (Linnaeus, 1766).

However, the published evidence supporting species-level recognition is compelling.

Carretero (2002) published a significant paper detailing consistent morphological differences between putative *A. algira* from north-east Spain, versus all other populations.

These results were largely ignored by all other publishing herpetologists and the paper has been ignored by most authors publishing on the putative species in the two decades following. Perhaps taxonomists were thrown "of the scent" so to speak, when Carretero (2002) tried to explain his observed morphological differences by stating:

"A hypothesis invoking differences in social system is proposed to explain the striking differences between these populations and those from Central Spain."

Verdú-Ricoy *et al.* (2010) in their molecular study found species-level divergence between the East Iberian population and all other *A. algira*.

In their paper they found little divergence between all formally named populations of *A. algira*, so they synonymised all into *A. algira*.

However, based on the greater divergence of the unnamed eastern lineage they stated:

"the eastern lineage of *P. algirus* might represent a separate species."

They also did not take the matter further.

Mendes *et al.* (2017) effectively sealed the case in favour of naming the eastern population of putative *A. algira* when they estimated a 2.4 MYA divergence between these lizards and the populations from the west, including those from North Africa (see page 7 at Fig. 3 in that paper).

They were not however doing any reclassification of the genus *Psammodromus* Fitzinger, 1826 *sensu lato*.

Significantly Mendes *et al.* (2017) only found a 1.43 MYA divergence between west Iberian and north west African *A. algira*, a finding in line with the morphological similarities of the populations.

A. menachembegini sp. nov. is readily separated from *A. algira* by the following combination of characters:

The head colour in adults of *A. menachembegini sp. nov.* of both sexes is yellow, versus orange in adult male *A. algira* and yellow in the females. When orange is present in adult male *A. menachembegini sp. nov.* it is restricted to the rear infralabial scales in only the largest of males. In *A. menachembegini sp. nov.* the males and females are of similar size. By contrast the adult males are consistently much larger than females in *A. algira*.

Reddish brown, pink or orange flushes seen around the upper surfaces of the pelvic region in adult male *A. algira* are not seen in adult male *A. menachembegini sp. nov.*

The two species, *A. menachembegini sp. nov.* and *A. algira* as defined herein form the entirety of the genus *Anwarsadatus gen. nov.*

Lizards in the genus *Anwarsadatus gen. nov.* are readily separated from the species within the closely allied genus *Psammodromus* Fitzinger, 1826 by having the following unique combination of characters: No obvious collar (either absent or indistinct), ventral scales that are homogeneous, rounded and strongly imbricated; 200 mm or more in total adult length (to 310 mm) (vs under 150 mm in all species within the genus *Psammodromus* Fitzinger, 1826, being under 120 mm for all species except for *Psammodromus sahliatlatifa sp. nov.*).

In lizards in the genus *Psammodromus* Fitzinger, 1826 (as defined herein) the ventral scales are always rounded with a polygonal shape, slightly imbricated and the two middle rows are smaller than the outer ones.

The two preceding genera *Anwarsadatus gen. nov.* and *Psammodromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammodromus* Fitzinger, 1826, are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in contact with the first labial or separated only by a narrow rim. Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact; with the supraoccipital usually smaller than the interparietal; temporal scales irregular, smooth or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger, 1887).

A. menachembegini sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/227531004>
and
<https://www.inaturalist.org/observations/126372072>
and
<https://www.inaturalist.org/observations/253678144>
and
<https://www.inaturalist.org/observations/254309934>
and
http://reptilesaustralia.com/Reptiles_of_the_World/Lacertas/Psammodromus_algirus.html
A. *algira* is depicted in life online at:
<https://www.inaturalist.org/observations/27716895>
and
<https://www.inaturalist.org/observations/216793665>
and
<https://www.inaturalist.org/observations/228662261>

Distribution: An accurate distribution map for *Anwarsadatus menachembegini* sp. nov. is published in Verdú-Ricoy et al. (2010) in Fig 1, on page 577, where it is identified as the "eastern lineage".

In summary *A. menachembegini* sp. nov. is found throughout most of the eastern half of Spain, generally east of Gibraltar and east of Madrid, which both have populations of *A. algira* (Linnaeus, 1766). *A. menachembegini* sp. nov. extends to nearby parts of far south-east France and potentially one or more relatively isolated populations in Italian territory.

In turn *A. algira* occurs throughout most of the western half of the Iberian Peninsula and also North Africa including Tunisia to Morocco, generally near the coastal ranges.

Etymology: *A. menachembegini* sp. nov. is named in recognition of Menachem Begin (16 August 1913 - 9 March 1992) who was an Israeli politician, founder of both Herut and Likud political parties and the sixth Prime Minister of Israel.

Before the creation of the state of Israel in May 1948, Begin was the leader of the Zionist militant group Irgun, the Revisionist breakaway from the larger Jewish paramilitary organization Haganah. He proclaimed a revolt, on 1 February 1944, against the British mandatory government, which was opposed by the Jewish Agency. As head of the Irgun, he targeted the British in Palestine, with a notable attack being the King David Hotel bombing. Later, the Irgun fought the Arabs during the 1947-48 Civil War in Mandatory Palestine and, as its chief, Begin was described by the British government as the "leader of the notorious terrorist organisation".

Begin was elected to the first Knesset (the Israeli parliament), as head of Herut, the party he founded, and was at first on the political fringe, embodying the opposition to the Mapai-led government and Israeli establishment. He remained in opposition in the eight consecutive elections (except for a national unity government around the Six-Day War) but became more acceptable to the political center. His 1977 electoral victory and premiership ended three decades of Labor Party political dominance.

Begin's most significant achievement as Prime Minister was the signing of a peace treaty with Egypt in 1979, for which he and Anwar Sadat shared the Nobel Peace Prize. He ultimately died from heart failure.

See also the etymology for *Anwarsadatus* gen. nov. in this paper.

ANWARSADATINI TRIBE NOV.

LSIDurn:lsid:zoobank.org:act:C104FAAD-61A5-41D0-94E1-B0956039B134

Type genus: *Anwarsadatus* gen. nov.

Diagnosis: The genera *Anwarsadatus* gen. nov. and *Psammodromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammodromus* Fitzinger, 1826, form the entirety of the tribe *Anwarsadatini* tribe nov., being within the subfamily Gallotiinae.

The species in this tribe are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in

contact with the first labial or separated only by a narrow rim. Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact with the supraoccipital, which is usually smaller than the interparietal; temporal scales irregular, smooth or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger, 1887).

Lizards in the genus *Anwarsadatus* gen. nov. are readily separated from the species within the genus *Psammodromus* Fitzinger, 1826 by having the following unique combination of characters: No obvious collar (either absent or indistinct), ventral scales that are homogeneous, rounded and strongly imbricated; 200 mm or more in total adult length (to 310 mm) (vs under 150 mm in all species within the genus *Psammodromus* Fitzinger, 1826, being under 120 mm for all species except for *Psammodromus sahliatlatifa* sp. nov.).

In lizards in the genus *Psammodromus* Fitzinger, 1826 (as defined herein) the ventral scales are always rounded with a polygonal shape, slightly imbricated and the two middle rows are smaller than the outer ones.

Distribution: The Iberian Peninsula in south-west Europe, including slightly north-east of there along the coast and north-west Africa from Tunisia in the east to Morocco in the west, generally near the coast and ranges.

Etymology: As for the genus *Anwarsadatus* gen. nov.

Content: *Anwarsadatus* gen. nov. (type genus); *Psammodromus* Fitzinger, 1826.

PSAMMODROMUS SAHLIATLATIFA SP. NOV.

LSIDurn:lsid:zoobank.org:act:939C0BDB-4EE8-4352-AF62-4CB6E183E9E0

Holotype: The male specimen in Fig. 1, in the top image of page 2 of in den Bosch (2025).

That paper is cited herein as:

in den Bosch, H. 2005. *Psammodromus microdactylus* (Boettger, 1881), a rare lizard species? *Podarcis* 6(1/2):2-35).

The male is the top lizard in the image.

Paratype: The female specimen depicted in the same image in in den Bosch (2005) is the first and only paratype.

Details of types: The two adult (as depicted) lizards were collected from Azilal, Morocco, Africa, Latitude 31.9627 N., Longitude 6.5681 W.

The relevant publication of in den Bosch (2025) is also available online at:

https://www.lacerta.de/AF/Bibliografie/BIB_2538.pdf

There do not appear to be any voucher specimens in any Museums on the planet.

Diagnosis: Until now, *Psammodromus sahliatlatifa* sp. nov. known only from the type locality of Azilal, Morocco, Africa, Latitude 31.9627 N., Longitude -6.5681 W. has been treated as a southern population of the relatively rare and little-known taxon *Psammodromus microdactylus* (Boettger, 1881), with a type locality of "prope urbes Casablanca, Tetuan, Tanger" in the far north of Morocco.

Mendes et al. (2017) showed a 1.94 MYA divergence between the two and combined with well-defined morphological divergence outlined by in den Bosch (2005) the need to recognize the two as separate species is compelling.

The hitherto unnamed southern form from Azilal, Morocco is

therefore formally named as *P. sahlialatifa* sp. nov..

P. sahlialatifa sp. nov. is readily separated from the closely related *P. microdactylus* by the following combination of characters:

Dorsum in breeding season is brown with thick lime green lines on the vertebral and dorsolateral lines, being bold and prominent in males and dull in females, versus an olive-coloured dorsum with small black spots in *P. microdactylus* (both sexes); somewhat blunted keels on the upper parts of the body, flanks and anterior of original tail as opposed to the more jagged keels on the upper parts of the body, flanks and anterior of original tail in *P. microdactylus*; 22-24 dorsal scale rows, versus 28-30 in *P. microdactylus*; 12-13, versus 11-13 femoral pores on each side; adults 126 to 148 mm in total length versus 112-118 in adult *P. microdactylus*; 13-14 mm length of the front legs (adults) versus 15-16 mm length of the front legs (adults) in *P. microdactylus* which is significant as adult size in the latter is much smaller; four supraoculars, comprising a tiny anterior one, two large ones and a smaller descending fourth one at the rear, versus three in *P. microdactylus*; a small gular fold, versus none in *P. microdactylus*; 3-6 larger scales and an additional 0-4 smaller scales, all forming a sort anteroventral quarter ring around the ear opening, versus 2 slightly erected granular scales in *P. microdactylus* (mainly derived and modified from in den Bosch 2005).

P. sahlialatifa sp. nov. and *P. microdactylus* are in turn separated from their next nearest relatives *P. blanci* (Lataste, 1880) and *P. tamaaltaghadieanha* sp. nov. (a taxon until now treated as an outer eastern population of *P. blanci*) by the absence of a distinct collar, versus presence in the other two species; an absence of bright lime green stripes on the vertebral and upper lateral lines during breeding season and the lack of a central series of strongly enlarged scales in the lower eyelid, versus present in *P. blanci* and *P. tamaaltaghadieanha* sp. nov..

All other species within the genus *Psammadromus* Fitzinger, 1826 (as defined herein) are separated from the preceding species by the combination of the presence of a well-defined collar and digits that are sharply keeled inferiorly.

The two species within the newly named (and associated genus) *Anwarsadatus* gen. nov. are readily separated from the species within the genus *Psammadromus* Fitzinger, 1826 by having the following unique combination of characters: No obvious collar (either absent or indistinct), ventral scales that are homogeneous, rounded and strongly imbricated; 200 mm or more in total adult length (to 310 mm) (vs under 150 mm in all species within the genus *Psammadromus* Fitzinger, 1826, being under 120 mm for all species except for *Psammadromus sahlialatifa* sp. nov.).

In lizards in the genus *Psammadromus* Fitzinger, 1826 (as defined herein) the ventral scales are always rounded with a polygonal shape, slightly imbricated and the two middle rows are smaller than the outer ones.

The genera *Anwarsadatus* gen. nov. and *Psammadromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammadromus* Fitzinger, 1826, form the entirety of the tribe *Anwarsadatini* tribe nov., being within the subfamily Gallotiinae. The species in this tribe are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in contact with the first labial or separated only by a narrow rim. Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact with the supraoccipital and it is usually smaller than the interparietal; temporal scales irregular, smooth

or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger, 1887).

P. sahlialatifa sp. nov. is depicted in life online (as *P. microdactylus*) at:

<https://www.inaturalist.org/observations/1268282>

and

http://www.moroccoherps.com/en/ficha/psammadromus_microdactylus/

and

https://www.lacerta.de/AF/Bibliografie/BIB_2538.pdf

see page 2, page 6 on the right side and page 7 at top.

Distribution: *P. sahlialatifa* sp. nov. is only known from the type locality of Azilal, Morocco, Africa, Latitude 31.9627 N., Longitude -6.5681 W. It is presumably found in other areas of suitable habitat nearby, but the limits of distribution are obviously not known.

This is a state of affairs that needs to be rectified urgently. Obviously in the wake of proper survey work, a conservation assessment of this species can be made by suitably qualified people.

It is noted that populations previously recorded of putative "*P. microdactylus*" at the locations of western Toukbal, Tadlest, Aremd, Jbel Tichka all to the south of Azilal are all probably of this taxon.

The status of populations recorded in the Atlas Mountains regions between the type localities for *P. sahlialatifa* sp. nov. and *P. microdactylus* and the exact distribution limits of each is obviously not known at the present time.

There are limited numbers of museum voucher specimens of *P. microdactylus* (about 10) held globally and as far as I can make out, none of *P. sahlialatifa* sp. nov..

This is a situation that requires remedy as soon as practicable. Obviously it would be preferable for relevant specimens to be taken into captivity for study and held till death (with studies and results properly published) before lodgement at publicly accessible museums so as to maximize benefit from these relatively scarce specimens.

Further research is required to properly assess the conservation status of both *P. sahlialatifa* sp. nov. and *P. microdactylus* and to devise any appropriate management plans.

The explosive human population growth and intensification of agriculture in the relevant regions (as outlined earlier in this paper), including over grazing by goats and other livestock remains a cause for concern.

Etymology: To help remedy the relative under representation of Arabs and their culture in the sciences in the past century, I have given this taxon an Arabic name.

"*Sahlial latifa*" in Arabic means "a nice lizard", being an apt description for adult males in particular which in breeding season have a dorsum sporting three bold lime green stripes on an otherwise even brown body.

PSAMMODROMUS TAMAALTAGHADIEANHA SP. NOV.

LSIDurn:lsid:zoobank.org:act:D287C635-2120-4523-A2D8-5B96C4EB7161

Holotype: A preserved specimen at the Reptiles and Amphibians collection (RA) of the Muséum national d'Histoire Naturelle, Paris, France, specimen number MNHN RA 1908.79 collected from Tunisia, Africa in 1908.

This facility allows access to its holdings.

Diagnosis: Until now *Psammadromus tamaaltaghadieanha* sp. nov. has been treated as an eastern population of *Psammadromus blanci* (Lataste, 1880) originally described as "*Zerzoumia blanci* Lataste, 1880" with a type locality of Algiers, Algeria, Africa (Type: BMNH 1946.9.4.22 (and possibly additional

specimens).

Mendes *et al.* (2017) found a species-level divergence of 3.56 MYA between the two relevant populations and so the eastern form is herein formally named as *Psammodromus tamaaltaghadieanha sp. nov.*

Psammodromus blanci is separated from the morphologically similar *P. tamaaltaghadieanha sp. nov.* by the fact that in breeding males, the yellow of the venter extends to the white lines on the upper flanks (themselves being yellowish), versus not so in *P. tamaaltaghadieanha sp. nov.* and the black spots on the back are either square or tending to be forming rectangle shapes and always well defined, versus round and/or circular and generally ill-defined in *P. tamaaltaghadieanha sp. nov.*. The closely related species, *P. sahliatlatifa sp. nov.* and *P. microdactylus* are as a pair, separated from their next nearest relatives *P. blanci* (Lataste, 1880) and *P. tamaaltaghadieanha sp. nov.* (a taxon until now treated as an outer eastern population of *P. blanci*) by the absence of a distinct collar, versus presence in the other two species; an absence of thick bright lime green stripes on the vertebral and upper lateral lines during breeding season and the lack of a central series of strongly enlarged scales in the lower eyelid, versus present in *P. blanci* and *P. tamaaltaghadieanha sp. nov.*

All other species within the genus *Psammodromus* Fitzinger, 1826 (as defined herein) are separated from the preceding species by the combination of the presence of a well-defined collar and digits that are sharply keeled inferiorly.

The two species within the newly named (and associated genus) *Anwarsadatus gen. nov.* are readily separated from the species within the genus *Psammodromus* Fitzinger, 1826 by having the following unique combination of characters: No obvious collar (either absent or indistinct), ventral scales that are homogeneous, rounded and strongly imbricated; 200 mm or more in total adult length (to 310 mm) (vs under 150 mm in all species within the genus *Psammodromus* Fitzinger, 1826, being under 120 mm for all species except for *Psammodromus sahliatlatifa sp. nov.*).

In lizards in the genus *Psammodromus* Fitzinger, 1826 (as defined herein) the ventral scales are always rounded with a polygonal shape, slightly imbricated and the two middle rows are smaller than the outer ones.

The genera *Anwarsadatus gen. nov.* and *Psammodromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammodromus* Fitzinger, 1826, form the entirety of the tribe *Anwarsadatini tribe nov.*, being within the subfamily Gallotiinae. The species in this tribe are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in contact with the first labial or separated only by a narrow rim. Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact with the supraoccipital, which is usually smaller than the interparietal; temporal scales irregular, smooth or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger, 1887).

P. tamaaltaghadieanha sp. nov. is depicted in life online at: https://www.flickr.com/photos/marhi_226/50904189092/ and

<https://www.inaturalist.org/observations/524416>

P. blanci is depicted in life online at:

<https://www.inaturalist.org/observations/200730242>

and

<https://www.inaturalist.org/observations/10311227>

and

<https://www.inaturalist.org/observations/111088152>

and

<https://www.inaturalist.org/observations/103112276>

and

Psammodromus comonosperdimoseste sp. nov. holotype in life.



Photographed by Pascal Dubois

Available online at www.herp.net

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<https://www.inaturalist.org/observations/49449053>

and

<https://www.inaturalist.org/observations/18425835>

and

<https://www.inaturalist.org/observations/134068615>

Distribution: *Psammodromus tamaaltaghadienaha* sp. nov. is currently only known from Tunisia and adjoining far eastern parts of Algeria, generally near to the Mediterranean Coast.

P. blanci appears to be found from about Ain Beda in Algeria and west to about Nador in north Morocco, occupying the northern Atlas Mountains.

Etymology: To help remedy the relative under representation of Arabs and their culture in the sciences in the past century, I have given this taxon an Arabic name.

"*tama altaghadi enaha*" in Arabic means "completely overlooked", being an apt description for a taxon obviously known to local inhabitants, but until now has been effectively overlooked by modern science.

PSAMMODROMUS COMONOSPERDIMOSESTE SP. NOV.

LSIDurn:lsid:zoobank.org:act:E920145D-E0D7-40D5-8CD3-70957B373719

Holotype: A live specimen depicted in an image taken by Pascal Dubois and shown adjacent to the text of this formal description (shown on the previous page, as in page 17 of this paper) and also seen in the same image at:

<https://www.inaturalist.org/observations/37534609>

photographed on 23 May 2016 from a few km east of the Portugal and Spain border, about 65 km north-west of Zamora, Spain.

There appear to be few, if any voucher specimens of this taxon held in natural history museums globally, which is a sad state of affairs for a relatively common south European species.

Paratypes: 1/ A live specimen photographed in September 2024 depicted in an image and shown within or adjacent to the text of this formal description and also seen in the same image at:

<https://www.inaturalist.org/observations/244359313>

photographed by Isaac Benito Gómez González and also collected near the same collection location as the holotype, but about 10 km to the east.

2/ Another live specimen depicted in the image at:

<https://www.inaturalist.org/observations/240630550>

photographed by Albert Ros near Marcao, Portugal in September 2024.

3/ A third live specimen depicted in the image at:

<https://www.inaturalist.org/observations/24582001>

Photographed by "Guliao" on 3 May 2019 about 70 km north-west of Zamora, Spain, on the border of Portugal.

Diagnosis: Mendes *et al.* (2017) flagged species-level divergences within three putative populations of *Psammodromus occidentalis* Fitzze, Gonzalez-Jimena, San-Jose, San Mauro and Zardoya, 2012, with a type locality of Colmenar del Arroyo (west north-west of Madrid, Spain, Latitude 40.272214 N., Longitude -4.102836 W.).

Previously *P. occidentalis* was treated as a western form of *Psammodromus hispanicus* Fitzinger, 1826.

The two relevant unnamed forms are also morphologically divergent and apparently allopatric and hence are formally named herein as new species.

Psammodromus comonosperdimoseste sp. nov. is clearly the most divergent of the unnamed forms and has until now been treated as *P. occidentalis* from the hilly region of the north-east border of Portugal and Spain.

Mendez *et al.* (2017) found that it had diverged from nominate *P. occidentalis* and all other closely related taxa 3.14 MYA.

The other unnamed form, herein formally named as *P. unbuendescubrimiento* sp. nov. occurs in the hilly country on the Portugal and Spain border generally east of Nazaré, Portugal.

Mendez *et al.* (2017) found that it had diverged from nominate *P. occidentalis* over 2 MYA and from *comonosperdimoseste* sp. nov. some 3.14 MYA..

P. unbuendescubrimiento sp. nov. is also more



morphologically alike to *P. occidentalis* than is *Psammodromus comonosperdimoseste* sp. nov..

The three preceding species are readily separated from one another by the following identified character traits and combinations.

Psammodromus comonosperdimoseste sp. nov. is readily separated from the other two species by an adult male colouration with reduced white on the dorsum of the body. While there is a tendency to form into lines, the pigment is best described as a series of separated whitish spots along the paravertebral lines and slightly better defined for the lines on the lateral edges.

In *P. occidentalis* the whitish grey paravertebral lines are bold and well defined, this arising from elongate white spots being joined by a continuum of light whitish powder grey along the same axis or alternatively the white lines being almost continuous in some specimens.

P. unbuendescubrimiento sp. nov. is more like nominate *P. occidentalis* but the white on the paravertebral lines are expanded slightly to form irregular edged lines and more noticeably, the light whitish powder grey along the same axis has an appearance of being smudged across the adjoining scales, these being obvious interspaces between the white.

On the anterior dorsum of *P. occidentalis* the dark blackish-brown markings form well-defined moderately thick cross bands. Dark dorsal markings on the anterior part of *P. unbuendescubrimiento* sp. nov. are reduced in size, of less intensity (as in not strongly contrasting) and not obviously forming any bands.

On *P. comonosperdimoseste* sp. nov. the dark markings on the upper dorsum take the form of small black spots. Between each are lines of dark brown pigment, creating a series of partially formed narrow and broken bands on the forepart of the upper body. On the lower half of the dorsum of the body, black spotting is reduced and there are no brown interspaces, giving this part of the lizard's body a somewhat spotted appearance.

In *P. occidentalis* the dorsal markings on the body are well defined and less so on the flanks. This is reversed in *P. unbuendescubrimiento* sp. nov..

P. unbuendescubrimiento sp. nov. males do when in breeding colours, have significant amounts of aqua blue spotting along the anterior flank, versus usually only one, two or three tiny spots of aqua in the other two species.

The three species *P. comonosperdimoseste* sp. nov., *P. unbuendescubrimiento* sp. nov. and *P. occidentalis* are also diagnosed as having the following distinctive characters: 20-29 ventral scale rows, no supralabial scale below the subocular scale, 15-26 throat scales, 0-3 collar scales, 9-15 femoral pores, a snout shape of 0.96-2.51, 0-5 ocelli, and a nuptial coloration score of 0-4.

As a trio, the three preceding species can be separated from the closely associated east Iberian species *Psammodromus edwardsianus* Dugès, 1829 by the absence of a supralabial scale

below the subocular scale, lower femoral pore numbers (on average), more extended nuptial coloration, and slightly bigger snout shape values.

As a trio, the same three preceding species can be separated from the closely associated east Iberian species, *Psammadromus hispanicus* Fitzinger, 1826 by bigger snout shape values, corresponding to a less pointed snout (as in a blunter snout), higher number of femoral pores (on average), and higher number of ocelli.

All the preceding species can be readily separated from *Psammadromus blanci* (Lataste, 1880) and *Psammadromus tamaaltaghadieanha* sp. nov. a related species that until now has been treated as an eastern population of *P. blanci* by a clearly present gular fold, absence of imbricate or rounded ventral scales, two narrower central ventral rows (compared to the adjoining ventral rows), by rarely existing solid lateral lines, and by a brown grayish dorsal ground colour (Schleich *et al.* 1996).

As a trio, the original three preceding species can be separated from *P. microdactylus* (Boettger, 1881) and *Psammadromus sahliallatifa* sp. nov. a closely associated more southern species known only from the type locality of Azilal, Morocco, Africa, Latitude 31.9627 N., Longitude -6.5681 W., by the combination of the presence of a gular fold, distinct collar scales, a brown greyish dorsal ground colour, two dashed lateral lines, absence of pointed or rounded central ventral rows, presence of two narrower central ventral rows, and absence of greenish or dark olive dorsal ground colour or a green stiped dorsum in breeding males.

As a trio, the original three preceding species can be separated from *Anwarsadatus algirus* (Linnaeus, 1766) and the associated newly named taxon *Anwarsadatus menachembegini* sp. nov., both until now also placed in the genus *Psammadromus* Fitzinger, 1826 by the following character combination of the smaller body size, being under 120 mm versus 200 mm or more in total adult length (to 310 mm) in *Anwarsadatus* gen. nov., a shorter tail length that rarely exceeds 2 times the snout-vent length (in adult individuals with original tail: mean = $1.5 \times \pm 0.02$; range = 0.7 – 2.4; *A. algirus* > 2 times the snout-vent length), absence of pterygoid teeth (Arnold 1989), presence of a gular fold and distinct collar scales, absence of imbricated and pointed ventral scales, and presence of two central ventral rows of clearly narrower scales compared to scales of adjoining rows (modified from Schleich *et al.* 1996 and Fitze *et al.*, 2012).

The genera *Anwarsadatus* gen. nov. and *Psammadromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammadromus* Fitzinger, 1826, form the entirety of the tribe *Anwarsadatini* tribe nov., being within the subfamily Gallotiinae. The species in this tribe are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in contact with the first labial or separated only by a narrow rim. Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact with the supraoccipital which is usually smaller than the interparietal; temporal scales irregular, smooth or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger,

1887).

Psammadromus comonosperdimoseste sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/24582001>

and

<https://www.inaturalist.org/observations/37534609>

and

<https://www.inaturalist.org/observations/244359313>

P. unbuendescubrimiento sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/97165871>

and

<https://www.inaturalist.org/observations/240630550>

and

<https://www.flickr.com/photos/pedroamalves/50075079356/>

and

<https://www.flickr.com/photos/pedroamalves/50075079581/>

P. occidentalis of the type form from north-west of Madrid in Spain is depicted in life online at:

<https://www.inaturalist.org/observations/216878701>

and

<https://www.inaturalist.org/observations/216878738>

and

<https://www.inaturalist.org/observations/197256372>

Distribution: *P. comonosperdimoseste* sp. nov. occurs generally near the type locality in north-east Portugal and adjoining parts of Spain and extending in a line north-east into Spain in a band about 100 km wide and 150 km long.

Etiymology: The scientific name *P. comonosperdimoseste* sp. nov. derives from the Spanish words of “cómo nos perdimos este”, which means in English, “how did we miss this one”, being in reference to Spanish and other European herpetologists probably reading this paper in 2025 and asking themselves “how could we miss discovering this species of lizard literally sitting under our noses”.

This is what a number of European herpetologists asked themselves in the wake of the publication of Hoser (2015g), a paper that named three Iberian and three northwest African viper species in the *Vipera latastei* Bosca, 1878 species complex, or earlier in 2012 when Hoser (2012e) published a global revision of Blindsnakes and making a statement of the obvious in assigning a new genus to the divergent European species.

For the record, I note the following inalienable facts:

Vipera monticola saintgironsi Martínez-Fryling, Freitas, Veil-Anton, Lucchini, Fahd, Larbes, Folders, Santos and Brito, 2021 is an unlawfully coined junior synonym of *Vipera hoserae* Hoser, 2015,

Vipera latastei arundana Martínez-Fryling, Freitas, Veil-Anton, Lucchini, Fahd, Larbes, Folders, Santos and Brito, 2021 is an illegally coined junior synonym of *Vipera wellingtoni* Hoser, 2015 and,

Xerotyphlops Hedges *et al.*, 2014 is an illegally coined junior synonym of *Lenhosertyphlops* Hoser, 2012.

The authors who recklessly and deliberately coined the illegal junior synonym names are nothing more than taxonomic vandals and their dishonest actions prove they are not scientists in any



Photographed by
Isaac Benito
Gómez González

*Psammadromus
comonosperdimoseste* sp. nov.
first paratype in life.

realistic measure of the term.

They are better described as thieves in that they try to steal "name authority" from others.

PSAMMODROMUS UNBUENDESCUBRIMIENTO SP. NOV.
LSIDDurn:lsid:zoobank.org:act:920D673E-CD3E-400D-ADE9-01BEADC70A79

Holotype: A live specimen depicted in an image at top of page 21 in this paper and online at:

<https://www.inaturalist.org/observations/153672103>

photographed by Paulo Alves in April 2023 at or near Portalegre, Portugal, Latitude 39.2967 N., Longitude -7.4285 W.

There appear to be few, if any voucher specimens of this taxon held in natural history museums globally, which is a sad state of affairs for a relatively common south European species.

Paratypes: 1/ A live specimen depicted in an image at:

<https://www.inaturalist.org/observations/240630550>

photographed at Castelo de vide, Latitude 39.4146 N., Longitude -7.4541 W. also in Portugal.

2/ A live specimen depicted in an image at:

<https://www.flickr.com/photos/pedroamalves/50075079356/>

photographed at Malpica do Tejo, Castelo Branco, Portugal, Latitude 39.8197 N., Longitude -7.4965 W.

3/ A live specimen depicted in an image at:

<https://www.inaturalist.org/observations/97165871>

being photographed wild at Portalegre, Portugal, Latitude 39.2967 N., Longitude -7.4285 W, being about 3 km south of Castelo de vide, Latitude 39.4146 N., Longitude 7.4541 W. also in Portugal.

4/ A live specimen depicted in an image at:

<https://www.inaturalist.org/observations/156778922>

photographed by Paulo Alves in April 2023 at or near Portalegre, Portugal, Latitude 39.2967 N., Longitude -7.4285 W.

Diagnosis: Mendes *et al.* (2017) flagged species-level divergences within three putative populations of *Psammmodromus occidentalis* Fitzze, Gonzalez-Jimena, San-Jose, San Mauro and Zardoya, 2012, with a type locality of Colmenar del Arroyo (west north-west of Madrid, Spain, Latitude 40.272214 N., Longitude -4.102836 W.).

Previously *P. occidentalis* was treated as a western form of *Psammmodromus hispanicus* Fitzinger, 1826.

The two relevant unnamed forms are also morphologically divergent and apparently allopatric and hence are formally named herein as new species.

Psammmodromus comonosperdimoseste sp. nov. is clearly the most divergent of the unnamed forms and has until now been treated as *P. occidentalis* from the hilly region of the north-east border of Portugal and Spain.

Mendez *et al.* (2017) found that it had diverged from nominate *P. occidentalis* and all other closely related taxa 3.14 MYA.

The other unnamed form, herein formally named as *P. unbuendescubrimiento sp. nov.* occurs in the hilly country on the Portugal and Spain border generally east of Nazaré, Portugal.

Mendez *et al.* (2017) found that it had diverged from nominate *P. occidentalis* over 2 MYA and from *comonosperdimoseste sp. nov.* some 3.14 MYA..

P. unbuendescubrimiento sp. nov. is also more morphologically alike to *P. occidentalis* than is *Psammmodromus comonosperdimoseste sp. nov.*

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In *P. occidentalis* the whitish grey paravertebral lines are bold and well defined, this arising from elongate white spots being joined by a continuum of light whitish powder grey along

the same axis or alternatively the white lines being almost continuous in some specimens.

P. unbuendescubrimiento sp. nov. is more like nominate *P. occidentalis* but the white on the paravertebral lines are expanded slightly to form irregular edged lines and more noticeably, the light whitish powder grey along the same axis has an appearance of being smudged across the adjoining scales, these being obvious interspaces between the white.

On the anterior dorsum of *P. occidentalis* the dark blackish-brown markings form well-defined moderately thick cross bands.

Dark dorsal markings on the anterior part of *P. unbuendescubrimiento sp. nov.* are reduced in size, of less intensity (as in not strongly contrasting) and not obviously forming any bands.

On *P. comonosperdimoseste sp. nov.* the dark markings on the upper dorsum take the form of small black spots. Between each are lines of dark brown pigment, creating a series of partially formed narrow and broken bands on the forepart of the upper body. On the lower half of the dorsum of the body, black spotting is reduced and there are no brown interspaces, giving this part of the lizard's body a somewhat spotted appearance.

In *P. occidentalis* the dorsal markings on the body are well defined and less so on the flanks. This is reversed in *P. unbuendescubrimiento sp. nov.*

P. unbuendescubrimiento sp. nov. males do when in breeding colours, have significant amounts of aqua blue spotting along the anterior flank, versus usually only one, two or three tiny spots of aqua in the other two species.

The three species *P. comonosperdimoseste sp. nov.*, *P. unbuendescubrimiento sp. nov.* and *P. occidentalis* are also diagnosed as having the following distinctive characters: 20-29 ventral scale rows, no supralabial scale below the subocular scale, 15-26 throat scales, 0-3 collar scales, 9-15 femoral pores, a snout shape of 0.96-2.51, 0-5 ocelli, and a nuptial coloration score of 0-4.

As a trio, the three preceding species can be separated from the closely associated east Iberian species *Psammmodromus edwardsianus* Dugès, 1829 by the absence of a supralabial scale below the subocular scale, lower femoral pore numbers (on average), more extended nuptial coloration, and slightly bigger snout shape values.

As a trio, the same three preceding species can be separated from the closely associated east Iberian species, *Psammmodromus hispanicus* Fitzinger, 1826 by bigger snout shape values, corresponding to a less pointed snout (as in a blunter snout), higher number of femoral pores (on average), and higher number of ocelli.

All the preceding species can be readily separated from *Psammmodromus blanci* (Lataste, 1880) and *Psammmodromus tamaaltaghadieanha sp. nov.* a related species that until now has been treated as an eastern population of *P. blanci* by a clearly present gular fold, absence of imbricate or rounded ventral scales, two narrower central ventral rows (compared to the adjoining ventral rows), by rarely existing solid lateral lines, and by a brown grayish dorsal ground colour (Schleich *et al.* 1996).

As a trio, the original three preceding species can be separated from *P. microdactylus* (Boettger, 1881) and *Psammmodromus sahlialatifa sp. nov.* a closely associated more southern species known only from the type locality of Azilal, Morocco, Africa, Latitude 31.9627 N., Longitude -6.5681 W., by the combination of the presence of a gular fold, distinct collar scales, a brown greyish dorsal ground colour, two dashed lateral lines, absence of pointed or rounded central ventral rows, presence of two narrower central ventral rows, and absence of greenish or dark olive dorsal ground colour or a green stiped dorsum in breeding males.

As a trio, the original three preceding species can be separated from *Anwarsadatus algirus* (Linnaeus, 1766) and the associated newly named taxon *Anwarsadatus menachembegini sp. nov.*, both until now also placed in the genus *Psammmodromus*

Psammodromus unbuendescubrimiento sp. nov. holotype in life.



Photographed by Paulo Alves in April 2023 at or near Portalegre, Portugal, Latitude 39.2967 N., Longitude -7.4285 W.

Hoser 2025 - Australasian Journal of Herpetology 74:5-27.

Fitzinger, 1826 by the following character combination of the smaller body size, being under 120 mm versus 200 mm or more in total adult length (to 310 mm) in *Anwarsadatus* gen. nov., a shorter tail length that rarely exceeds 2 times the snout-vent length (in adult individuals with original tail: mean = $1.5 \times \pm 0.02$; range = 0.7 – 2.4; *A. algirus* > 2 times the snout-vent length), absence of pterygoid teeth (Arnold 1989), presence of a gular fold and distinct collar scales, absence of imbricated and pointed ventral scales, and presence of two central ventral rows of clearly narrower scales compared to scales of adjoining rows (modified from Schleich *et al.* 1996 and Fitze *et al.*, 2012).

The genera *Anwarsadatus* gen. nov. and *Psammodromus* Fitzinger, 1826 previously grouped by publishing authors into *Psammodromus* Fitzinger, 1826, form the entirety of the tribe *Anwarsadatini* tribe nov., being within the subfamily Gallotiinae. The species in this tribe are readily separated from all other Lacertid lizards (as defined by Boulenger 1887 on pages 1-2) by the following combination of characters:

Head-shields normal. Nostril pierced between two nasals, in contact with the first labial or separated only by a narrow rim.

Lower eyelid scaly. Collar absent or very feebly marked; a short fold in front of the arm. Back covered with large, rhombic, strongly keeled and imbricate scales; ventral shields smooth. Digits slightly compressed, with tubercular or keeled lamellae underneath. Digits not fringed laterally. Femoral pores. Tail cylindrical. Snout moderately long, obtuse; three supraoculars, first largest, third smallest; a small additional shield is usually present, separating the first supraocular from the loreal; supraciliaries in contact with the supraoccipital which is usually smaller than the interparietal; temporal scales irregular, smooth or obtusely keeled; an enlarged tympanic plate; no auricular denticulation; one or two loreals; subocular usually reaching the lip between the fourth and fifth labials. Gular scales strongly imbricate, gradually increasing in size towards the pectoral plates; the three anterior pairs of chin-shields in contact. Lateral scales passing gradually into the ventrals, which are in six straight longitudinal series. A large preanal plate, bordered by one or two series of smaller ones (modified from Boulenger, 1887).

Psammodromus comonosperdimoseste sp. nov. is depicted in

life online at:

<https://www.inaturalist.org/observations/24582001>

and

<https://www.inaturalist.org/observations/37534609>

and

<https://www.inaturalist.org/observations/244359313>

P. unbuendescubrimiento sp. nov. is depicted in life online at:

<https://www.inaturalist.org/observations/97165871>

and

<https://www.inaturalist.org/observations/240630550>

and

<https://www.flickr.com/photos/pedroamalves/50075079356/>

and

<https://www.flickr.com/photos/pedroamalves/50075079581/>

P. occidentalis of the type form from north-west of Madrid in Spain is depicted in life online at:

<https://www.inaturalist.org/observations/216878701>

and

<https://www.inaturalist.org/observations/216878738>

and

<https://www.inaturalist.org/observations/197256372>

Distribution: *P. unbuendescubrimiento* sp. nov. occurs in the hilly country on the Portugal and Spain border generally east of Nazaré, Portugal. It presumably also occurs over much of the eastern part of Portugal as well.

Etymology: The scientific name *P. unbuendescubrimiento* sp. nov. derives from the Spanish words of “*un buen descubrimiento*”, which means in English “a good discovery”. This is the first and original time this taxon has been formally named as new and so it is a good discovery.

For the record, I note the following alleged “good discoveries” were not in fact as alleged.

Vipera monticola saintgironsi Martinez-Frying, Freitas, Veil-Anton, Lucchini, Fahd, Larbes, Folders, Santos and Brito, 2021 is not a good discovery as it is in fact an unlawfully coined junior synonym of *Vipera hoseri* Hoser, 2015,

Vipera latastei arundana Martinez-Frying, Freitas, Veil-Anton, Lucchini, Fahd, Larbes, Folders, Santos and Brito, 2021 is also not a good discovery as it is in fact an illegally coined junior synonym of *Vipera wellingtoni* Hoser, 2015 and, *Xerotyphlops* Hedges *et al.*, 2014 is furthermore not a good discovery as it is in fact an illegally coined junior synonym of *Lenhosertyphlops* Hoser, 2012.

The authors who recklessly and deliberately coined the illegal junior synonym names are nothing more than taxonomic vandals and their dishonest actions prove they are not scientists making actual discoveries in any realistic measure of the term.

They are better described as thieves in that they try to steal “name authority” from others and claim the work of others as their own good discoveries.

MAGNUSCAPUT GEN. NOV.

LSIDurn:lsid:zoobank.org:act:10C63728-8C84-4040-A297-B6307F06D470

Type species: *Lacerta galloti* var. *stehlini* Schenkel, 1901

Diagnosis: Until now, the species generally known as *Gallotia stehlini* (Schebkel, 1901), originally described as “*Lacerta galloti* var. *stehlini* Schenkel, 1901” has been treated as the largest and most divergent member of the genus *Gallotia* Boulenger, 1920, type species *Lacerta galloti* Oudart in Webb and Berthelot, 1839. The taxon is divergent both genetically and morphologically and so is formally placed in a newly erected genus called *Magnuscaput* gen. nov..

Cox *et al.* 2010 at Fig.3 found this species diverged from other *Gallotia* 14.5 MYA.

Another species group also included in *Gallotia sensu lato* is the *Lacerta atlantica* Peters and Doria, 1882 group believed to have diverged from the others about 10 MYA (See Cox *et al.* 2010 at Fig.3 at about 10 MYA or Mendez *et al.* 2017 who found a divergence of 8.66 MYA at their Fig3).

That group is herein placed in the new genus *Aquavariaparte* gen. nov..

Magnuscaput gen. nov. are separated from other members of *Gallotia sensu lato*, including the newly erected genus *Aquavariaparte* gen. nov. by the following unique combination of characters:

Ventrals in 16 to 20 longitudinal rows, the rows discontinuous or oblique; 33 to 36 dorsal midbody scale rows; two or three large upper temporals, first in contact with the fourth supraocular; collar

formed of 10 to 17 plates. There are 79 to 93 scales across the middle of the body; collar entire or feebly serrated; temple granulate, with a more or less distinct masseteric shield; rostral not touching the nostril (modified from Boulenger 1920).

Aquavariaparte gen. nov. are separated from other members of *Gallotia sensu lato* including *Magnuscaput* gen. nov. by the following unique combination of characters:

Anterior border of ear with teeth like lobules; dorsal scales rather large, rhombic and diagonally keeled; 17 to 23 femoral pores; 24 to 30 lamellae under the fourth toe; 4 upper labials anterior to subocular; 44 to 52 midbody scale rows; ventrals in 8 or 10 straight longitudinal and 26 to 30 transverse series; collar serrated, formed of 6 to 10 plates; parietals strongly bent down on the temple, which is granulate, without a masseteric shield (modified from Boulenger 1920).

All species within *Gallotia sensu lato* including those within the two genera *Magnuscaput* gen. nov. and *Aquavariaparte* gen. nov. are separated from all other Lacertid lizards by the following unique combination of characters:

Ventral plates in 8 to 20 longitudinal series, transverse series with a nearly rectilinear border; ventrals in eight longitudinal series, anterior border of ear with teeth like lobules; a single postnasal; 17 to 35 femoral pores; 24 to 37 lamellae under the fourth toe; pterygoid teeth present (modified from Boulenger 1920).

Distribution: Gran Canaria, Canary Islands and introduced into Fuerteventura island.

Etymology: *Magnuscaput* gen. nov. comes directly from the Latin words “*magnus caput*” which means “big head”, in reflection of the extreme macrocephaly of the majority of aged adult males.

Content: *Magnuscaput stehlini* (Schenkel, 1901) (monotypic).

AQUAVARIAPARTE GEN. NOV.

LSIDurn:lsid:zoobank.org:act:95F2E0E3-9C57-4C97-BD11-81DC2CBB82A4

Type Species: *Aquavariaparte atlantica* (Peters and Doria, 1882) (monotypic).

Diagnosis: Until now, the species generally known as *Lacerta atlantica* Peters and Doria, 1882 or *Gallotia atlantica* (Peters and Doria, 1882) has been treated as one of the most divergent members of the genus *Gallotia* Boulenger, 1920, type species *Lacerta galloti* Oudart in Webb and Berthelot, 1839.

Cox *et al.* 2010 at Fig.3 found this species diverged from other *Gallotia* about 10 MYA.

See Cox *et al.* 2010 at Fig.3 at about 10 MYA or Mendez *et al.* 2017 who found a divergence of 8.66 MYA at their Fig3.

As a result of this genetic divergence and obvious morphological differences, the *G. atlantica* complex is herein placed in the new genus called *Aquavariaparte* gen. nov..

Aquavariaparte gen. nov. are separated from other members of *Gallotia sensu lato* including *Magnuscaput* gen. nov. (described in this paper already) by the following unique combination of characters:

Anterior border of ear with teeth like lobules; dorsal scales rather large, rhombic and diagonally keeled; 17 to 23 femoral pores; 24 to 30 lamellae under the fourth toe; 4 upper labials anterior to subocular; 44 to 52 midbody scale rows; ventrals in 8 or 10 straight longitudinal and 26 to 30 transverse series; collar serrated, formed of 6 to 10 plates; parietals strongly bent down on the temple, which is granulate, without a masseteric shield (modified from Boulenger 1920).

Another Canary Islands species *Gallotia stehlini* (Schebkel, 1901), originally described as “*Lacerta galloti* var. *stehlini* Schenkel, 1901” has been treated as the largest and most

divergent member of the genus *Gallotia* Boulenger, 1920, type species *Lacerta galloti* Oudart in Webb and Berthelot, 1839. The taxon is divergent both genetically and morphologically and so is formally placed in this paper in a newly erected genus called *Magnuscaput* gen. nov..

Cox et al. 2010 at Fig.3 found this species diverged from other *Gallotia* 14.5 MYA.

Magnuscaput gen. nov. are separated from other members of *Gallotia sensu lato*, including the newly erected genus *Aquavariaparte* gen. nov. by the following unique combination of characters:

Ventrals in 16 to 20 longitudinal rows, the rows discontinuous or oblique; 33 to 36 dorsal midbody scale rows; two or three large upper temporals, first in contact with the fourth supraocular; collar

formed of 10 to 17 plates. There are 79 to 93 scales across the middle of the body; collar entire or feebly serrated; temple granulate, with a more or less distinct masseteric shield; rostral not touching the nostril (modified from Boulenger 1920).

All species within *Gallotia sensu lato* including those within the two genera *Magnuscaput* gen. nov. and *Aquavariaparte* gen. nov. are separated from all other Lacertid lizards by the following unique combination of characters:

Ventral plates in 8 to 20 longitudinal series, transverse series with a nearly rectilinear border; ventrals in eight longitudinal series, anterior border of ear with teeth like lobules; a single postnasal; 17 to 35 femoral pores; 24 to 37 lamellae under the fourth toe; pterygoid teeth present (modified from Boulenger 1920).

Distribution: Canary Islands including Lanzarote, La Graciosa, Montaõa Clara and Roque del Este, (Alegranza), Canary Islands, Fuerteventura and Lobos and introduced into Fast Gran Canaria.

Etymology: *Aquavariaparte* gen. nov. comes directly from the Latin words "aqua varia parte" which means "aqua spotted side", in reflection of the large and bright green or aqua blue spots and blotches that adorn the sides of larger specimens.

Content: *Aquavariaparte atlantica* (Peters and Doria, 1882) (monotypic).

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CONFLICTS OF INTEREST

None.

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