Spain, 29.8.-11.9.2015

The biodiversity of wall lizards in the western Iberian Peninsula has been subject to intensive research – several species have been described. In contrast to this, the lizards in south-eastern Spain are poorly known although there seems to be even higher biodiversity. We visited the provinces of Castellón, Teruel, Valencia, Albacete and Jaen for documentation of the several lineages. Thanks to Wouter Beukema!

The Iberian south-eastern tangent: Our stations in the provinces of Castellón, Teruel, Valencia, Albacete and Jaen.

29.8.

With some delay, we arrived at Valencia airport in the afternoon and headed north-west to the Teruel province. Just before sunset, we came across the first lizards of the trip: Podarcis liolepis.

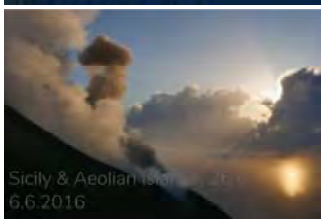
30.8.

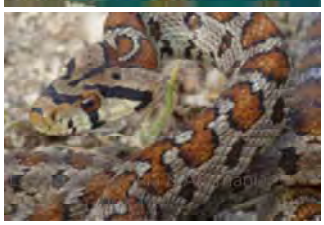
In the Teruel province we hoped to find Vipera latastei – the only Iberian snake species we hadn't seen so far. Hence, we were out in the early morning – and succeeded: After 10 minutes, we found an adult specimen... Now we could focus on the actual target of this trip: the lizards.

Vipera latastei from Teruel province

Genetic analyses have revealed that the Iberian wall lizards (Podarcis hispanicus sensu lato) are a species complex of several genetic lineages. Whereas all genetic lineages of the western Iberian Peninsula have been described as separate species or at least subspecies, the genetic lineages in Eastern Spain described by KALIONTZOPOULOU et al. (2011) can be somehow confusing, as they do not always correspond to the current taxonomy. Here's an overview of the genetic lineages and the current taxonomic status in brackets (*italics*):

Genetic lineage (*current taxonomic status*)





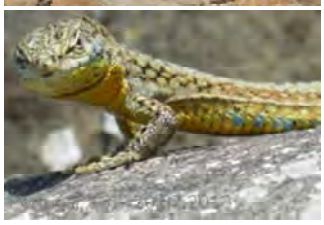
Podarcis liolepis (*Podarcis liolepis*)
Podarcis hispanicus “sensu stricto” (*Podarcis liolepis*)
Podarcis hispanicus Galera (*Podarcis hispanicus*)
Podarcis hispanicus Albacete-Murcia (*Podarcis hispanicus*)
Podarcis hispanicus type 2 (*Podarcis virescens*)
Podarcis vaucheri South Central Spain (*Podarcis vaucheri*)

Subsequently, we use the taxonomic terms.

On our trip, we visited areas which have been explored by quite few fieldherpers and which were also terra incognita for us. Our first goal was the Penyagolosa NP: The mountains of this area are inhabited by an isolated population of Podarcis muralis – their closest relatives can be found in the Sistema Central north of Madrid.

The Penyagolosa (1800 m o.s.l.) – Home of:

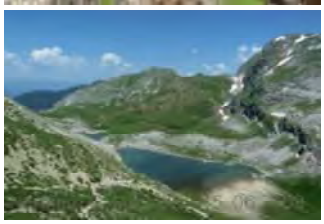
Podarcis muralis brongniardii – a common lizard in wide parts of Europe but a rare species in this part of Spain.



Podarcis muralis: These animals were great models – a female...

...and a male posing in front of the camera.

On Penyagolosa, Podarcis liolepis occurs in syntopy with Podarcis muralis.



Will be a lizard predator sometimes: juvenile Coronella austriaca

Natrix maura

Aeshna cyanea

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31.8.

The next mountain range west of Penyagolosa is the Sierra de Gudar in the southern Aragonese highlands with an altitude of up to 2000 meters (including a ski center at Valdelinares). There, we once again found Podarcis muralis. Another stop-over near the village of Gudar brought Podarcis liolepis, Chalcides bedriagai and very shy Timon lepidus. In the evening, we did some sightseeing in the city of Teruel with its famous Mudéjar- and Fin-de-Siècle architecture.

Pastures on 2000 m altitude: Sierra de Gudar

Podarcis muralis with contrasting pattern: “Iberolacerta style”!

In the Sierra de Gudar: Habitat of...

...Podarcis liolepis and...

...Chalcides bedriagai

Sightseeing in Teruel

1.9.

Our next station was the Javalambre mountain range south of Teruel – the second ski center of the area. On a mountain pass, on 1600 m altitude, we found Chalcides bedriagai, Podarcis hispanicus “sensu stricto” (*Podarcis liolepis*), Psammodromus edwarsianus, Psammodromus algirus and Timon lepidus. In the afternoon, dark clouds came up – so we headed south and stayed in the city of Requena for the night.

In the Javalambre mountains

Podarcis liolepis (Podarcis hispanicus “sensu stricto” phenotype)

Psammodromus edwarsianus

Chalcides bedriagai

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2.9.

We left Requena and crossed the northern Albacete province. On several stop-overs, we hoped to find Podarcis hispanicus “sensu stricto” but, apart from the two Psammodromus species, didn’t find any lizards. In this area, the distribution of the genus Podarcis seems to be patchy. One reason for this may of course be the intensive agricultural use of that area; but also in suitable habitats – for example in the Rio Cabriel NP near Villatoya – we didn’t find wall lizards. Strange thing... In the afternoon we arrived at Alcala de Jucar. The steep valley of Rio Jucar seems like an oasis in the agricultural steppe of the central Albacete province. Here, we finally spotted also some Iberian wall lizards.

Alcala de Jucar

The slopes of the Jucar Valley are inhabited by Capra pyrenaica

Pelodytes punctatus

Podarcis hispanicus at its northern distribution limit

Podarcis hispanicus

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3.9.

We crossed the Albacete province in south-western direction. At a stop-over in Balazote (20 km south of Albacete) we found Podarcis virescens. We continued our journey through the beautiful Sierra de Alcaraz and arrived at our next station: Riopar.

Central Albacete province: No reason to stop...

Podarcis virescens has its eastern distribution limit near Albacete

We found the omnipresent Psammodromus algirus at all our stations

In the Sierra de Alcaraz

A giant Pelophylax perezi: It was a sole specimen at a water basin – presumably, it already had eaten all its fellows.

4.9.

The Riopar area is an interesting herping spot: We first visited a location mentioned in the initial description of Psammodromus hispanics by FITZE et al. (2012) where we actually could find that species. In the same area we found a vital population of Podarcis virescens. Afterwards, we went to the Rio Mundo river source – a popular area for weekend excursions of the locals but also a good place to watch Algyroides marchi.

Psammodromus hispanicus

Podarcis virescens: single specimens of this population had a strange colouration...

...but all in all, the lizards of this population clearly match Podarcis virescens...

...the juveniles showed a very dark pattern – we had seen similar colours in the Cuenca province in 2014.

Nacamiento del Rio Mundo: Habitat of...

...Algyroides marchi

Juvenile Algyroides marchi

5.9.

Riopar #2: Whereas Riopar is populated by Podarcis virescens, the adjoining areas in the east are inhabited by another genetic lineage which has been described in 2011: Podarcis hispanicus Albacete-Murcia type. At first, it turned out quite difficult to find these animals but we finally succeeded at the villages of El Pardal / Molinicos. A morphological analysis by KALIONTZOPOULOU et al. (2012) revealed that the lineages of Albacete-Murcia type and Galera type look quite similar. In fact, it seems impossible to distinguish between the juveniles of both lineages. But it seems that at least the adults show some different features. Anyhow – as the distribution patterns of both lineages are quite patchy, identification by morphological features may be very difficult.

In the afternoon, we went to Puerto de las Crucetillas, north of Riopar: from this place, the subspecies Algyroides marchi niethammeri which should be characterized by blue throats has been described in 1964. Since its description, this animal hasn't been found again – anyhow, most field guides stick to the assumption that blue-throated Algyroides marchi do exist. Although the description of this subspecies is likely to be a hoax, we decided to take a look at that area. As expected, we didn't find Algyroides there but at least some nice Psammodromus hispanicus.

Podarcis hispanicus (the genetic lineage of Albacete-Murcia type)

...an adult

...unfortunately we didn't manage to get „good" pictures. For documentation purposes we anyhow show these poor shots...

...Habitat

Puerto de las Crucetillas: for this location, the questionable subspecies Algyroides marchi niethammeri had been described.

Psammodromus hispanicus

6.9.

Rainy weather: We left Riopar and went to Jaen. In that area, another genetic lineage occurs: Podarcis vaucheri South Central Spain (*Podarcis vaucheri*). It also has been described in 2011 and genetically differs significantly from Podarcis vaucheri in southern Andalusia. We found the lizards in a city garden in Jaen. Afterwards, we enjoyed life in one of the numerous Tapas bars of the city.

Podarcis vaucheri

Another Podarcis vaucheri: note the typical triangular head.

Juvenile Podarcis vaucheri

...another juvenile

In this area we came across some remarkably big Tarentola mauritanica

Good life in Jaen...

7.9.

It was raining cats and dogs. Anyhow, we decided to go to the Cazorla NP. Luckily, it stopped raining and in the afternoon even the sun came out – and so did some lizards.

Weather collapse...

...somewhere in these clouds should be the Cazorla NP – note the olive groves in front: The major part of the Jaen province consists of such monocultures – an agricultural desert without life.

The upper Guadalquivir valley in Cazorla NP

Podarcis virescens at La Iruela with yellow belly

Subadult Timon lepidus

Dark clouds again, but no more rain

8.9.

Cazorla NP #2: We went to the Nacamiento del Guadalquivir to photograph Algyroides marchi. In this area, we also expected to find Podarcis liolepis. Soon, we found a population of these animals which can be easily distinguished from the neighbouring Podarcis virescens. Actually, in Cazorla NP three wall lizard species come together: In the afternoon we went to the southern slopes of the Sierra de Cazorla and found Podarcis hispanicus near the village of Cuenca. Hence, within a linear distance of 20 km, three species do occur in that area. Once again, this demonstrates the patchy distribution of the several Podarcis species in south-eastern Spain. Anyhow, it seems to be possible to identify these species by external features: Although in each population there may be some specimens with strange patterns, the observation of at least 3 or 4 specimens will be enough to get a clear picture.

At Nacamiento del Guadalquivir

Algyroides marchi...

...and another one

Podarcis liolepis – Cazorla population:

juveniles and subadult specimen show very dark patterns...

...the adults look much brighter as the dark markings are interrupted into single blotches...

...this specimen shows (in addition to the blue outer belly scales) a line of fine blue dots on the flanks – quite extraordinary for Iberian wall lizards. Note that these animals significantly differ from Podarcis liolepis in north-eastern Spain.

Birgit, hunting lizards:

Birgit, hunting lizards: Timon lepidus

Boyeria irene...

...and another one – always hiding in the shade.

The southern slopes of Sierra de Cazorla: the beginning of the arid south-eastern Spain.

Podarcis hispanicus:

Some specimens of this population show different colours...

...but overall, they perfectly match Podarcis hispanicus.

9.9.

We left Cazorla and went to Valencia where we spent the last two days of the trip. A stop-over near Albacete brought no wall lizards, again, but only Psammodromus edwarsianus. In Valencia, we enjoyed the urban life but there still was enough time to visit the local population of Podarcis liolepis in the city gardens.

Stop-over at Villar de Chinchilla (Albacete): Psammodromus edwarsianus

Valencia has become one of the best street art cities in Europe

A nice mural in the phantastic Barrio Carmen...

...and giant photo-art

Podarcis *liolepis*:

Most animals of this population show „concolor"-pattern (presumably an adaption on the light sandstone walls in their habitat) – they look like small pigs.

10.9.

The periphery of Valencia has some nice beaches – and dune areas with interesting flora and fauna. Here we found Chalcides bedriagai, Psammodromus algirus, Psammodromus edwarsianus and Acanthodactylus erythrurus.

Beach near Valencia

Zygaena occitanica on Pancratium maritimum

An African immigrant: Orthetrum trinacria – thanks to Jan van der Voort for identification!

Juvenile Acanthodactylus erythrurus...

...another one

Psammodromus edwarsianus (one of our favourite species, as the attentive reader may have noticed...)

Habitat

11.9.

A last walk in the city – our return flight to Germany left in the afternoon.

Tarentola mauritanica in Yin-Yang-position

Epilogue, 12.2015:

From our current point of view, the different mtDNA of Podarcis in south-eastern Spain doesn't indicate that these are all different species.

Presumably, the Podarcis hispanicus „sensu stricto“ (sensu Kaliontzopoulou) is Podarcis liolepis. Maybe it is a seperate subspecies.

The Albacete-Murcia type probably belongs to Podarcis hispanicus (sensu Geniez).

Regarding Podarcis vaucheri South Central Spain there seem to be no significant differences to other Podarcis vaucheri.

Literature:

KALIONTZOPOULOU, A. & CARRETERO, M.A. & LLORENTE, G.A. (2012) - Morphology of the Podarcis wall lizards (Squamata: Lacertidae) from the Iberian Peninsula and North Africa: patterns of variation in a putative cryptic species complex - Zoological Journal of the Linnean Society, 164: 173–193.

KALIONTZOPOULOU, A. & PINHO, C. & HARRIS, D.J. & CARRETERO, M.A. (2011) - When cryptic diversity blurs the picture: a cautionary tale from Iberian and North African Podarcis wall lizards. - Biological Journal of the Linnean Society, 103: 779–800.