



Dear DGHT members,
in 2020 we started to summarize some of the main articles of our elaphe journal in English, for our non-German speaking members. These summaries have been compiled by Beate Pfau.

Special issue: The Sand Lizard - Reptile of the Year 2020

by **Wolfgang Bischoff, Ina Blanke, Johann Tschechne, Jakob Hallermann & A. Kwet**

For the fifteenth time the DGHT elected a "herptile of the year", and the 2020 reptile of the year is the Sand Lizard, *Lacerta agilis*. The Sand lizard is well-known to naturalists in northern Europe and Asia, because it is easily observed when basking on waysides. The species has a large distribution area, from south-western England to north-eastern Spain in the west to the Altai mountains, north-western China, Mongolia to Lake Baikal in the east.

In the western part of its range the Sand lizard lives on south-facing slopes in sandy heaths, but in the eastern part the preferred habitat is on firm, mostly loamy, well-vegetated soils. In Germany these wonderful reptiles were often encountered and observed during the traditional Sunday afternoon family walks, because the lizards often bask in sunny spots of fringe structures, and are easily seen on the fences of old-fashioned gardens (hence their German name, which translates as "fence-living lizard") and in the cracks of stone walls along the trails, for example in the vineyards around some cities. Today they are seen less often, because the species has become increasingly rare, and because those varied habitat structures are being lost or replaced by rather uniform precast concrete products which are unsuitable as Sand lizard basking places.

Ina Blanke has done extensive Sand lizard research in north-western Germany (Lower Saxony), and she gives an overview of the life cycle, conservation measures and research needs. The male lizards and the subadults come out of hibernation usually in the first half of March. Ma-

ting time begins shortly after the appearance of the females, usually in April, and lasts until early May. The first clutch of eggs is laid usually in May, second and sometimes even third clutches are produced more frequently now, perhaps due to the higher average temperatures of the spring and early summer months in the past hot years. In biotopes where the population density has remained stable, fighting among males is observed more often now than years ago, which might also be a climate change effect.

The first hatchlings surface after rain or thunderstorms in the second half of July, but most hatchlings appear in August. The lizards go down for hibernation as soon as they have accumulated enough reserves, males sometimes as early as late July or early August, females mostly in

late August or early September, and the hatchlings are active until late September in some years. During brumation slightly frosty temperatures can be tolerated. Sexual maturity is reached usually in the second year, and older (still growing) females may lay more eggs and clutches per year than the younger and smaller ones. An average



Male and female of *Lacerta agilis agilis* Photo: A. Kwet

In his introduction **Wolfgang Bischoff** gives an overview of the different subspecies, each subspecies portrait has a descriptive photo and a summary of the distribution and the distinguishing characters, and remarks the ecological specialisation.



clutch has 5-9 eggs, the maximum observed number in one clutch has been 18 eggs.

It is very difficult to estimate the real population size, since the individual animals are quite elusive, and in relocation projects the number of animals being caught is almost always much higher than it had been calculated when planning the project. Long-term observations reveal the importance of special structures in extensively used gardens, like stacks of deadwood, wooden composters, young and old fruit trees and berry bushes are important. Rarely scythed flowery meadows provide different insects as food, and for hibernation mouse holes are used. The nice photos are an invitation to the readers, to do "lizard-friendly gardening". Since the lizards are getting rare, proven habitat management methods, which work well in Germany, are presented.

The relocation of lizard populations from large construction projects is very attractive to the laymen audience, but these actions often serve as a fig leaf and do not really help, at least not on the long run. Besides good planning of all the different actions, under the guidance of lizard relocation experts, a long timeline for the measures to take effect is crucial – and it is important to bear in mind that really successful lizard population relocations are always expensive regarding money and effort. The paper summarizes and illustrates some success factors for the protection and management of Sand lizard populations.

The next paper in this special elaphe illustrates the amateur research on Sand lizards, which began with a nicely illustrated book by Bruno Dürigen in 1897. Very well-known publications on Sand lizards are presented, and even when being on holiday important observations on the behaviour of these lizards are possible. The use of a lizard detector dog (the author's pointer dog "Lotte") for finding well-hidden animals has not yet been published. The newest Sand lizard research will be presented and discussed at a specialist meeting which is scheduled for mid-November 2020 in Offenburg, south-western Germany.

The next paper, a summary of the bachelor thesis of **Johann Tschechne** and his mentor **Jakob Hallermann**, on the habitat choice of Sand lizards at a former target practicing centre in Lower Saxony, shows how students can contribute to the detailed biotope management plan of a centre for environmental education. The first task was a survey of the vertebrate fauna in the different habitats of the area. For the sand lizards a grid was superposed over the map of the main occurrence habitat, and the preferred biotope structures were identified: Most lizard were seen on slopes and at transitions between different vegetation types, and especially on the embankment of the fish pond. A special dry-stone wall had recently been built for the lizards, but it had not yet been accepted by the animals. The recommended management actions are creating small patches of land with a mosaic of basking spots and shelter, and an exposed sand area for egg laying purposes.

Since the outdoor area of the educational centre is highly frequented by the visitors, these special lizard habitats should be fenced off between May and August to prevent trampling of the eggs.

The last article in this series is a review by **Axel Kwet** on two books by the well-known lizard specialist Martin Dieckmann. Both books are available (in German) via a self-publishing platform. The title of the first one translates freely as "The Sand lizard - natural range and husbandry", and it has been written for nature lovers and also for herpers who might want to set up an outdoor terrarium

for this species. The author clearly shows his affection for this species which he regularly observed from childhood on. The beautiful photos illustrate details of the biology, the natural habitats and the coloration of the animals in different parts of the species' large range. The text is full of biological background information on *Lacerta agilis*. The



Historical illustration of *Lacerta agilis* in B. Dürigen (1897)



author also gives practical advice from his own experience, on keeping and breeding the lizards in an outdoor enclosure, on nutrition, health aspects, reproduction, rearing



Cover of Dieckmann's book on the reptile of the year 2020

of the offspring etc. Many of these details are illustrated by expressive series of photographs, which had been partially taken by Arnold Ritter. In the last section of the book the author invites the readers to the Habichtswald nature park near Kassel, Germany, where he discovered his love for reptiles, and gives instructions on how to observe Sand lizards in the juniper heaths on the slopes of the Dörnberg mountain. The second book which is presented here refers to the Sand lizard as the Reptile of the year 2020. It is a picture book and would make a fine gift for nature lovers, showing the Sand lizards and their natural habitats with their typical fauna and flora in large-size photos.

Visiting one of the smallest frogs of the world, the Matang narrow-mouthed frog (*Microhyla borneensis*) in Sarawak (Borneo, Malaysia)

by Uwe Gerlach & Yong Min Pui

This little frog has been known to science since more than 100 years, but because of their tiny size it was assumed that these frogs were young individuals of larger frog species. Only in 2010 the rasping sounds of the singing males revealed that this minute frog is a species on its own. It was named *Microhyla nepenthicola* first, and renamed in

2011 to *M. borneensis*. Until 2012, when another really tiny frog species was discovered in New Guinea, it had been the smallest known frog species of the world, with males attaining a maximum length of nearly 13 mm and females up to nearly 19 mm. The terra typica is the Kubah National park near the city of Kuching in north-western Borneo, and during a holiday in 2017 the authors decided to search for this frog species here. As the former name "*nepenthicola*" says, the frogs spend most of their life near pitcher plants, and the authors found them at about 300 m asl mostly near stands of *Nepenthes ampullaria*, which grows on the forest floor at the slopes of mount Gunung Merapi. These frogs are dependent on the *Nepenthes* traps for reproduction. The eggs are laid on the rim or directly into the traps. It could be shown that the tadpoles live endotrophically, that is, only from the yolk, during the aquatic phase of their lives, and they do not even have keratinized jaws that could be used for taking up additional food. The tadpoles are only about 3 mm long when they metamorphose after 14 days into very miniature frogs.



Recently metamorphosed *Microhyla borneensis* on *Nepenthes ampullaria*
Foto: Y.M. Pui



Among researchers: Investigations in the natural habitat of the highly endangered Mangshan pitviper (*Protobothrops mangshanensis*)

by Konrad Mebert

Protobothrops mangshanensis is one of the largest viper species of the world, fully-grown animals are more than 2 m long, at 3 to 5 kg of weight. The coloration and pattern resembles mosses, which gives the snakes a really attractive appearance. The species has been described only in 1990, and the natural distribution area in southern China, the two mountainous national parks of Nanling and Mangshan, on the border between the provinces Hunan and Guangdong, is really very small, only 20 km x 15 km. The snakes live in subtropical forest with occasional snow in winter, at 500–1.300 m asl. 2016 to 2019 the author has travelled four times to the region, for a pilot survey for setting up the project, but in 2019 one of the two national parks had been closed and in 2020 travelling is not possible because of the Corona virus situation. This area is a real herpetological treasure, with lots of different snake species, and the author shares some interesting observations, illustrated by photos, which he could make during these trips.

The Mangshan pitviper is classified as “threatened by extinction” on the Chinese list of endangered species, and “endangered” in the global IUCN Red List. During an inten-

sive four-year field survey 2007 to 2020 only eight wild individuals could be found, but an inquiry with the local people revealed that in the same time about 30 animals had been poached. At that time the total population of wild snakes was estimated as less than 500 individuals. Illegal captures, but also the destruction of the habitat have brought this species to the brink of extinction.

The primary goals of this project, which has been launched together with Kevin Messenger, Associate Professor of Zoology at Nanjing Forestry University, are: Finding out more on the population structure, analysing the Micro- and Macro habitats of this snake species, and understanding the seasonality of habitat use. The first step of the project is to create a local hotline for the residents and the tourists, which is managed Yuan-Hui Chen himself, since he



Juvenile of *Protobothrops mangshanensis* Photo: K. Mebert

has discovered the species and he is the only real expert, and he is responsible for the snake within the national parks. Since the snake is rare and elusive, and extremely well camouflaged, it is very difficult to get enough direct observation data, and the project crew hopes for additional information from this hotline. Preliminary field surveys are

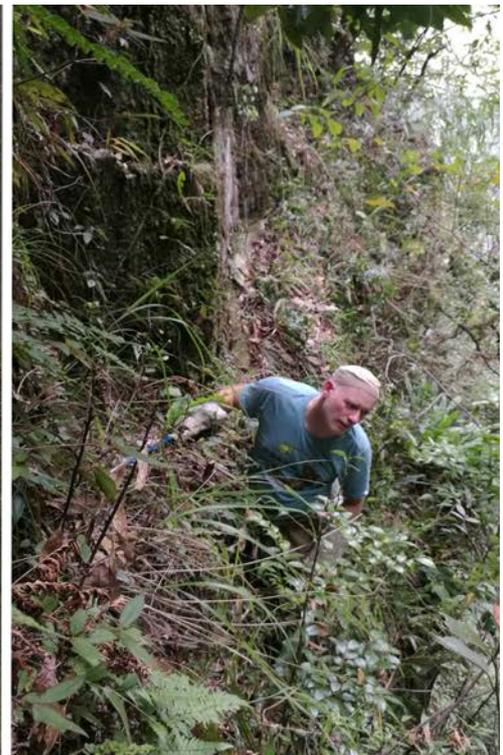


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ABSTRACTS



04/2020



Habitat of *Protobothrops mangshanensis* at Mangshan National Park on the border between the Chinese provinces Hunan and Guangdong, and researcher Konrad Mebert during field work Photos: K. Mebert

taking place, too, in order to find appropriate and reasonably accessible snake habitats. In the next project phase, in the second season of this research project, the habitat characteristics will be further evaluated and the habitat preferences of the snakes will be investigated. The crew has been authorized to catch 4 to 6 snakes and fit them with telemetry transmitters, according to the procedure which had already been applied for the author's research on a large *Lachesis* species in Brazil. It is intended to locate each of these snakes three times a day, twice during daytime and once at night, and for each of these observations a very detailed field protocol will be filled in, and if possible standardized photographs will be taken. For interpretation modern statistical and ecological will be applied. The results of this internationally crewed project will counteract the deterioration of the forest ecosystems and it will serve as a model for other local environmental projects. Above all the project will help to establish this mysterious snake as a national treasure and as an umbrella species for the protection of this special type of habitat.

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