



# SULAWESI KEEPERS

**Annual Report 2024**





# Year 2024

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## Going underwater and in the schools

Dear friends of **Sulawesi Keepers**, dear aquarists, conservationists, researchers, students, nature lovers...

We present to you the annual report for 2024 – the year when we have done a lot of work particularly in Lake Poso in close cooperation with our local partner, Institut Mosintuwu. We **went to schools**, took schoolchildren to the lake - and the lake back to the classrooms!

We worked with an **underwater drone** and managed to get >40 hours of footage. We learned new things about Lake Poso and Matano. We heard "**WOOOW**" from our collaborators and even school teachers - that's the best result, we got them excited about the underwater world.

We launched the Sulawesi Keepers **YouTube channel**, where we have the opportunity to reach a wider audience. We consider spreading information to be an important mission.

We have also been active in other areas, as the following pages will show you. But **we are not alone**, we have wonderful allies among aquarists and organizations.

We connect aquarists, scientists, conservation organisations, and local communities in an effort to **prevent extinction**.

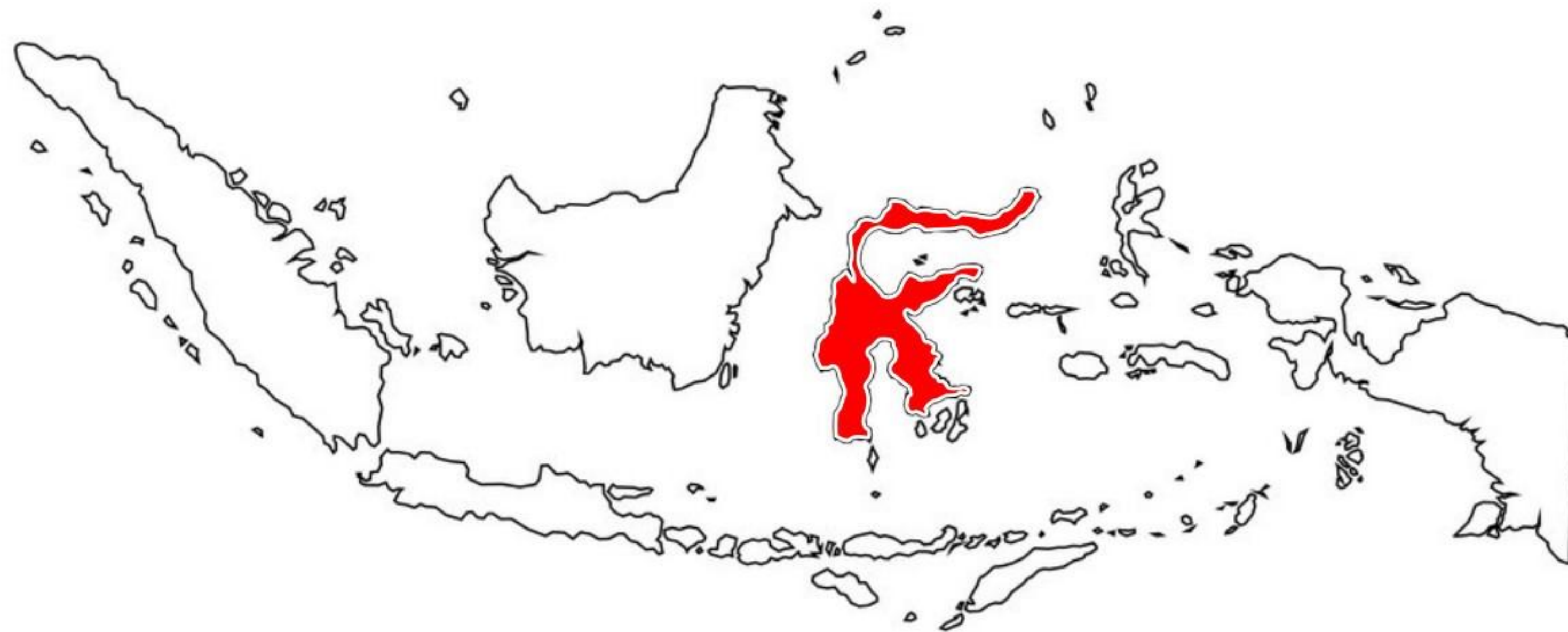


Markéta Rejlková, President and founder of Sulawesi Keepers, z. s.

# Why Sulawesi Keepers?

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The lakes and rivers of Sulawesi, an Indonesian tropical island, are famous for the diversity of shrimps, snails, crabs, and fish. But these unique freshwater habitats are threatened by the continuous spread of exotic species, and we fear that some of the small invertebrates are probably already extinct.





Can you imagine that these fascinating animals **disappear** from our planet? It's time to act, urgently.





# Our team

## Our core group



### **Mgr. Markéta Rejlková**

Aquarist and curator of fish, reptiles, amphibians and invertebrates in the Ostrava Zoo, Czech Republic.



### **Ing. Jiří Libus**

Aquarist, scout and employee of the Mendel University in Brno, Czech Republic.



### **Muhammad Iqram**

Born and raised in Sulawesi. PhD student at the Museum für Naturkunde Berlin, Germany.



### **doc. Ing. Jiří Patoka, Ph.D., DiS.**

Associate Professor at the Department of Zoology and Fisheries of the Czech University of Life Sciences in Prague.



### **Surya Gentha Akmal, Ph.D.**

Researcher at IPB University, Bogor, Indonesia; Secretary of the Indonesian Centre for Research on Bioinvasions.



# Underwater exploration of Sulawesi lakes using drone(s)

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Already in 2023, thanks to the financial support of **Arbeitskreis Wirbellose in Binnengewässern e.V.** and **MEGAZOO & Friends**, we launched a pilot study of the lakes using an underwater drone. For 2024, we received funding for this activity from the **European Union of Aquarium Curators (EUAC)**, so we purchased a second drone and used both devices intensively.

We shot more than 40 hours of video and captured unique footage of rock formations, interactions of many species, and also documented the depth distribution of fish and invertebrates. Local partners, students, teachers also participated in the activity.

Both devices remained on Sulawesi for further use by our partners (one at Lake Poso, the other for the Malili Lakes area).





# Expedition Lake Poso 2024

In May 2024, our president Markéta Rejlková went Lake Poso, this time alone. The aim was to carry out activities within the framework of the "Biodiversity goes to school" program, designed in collaboration with Institut Mosintuwu.

- During **preparatory seminars**, we introduced schools in the vicinity of Lake Poso to the local freshwater biodiversity and offered the opportunity to participate in an intensive program that would not only bring biodiversity to schools, but also **take schools to the lake**. Many school principals, biology teachers and students showed great interest.
- Five selected schools participated in the program in 2024: **SMP Negeri 1 Pamona Barat, SMA Negeri 1 Pamona Barat, SMA Negeri 1 Pamona Utara, SMA GKST 1 Tentena, SMA Negeri Harmoni**.
  - We also invited **Saiful** from „Iqram’s team“, a group of students from Hasanuddin University we had already met the previous year and in the meantime they had founded the conservation organization **Tarsius**. Saiful was with us to participate in the activities at Lake Poso and to get inspiration for future activities at Lake Matano.
  - Institut Mosintuwu provided the local organization and a great team: **Lian, Eko, Basrul, Evan, Ray Hasibuan, Nina**. Thank you for these intense and fulfilling days together!





We spent the first four days **exploring different locations of Lake Poso**; we were joined by students and teachers from five schools.

We had snorkeling gear, photography equipment, and materials for collecting and identifying animals on site.

Each of the selected locations was a little different – Lake Poso is unbeatable in this regard, the combination of “**rocks & water**” takes on so many different and fascinating forms here.

This was a beautiful part of our program and we hope to take many more kids to the lake in the future!





After the field trips, we visited two schools and presented the biodiversity of Lake Poso, our activities, and also the **possibilities for everyone to get involved in exploring and protecting this unique place**. The first seminar was attended by a total of **82 students** and teachers from two schools: SMA Negeri Harmoni and SMA GKST 1 Tentena. The following day, a similar seminar was attended by **78 students** and teachers from SMA Negeri 1 Pamona Barat and SMP Negeri 1 Pamona Barat.

The program included Markéta's lecture on the biodiversity of Lake Poso, a talk by Eko (Kurniawan P. Bandjolu) on how students can become great discoverers and at the same time ambassadors and protectors of the lake, and a discussion with a knowledge quiz followed.





We believe that **observing an aquarium and caring for it can change the way people perceive the world**. This is especially true for children! That is why, after careful consideration together with our local partner Institut Mosintuwu, we donated an aquarium to five selected schools. Here we gratefully thank **AKWB and MEGAZOO & Friends** for their financial support for the purchase of equipment. But of course, it was not just about the aquarium...

- The children who were to take care of the aquarium later **spent several days with us on the lake** and had the opportunity to gain their own experience with the conditions that the animals require.
- These small teams then completed **a half-day training in aquarium care**. Because we knew exactly in advance what equipment the aquarium would have and what animals would be in it, we wrote a very specific 20-page **Lake Poso aquarium husbandry manual**.
- We ceremonially handed over the aquariums during seminars in schools. We **installed them ourselves** and later **delivered selected species** (strongly recommending not to change or add animals): *Caridina caerulea* and *Tylomelania toradjarum*.
- Institut Mosintuwu provided **continuous onsite support** whenever needed.





# Expedition Malili Lakes 2024

In August 2024, Markéta went to Sulawesi for the second time in this year. She was joined by Iqram. The goal of the trip was the Malili Lakes (Matano and Towuti), exploring the depths with the underwater drone, visiting new habitats in Lake Matano and also **meeting with our (potential) partners**. An open, respectful relationship cannot be built without personal interaction.

- We were again joined by **Saiful from Tarsius** who continued to use the underwater drone. The drone later stayed with him, so that Tarsius can use it for their own research in Sulawesi.
- After initial online communication, we met in person few members of the **Spearfishing Luwu Timur** community. More about this on the next page.
- We also met representative of **PT Vale**, the mining company from Sorowako. They were interested in breeding shrimps and releasing them back to Lake Matano, an idea we tried to dissuade them from; the lake is not safe for shrimps. We discussed other possible activities.

This trip was not directly supported by the EUAC funding, so large part of the expenses (including the flight tickets) was covered by Markéta. A fellow traveler was German aquarist Ch., who agreed not to profit from the generosity of Sulawesi Keepers (who paid the boat and car rentals). However, the promised donation is still awaited, so we will not publish his name to avoid legal disputes and we will definitely **revise the rules for the participation of other people on our expeditions**.







# Spearfishing in Lake Matano

We were excited to meet in Sorowako members of the local spearfishing community, who have excellent knowledge of Lake Matano and an interest in protecting it. We already knew the basics about each other beforehand, and after a polite introduction and talks about the lake, we agreed to spend a day in the water, witnessing the extermination of invasive flowerhorns and catfish while freediving.

That day resulted in understanding, respect, and hope.

Freediving and searching for catfish or cichlids is a demanding activity. Physical fitness and mental endurance are essential. But it brings results; during their big events, members of **Spearfishing Luwu Timur** can catch hundreds of catfish in a few hours without causing any damage to the environment or native species. And while it may seem like a drop in the ocean, without controlling the invasive fish population, the lake would be lost for good much faster. These people are buying time.

**We believe in close cooperation in the future. And thank you for all the efforts this community is making to keep hope alive for Lake Matano!**



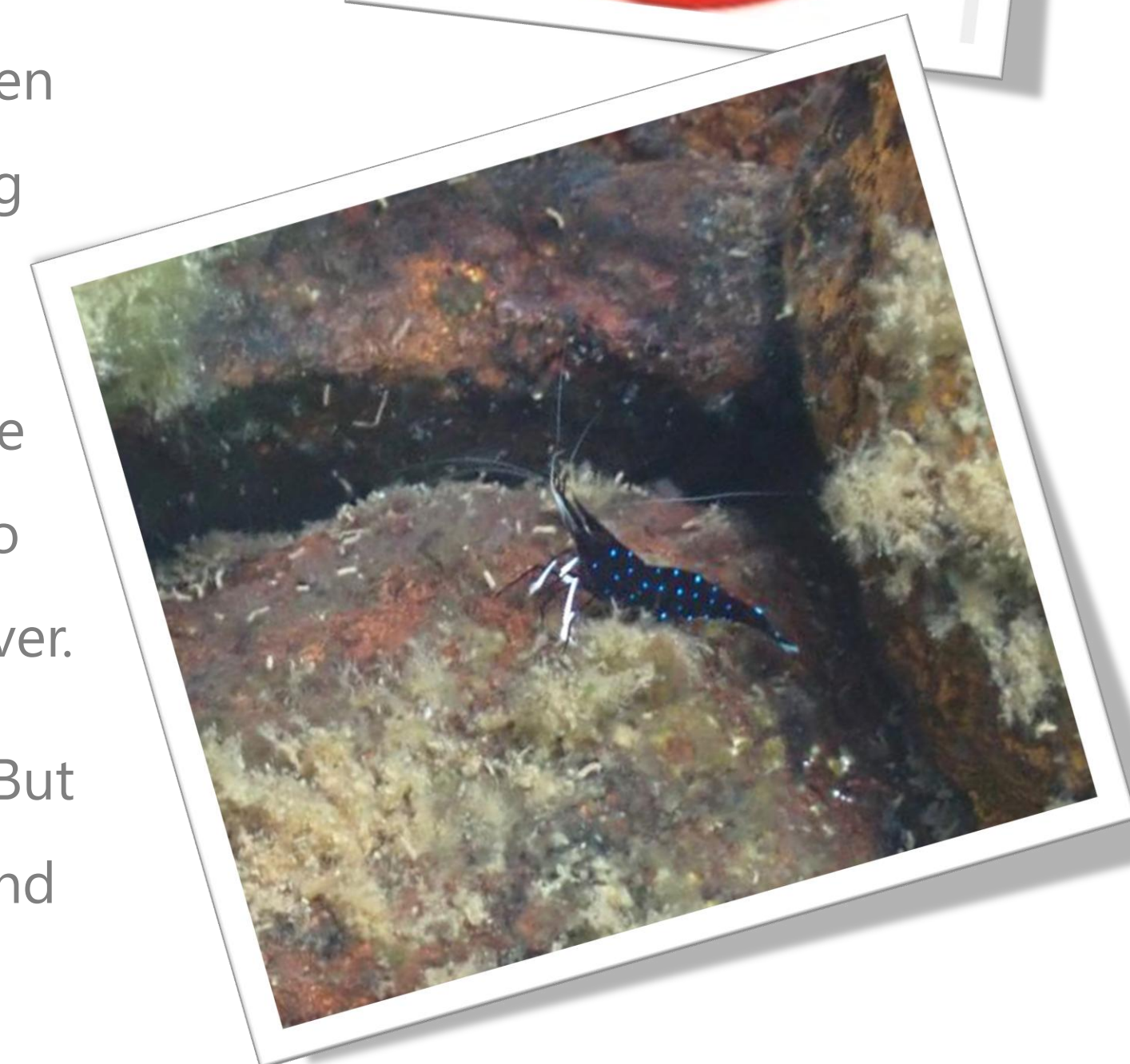


# *Caridina dennerli* is **not yet** extinct in 2024

We have repeatedly reported that this originally abundant shrimp is disappearing from Lake Matano due to the rapidly growing population of invasive cichlids, flowerhorns. Shrimps are no longer found in places where **they used to be abundant**; they hide from predators deep under stones. The bottom is now covered with a thick layer of mud and algae, which is not a normal condition.

To find a shrimp, it is necessary to pick up stones and search thoroughly. At the same time, you are often accompanied by flowerhorns, who **wait for any movement and immediately eat the shrimp**. Observing *Caridina dennerli* in Lake Matano is no longer a joy...

We continued our research, and in 2024 we were rewarded with the discovery of a small locality where *Caridina dennerli* **does not hide under rocks!** This is like a window into the past – this is how it used to look everywhere on the rocky shores of Lake Matano, before the voracious invasive flowerhorns took over. It doesn't mean that the situation of *Caridina dennerli* isn't so bad. Unfortunately, it's pretty damn bad. But **it still makes sense to try to protect at least parts of the lake**. Species that were originally abundant – and today only a step away from definitive extinction – still survive somewhere there.





# We are on YouTube!

In March 2024, we launched our own YouTube channel, which is available at <https://www.youtube.com/@sulawesikeepers>

We don't plan to be active youtubers because we have no intention of generating profit or analyzing follower statistics, and editing videos takes a lot of time. But this is an excellent platform for sharing material, especially obtained directly underwater.

We have published 4 long videos and 2 shorts so far. We gained 133 subscribers in 2024.





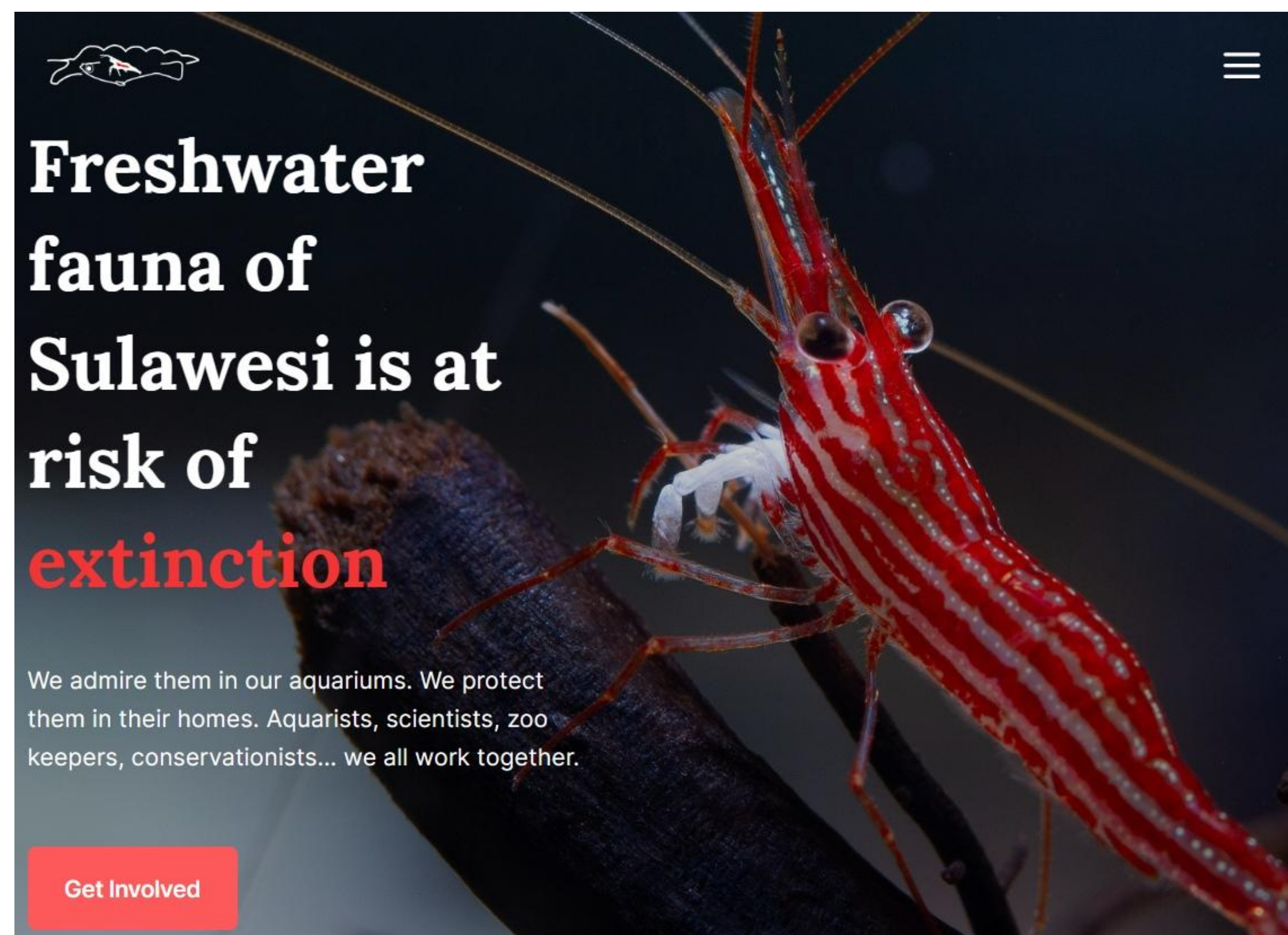
# Our website

Dissemination of information about the state of the Sulawesi lakes, but also the support of mutual sharing of experiences of aquarists and education of wider audience, are our important goals.

We have built a web presentation of the cornerstones of our project. We also often publish other materials, whether they are short updates or articles focused on a specific topic.

**We published 14 blog posts in 2024.**

We translate all materials in **five languages**: English, German, Czech, Dutch and Indonesian.





Apart from the updates on our own **activities**, we are dedicated to publishing contributions for aquarists and from aquarists, and bring unique materials describing the natural conditions of Sulawesi lakes:

- *Matt Liang* from China has described his experience with keeping Sulawesi shrimps.
- *Markéta Rejlková* wrote a very long article about *Mugilogobius adeia*, „the greatest breeding challenge“
  - we introduced *Ottelia alismoides*, a striking plant from the Malili Lakes
- an article about **snails from Lake Poso** showed 7 so far described and probably 13 as yet undescribed species
- we have written down and photographed **8 current threats to Malili Lakes**, which is an important contribution to understanding reality





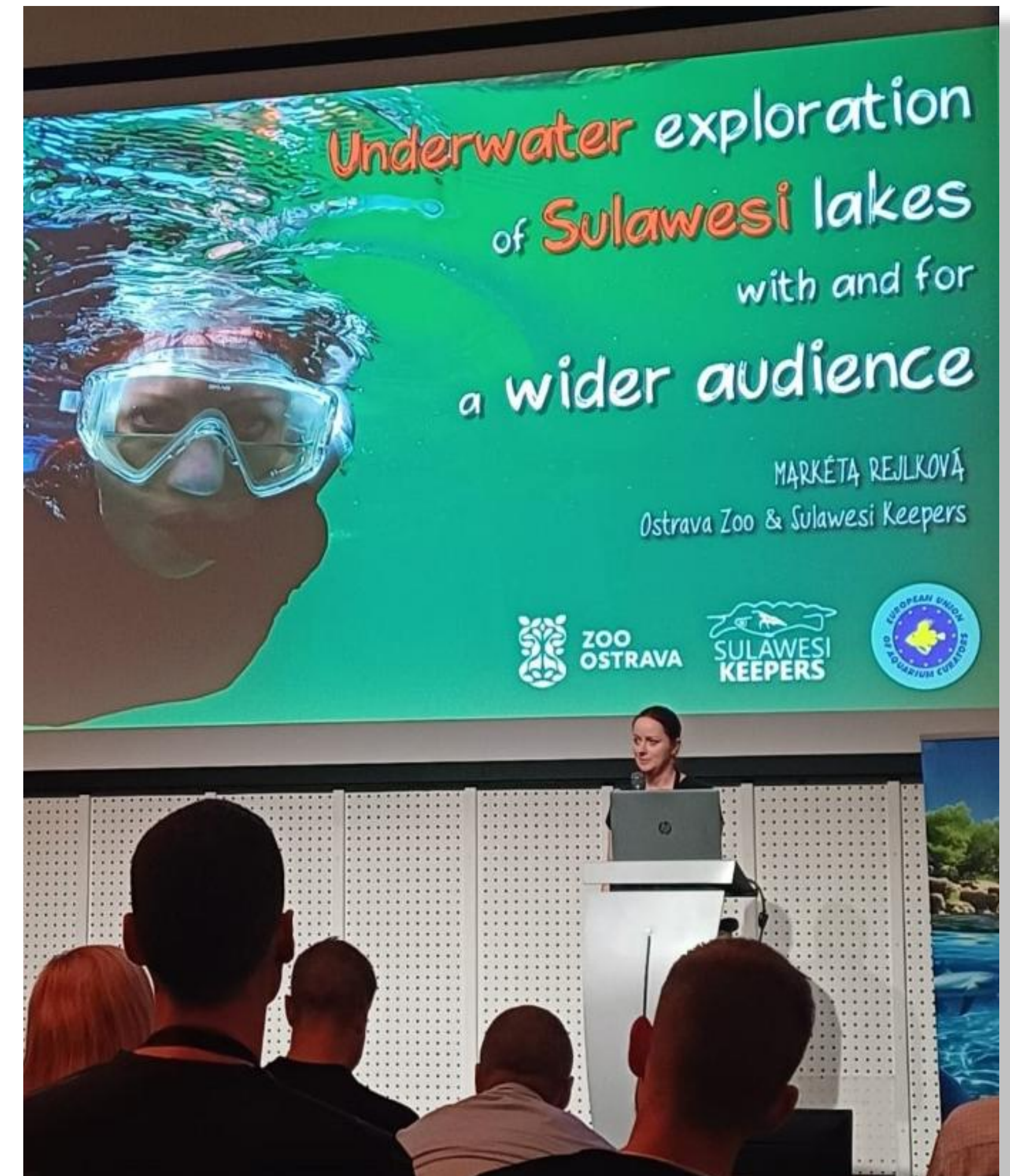
# Talking about our cause

In addition to the publishing activity on our own website, we use every opportunity to talk about the alarming state of the Sulawesi lakes, the threatened dozens of endemic species and our initiative. In 2024, we gave a presentation at several meetings:

- Conservation Day, 28.1.2024, Aquatis Lausanne, Switzerland
- Internationale Gesellschaft für Regenbogenfische, 15.6.2024, Weiden, Germany
- Meeting of fish keepers and curators of the Union of Czech and Slovak Zoos, 24.-25.9.2024, Zoo Chleby, Czech Republic
- Annual conference of the European Union of Aquarium Curators, 17.-20.9.2024, Rotterdam Zoo, Netherlands
  - The role of zoos in environmental education and awareness, 3.10.2024, Ostrava, Czech Republic
  - Annual meeting of the Arbeitskreis Wirbellose in Binnengewässern e.V., 26.10.2024, Leipzig, Germany
    - International Aquarium Congress, 27.-31.10.2024, Guadalajara, Mexico

We also authored these **articles** in external publications:

- Rejlková, M. & Iqram, M. (2024): Endemic crabs from ancient Sulawesi lakes under double threat. Oryx, vol. 58, issue 1, pp. 13-14.
- Rejlková, M. (2024): Garnelen als Botschafter Sulawesi, DATZ 5/2024, pp. 14-20.





# Conservation Breeding Program for Sulawesi fishes



In the first year, our program has grown to **7 participants**:

Ostrava Zoo (CZ), Pilsen Zoo (CZ), Wrocław Zoo (PL),  
Kristýna Bendová (CZ), Radim Bulawa (CZ),  
Gunnar Loibl (DE), Andreas Wagnitz (DE)

Following **14 species** were kept:

*Oryzias asinua*, *O. celebensis*, *O. eversi*, *O. loxolepis*,  
*O. cf. marmoratus*, *O. matanesis*, *O. nebulosus*, *O. nigrimas*,  
*O. sarasinorum*;

*Nomorhaphus cf. ebrardtii* "Balambano", *N. liemi*,  
*N. sp.* "Sungai Lembo";

*Mugilogobius cf. adeia*, *M. sarasinorum*

**We invite every serious aquarist to participate!**



# Our finance and assets

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## BANK ACCOUNT

Our bank account is transparent – see it [here](#). IBAN: CZ58 2010 0000 0022 0204 1053 - BIC/SWIFT: FIOBCZPPXXX.

We have started the year 2024 with balance of 231,735.28 CZK and ended with 172,204.75 CZK.

## PAYPAL ACCOUNT

Paypal account [donations@sulawesikeepers.org](mailto:donations@sulawesikeepers.org) is registered by Sulawesi Keepers, z. s., and used to receive donations. We have started the year 2024 with balance of 567.59 EUR (equals to 13,605.13 CZK) and ended with 1,470.55 CZK and 1,475.78 EUR (equals to 37,130.62 CZK).

## CASH REGISTER

We received one donation in cash (2,855,000 IDR). Cash was also withdrawn from the bank account and used to cover expenses in Indonesia.

We paid one small amount in CZK to for photo accessories. We have started the year 2024 with balance of 4,763 CZK + 1,000 EUR (equals to 23,970 CZK) + 7,685,000 IDR (equals to 11,220.10 CZK) and ended with 3,973 CZK + 1,000 EUR (equals to 25,160 CZK).

## TOTAL BALANCE

As of December 31, 2023: 285,293.51 CZK (236,498.28 CZK, 1,567.59 EUR and 7,685,000 IDR).

As of December 31, 2024: 239,938.92 CZK (177,648.30 CZK and 2,475.78 EUR).



## DONATIONS

We received one major financial contribution to our bank account from the **European Union of Aquarium Curators** (184,929.53 CZK). The purpose of this funding support was our project „Underwater exploration of Sulawesi lakes using drone” – see page 6 for more details.

Furthermore, we have received donations through the bank or PayPal account from individual donors. The total amount of these donations was 2,570.55 CZK and 908.19 EUR (excluding the PayPal fees). There were a total of **ten individual donors**, but most of them wished to remain anonymous or did not give us their explicit consent to publish their names. We can name Trixi Fisher and Sarah Lang, but we express our great gratitude to all without distinction! **Six of these donors contributed regularly.** This is very important for us because we can plan activities for the future.

Markéta Rejlková made a donation in cash (2,855,000 IDR) to help cover part of the expenses of our field trip in August 2024 – see also page 11.

## EXPENSES IN 2024

Expenses can be divided into four categories:

### 1) administrative expenses and services (1%)

web hosting and domain – 1,643.13 CZK; bank and PayPal fees – 559.44 CZK and 34.72 EUR;

### 2) costs associated with our own work in Sulawesi (32%)

flights – 33,760.04 CZK; accommodation – 13,400,000 IDR and 1,857.43 CZK; car rental – 9,300,000 IDR; boat rental – 7,800,000 IDR;

bus – 950,000 IDR; local guide – 1,800,000 IDR;

### 3) reimbursement of the costs of our contractual partners in Indonesia (26%)

organization of educational activities – 66,927.45 CZK;

### 4) equipment and materials (41%)

underwater drone – 40,981.83 CZK; drone – 32,988 CZK; photo accessories and materials – 31,169 CZK; aquarium equipment – 2,962 CZK.



# Thank you

## Our members, partners and donors

We are sincerely grateful to everyone who helps us financially, professionally or gives us motivation and confirms that our work has meaning. It is a commitment for us and **we will do our best not to disappoint the hopes you place in our efforts to save the species richness of the Sulawesi lakes.**

Many people **give their time** - the most valuable thing they have. They are mainly **members of Sulawesi Keepers**, authors of articles, but also translators. We want to name **Ulli Bauer** for German and **Eric van de Meerakker** for Dutch translations. You both know your help is essential. Better communication means better understanding, thank you for your continuous support and „invisible“ work you do! We can handle the other languages (Czech, English and Indonesian) on our own, but that doesn't mean that the work of our own members is not necessary and appreciated. Thanks a lot!

Our blog flourished thanks to the contributions of external guests as well. We are very grateful for sharing your knowledge and experience with the community. The external authors in 2024 were: **Matt Liang** and **Kurniawan P. Bandjolu**. We couldn't do without the professional help, opinions and advice of **experts** we value: **Hans-Georg Evers, Gunnar Loibl, Fabian Herder, Werner Klotz, Jan Möhring, Thomas von Rintelen, Andreas Wagnitz** and many others who have given us a consultation here and there.

During our work at Lake Poso, we benefited from the collaboration with great people from Institut Mosintuwu – **Lian Gogali, Kurniawan P. Bandjolu, Basrul, Evan, Ray Hasibuan, Nina** – and also our friend **Saifullah Abdul Rasyid** from the Tarsius community. He joined us at Lake Matano as well and has become a very skilled underwater drone operator.





We would be nothing without our partners. **EUAC** has largely supported our field activities during this year, while we still significantly benefited from the very generous financial support of **AKWB** and **Megazoo & Friends** from 2023. **Ostrava Zoo** contributed to our efforts by covering part of the expenses of the field trip in May 2024 for Markéta Rejlková as part of her work assignment.

We have already mentioned **Institut Mosintuwu** and its indispensable role in Lake Poso region.

**Dähne Verlag** regularly reports on Sulawesi and our activities in its magazines.

We feel like a part of the **aquarium community** and its support and understanding is key for us. These enthusiasts give us trust, finances, but above all their interest. We sincerely thank them and we will continue to work hard to deliver results. **Sarah Lang**, **Trixi Fisher** and many **anonymous donors** sent us a financial donation. We also greatly appreciate the professional cooperation within our conservation breeding program, namely with **Kristýna Bendová**, **Radim Bulawa**, **Gunnar Loibl**, **Andreas Wagnitz** and **Ostrava Zoo**, **Pilsen Zoo** and **Wroclaw Zoo**.

We gratefully use beautiful and inspiring images from the **photographers** who provided their photos free of charge: **Peter Baert**, **Kurniawan P. Bandjolu**, **Hans-Georg Evers**, **Damiano Ferraioli**, **Jana Fury**, **Werner Klotz**, **Matt Liang**, **Frank Logemann**, **Gunnar Loibl**, **Chris Lukhaup**, **Jiří Patoka**, **Markéta Rejlková**, **Thomas von Rintelen**, **Julia Schwarzer**, **Alex Winterhalder**, **Daisy Wowor**, **Demin Wong**.

# Thank you!



# What's next?

## Plans for 2025

We want to make progress again in all **key areas**. These are the following:

- We will continue to build relationships with **local partners**. This is crucial for the future of the Sulawesi lakes. In particular, we want to focus on **Lake Matano**, the most threatened ancient lake on the island. We hope that the discussion with the local spearfishing community started on 2024 will lead to collaboration and partnership. We will also continue and expand the **educational activities** with Institut Mosintuwu at Lake Poso.
- We will bring new and interesting information from the **monitoring** of natural populations. Our **publication** activity will continue to be very intensive and will include **video** as a means of reaching new audiences and enhancing storytelling.
- We will contribute to the **knowledge of Sulawesi species**, including their aquarium husbandry. We will publish datasheets for all major groups of endemic freshwater species from Sulawesi and also share comprehensive information about each lake. Knowledge from observations in the wild and from aquarium keeping will become the basis for **husbandry manual**.
- We will further develop our **conservation breeding program** for fish and recruit new members for it among private breeders and zoos. According to the same scheme, we will prepare the launch of the program for snails.







# SULAWESI KEEPERS

Underwater. Under threat. Under **your** protection.



[sulawesikeepers.org](https://sulawesikeepers.org)



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