

Abschlussbericht zum geförderten Projekt:

Auf- und Ausbau eines landesweiten Amphibiennachzuchtprogramms in der „Melinh Station for Biodiversity“, Vinh Phuc Provinz, Nordvietnam, als Fortführung der IEBR Amphibienstation in Hanoi

Thomas Ziegler mit Truong Quang Nguyen & Tierpflegern / IEBR Mitarbeitern

• Anschrift der Antragsteller

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• Ziele des geförderten Projektes

Vorrangiges Ziel dieses Gemeinschaftsprojektes zwischen vietnamesischen und deutschen Einrichtungen / Experten war die Sicherung der Fortführung von Amphibiennachzuchtprojekten in Vietnam. Aufgrund von Bau- und Erweiterungsmaßnahmen musste die IEBR Amphibienstation in Hanoi geschlossen werden. Um die Nachzucht und Erforschung von Amphibienarten in Vietnam dennoch nachhaltig und langfristig sowie sogar verbessert und um Edukationsmaßnahmen erweitert fortführen zu können, sollten die Haltungen in die am Rande des Tam Dao Nationalparks in Nordvietnam gelegene „Melinh Station for Biodiversity“ – eine Außenstelle von IEBR – umziehen. Im Fokus standen dieses Mal aber nicht nur bedrohte und / oder wenig bekannte / erforschte Amphibienarten, sondern erstmals auch so genannte „husbandry analogues“, wie im Jahr 2012 beim Amphibian Ark

Amphibien-Assessment für die indochinesische Amphibienfauna in Hanoi durch internationale Amphibienexperten (darunter auch die Antragsteller) beschlossen wurde. Dabei sollen stellvertretend verbreitete Arten aus Amphibiengattungen zur Nachzucht gebracht werden, über die es noch keinerlei Information zur Reproduktion bzw. *ex situ* Nachzucht gibt, um für potentielle Erhaltungszuchten vorbereitet zu sein. Eine weitere wichtige Neuerung war, dass durch den Umzug der Amphibienhaltungen aus der IEBR Amphibienstation in die „Melinh Station for Biodiversity“ die Amphibiennachzuchtprojekte um Edukationsmaßnahmen erweitert werden, zumal die „Melinh Station for Biodiversity“ direkt am Waldrand gelegen ist und von dort aus regelmäßig Exkursionen und Schulungen u.a. für Studenten sowohl in der Station als auch im Wald stattfinden.

• Maßnahmen und Aktivitäten

Es wurde die bereits begonnene Innenhaltung für Amphibien in der „Melinh Station for Biodiversity“ fertig gestellt und erweitert, sowie - basierend auf dem Modell der IEBR Amphibienstation in Hanoi - eine größere Außenanlage mit 12 Großterrarien errichtet, in der sich in großzügigeren Lebensraumanlagen u.a. der Haltung von „husbandry analogue“ Arten (insbesondere Wasserfallbewohnende Gattungen wie *Amolops*, *Odorrana* und *Quasipaa*) gewidmet werden kann. Details dazu finden sich im nachgestellten Bericht von Ziegler et al. (2013) im AArk Newsletter. Kombiniert mit diesen Aufbauarbeiten fand ein umfangreiches Mitarbeitertraining statt und jeweils ein Poster über die Projektaktivitäten wurde in englischer und vietnamesischer Sprache fertiggestellt und im Eingangsbereich der Station angebracht. Es wurde mit der Entwicklung eines Datenaufnahmebogens begonnen, nach dem potentielle Nachzuchten dokumentiert und diese Daten dann für spätere Publikationen aufgearbeitet werden können.



Abb. 1: Bau einer Wasserfalllandschaft in der Amphibienaußenanlage für sogenannte „husbandry analogues“. Phot. T. Ziegler



Abb. 2: Fertig gestaltete, zur Bepflanzung freigegebene Wasserfalllandschaften in der Amphibienaußenanlage für sogenannte „husbandry analogues“. Phot. A. Rauhaus

• Publikationen (in chronologischer Reihenfolge)

u.a.

ZIEGLER, T. (2012): Erforschung und Erhalt der Artenvielfalt: Neue Wege des Kölner Zoos in Südostasien. – Zeitschrift des Kölner Zoo 55(3): 111-130.

NGUYEN, T. Q. & T. ZIEGLER (2012): Amphibian research and conservation in Vietnam. – Froglog 20(5): 21-23.

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RAUHAUS, A., GAWOR, A., PERL, R. G. B., VAN DER STRAETEN, K., KARBE, D., PHAM, C. T., NGUYEN, T. Q. & T. ZIEGLER (2012 / 2013): Larval development, stages and an international comparison of husbandry parameters of the Vietnamese Mossy Frog *Theloderma corticale* (Boulenger, 1903) (Anura: Rhacophoridae). – Asian Journal of Conservation Biology 1(2): 51-66.

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ZIEGLER, T., RAUHAUS, A., KARBE, D., NGUYEN, T. Q., PHAM, C. T. & P. D. HUUY (2013): New amphibian keeping and breeding facilities created at the Me Linh Station for Biodiversity, northern Vietnam. - Amphibian Ark Newsletter Number 23 June 2013: 14-15.

• Vorträge (in chronologischer Reihenfolge)

u.a.

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ZIEGLER, T. (2013): Vietnamprojektreise Mai 2013: Abschluss Phong Nha – Ke Bang Projekt & Phase II der Amtshilfe in der Me Linh Station. Abteilungsleiterbesprechung, Zoo Köln, 12.6.2013

ZIEGLER, T. (2013) Erforschung und Erhalt der Herpetodiversität: Neue Wege des Kölner Zoos in Südostasien. 49. Jahrestagung der Deutschen Gesellschaft für Herpetologie und Terrarienkunde (DGHT), Museum Koenig, Bonn, 26.9.2013

ZIEGLER, T. (2013) Erforschung und Erhalt der Artenvielfalt: Neue Wege des Kölner Zoos in Südostasien. 3 x anlässlich der Langen Nacht im Aquarium, Kölner Zoo, 16.11.2013

• Abrechnung

Am 4.10.2012 wurden auf das Vietnamprojektkonto des Kölner Zoos 4.000 Euro überwiesen.

Der Verwendungsnachweis der Gelder ist in Form von drei Sammelrechnungen (Baukosten) über 650 Euro, 750 Euro und 2600 Euro vom März 2013 angehängt.

Mit diesen Geldern konnten die Amphibieninnen- und Außenanlagen fertiggestellt werden.

• Anhänge

- 3 Belege
- Poster in englischer Sprache
- Beitrag im AArk Newsletter vom Juni 2013

Đơn vị: Ngọc Thanh
Địa chỉ: Phúc Yên

PHIẾU THU

Ngày.....tháng.....năm 200....

Quyển số
Số
NỢ.....
CÓ.....

Mẫu số 01 - TT
QĐ số: 15/2006/QĐ-BTC
ngày 20 tháng 3 năm 2006
của Bộ trưởng Bộ Tài chính

Họ và tên người nộp tiền: Đặng Huy Phương
Địa chỉ: Trại Đa dạng sinh học Mê Linh
Lý do nộp: Lạm dụng đất rừng và xây dựng
Số tiền: 17.550.000đ (viết bằng chữ) 17.550.000đ (= 650 Euro)

Kèm theo..... Chứng từ gốc.....

Giám đốc
(Ký, họ tên, đóng dấu)

Kế toán trưởng
(Ký, họ tên)

Thủ quỹ
(Ký, họ tên)

Người lập phiếu
(Ký, họ tên)

Người nộp tiền
(Ký, họ tên)

Đã nhận đủ số tiền (viết bằng chữ)

+ Tỷ giá ngoại tệ (vàng, bạc, đá quý):

+ Số tiền quy đổi:

Ngày.....tháng.....năm 200....

VIỆN SINH THAI VÀ TÀI NGUYÊN SINH VẬT

TRẠM

ĐA DẠNG SINH HỌC

MÊ LINH

Đặng Huy Phương

Đơn vị: Ngọc Thanh
Địa chỉ: Phúc Yên

PHIẾU THU

Ngày 25 tháng 3 năm 2008

Quyển số
Số
NỢ.....
CÓ.....

Mẫu số 01 - TT
QĐ số: 15/2006/QĐ-BTC
ngày 20 tháng 3 năm 2006
của Bộ trưởng Bộ Tài chính

Họ và tên người nộp tiền: Đặng Huy Phương
Địa chỉ: Trại Đa dạng sinh học Mê Linh
Lý do nộp: Lạm dụng đất rừng và xây dựng
Số tiền: 20.250.000đ (viết bằng chữ) 20.250.000đ (= 750 Euro)

Kèm theo..... Chứng từ gốc.....

Giám đốc
(Ký, họ tên, đóng dấu)

Kế toán trưởng
(Ký, họ tên)

Thủ quỹ
(Ký, họ tên)

Người lập phiếu
(Ký, họ tên)

Người nộp tiền
(Ký, họ tên)

Đã nhận đủ số tiền (viết bằng chữ)

+ Tỷ giá ngoại tệ (vàng, bạc, đá quý):

+ Số tiền quy đổi:

Ngày 25 tháng 3 năm 2008

VIỆN SINH THAI VÀ TÀI NGUYÊN SINH VẬT

TRẠM

ĐA DẠNG SINH HỌC

MÊ LINH

Đặng Huy Phương

Đơn vị: Ngân hàng
Địa chỉ: Phước Yên

PHIẾU THU

Ngày 25 tháng 3 năm 2013

Quyển số
Số
Nợ
Có

Mẫu số 01 - TT
QĐ số: 15/2006/QĐ-BTC
ngày 20 tháng 3 năm 2006
của Bộ trưởng Bộ Tài chính

Họ và tên người nộp tiền: Đặng Huy Phương
Địa chỉ: Toàn Đa dạng sinh học Mê Linh
Lý do nộp: Xây dựng 10 chuồng nuôi gia súc
10 chuồng x 7.000.000 đ = 70.000.000 đ (2.600 Euro)
Số tiền: 70.000.000 đ (viết bằng chữ) 70.000.000 đ $\Rightarrow$ 2.600 Euro

Kèm theo..... Chứng từ gốc

Ngày 25 tháng 3 năm 2013

Giám đốc
(Ký, họ tên, đóng dấu)

Kế toán trưởng
(Ký, họ tên)

Thủ quỹ
(Ký, họ tên)

Người lập phiếu
(Ký, họ tên)

Người nộp tiền
(Ký, họ tên)

Nguyễn Xuân Ninh

Nguyễn Thị Lan

Nguyễn Thị Lan

TRAM
ĐA DẠNG SINH HỌC
MÊ LINH

Đã nhận đủ số tiền (viết bằng chữ).....

+ Tỷ giá ngoại tệ (vàng, bạc, đá quý).....

+ Số tiền quy đổi:.....

Đặng Huy Phương

The Me Linh Station for Biodiversity

The Me Linh Station for Biodiversity was established in 1999 by the Vietnam Academy of Science and Technology (VAST). The implementing organization is the Institute of Ecology and Biological Resources (IEBR). Hanoi, Vietnam. The Station is located in Ngoc Thanh Commune, Phuc Yen District, Vinh Phuc Province and it is about 50 km far from Hanoi. The station borders Tam Dao National Park in the East, and therefore, it is considered as green buffer zone of the National Park. The total area of the station is 170.3 ha (at elevations from 100 to 500 m above sea level), consisting of 69 ha of secondary forest, 30 ha of plantation forest, 68.3 ha of grassland / stream and ponds, and 3 ha of administration area.



The Me Linh Station for Biodiversity



The Me Linh Station team together with Cologne Zoo staff

Besides watershed forest protection, forest rehabilitation, and housing of confiscated species as ecosystem services, the Me Linh Station for Biodiversity engages in local conservation measures such as forest protection and reforestation. Since recently, another major aspect is the creation of suitable resources / facilities for *ex situ* husbandry / conservation programs and research. Here, the main focus is to keep, breed and do respective studies concerning Vietnamese plant and wildlife species in an "in-country facility". Detailed goals are as follows: 1) to breed endangered species for a) understanding and studying husbandry parameters, b) at best maintaining a captive assurance population, and c) to be prepared for subsequent release of offspring into the wild, if required; 2) to study the natural history, especially the reproductive biology of rare or poorly known species in captivity; and 3) to provide services for education and nature conservation.



Provisional establishment of new outdoor facilities for tortoises during Cologne Zoo staff commitment in the Me Linh Station in May 2012



Furthermore diverse lizard facilities were finished, such as a spacious outdoor enclosure for adult crocodile lizards (*Shinisauria crocodilurus*)



Captive bred crocodile lizard offspring, for potential future release projects

Since the year 2000, several research and conservation programs have been implemented in this station (e.g. assessment of the fauna and flora of the area, rescue program for turtle species, forest protection and rehabilitation). Results of the still ongoing surveys on the fauna in this area showed that a number of 59 vertebrate species have been recorded so far: 19 species of mammals, 22 species of reptiles and 18 species of amphibians. For *ex situ* research and conservation breeding, the station so far has received strong support

from the cooperation partner Cologne Zoo, Cologne, Germany. Cologne Zoo staff together with the IEBR and the Me Linh Station team so far has helped to develop and improve keeping and quarantine facilities (for disease control) together with theoretical and practical training. Funding so far was kindly provided by the Amphibian Fund of Stiftung Artenschutz / Verband Deutscher Zoodirektoren e.V. (VDZ), Cologne Zoo, European Association of Zoos and Aquariums (EAZA), European Union of Aquarium Curators (EUAC), EXOMED Berlin, IEBR, Nederlands-Belgische Schildpadden Vereniging (NBSV), SERA, VAST, and World Association of Zoos and Aquariums (WAZA). However, efforts at the station are still limited due to the lack of further funding.



Construction of the amphibian indoor enclosure and training of the Me Linh Station team in terrarium building



The newly created quarantine station

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Vietnamese and German students while examining amphibian development in the Amphibian Station Hanoi



Offspring of the threatened tree frog species *Rhacophorus kio*

But further investment is urgently required, in particular as Vietnam's biodiversity is still largely unexplored. With respect to amphibians, the country houses a total of 182 species and within the past five years, about 25 new amphibian species have been described as new from this country and still new discoveries regularly take place. In contrast to this increasing, still underestimated and poorly studied species richness, many populations, if not whole species, are facing extinction as a result of habitat loss and over-collecting for food consumption, trade and traditional medicine use. For this reason, an amphibian conservation needs assessment for the amphibian species of the Indochina region was recently held in Hanoi by the Amphibian Ark in cooperation with IEBR in March 2012. We also still have no or only very limited knowledge about the natural history of most of these species, but which is urgently required both for proper conservation measures in the wild and for husbandry management and breeding research under captive conditions to be prepared for conservation breeding efforts in times of population declines, e.g., caused by the hazardous chytrid fungus, as it is known from other countries. In Vietnam, we want to be prepared for such scenarios and thus engagement to better understand the natural history and respective husbandry management research are urgently required.



Tay Yen Tu Nature Reserve, one of the few known distribution places of the endemic Vietnam newt (*Tylotriton vietnamensis*)



Offspring of the threatened Vietnam newt.

In response, IEBR, together with the Cologne Zoo, have decided to promote the *ex situ* research and conservation of amphibian and also selected reptile species in Vietnam. The first phase has been successfully carried out at the Amphibian Breeding Station on the outskirts of Hanoi, where 14 endangered or poorly known amphibian species could be successfully reproduced and studied within a couple of years only. However, because of the land reallocation and the small size of the breeding station in Hanoi, IEBR and Cologne Zoo have decided to implement the second phase of the *in situ* and *ex situ* research / conservation at the Me Linh Station for Biodiversity. *In situ* natural history and population assessment research, for example, is done with the endemic newt species *Tylotriton vietnamensis* (IUCN Red List: NT), and the single known crocodile lizard (*Shinisauria crocodilurus*; CITES Appendix II) population in Vietnam; *ex situ* research and conservation is done at Me Linh amongst others with *Rhacophorus kio* (IUCN Red List: VU), *Theloderma bicolor* (IUCN Red List: EN), and *Theloderma corticale* (IUCN Red List: DD), to name only a few species.



In the frame of field excursions the ecology of the above mentioned species is studied as important prerequisite for adequate conservation measures. Photos: T. Ziegler, Cologne Zoo

Scientists of IEBR and Cologne Zoo compiled this brochure about Tay Yen Tu Nature Reserve, home of the rare crocodile lizard and Vietnam newt, of which captive populations currently maintained at the Me Linh Station





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New amphibian keeping and breeding facilities created at the Me Linh Station for Biodiversity, northern Vietnam

Thomas Ziegler, Anna Rauhaus and Detlef Karbe, AG Zoologischer Garten Köln, Cologne, Germany and Truong Quang Nguyen, Cuong and The Pham and Phuong Dang Huy, Institute of Ecology and Biological Resources, Hanoi, Vietnam

In 2007, the Institute of Ecology and Biological Resources (IEBR) together with Cologne Zoo developed the Amphibian Station at Hanoi to keep and reproduce endangered and poorly-known amphibian species from Vietnam (Ziegler & Nguyen 2008, Nguyen et al. 2009). Since then, fourteen species of amphibians have been successfully reared or bred there (Ziegler et al. 2011). A number of student traineeships and theses have been conducted there as well to better understand the husbandry, reproduction, larval development and morphology, in particular of Vietnamese anurans (e.g., Wildenhues et al. 2010, Gawor et al. 2012, Rauhaus et al. 2012).

For several reasons, including land re-allocation, the station had to be closed recently. To continue with *ex situ* amphibian husbandry and conservation breeding projects in Vietnam, the Me Linh Station for Biodiversity has been developed by the IEBR to replace the Hanoi Amphibian Station. The Me Linh Station was established by the Vietnam Academy of Science and Technology in 1999. It borders the famous Tam Dao National Park in Vinh Phuc Province, northern Vietnam, and is directly located in forest environment. Therefore, it creates easier conditions for both *in situ* and *ex situ* conservation and research approaches as well as environmental education. The objectives at Me Linh are to monitor the local biodiversity, to protect the native species and their natural habitat, to rescue confiscated animals, to keep and breed selected threatened and poorly-known species, and to provide services for conservation education for school classes, students and visitors (Nguyen & Ziegler 2012).

In May 2012 the first administrative assistance by Cologne Zoo staff took place to improve existing facilities and to help plan and build new facilities for turtles, lizards, snakes and primates (e.g., Nguyen & Ziegler 2012, Nguyen et al. 2012). During that period, amphibian facilities were developed, together with the first amphibian husbandry training. This work was continued by Cologne Zoo staff together with IEBR colleagues and the Me Linh Station team in May 2013, and was funded mainly by IEBR, Cologne Zoo, and the Amphibian Fund of Stiftung Artenschutz / Verband Deutscher Zoodirektoren (Species Conservation Foundation / Association of German Zoo Directors), along with support for equipment from SERA.

An outdoor amphibian enclosure consisting of twelve spacious concrete and gauze basins was finished, as well as an indoor amphibian facility including eighteen different-sized glass terraria. The room for the indoor amphibian terraria also houses several shelves for the breeding of insects for live food. In addition, a quarantine station for newly-arrived and ill amphibians was created, and this currently houses six quarantine terraria. Amphibian chytrid and Ranavirus tests are regularly performed.



An outdoor amphibian enclosure consisting of twelve spacious concrete and gauze basins has been built at the Me Linh Station for Biodiversity in northern Vietnam. Photo: Anna Rauhaus.

We have already had our first amphibian breeding successes at the Me Linh Station for Biodiversity, showing that the newly created facilities are adequate and functioning. So far the rhacophorid anuran species *Rhacophorus dennysi* and *Kurixalus verrucosus* have been bred in the Me Linh Station. These species also occur in the surrounding forest and mainly serve for education of school classes. For public awareness and education, large-scaled bilingual (English and Vietnamese) posters were created, explaining the goals of the station, in particular the amphibian projects, and these have been placed in the front of the Me Linh station.



Eighteen different-sized glass terraria are included in the new indoor amphibian area at the Me Linh Station for Biodiversity. Photo: Anna Rauhaus.

In the future we hope to continue our breeding and research programs focusing on threatened and poorly-known amphibian species. Currently, eleven amphibian species are kept at the Me Linh station: *Bombina maxima*, *Theloderma asperum*, *T. bicolor*, *Kurixalus verrucosus*, *Rhacophorus dennysi*, *R. kio*, *R. maximus*, *R. orlovi*, *R. puerensis*, *Paramesotriton deloustalii*, and *Tylototriton vietnamensis*.

As well as environmental education, the amphibian facilities at the Me Linh Station will also be used to study the keeping, breeding and development of husbandry analog species, such as representatives of the genera *Amolops*, *Odorrana* and *Quasipaa*, as recommended during the AArk Amphibian Conservation Needs Assessment in March 2012 in Hanoi. Outdoor terraria with cascade habitats were built in May 2013 for these species.

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- Nguyen, T. Q., Huy, P. D. & T. Ziegler (2012): New facilities created for threatened Vietnamese turtles. *Turtle Survival Alliance (TSA) Newsletter*, August 2012: 8-9.
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Progress report of the Honduran Amphibian Rescue and Conservation Center

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The protection of amphibian biodiversity in Honduras is challenged by numerous obstacles. Illegal deforestation continues at an alarming rate in many areas of the country, and its detrimental effects are confounded by the presence of amphibian disease. After detecting amphibian chytrid fungus in endangered and critically endangered amphibians in 2007, it became apparent that the country's cloud forest species are in jeopardy.

The core project activities of the Honduran Amphibian Rescue and Conservation Center are: 1) establishment and maintenance of long-term captive assurance populations to buffer against the risk of extinction in the wild and 2) annual population supplementation via head-starting to increase the number of wild animals that may survive to adulthood. Local capacity-building and public outreach are integral principles in this project, and the project will be based at Lancetilla Botanical Garden and Research Institute, a location with a high volume of school group visitation.

Fundraising for this project was initiated in 2011 and 50% of the budget to construct the biosecure facility has been acquired as of May 2013, collectively from a 2012 Amphibian Ark Seed Grant (www.amphibianark.org/seed-grant-winners/) and the Chicago Zoological Society. In 2012, a request for the remaining 50% from the Mohammed bin Zayed Species Conservation Fund was unsuccessful, and a subsequent similar request was submitted to Rufford Small Grants for Nature Conservation. We expect to receive the decision notification very soon. The Honduran Government originally offered space for the facility at a research center in Cuyamel Omoa National Park, but later changed it to the current site at Lancetilla Botanical Garden and Research Institute. Due to this shortage of additional funding and a change in project venue, this program is taking a bit longer than projected to establish.

During the past year, progress has been made in the following areas:

- Field mark-recapture surveys: In June-August 2012, alpha-numeric visual implant elastomers (VIEs) were used to mark 109 wild adult amphibians *in situ* in Cusuco National Park to assess their suitability in multi-year population monitoring efforts. Implantation of the tags was met with great success and the first annual recap-



Lancetilla Botanical Garden and Research Institute; the location where the Honduran Amphibian Rescue and Conservation Center will be constructed. Building exterior (above) and interior (below). Photo: Jonathan Kolby.

