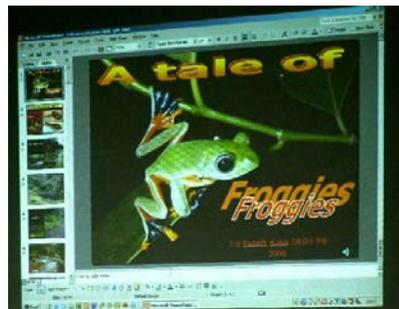




RUFFORD BOOSTER GRANT PROJECT FINAL REPORT

Promoting Frog Conservation through Environmental Education and Research Experience



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Top left: Night frogging during frog research methodology training (photo by Lesmana Wijaya),

Top right: A student admiring *Leptobranchium hasseltii* during Frog Camp in Situ Gunung

(photo by Septiantina D. Riendriasari), Bottom left : A student with a tame *Rhacophorus*

javanus (photo by Mirza D. Kusri), Bottom right : The cover of the slide program showed to

Sekolah Bogor Raya, a school with English as the main language of teaching (photo by Mirza D. Kusri)

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SUMMARY

For two consecutive years (2003 to 2004), with the aid from Rufford Small grant we have developed an environmental education program to enhance frog conservation awareness under the title of “Promoting frog conservation through environmental education and research experience”. The third year program aims to continue the outreach program and also increasing networking and enhancing amphibian research in Java. Outreach program had extended not only in Bogor but also to adjacent areas (Jakarta). To enhance amphibian research we develop a frog call record and frog research manual in Bahasa Indonesia and distribute it freely to herps enthusiast

Acknowledgements

The program was made possible by funding from Rufford Booster Grant. The authors wish to thanks The Maurice Laing Foundation, Ross Alford (JCU-Australia), Tonny Soehartono, Damayanti Buckhori (Peka), and numerous volunteers (Dadi Ardiansyah; Septiantina D. Riendriasari; Neneng Sholihat; Wempy Endarwin; Adininggar UI-Hasanah; Fathoni Untoro; Sasikirono; Lubis, Luthfi, Bobby, Fery, Guntur and members of Kelompok Pemerhati Herpetofauna (KPH)) who had helped the program.

A. INTRODUCTION

Amphibians' study has lack attention in south East Asian regions, especially in Indonesia. An effort to increase frog conservation awareness of school children and teachers in selected schools has been done during 2002/2003 with funding from Rufford Small Grant. The location of the project is Bogor Residency, in the province of West Java, Indonesia. Although the size of natural habitat in West Java province is small, it harbours a variety of wildlife, mostly living inside the National Park or other protected areas (Wikramanayake *et al.*, 2002). So far, there is a poor awareness on the diversity of frog in this area. Thus this project addressed these issues through various conservation activities, especially targeted to schoolchildren.

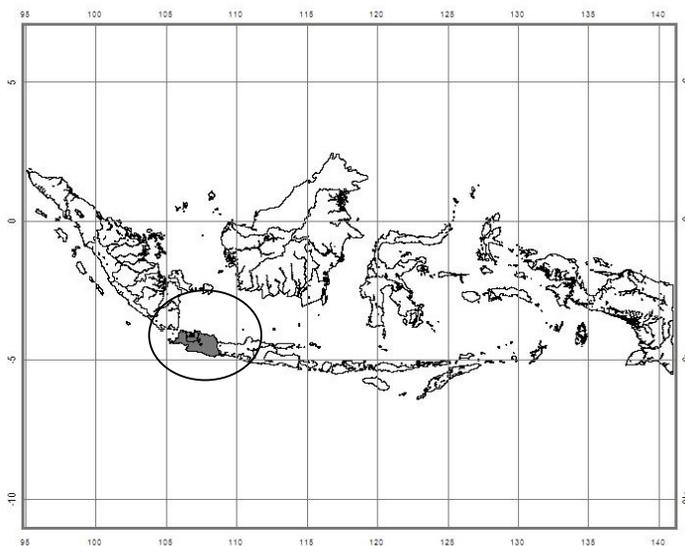


Figure 1. Map of Indonesia. Grey areas depict West Java, Jakarta and Banten province, the scope of this program.

Previously, a total of 563 schoolchildren from 13 schools from grade 3 – 11 have been involved in this project. Nineteen teachers had attended our workshop and more schools have expressed their interest to join the program. During this continuing program, we expand the project by involving more schools and students, and also general public.

B. OUT REACH PROGRAM FOR SCHOOL STUDENTS

Year 2005/2006 outreach program was given to 14 school which consist of 5 primary school (all in Bogor) and 9 High Schools (5 from Bogor and 4 from Jakarta). A 45-minutes class lesson was conducted in a class using the slide program that we developed followed by a review session. During the outreach program we also bring wet and dry specimens from our lab and if possible life frogs in small terrarium (mostly tame and cute tree frogs). Two kinds of slide program were developed:

1. For primary school: The life of tree frog. This is simpler slides which use tree frogs as main character to tell the story of his life from eggs to adult, including its behaviour, habitat, and other frogs that live among them. It also tells the problem that frog faces in the world.
2. For high school: Amphibian diversity and conservation, which tells about the diversity of amphibian in the world, with special note to Indonesian species. It also showed the students about amphibian life (its habitat, ecology) and conservation, emphasizing on the global amphibian decline.

Since interest in all attended school was high, almost all school asked us to teach more than one class. For instance, in Sekolah Bogor Raya (a national plus school in Bogor which use English as language at school) outreach were given to three class (grade 2, grade 4 and grade 6). Table 1 show the name of school participate in this program.

Table 1. Year 2005/2006 Frog Conservation Outreach Scope

Name of School	Grade	Number of students participated
SMAN 1 Leuwiliang	11	41
SMAN 10 Bogor	10 & 11	63
SMA Al-Azhar Bogor	12	30
SMA BBS Bogor	10 & 11	44
SMA PGRI 4 Bogor	10	41
SMAN 29 Jakarta	11	61
SMAN 34 Jakarta	10 & 11	25
SMAN 66 Jakarta	10 & 11	61
SMAN 1 Ciputat	10 & 11	36
SDN Babakan Dramaga 1 Bogor	5	48
SDN Babakan Dramaga 3 Bogor	4 & 5	49
SDN Insan Kamil	4	60
SDN Gunung Gede	5	52
Sekolah Bogor Raya	2, 4 and 6	102



Figure 2. (1) Anisa Fitri gave Frog Poster to headmaster of SMA AL-Azhar High Shool. (2) Mirza teaching to grade-2 children from Sekolah Bogor Raya.(3) a photographic moment in SMA 1 Leuwiliang High School(4) a scene inside SD Gunung Gede primary school (5) and (6) A curious crowd of students examine specimens

C. TEACHER-TRAINING PROGRAM

Although all schools participated were invited to send at least one teacher to attend frog training, several schools are unable to because of their busy schedule. Twelve teachers from 10 schools were trained on the biology and conservation of frogs on the 2nd of September – 4th of September 2006. Most of the teachers who participate in this training taught Biology Class and all worked in schools that participate in outreach program. The teacher training programs includes both instructional lecture inside class and practical activities in outdoor setting. Two previous teachers training were held in Bogor Agricultural University, but for this year program we brought the teachers to Wanawisata Situ Gunung, a forest recreation area in the valley of Mount Gede Pangrango National Park. The training syllabus covered topics such as global amphibian decline, biology of amphibians, amphibian conservation and how to implement frog conservation information into teaching.

Table 2. List of teacher-training participants

No.	Name	School
1.	Sutikna Tri Wardaya, S. Pd	SMAN 10 Bogor
2.	Noorlailah Sahlan, S. Pd	SMAN 1 Ciputat
3.	Engkus Kusmana, S. Pd	SMU Al-Azhar
4.	Susi Kristanina, S. Pd	SMAN 29 Jakarta
5.	Tresa Gusia Afitasari, S. Pd	SMU BBS
6.	Dra. Pantiyani	SMAN 34 Jakarta
7.	Ahmad Jaenudin Gozali, S. Pd	SDN Babakan Darmaga 1
8.	Siti Fani Febriyani	SDN Babakan Darmaga 1
9.	Hj. Lilis Kustriani, S. Pd	SDN Gunung Gede
10.	Komariah	SDN Darmaga 3
11.	Wiwini Kholillah, S. P	SDN Insan Kamil
12.	Lilis Lisnawati, Amd. Pd.	SDN Insan Kamil

Participants were divided into groups to do some practical activities. Practical activities include a one night frogging activities in various habitat (lake, streams and terrestrial); tadpole survey during the day; and an experiment to assess the relation between length of frog legs and farthest jump.



Figure 3. (1) Class lecture. (2) A walk in the forest.(3) looking for frog during night frogging (4) examining a jumping frog (5) trying to catch *Leptobrachium hasseltii* tadpoles by hand (6) All training participants

D. FROG CAMP: *Kemah Pendidikan Konservasi Katak*

On-site frog surveys were carried out in Situ Gunung, a valley near Mount Gede Pangrango National park. The location boasts its scenic lake and beautiful forest. Thirteen high school students from 3 high schools in Bogor and 4 high schools from Jakarta participated in this activity. The students were selected based on their noted interest and interview during the outreach programs. Most of the students were in grade 10 and 11 and choose biological science as one of their elective study.

The activity began in Sunday, 27th of June 2004 to Tuesday, 29th of June 2004. The location itself has a variety of habitat: streams, lakes and forests not far away from the base camp. The schedule is tight. On first day arrival, we divide the students into 4 groups with two tutors to guide them. In the afternoon, they were guided to assess the area. Later, surveys were conducted in the evening from 19:30 to 22:30. Samples were brought to the base camp where they were recorded, measured and identified. Frogs were later released on the point of capture.

Surveys were conducted two nights in a row, in which each group surveyed different habitat each night. Before ending the activity, each group prepare their report and discuss the relation of habitat and frog species.

Table 3. List of 2006 Frog Camp participants

No.	Name	School
1.	Harlan	SMAN 1 Leuwiliang
2.	Rika Kartika	SMAN 1 Leuwiliang
3.	Muhammad Febrian	SMU Al-Azhar
4.	Meadiasi Rahayu	SMU Al-Azhar
5.	Abdul Qodir	SMAN 10 Bogor
6.	Ilyas	SMAN 10 Bogor
7.	Sandi	SMAN 29 Jakarta
8.	Diana Noor Ismail	SMAN 34 Jakarta
9.	Rendi Eko	SMAN 34 Jakarta
10.	Arif Wibowo	SMAN 66 Jakarta
11.	Ratna Agustine	SMAN 66 Jakarta
12.	Widy Wicaksono	SMUN 1 Ciputat
13.	Ryandika	SMUN 1 Ciputat



Figure 4. (1) The scenic lake of Situ Gunung. (2) A student, helped by tutor, trying to identify a frog. (3) looking for frog during night frogging (4) Sandi, student from SMA 29 Jakarta, examining *Leptobrachium hasseltii*, one of the most common terrestrial frog (5) Participants of Frog Camp 2006

E. AMPHIBIAN RESEARCH METHODOLOGY TRAINING

Discussions with several people showed that the lack of amphibian research by local researcher were mostly due to lack of information regarding research methodology and suitable material in local language, *Bahasa Indonesia*. Although this kind of training are available abroad, it not affordable to most Indonesian scientist. Starting in 2002, I began to develop a short training (one day class lecture and one night practical) about frog ecology and how to identify frog species by funding from Wildlife Conservation Society (RFP programme). Similar training was also developed for officers from Gede Pangrango National Park (funding from BP CP) and Mount Halimun Salak National Park (funding from Wildlife Trust).

Table 4. List of participants of frog research methodology training

Name	Address
Deni Kurniawan	Fak. MIPA (Biologi), Universitas Lampung, Sumatera
Frans Natha	Fak. MIPA (Biologi), Universitas Lampung, Sumatera
Andreas Hadi Pramudya	Fak. MIPA (Biologi), Universitas Lampung, Sumatera
Anwar Ishak Syafei	Fak. MIPA (Biologi), Universitas Lampung, Sumatera
Lilik Sartono	Fak. Pertanian (Manajemen Hutan), Universitas Lampung, Sumatera
Adi Satrio Wibowo	Perorangan/ Bogor
Lesmana Wijaya	Perorangan/ PEKA/ Bogor
Najmi Firdaus	Fak. MIPA (Biologi), Universitas Tirtayasa, Banten
Rury Eprilurahman	Fakultas MIPA (Biologi) Universitas Gajah Mada, Jogjakarta
Subekti Prihantono	Fakultas MIPA (Biologi) Universitas Gajah Mada, Jogjakarta
Donan Satria Yudha	Fakultas MIPA (Biologi) Universitas Gajah Mada, Jogjakarta
Dwi Susanto	Fakultas MIPA (Biologi) Universitas Indonesia, Jakarta
Nia Kurniawan	Fakultas Pertanian Brawijaya, Malang
Ratna Siahaan	Universitas Sam Ratulangi, Manado, Sulawesi

To increase research by local scientist, in June 2006 we conducted a 5-days training on frog research methodology. Fourteen university students and lecturers from 6 universities in Java, Sumatra and Sulawesi had attended this training (Table 4). The training also introduces participants to the diversity, natural history, status, global amphibian population declines, threat to the diversity of Indonesia frog and conservation measures. During the training participants learn basic identification and applying methods taken mostly from Heyer et al. (Standard Methods for Amphibian Survey) such as transect methods, quadrats, timed search survey and visual encounter survey. Practical were conducted for four nights, in which each night each group use different type of methods to conduct frog survey. Participants also learn to make a simple species accumulation curve and see the difference between each method. Although

Indonesian amphibian species differs among island, however the training has provide the participants the know-how to develop frog research in their own location.



Figure 5. (1) Looking for frog during night frogging (2) day time activities, habitat and tadpoles survey (3) participants of frog research methodology

F. NETWORKING & MATERIALS DEVELOPMENT

We believe that we need to build a strong networking to develop amphibian research and conservation effort. We are slowly developing a networking between individuals who had interest in herps study especially frog. Currently Mirza D. Kusri and Anisa Fitri are maintaining a mailing list dedicated to increase communication between herps enthusiasts in Indonesia (herpetologist_indonesia@yahoo.com). To build a bridge between organizations and individuals interested with amphibian and reptile conservation since 2004 we published a bulletin: *Warta Herpetofauna* or *Herpetofauna News* (previously known as *Berita Sahabat Katak dan Reptil* or The News of Friends of Frogs and Reptile). Inside the bulletin we published activities related to amphibian/reptile research, news related to amphibian/reptile conservation and list of paper/books related to the conservation of herpetofauna. The bulletin is distributed to various NGO through mailing lists, snail mail and also could be downloaded from our website. Starting this year, we published the bulletin three times a year: January, May and September. A most recent *Warta Herpetofauna* is attached in the appendix.

At the end of October 2006, we will launch our website: <http://www.indoherpet.org> which also served as tools to disseminate the result of research conducted by the students of our university and provide species accounts, mostly of amphibians. The website is in two languages (Bahasa Indonesia and English). However, since it is targeted for Indonesian audience, the most comprehensive data are currently in Bahasa Indonesia. We will update the website continuously, increasing more data and translation on English.

Three types of material are already developed. First, CD depicting 16 species of Java's frog calls. We collected frog calls during our frog monitoring project in Mount Salak (funding from Wildlife Trust), and based on this result, we produce copies of frog calls into CD. Second, the handbook production of protocols and frog research methodology in Bahasa Indonesia. We will be sending both materials separately with the printed report. The third material is information sheets intended for general public. Three titles are available: Amfibi (Amphibian), Manfaat Amfibi (Amphibian Use) and Penurunan Populasi Amfibi Secara Global (Global Amphibian Population Decline). The information sheets are also available to download through our website: <http://www.indoherpet.org>. This information sheets is also attached in the appendix.



Warta Herpetofauna / Edisi 19 - Januari 2006

Kata Kami!

Kalau pembaca...

"Maka segala upaya untuk menjaga kelestarian dunia terwujud, sudah. Indonesia / tahun 2006 ini, kembali Indonesia dipandang sebagai keanekaragaman. Sangat penting, kita harus kembali, diarahkan untuk tidak menentu dan..."

"Warta Herpetofauna kembali menerima para pembaca. Tahun ini Warta akan hadir lagi pada bulan Januari, Mei dan September 2006. Dengan semangat kita akan memuat berbagai informasi yang berkaitan dengan herpetofauna Indonesia. Untuk itu, kami meminta bantuan para pembaca Warta Herpetofauna untuk mengirimkan informasi mengenai Warta ini melalui surat atau telepon ke alamat berikut:

Jelajah kembali.....

<p>Warta Herpetofauna media informasi dan publikasi dunia amfibi dan reptil</p> <p>Penerbit : KJAR Publikasi</p> <p>Pimpinan redaksi : Mirza Dikari Kusriani</p> <p>Redaktur : Anisa Fitri Muhammad Yazid Fathoni Untoro</p> <p>Tata Letak & Artistik : Ipinik</p> <p>Sirkulasi KPH "Python" HIMAKOVA</p>	<p style="text-align: center;">Alamat Redaksi</p> <p>Kelompok Kota Konekasi Amfibi dan Reptil Indonesia Departemen Konservasi Sumberdaya Hutan dan Ekowisata Fakultas Kehutanan - IPB Telp. (021) 1422-236 Fax (021) 421-5141 Email : micochona_mirzawati@yahoo.com</p> <p>Halat bersambung di mailing list : herpe_kologe@unlorenas@yahoo.com</p> <div style="text-align: center;"> </div>
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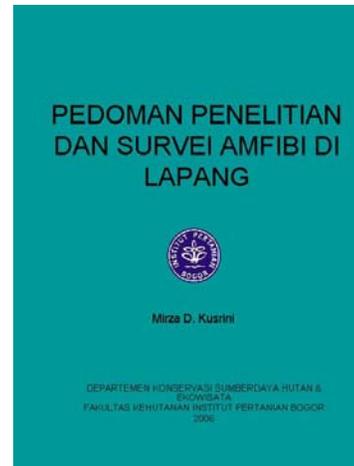


Figure 6. (1) M. Yazid using a directional microphone to record frog calls (2) The front cover of herps bulletin *Warta Herpetofauna* and Handbook of amphibian research and field surveys.

G. OVERVIEW OF FROG CONSERVATION EDUCATION PROGRAM FROM 2002

The frog conservation education had been run for more than 3 years, and so far 36 school had participate in this program with more than 1,500 students given outreach and more than 30 high school students attended Frog camp (Table 5). More than 30 teachers also attended teacher's training. During the year, we added more participating school, embedded through other projects such as our research program funded by the BP Conservation Programme and Wildlife Trust. Although we could not measure direct impact of this program, we believe that this program had been successful in showing the children the diversity of frogs in the region and opening their "eyes" on the conservation issues related to frog survival and hopefully will someday increase their interest on conservation especially related to frog conservation. One of former high school student participated in the first Frog Camp had actually follow this by studying in the Department of Forest Resources Conservation & Ecotourism.

Table 5. The number of school and people involved in outreach program from 2002. Parentheses refer to funding sources other than Rufford Small Grant. Bp = BP Conservation Programme; WT = Wildlife Trust; WCS = Research Fellowship Program Wildlife Conservation Society.

Activity	2002/2003	2003/2004	2005/2006	Total
Number of school participated in frog conservation education	5	8 + 3 (BP)	3(WT) + 3 (BP) + 14	36
Number of schoolchildren given outreach program	195	390 + 102 (BP)	142 (WT) + 163 (BP) + 713	1705
Number of high school students involved in Frog Camp	5	18	14	37
Number of teacher trained	9	10	12 + 6 (BP)	37
General Training*	50 (WCS)	14 (BP)	13 (WT) + 14	91

Note: general training refers to training of frog conservation and research methodology, with exception of RSG funded training (5 days training), all are a short two days training.

A general observation showed that amphibian research is unpopular to Indonesian university students or researchers compared to other wildlife research such as birds and mammals. There are several reasons for this, such as (1) the fact that frog mostly active at night, the consequence that researchers must also be nocturnal; (2) Identification books for Indonesian species are rare; (3) Methodologies unknown; (4) Not enough literature, what exists is in foreign languages; (5) Authorities/researchers not known or easy to contact and (6) negative perceptions in which frogs is depicted as slimy and even sometimes dangerous and unfriendly.

Since 2000, a special section concerning amphibian studies was inserted into various subjects offered to undergraduate students of the Faculty of Forestry, such as in subject of wildlife research methodologies and wildlife ecology. The projects also include several students as volunteer which in turns had increased their interest in amphibian research. There is an increase of undergraduate students' interest in amphibian, as shown by the number of students who select frog research as their minor projects for their thesis (Figure 5). The students had also activated their herpetofauna groups and since 2004 had started doing expedition during summer breaks to various National Park in Indonesia (Bukit Barisan Selatan NP in 2004, Betung Kerihun NP in 2005 and Way Kambas NP in 2006). It also helps that IRATA (Indonesian Reptile and Amphibian Trade Association) had supported student researches and expedition since 2002 by giving small research grants in the amount of 1-2 millions rupiah (equivalent to around 58 – 120 GBP) per research and up to 1000 GBP for expedition.

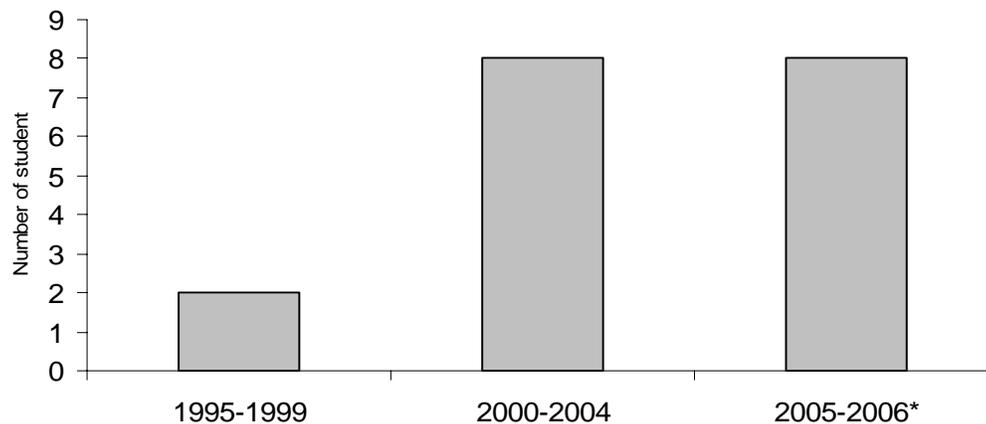


Figure 7. Number of student of Department of Forest Resource Conservation & Ecotourism, Faculty of Forestry, Bogor Agricultural University who select frog research. Note, for 2005-2006 data include students who are still in final research and development of proposal stage.

Other goal for the program is to increase the number of local amphibian researcher not only from our Department but also from other universities, NGO, or National park officers; hence, the training program. We have seen some positive output from its alumnus. For instance, Dwi Susanto from University of Indonesia did a research of frog diversity around his campus as his thesis objective. Deni Kurniawan, from University of Lampung (Sumatera) had also expressed his interest in pursuing frog research while Rury, a lecturer from University of Gajah Mada (Jogjakarta) is now focusing on tadpole studies. With the right inputs, we believe

that the number and quality of local researcher will eventually increase. In the future we hope that they will have the ability to move forward as natural scientists and conservation biologists alongside other researcher from other country.

H. OTHER

In June 2006, Anisa Fitri, one of the members of this project had attended the Society of Conservation Biology (SCB) Annual International Meeting in San Jose, California USA through invitation from BP Conservation Programme. Anisa participated in poster sessions, bringing with her 2 posters with the title of *Love Thy Frogs: Increasing Awareness Through Frog Conservation Education in Indonesia* which highlight this program and *The Status of Frogs in The Mount Gede Pangrango National Park, West Java, Indonesia* which depict the frog monitoring program in Mount Gede Pangrango.



Figure 8. Anisa Fitri at the SCB meeting 2006

I. FUTURE WORK

1. Outreach program:

- Continue the outreach program to schoolchildren
- Continue the teacher-training program
- Continue the Frog Camp activities for older schoolchildren
- Develop and distribute more educational material on frog conservation

2. Networking & enhancing amphibian research program:

- Continue publishing the bulletin and distribute it to more audience
- Maintaining website on frog conservation in Bahasa Indonesia
- Amphibian research methodology workshop for university students/ NGO's/ national park's officers
- Develop materials to aid people working on frog research
- Conducting informal meeting between herpetologist to share news of their activities and if possible conducting a formal seminar.

3. Research activity on the ecology of frogs, especially prioritized species (endemic, forest depended species) such as *Leptophryne cruentata*, IUCN Red List Critically Endangered species.

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