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 **BioResource now! Vo2.No.11** is here

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Download the PDF version of this newsletter at
<http://www.shigen.nig.ac.jp/shigen/news/news.jsp>

Other information on bioresources is available at

NBRP <http://www.nbrp.jp/index.jsp>

SHIGEN <http://www.shigen.nig.ac.jp/indexja.htm>

WGR <http://www.shigen.nig.ac.jp/wgr/>

JGR <http://www.shigen.nig.ac.jp/wgr/jgr/jgrUrlList.jsp>

Information on Resource-related Events

- **November 28 on Tuesday**, The ninth Genetic Resource Committee Meeting was held at Josui Kaikan, Tokyo.
<http://shigen.lab.nig.ac.jp/shigen/grc/>

- **December 6 - 8: "Molecular Biology Society of Japan: Forum 2006"** at Nagoya Congress Center

NBRP Panel Exhibition: <http://www.aeplan.co.jp/mbsj2006forum/>

- Cell Technology initiated a new series entitled "Let's Use! BioResource"

Bioresources in Japan will be introduced in a series of 14 volumes from November 2006 to December 2007.

Detailed information is available at <http://www.nbrp.jp/index.jsp>



Resource Feature No.6

Visit to the Institute for Amphibian Biology, Hiroshima University

We visited the Institute for Amphibian Biology affiliated to the Graduate School of Science, Hiroshima University. This institute is the core institute of *Xenopus* (South African clawed frog) resources in the National BioResource Project. Hiroshima University is located on Kagamiyama mountain, which is approximately 15 minutes by car from Saijo Station in Higashi-Hiroshima City, and houses all undergraduate schools, except the Faculty of Medicine, on its extensive campus surrounded with nature. Dr. Yaoita, who is the Director of the Institute for Amphibian Biology and belongs to the Division of Embryology and Genetics, welcomed us and said, "Bicycles are indispensable on this campus".



University Campus

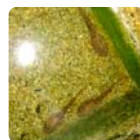
Institute for Amphibian Biology

The Institute for Amphibian Biology was established in 1967 and has a history of approximately 40 years. While the National BioResource Project is focused only on *Xenopus*, this institute is the only institute in the world where research on amphibians other than *Xenopus laevis* is conducted, and it preserves 80 species and 170 strains of amphibians. In terms of number of individuals, the institute maintains a total of 20,000–30,000 amphibian individuals, of which approximately 3,000 are *Xenopus tropicalis* individuals; the highest number of individuals previously maintained by the institute was 60,000–90,000. The utility cost of maintaining such large number of animals appears to be substantial.

NBRP *Xenopus* (Strain / EST) <http://shigen.lab.nig.ac.jp/xenopus/>
<http://labs.sci.hiroshima-u.ac.jp/homepage/amphibia/>

Outdoor Facility

In the conservatory outside the institute, there are numerous cement water tanks in which tadpoles are raised. A special type of cement that releases calcium ions is used for the preparation of these tanks, and it appears to play a role in the growth and development of tadpoles. We visited the institute in mid-November, which is a season of low abundance of tadpoles; hence, we could only



Overwintering tadpoles of Wrinkled Frogs



Water tanks in the conservatory

observe the tadpoles of wrinkled frogs that overwinter in their larval form. In addition, there is a quarantine facility near the conservatory that examines the existence of pathogens when the frogs are brought into the institute from the environment.

Indoor Facility

Inside the institute, numerous amphibians are raised under optimum conditions; these include South African clawed frogs (*X. tropicalis* and *X. laevis*) in Anura; back-spotted pond frogs, Daruma pond frogs, North American bullfrogs, and Ishikawa's frogs in Ranidae; Japanese tree frogs in Hylidae; Forest green treefrogs and Kajika frogs in Rhacophoridae; Japanese fire-bellied newts and sword-tailed newts in Caudata; and Axolotl, which is more commonly known as wooper looper in Japan. The animals are placed in plastic cases or short but broad containers; some of these cases are equipped with a faucet through which the water pressure is adjusted so that a droplet of water is added at a constant rate in order to maintain a continuous supply of fresh water. However, the adjustment of the water pressure is difficult, and sometimes the water supply is suspended. Moreover,



Breeding equipment



Breeding room of *X. tropicalis*

there are three rooms solely for breeding *X. tropicalis*, and room and water temperatures and humidity are accurately controlled.

Artificial breeding is also conducted at the Institute for Amphibian Biology, and according to the institute authorities, the number of artificially bred Ishikawa's frogs, which are categorized as endangered species (EN), in the institute may be more than the number of wild individuals. In addition, transgenic frogs are also developed, and these frogs looked even fantastic when observed through a fluorescent microscope. It was interesting to learn that when tadpoles metamorphosize into their adult forms—frogs, the brain as well as gut and pancreas are mostly transformed.



Ishikawa's frog



Transgenic frog

Meanwhile, the thing that attracts attention when people enter the Institute for Amphibian Biology is a picture of frogs drawn on the door of the elevator on the first floor. The frog in the picture is famous as the one drawn in the "Light-Hearted Painting of Bird, Beast, and Man" handed down at Kouzan-ji, Kyoto, which may be known to some people.



Picture on the door of elevator

Food for Amphibians

Crickets (*Gryllus bimaculatus*) are provided as food for the amphibians grown in the Institute for Amphibian Biology. Previously, repetitive trial and errors were made by supplying mosquitoes, mosquito larvae, or bagworms as food; however, once the crickets were constantly provided as food, the conditions of the frogs improved and all the frogs that we observed appeared robust and healthy.



Gryllus bimaculatus

Currently, the food for reptiles and amphibians maintained as pets is generally crickets (mainly *Achetus domesticus* in this case); this according to the assumption of institute authorities might be attributed to the technical expertise developed at the institute. Moreover, calcium carbonate is often dusted on crickets by the amateur owners of amphibians in order to prevent the amphibians from developing rickets. However, this procedure is never carried out at the Institute for Amphibian Biology; thus, crickets that are well gut loaded appear to be provided as food.



Prof. Yaoita

- * **Dusting:** Sprinkling nutritional compounds on the food
- * **Gut loading:** Providing organisms grown using nutritional component as food for amphibians

In Conclusion

I personally maintain a collection of 15 amphibians, including forest green treefrogs, South African clawed frogs, and Bell's horned frogs at home; however, I sometimes find it difficult to take adequate care of them. Therefore, I presume that the maintenance of such large number of amphibians and the preservation of strains on a day-to-day basis require extraordinary efforts. I sincerely realized that the maintenance of high-quality frogs at the Institute for Amphibian Biology for a long period of time is attributed to the endeavor of the doctors and the institute's staff.

We spent approximately 2.5 hours at the institute, and we really appreciate Prof. Yaoita, Dr. Sumida, Dr. Uto, and all other staff members for sparing some time from their busy schedule and for their cooperation. (Masakazu Saga, Genetic Informatics Laboratory, Center for Genetic Resource Information)



Reporter



Hot News from Abroad No.15

Advance Report: Inauguration of AMMRA, Asian Network of Mice!

A meeting was held for the inauguration of Asian Mouse Mutants and Resource Association (AMMRA) at the Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, on January 23 and 24. AMMRA aims to develop mouse resources and construct Asian networks for the preservation and provision of mice. Following the invitation by Prof. Kenichi Yamamura at Kumamoto University, approximately 30 affiliates gathered from Japan, China, Taiwan, Korea, and Singapore, and Prof. Xu Ping from the Shanghai Institutes for Biological Sciences coordinated the meeting as a host (Articles on Dr. Xu Ping are also available on the newsletter vols. 1-10).



Scenery at the Meeting site

At the meeting, following the introduction of the participants' activities, the aims and goals of the AMMRA were finalized, and the participating institutes were determined (10 institutes including CARD at Kumamoto University and RIKEN BRC in Japan). Prof. Kenichi Yamamura was selected unanimously as the chairperson. There is another international mouse resource network known as the Federation of International Mouse Resources (FIMRe, <http://www.fimre.org>).

AMMRA is different from FIMRe in that the former includes the perspective of the development of resources and the resource institutes to be prepared as its members. AMMRA website will be constructed and detail information will be posted on the website. The website address will be notified in this newsletter after confirmation.

(Yukiko Yamazaki)



Group Photo of Participants

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Information Technology

Vol.19



"Common Protocols of 3 Companies, sitemaps.org"

Google, Yahoo, and Microsoft released the specification of common sitemaps protocol on November 16. Previously, each company used to provide protocols with different specifications as XML files; however, from now on, protocols that are common among the three companies will be provided through this endeavor. Once an XML file is constructed following the provided sitemaps protocol, your website can be searched through these search engines that account for as much as 85.3% share of all the searching activities on the internet; this feature is considered to be useful for website administrators. (<http://www.itmedia.co.jp/news/articles/0611/21/news026.html>) The sitemaps protocol contains a rule to describe the information of your website, such as the website URL, the last updated date of the URL, the update frequency of the URL, and the relative importance of the pages on the website; this is assembled as an XML file in order to notify the update status of your website to the search engines. The details and examples of the protocol are described on the website "<http://www.sitemaps.org/>". A comparison of the sitemaps protocol with the one provided by "Google sitemaps" revealed that both the protocols are similar and the only difference is "<urlset>". Currently, no software is available for the construction of a sitemap file that complies with the protocol of "sitemaps.org"; therefore, those who have prepared "Google sitemaps" using the previously introduced software "GsiteCrawler" can rewrite only particular parts of the constructed "sitemap.xml" file as described below.

Example :

- Google sitemaps:

```
<urlset xmlns="http://www.google.com/schemas/sitemap/0.84"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.google.com/schemas/sitemap/0.84
  http://www.google.com/schemas/sitemap/0.84/sitemap.xsd">
```

- sitemaps.org:

```
<urlset xmlns="http://www.sitemaps.org/schemas/sitemap/0.9"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.sitemaps.org/schemas/sitemaps/0.9
  http://www.sitemaps.org/schemas/sitemaps/sitemap.xsd">
```

Currently, websites where the sitemap.xml file that complies with the sitemaps protocol can be registered are "Google Webmaster Tools" for Google and "SiteExplorer" for Yahoo. These two websites are introduced in the "Information Communication" section of "BioResource Now!" Vol. 2 No. 9-10; hence, please refer to these issues. (Gaku Kimura)

Editor's Note: Amphibians are considered to be evolutionally extremely intriguing animals due to the features of their genomes such as the diversity and the ploidy and as the first terrestrial quadrupedal animals that emerged on the Earth. In addition, the amphibians have been used as model organisms for research in developmental biology due to their characteristic biological phenomena such as metamorphosis and limb regeneration, their sizable eggs and non-cleidoic eggs, and their robustness to surgical interventions. However, the establishment of strains was difficult due to the difficulties encountered in breeding; thus, the amphibians were disadvantageous as resources for molecular biology and molecular genetics. The Institute for Amphibian Biology at Hiroshima University has overcome these problems and is currently established as a unique institute in the world. M.S., who is an avid programmer and a frog lover, was extremely delighted to visit this institute. We were also quite overwhelmed by the enthusiasm of the Chinese scientists. (Y.Y.)

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