A Partial Survey of Amphibians of Hainan

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Abstract: This paper reports the results of a partial survey of amphibians of Hainan Island conducted from February to March of 2005. A total of 13 species of amphibians were found in the survey and identified, all of which belong to seven genera and four families.

Keywords: Amphibian; Hainan Island

海南部分地区两栖动物的调查

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摘要：于2005年2月至3月调查了海南岛的部分地区两栖动物，主要集中在戈枕、湾岭和吊罗山，共计采集到13种标本，分隶4科7属。

关键词：两栖动物；海南岛

At the beginning of 2005, the authors went to Hainan Province for carrying out an amphibian survey. During one month in Hainan, the work mainly focused on three localities: Gezhen (戈枕), Wanling (湾岭), and Diaoluoshan or Mt. Diaoluo (吊罗山). Gezhen, where a small dam has been established on the Changhuajiang River, locates in the northeast of Dongfang City. Wanling situates in the northeast of Qiongzhou County, and is under a tropical marine monsoon climate with annual average temperature 22.5℃ and annual average rainfall 2462 mm. Mt. Diaoluo, which is a mountain on southeast of Five-Finger Mountain, locates between Lingshui County and Qiongzhou County with the highest peak 1291 meters. It also locates on the utmost north edge of tropic and has a large area of tropical virgin forest. The annual average temperature is 24℃, and the maximum temperature can reach 28℃ in July, whereas the minimum temperature is 15℃ in January.

The island’s drought has lasted since the beginning of 2005 and more than 45 percent of the region’s farmland and 64 of the middle and small rivers have dried up. Drought spring was her of Hainan Island meant that various temporary water bodies, which generally had provided favorable places for amphibians breeding, persisted shorter that in the previous year. Consequently, it was more difficult to find the trace of amphibians without these favorable places. On the other hand, during the particularly drought year, it also provides more opportunities than ordinary years to find amphibians in those survival water bodies, such as artificial ponds, where more amounts of common amphibians may be found.

Species accounts

Family Bufonidae

1. *Bufo melanostictus* Schneider, 1799

Five specimens were collected from Haikou at an altitude of 21 meters. Adults of *B. melanostictus* were easily found in ponds, farmland, and grassland, even yards of housing in Haikou City. In Hainan Island, the breeding season of *B. melanostictus* at least lasted from the middle of February to the middle of March. Generally, adults came to water bodies, such as artificial ponds, at night to look for partner. After finishing embracing, they left and returned to

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their relative dry habitats. During the survey, the embracing pairs had often been observed. The spawning process was not observed but the paired individuals were collected. In some water bodies, tadpoles also were found. This species is distributed widely in Hainan Island.

**Family Microhylidae**

2. *Microhyla ornata* (Duméril and Bibron, 1841)

Five specimens were collected from Gezhen at an altitude of 42 meters, which was a small village standing by Changhualiang River. When the dusk was coming, adults of *M. ornata* were found in rice fields whose soil had been ploughed up recently and furrows were filled with shallow water, whereas none of this species was found in the vicinity which had not been ploughed up or filled with water. A large number of *M. ornata* could gather in a limited area of a rice field and croak loudly.

*M. ornata* deposited eggs in rice fields, and more rarely in small ponds and pools. A lot of the small eggs surrounded by transparent jelly, gathered round to form an irregular round flake floating on the water surface.

**Family Ranidae**

3. *Amolops hainanensis* (Boulenger, 1900)

Four specimens were collected from Wanling at an altitude of 320 meters, while three specimens from Mt. Lianfengling, a mountain in the southwestern part of the island with the highest peak 1412 meters.

The adults of *A. hainanensis* were often found adhering to the surface of slippery rocks in swift current where water usually fell down to form cascades. Commonly, they stayed in the shade of sunlight in the daytime.

4. *Amolops torrentis* (Smith, 1923)

Three specimens were collected from the same stream of Wanling in which *A. hainanensis* was found. It was a mountain stream that extended along a cove. There were many cascades along the stream, which provided favorite habitats for swift water group.

*A. torrentis* was often found squatting on the surface of rocks which stood in sections of the stream with fast-running water. The body size of *A. torrentis* was smaller than that of *A. hainanensis*. It was believed a predominant species in the mountain stream of Hainan Island, but a few individuals were found in the survey. The result might due to both the continual drought and lower temperature.

5. *Octodactyly lima* (Gravenhorst, 1829)

One specimen was collected from Gezhen at an altitude of 42 meters. There was a large area of rice fields along one side of Changhuajiang River at Gezhen. Parts of those rice fields had been ploughed up and filled with shallow water. Some kinds of tropical trees interspersed in the rice fields. Most of water of the river flowed away through a large aqueduct, which connected with the dam, to irrigate farmland because of serious drought. Consequently, most of downstream rocks emerged from the riverbed, and formed many shallow pools and brooks along both sides of the river. A large amount of small fishes, shellfishes, and shrimps lived in those brackish pools. It was very easy for amphibians to find favorite habitats among those rice fields, brooks, and pools.

*O. lima*, a small squat-bodied frog with bulging eyes situated at the back of head, was found in small pools in the environment, floating with eyes protruding the water surface.


In a rain day, one specimen was collected from stream of Wanling at an altitude of 320 meters. It was found squatting quietly on the top of rock in a stream. This section of the stream was entirely shaded by the branches projecting from trees on both sides, but the space under those branches was large enough for passage. Therefore, light was very weak even in daytime.

7. *Rana guentheri* Boulenger, 1882

Three specimens were collected in pools of Gezhen, and one specimen in a pond of Mt. Diaoluo at an altitude of 928 meters. *R. guentheri* was generally found in marshes, ponds, and rice fields. This species had strong limbs, and could jump away rapidly at the disturbance.

A large number of *R. guentheri* gathered to find mate at night in marsh forming from a lake because of the continual drought. The breeding season
of *R. guentheri* at least included February and March in Hainan Island. According to the amount of them, *R. guentheri* and *B. melanostictus* seemed to be the predominant species in the marsh.

8. Rana limnocharis Boie, 1834

Thirty-two specimens were collected from Gezhen, another four specimens in a pond of Wanling. The rice frog *R. limnocharis* could be found in rice fields and ponds both in day and at night. This species is very common along sides of Changhuaijiang River at Gezhen. Approximately 40 individuals were collected at one night. Many of them were gathered around an artificial pond with deep water at Wanling, which was one of survival ponds because of the drought, and croaked at night. Once it rained, it returned to the natural habitats very soon, and eventually the pond returned to be quiet. This species is widely distributed over Hainan Island, even found in urban pond.

9. Rana livida (Blyth, 1856)

Two specimens were collected in a stream of Wanling, and one specimen from Mt. Jianfengling. The green cascade frog, *R. livida*, was found at the mountain stream in the evergreen forest where the current was either slow or swift. It is easy to find this species in streams because of its fresh green color and big size.

10. Rana rugulosa Wiegmann, 1834

Two specimens were collected from Chabeh Town, locating in the west of Changjiang County and beside Changhuaijiang River.

11. Rana spinulosa Smith, 1923

Seven specimens were collected in a stream of Wanling, and eleven specimens from Mt. Diaolu. *R. spinulosa* is abundant in mountain streams, but is rare in the stream of Wanling. The amount of the species was much less than that of *Bueroergia oxycephala* in the stream of Wanling, while it co-existed with other frogs, such as *A. hainanensis*, *A. torrentis*, and *B. oxycephala*. Nevertheless, *R. spinulosa* was abundant and seemed to be the main inhabitant in a stream of Mt. Diaolu.

Family Rhacophoridae

12. Bueroergia oxycephala (Boulenger, 1900)

Twenty specimens were collected from Wanling, six from Mt. Diaolu, and another six from Mt. Jianfengling. This species co-existed with at least four other frogs, and probably more in the stream of Wanling. It seemed that different types of frogs imprecisely occupied different sections of the stream. The bare huge rocks in and by streams were the favorite habitats for *B. oxycephala*. If a rock was large enough, many of them could be found on it. They shrank their bodies, adhering to the surface of rocks where none of current flowed over.

13. Polypedates megacephalus Hallowell, 1861

One specimen was collected from the campus of Hainan Normal University at an altitude of 21 meters, and five specimens from Gezhen. At the campus of HNU, this species was active in an artificial pond with other common species, such as *Bufo melanostictus*.

References


