Reptiles and Amphibians

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Chapter 6

Reptiles and Amphibians

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Summary

Because the season was not suitable for herpetological field surveys, we recorded only 10 species of amphibians and six species of reptiles during 20 days of field work. Our results show that the herpetological diversity was higher at the Danba and Yajiang sites compared to the Kangding site. At Site 2 (Kangding), we collected a giant horned toad (*Megophrys* sp.) that we had never found before which is possibly new to science. Unfortunately, we collected only one specimen. At Site 3 (Yajiang), hundreds of individuals of a torrent frog (*Amolops* sp.) were found under the rocks near streams and rivers, some were even found in the mountains, hundreds of meters from streams and rivers. Comparing our specimens with other Amolops species, the observed species shows a different color pattern, and the tympanum is absent. Further study is needed to confirm the taxonomic status of these two species. Additionally, one recorded species is listed as Vulnerable (Alpine stream salamander, *Batrachuperus tibetanus*) and one as Near Threatened (Plateau frog, *Nanorana pleskei*) by the IUCN (IUCN 2006).

Introduction

Western Sichuan lies in the northern part of the Trans-Himalaya Mountain range, part of the Mountains of Southwest China, designated one of 34 global Biodiversity Hotspots (Mittermeier et al. 2004) by Conservation International. Ganzi Prefecture, composed of 18 counties, makes up the main part of western Sichuan. Due to its rich herpetological fauna, over the past 130 years numerous herpetologists, both Chinese and foreign, have investigated this region, recording 84 species of amphibians and more than 80 species of reptiles, 34 species of which are endemic to this region (Fei and Ye 2001, Zhao 2003). Although Western Sichuan has been well investigated for herpetofauna, because of its large size and complex environment, there is still value in additional investigation.

Methods

We used line-sampling along the banks of lakes, ponds, streams and rivers. During daytime, we overturned rocks in or near water, while at night we searched for animals directly using a flashlight. We sampled terrestrial animals using line-transect sampling. During the day, in addition to direct observation we also overturned rocks, dead trees, etc. searching for reptiles. At night we walked along a road for a given distance, searching for toads with the use of a flashlight, noting all observations. We conducted interviews with local people using colored atlas photos to describe species and obtain information.

Specimens were identified according to Zhao, Huang and Zong 1998, Zhao, Zhao and Zhou 1999, Fei and Ye 2001, Zhao 2003, and others. All specimens were preserved in 75% alcohol.

Study Sites

Site 1 (Danba). Dongma valley, Dingguo Hill and Kuiyong valley of Danba County were investigated (elevation of survey region ranges from 2800 m to 4800 m). The habitats studied in Danba County included grassland, high mountain shrub, conifer forest, conifer and broad-leaf forest, shrub-grass, meadow, plantations, abandoned buildings, residential areas and hardwood and broad-leaf forest.

Site 2 (Kangding). Tongling Village of Kangding County was investigated (elevation of survey region ranges from 2400 – 5000 m). The types of vegetation surveyed included grassland, high mountain shrub, conifer forest , conifer and broad-leaf forest, hardwood and broad-leaf forest, residential areas and plantations, all seriously altered by human activity.

Site 3 (Yajiang). Decha Township of Yajiang County was surveyed (elevation of this site ranges from 3630-4700 m). Compared with the other two survey sites, this site is at much higher altitude and vegetation consists mainly of plateau meadow and conifer forest. Human population density is very low, thus there is almost no human disturbance in the area. Streams and small lakes here are cold and clean.

Results

Site 1 - Danba. In Danba we collected four amphibian and two reptile species (Table 6.1), all common throughout the area. Among these, Alpine stream salamander (*Batrachuperus tibetanus*) is the most common amphibian species, Kangding smooth skink (*Scincella potanini*) is the most common lizard, and Tibetan pit viper (*Gloydius strauchi*) is the most common snake. Tibetan toad (*Bufo tibetanus*) should be the most common frog here, but we found only tens of individuals of this species, due to the unsuitable season.

Site 2 - Kangding. In Kangding, three amphibians and four reptiles were recorded (Table 6.1). Of these, a *Megophrys* species is most interesting. Although only one specimen of this *Megophrys* was collected, the species is distinctly different from other *Megophrys*.

Site 3 - Yajiang. In Yajiang County we collected six amphibian and three reptile species (Table 6.1), although the temperature was cool and unsuitable for the survival of amphibians and reptiles and most species were in dormancy. Among the species observed, a torrent frog is highly interesting. This is a very common species here, and lives near the bank of the river. Overturning rocks near the river, we found hundreds of individuals of this species which resembles *Amolops mantzorum*, but has a different color pattern, is slightly smaller and lacks a tympanum. Considering that *Amolops mantzorum* is very common and widely distributed, additional specimens are required to confirm the new-found species' taxonomic status.

Table 6.1. Amphibian and reptile species recorded during the 2005 China RAP survey.

	English Name	Latin name	IUCN	Fauna	Distribution Type	Endemic to	Danba	Kangding	Yajiang
AMPHIBIA									
	Hynobiidae								
1	Alpine stream salamander	*Batrachuperus tibetanus*	VU	Oriental	Mountain streams	China	x	x	x
	Megophryidae								
2	Horned toad	*Megophrys* sp.		Oriental	Mountain streams			x	
3	Toothed toad	*Oreolalax* sp.		Oriental	Mountain streams				x
4	Alpine toad	*Scutiger boulengeri*	LC	Oriental	Mountain streams				x
5	Chest gland cat-eyed toad	*Scutiger glandulatus*	LC	Oriental	Mountain streams	China	x		
	Bufonidae								
6	West China toad	*Bufo andrewsi*	LC	Oriental	Highland aquatic	China		x	
7	Tibetan toad	*Bufo tibetanus*	LC	Oriental	Highland aquatic	China	x		x
	Ranidae								
8	Sichuan torrent frog	*Amolops mantzorum*	LC	Oriental	Mountain streams	China	x		
9	Torrent frog	*Amolops* sp.		Oriental	Mountain streams				x
10	Plateau frog	*Nanorana pleskei*	NT	Oriental	Highland aquatic	China			x
REPTILIA									
	Agamidae								
11	Yellow-headed japalure	*Japalura flaviceps*		Oriental	Highland shrub	China		x	
	Scincidae								
12	Kangding smooth skink	*Scincella potanini*		Oriental	Highland	China	x	x	x

	Colubridae								
13	Big-eyed mountain keelback	*Pseudoxenodon macrops*		Oriental	Highland	China			x
14	Upper-labial grooved-neck keelback	*Rhabdophis pentasupralabialis*		Oriental	Highland	China		x	
	Viperidae								

Discussion

Due to the unsuitable season, we obtained few records for amphibian and reptile species. This preliminary survey showed that, among the three sites, Decha Township of Yajiang County has the richest herpetological diversity. In Yajiang we recorded six amphibian and three reptile species, even though the temperature was rather cold (below freezing in the morning). Pengda Township of Kangding County was found to have the least herpetological diversity, though it should have the richest in theory. On the other hand, each site had its own dominant species, *Batrachuperus tibetanus* and *Scincella potanini* from Site 1 (Danba); *Bufo andrewsi* and *Scincella potanini* from Site 2 (Kangding); and *Scincella potanini, Scutiger boulengeri, Bufo tibetanus, Amolops* sp., and *Scincella potanini* from Site 3 (Yajiang).

At Site 2 (Kangding), we collected a giant horned toad (*Megophrys* sp.) that we had never found before, and possibly new to science. Unfortunately, we got only one specimen.

At Site 3 (Yajiang), Hundreds of individuals of a torrent frog (*Amolops* sp.) were found under the rocks near streams and rivers, some were even found in the mountains, hundreds of meters from streams and rivers. Comparing our specimens with other Amolops species, the observed species shows a different color pattern, and the tympanum is absent. Further study is needed to confirm the two species' taxonomic status.

Conservation Recommendations

Because the season was not suitable for a survey of amphibians and reptiles, the data obtained are not sufficient for us to make site-specific scientific recommendations. As a result of 20 days of investigation, we can tell that the Kangding site is seriously disturbed by human activity and that better management is necessary to protect the forest and other wild habitat. At the Danba site, the harvest of mushrooms and aweto is the main source income for local people. Although local people manage this harvest sufficiently, the direction of government is still advisable. At the Yajiang site, since few people live here, the habitat is well protected and many interesting species were found, we suggest a further comprehensive investigation. A final suggestion is that the Alpine stream salamander (*Batrachuperus tibetanus*) could be a very good monitoring species for the environment variation within this region.

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