

太魯閣砂卡礑步道 夏夜賞蛙行

Frog-viewing on a Summer Night at Shakadang Trail of Taroko

撰文 text / 東華大學生態與環境教育研究所副教授 楊懿如
Associate Prof. Yiru Yang, Graduate Institute of Ecology and Environmental Education, Dong Hwa Univ
翻譯 Translator / 鄭淳怡 Chun-yi Cheng

砂卡礑溪是立霧溪入海前最後匯入的支流，有峻秀的峽谷地形，而且水質清澈，提供水生動物良好棲息環境。沿著砂卡礑溪闢有砂卡礑步道，步道沿線平緩，白天遊客如織，晚上則是蛙類樂園，是太魯閣國家公園最佳的夏夜賞蛙地點。

步道沿線最常見的蛙類是盤古蟾蜍，牠們是台灣特有種，經常靜靜的守候在步道旁，等著捕食小蟲、蚯蚓等小動物。蟾蜍有毒，但牠們沒有牙齒，沒有利爪，唯一的防衛武器就是皮膚，而且要把牠們吃下去才會中毒。當牠們被敵人攻擊時，有些蟾蜍會吸氣把身體漲成圓圓的，並抬高四肢作伏地挺身姿勢，有時候還會噴氣，發出「斯斯」的聲音，令人生畏不敢靠近。其實牠們是在虛張聲勢，警告敵人牠們有毒不要靠近。

走在步道上，不絕於耳的是斯文豪氏赤蛙如同鳥叫般的「啾」聲，牠們終年住在溪澗裡，喜歡躲在石縫或溪邊草叢裡，叫聲是牠們彼此溝通、較勁的管道。牠們雖然不是很常叫，但只要一隻領頭開始叫，其他雄蛙也會不甘示弱的一隻跟著一隻叫，合唱聽起來是此起彼落，頗具有聲勢。

在步道旁的欄杆上，偶而可以遇見從樹林遷徙到溪流的褐樹蛙；台灣特有的褐樹蛙，平時棲息在溪旁的樹林或石縫中，但到了春夏繁殖季節，則會遷移到溪流，此時雄蛙的體色從褐色變成亮麗的金黃色，並高踞在石頭上鳴叫吸引雌蛙。灰褐色的日本樹蛙不喜歡爬樹，步道旁的凹地淺淺的積水是牠們最愛。日本樹蛙又稱為溫泉蛙，牠們可以耐溫到攝氏43度，所以能和我們一起泡溫泉。

五間屋附近的山蘇園，常常聽到艾氏樹蛙「逼、逼、逼」的叫聲，牠們是台灣最有愛心的蛙類，因為牠們是台

With its beautiful gorge landscape and clear water, Shakadang River is an excellent habitat for aquatic animals. Built along the river is the gradual Shakadang Trail, which in the day time is one of tourists' favorite spot and at night, turns into a paradise for frogs

The frog most commonly seen along the trail is Central Formosan Toad, or *Bufo bankorensis*, which is endemic species in Taiwan and usually waits quietly to catch bugs or earth worms. Without neither teeth nor sharp claws, toads defense themselves only through their poisonous skin, which would intoxicates enemies eating them. Some toads, when facing attacks, will puff their abdomens and push their bodies up, or even make some hissing sound, in an attempt to scare the attackers away by warning about their toxicity.

Walking on the trail, you will hear the nonstop “chirping” sound from *Rana swinhoana*, which lives all year long in brooks and likes to hide in rock clefts or brushwood; they croak to communicate and to compete. As long as one frog starts the croaking, other male frogs, afraid of being outdone, will follow, forming a choir.

Occasionally on the handrails, one would encounter *Buergeria robustus*, also endemic species, migrating from the woods to brooks during the breeding season (spring and summer). At this time the male frogs would turn from brown to a bright golden color and croak to attract the females. *Buergeria japonica*, also called “Hot Spring Frog”, is seldom found in trees; the shallow puddles along the trail are their favorite.

In the *Asplenium nidus* garden near the Wujianwu, one can usually hear the sound of *Chirixalus eiffingeri*; among the 32 frog species in Taiwan, it is the only kind

翡翠樹蛙是台灣特有種，因顏色而得名 / 李鵬翔攝
Rhacophorus smaragdinus are unique to Taiwan and named after its color/ by Peng-hsiang Li



盤古蟾蜍是台灣特有種，是溪流常見的蛙類 / 李鵬翔攝
Bufo bankorensis is a rare strain in Taiwan, it is often seen in the rivers/ by Peng-hsiang Li



灣三十二種蛙類中，唯一雄蛙和雌蛙都表現護幼行為的蛙類。雄蛙在竹筒或樹洞鳴叫，吸引雌蛙交配並產卵，一顆顆晶莹剔透的卵粒排列整齊的黏在竹筒或樹洞的內壁上，好似貼上磁磚，給黯淡的洞內環境帶來一抹光亮。交配產卵之後，雄蛙留在竹筒或樹洞內照顧卵粒，以維持卵粒的濕潤避免發霉。卵粒孵化成蝌蚪之後，雌蛙則回來產卵餵食在洞中積水成長發育的蝌蚪。餵食的時候，雌蛙將身體下半部浸在水裡，蝌蚪主動聚集在雌蛙肛門附近並刺激雌蛙排卵；蝌蚪食卵的時候，先將卵的膠質囊咬破後，再吸食卵粒。

運氣好的話，在五間屋附近的樹林，也能遇見台灣特有的莫氏樹蛙。牠們的背部是美麗的翠綠色，腹面及側面散有一些黑斑，這是牠們的老人斑，年紀越大，斑點越多。大腿內側呈鮮豔的紅色，逃跑的時候兩腿一伸，露出紅色讓敵人嚇一跳，打斷敵人追蹤的線索。

漫步在太魯閣砂卡礑溪步道的我，有多重身份。我是研究者，長期帶著研究生及助理記錄步道蛙類數量及種類的變化，藉此監測步道環境變遷。我是老師，帶著學生及民眾體驗大自然，引領他們認識、喜愛及保育蛙類。我也是大自然的喜愛者，沈靜心靈輕鬆享受天籟。感謝大自然，讓我的生命如此豐富，我會一輩子愛護蛙類，和牠們做好朋友。

the both sexes of which show parental care. Males croak in bamboo stumps or tree holes to attract females to mate, and the females will then spawn on the inner walls of the stumps or holes. Afterwards, the males stay inside to take care of the eggs, guarding them against desiccation and fungi. After the tadpoles are hatched, the females will return to lay unfertilized eggs to feed the growing tadpoles, which break the gelatinous membranes first and then suck the eggs.

You may also have the luck to see *Rhacophorus moltrechti*. The color of its back is beautiful emerald green with some black spots on their lateral and ventral sides. The spots grow more as the frog gets older. The ventral sides of the frog's thighs are bright red, which could shock the enemy off from tracking it when it runs away.

Walk in the Shakadang Trail, I have multiple identities. I am a researcher, leading a team to keep a long-term record of the numbers and species of the frogs here. I am an instructor, guiding the public to love and protect frogs. I am also a nature lover, enjoying the heavenly music with a relaxed spirit. I thank Nature for enriching my life, and I will surely love and befriend frogs forever.

楊懿如教授簡介 Profile of Prof. Yi-ru Yang

國立台灣大學動物研究所動物學博士，目前任教於花蓮教育大學生態與環境教育研究所，職務為副教授兼所長，非常喜歡青蛙研究，每年至全國各地演講及帶領戶外環境教育活動超過40場以上，從1999年設立「楊懿如的青蛙學堂」網站(www.froghome.idv.tw)，免費提供蛙類生態保育教學資源及諮詢，已成為中小學蛙類環境教育的重要教材之一。

Dr. of Zoology, NTU, currently working as the associate professor and dean in the Graduate Institute of Ecology and Environmental Education in NHLUE. Yang has a fondness for frog research and conducts more than 40 lectures and outdoor education activities each year. “Yi-ru's Frog Classroom” was established in 1999 (www.froghome.idv.tw) that provides free frog-related education and consultations, making it one of the important materials for frog education in elementary and junior high schools.



楊懿如