

สำเนียงถิ่นของนกกระรางหัวหงอก (*Garrulax leucolophus*)

DIALECTS OF WHITE-CRESTED LAUGHING THRUSH (*Garrulax leucolophus*)

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บทคัดย่อ: การวิเคราะห์สำเนียงถิ่นของกระรางหัวหงอกใน 3 พื้นที่ คือ อ.เมือง อ.ดอยสะเก็ด และ อ.เชียงดาว จังหวัดเชียงใหม่ ตั้งแต่เดือนสิงหาคม พ.ศ.2548 ถึงเดือนมีนาคม พ.ศ. 2549 โดยบันทึกเสียงนก และนำมาวิเคราะห์ในรูปแบบของโซนาแกรม ทั้งนี้ได้สังเกตและบันทึกพฤติกรรมของนกควบคู่ไปด้วย โดยนำข้อมูลที่วิเคราะห์ได้มาเปรียบเทียบกับข้อมูลเสียงภายในพื้นที่ และระหว่างพื้นที่ ซึ่งการศึกษาครั้งนี้พบว่าไม่มีเสียงร้องที่เป็นเพลงที่แท้จริงในนกกระรางหัวหงอก พบเพียงเสียงร้องที่เป็นแบบ subsong และเสียงร้องเรียก เท่านั้น จากโซนาแกรมพบว่านกจะร้องในช่วงความถี่ 1-10 kHz และพบคลังข้อมูลเสียง ซึ่งแบ่งตามลักษณะ โครงสร้างของ element ทั้งหมด 10 กลุ่มใหญ่ 57 กลุ่มย่อย โดยเสียงร้องแบบ subsong นั้นใช้ร้องเพื่อติดต่อ และขับไล่ ส่วนเสียงร้องเรียกนั้น ใช้ร้องเพื่อเตือนตัวเอง ร้องเมื่อตื่นตื่น ใช้เตือนภัย และขออาหาร

Abstract: White-crested Laughing Thrush's dialect analysis was done at 3 main sites in districts of Maung, Doi Sa-ked and Chiang Dao, Chiang Mai province from August 2005 to March 2006. The vocal communication was recorded, transferred into sonagram, and analyzed for song patterns. Behaviours of birds were observed and recorded. The analyses were performed and comparisons were made among the birds within and between the sites. It was found that there was not true song in White-crested Laughing Thrush, but only subsongs and calls. According to the sonagram study, the birds sang with a constant frequency ranging between 1 to 10 kHz. It was found that 10 types and 57 sub types of repertoire divided by structure of elements were found. Two types of subsongs were found for contact and mobbing, and four types of calls for alert, alarm, excitement and begging.

Introduction: Dialect is a geographic variation in vocalizations, which occurs when male songbirds learn their songs. Imitation "errors" or improvisational inventions during vocal development may introduce novel song variation into geographically isolation populations. In some species, song dialects reflect the genetics of local populations. Females may make mate choice decisions based on a male's dialects, and young males may establish territories in particular areas based on the dialects of resident males. If so, dialect boundaries may also represent genetic boundaries, with birds having a particular dialect area genetically adapt to that particular area. Another hypothesis of dialect is social adaptation that dialects develop when young males disperse into an area, and learn the songs of established males.

Sound recording was analyzed and presented as sonagram using a sound analysis computer program, Avisoft SASLAB Light. In sonagrams, the y axis is frequency measured in kiloHertz (kHz). As frequency approximates to the pitch, the

higher the noise is, the higher it appears on trace. The time scale along the abscissa is usually in seconds. Base on the sonagram, dialect and function of bird's sound can be identified.

White-crested Laughing Thrush is in the order Passeriformes and the family Sylviidae. It has highly gregarious and usually found in flocks. It mostly feeds on the ground, and has loud, discordant calls. It is a common resident that is usually found in lowland habitats. This study is focused on dialects of the White-crested Laughing Thrush. Sound analyses were performed and comparisons were made among birds within and between sites in order to determine different dialects and species recognition.

Methodology: Sound of White-crested Laughing Thrushes were recorded at 3 sites in Chiang Mai province consisting of Maung, Doi Saked and Chiang Dao during August 2005 and March 2006. Distance between each of the sites is about 60 km. An individual's songs were recorded until the birds either stopped singing or flew out of the recording range. Bird's behaviours were observed when recording. Recordings were made with a HHB professional minidisc recorder MDP 500 and a Telinga PRO4B dynamic microphone mounted in a 60-cm parabolic reflector. The sounds were analyzed and sonagrams were produced with Avisoft SASLAB Light sound analysis software, with the following settings: sampling frequency 22050 Hz with 16-bit amplitude. The sonagrams were analyzed in terms of syllables, elements, phrases, intervals and frequency modulation to identify species recognition and repertoires. The sonagrams were compared within and between the sites in order to examine of dialect. Furthermore, behaviours were compared with the sounds to confirm function of the sounds.

Result, Discussion and Conclusion: Two types of vocal communication were found in the White-crested Laughing Thrush: call and subsong. Subsong is shorter and less complex in structure than true songs but it does not have certain function like true songs, which are used to defend territory and attract mates. The function of calls can be divided into 4 types. The first one is alert calls, which are light voices for reminding of themselves. In the White-crested Laughing Thrush, alert calls occur when they stand, feed on the ground and fly in close areas (Fig. 1). The second one is alarm calls. These calls are advantageous for birds to warn their flock in response to enemy and strangers (Fig. 2). The third one is exciting calls that call when they are excited, which mostly occur in captivity when someone jog past the bird's cage (Fig. 3). The last one is begging calls, that are performed when the birds beg for foods from their mates for pair bonding relationship that both displays and calls help us to understand this call's function (Fig. 4). The function of subsongs in the White-crested Laughing Thrush is divided into 2 types, mobbing and contact. Mobbing is aggressive action against other flocks or species that approach in food resources (Fig. 5). Contact is used to keep in touch with others birds in flock for flocking and flight associations (Fig. 6).

According to the sonagram study, vocal communication frequencies of birds range between 1 to 10 kHz. Ten types and fifty-seven sub types of repertoire (divided by structure of elements) were found. In the trends of the sonagram analysis, there were not true songs in the White-crested Laughing Thrush. The study of dialects is hard because the birds sing variation of subsongs and do not have certain function, so it does not has the same subsong from each site to compare the structure of sonagram in order to identify the dialects of the birds.

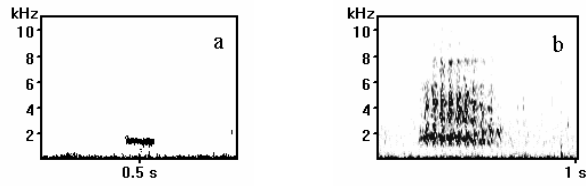


Fig. 1 The alert calls when the birds stand or feed on the ground (a) and fly in close areas (b).

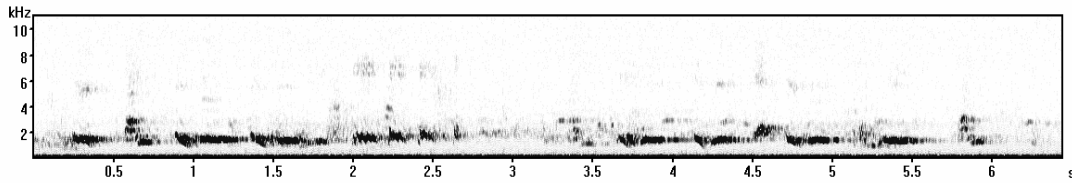


Fig. 2 The alarm calls of the White-crested Laughing Thrush.

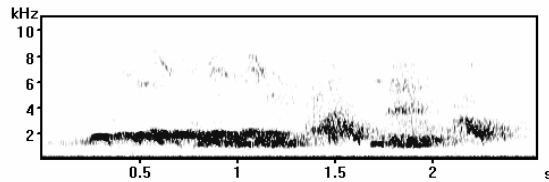


Fig. 3 The exciting calls

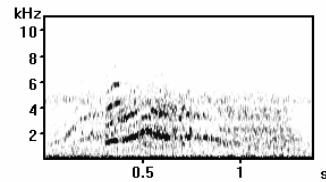


Fig. 4 The begging calls

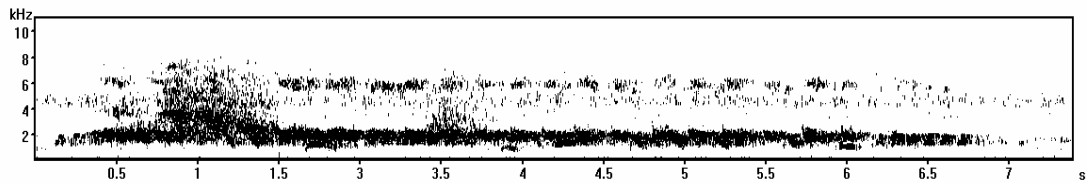


Fig. 5 Part of the mobbing subsongs.

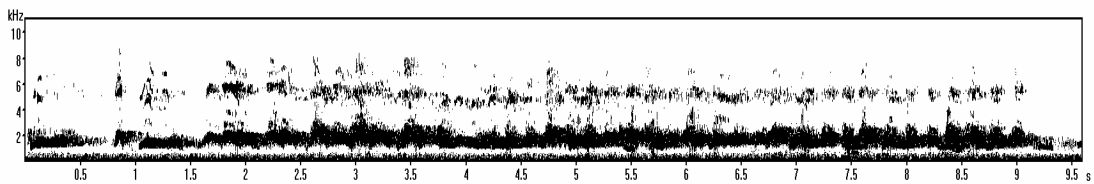


Fig. 6 Part of the contact subsongs.

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