

Bird hunting techniques practised by *War Khasi* community of Meghalaya, North-east, India

Tynsong¹ H, Tiwari² BK & Dkhar³ M

^{1&2}Department of Environmental Studies, North-Eastern Hill University, Shillong-793022, India,

³Union Christian Collage Umiam, Ri Bhoi

E-mail: herotynsong@yahoo.com

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Hunting for wild birds is stimulated by a variety of human uses of bird species, which constitute important subsistence items in the livelihoods of the people living in *War* area of Meghalaya. In this paper, it is analysed the findings of an Ethnoecological research on traditional ecological knowledge associated with bird hunting techniques. In order to gain access the resources, hunters have developed a series of techniques and strategies described and discussed in the present work. The principal hunting techniques encountered are locally known as *Suh Sim*, *Suh Sim Um*, *Suh Lynglit*, *Riam Shynroh*, *Riam Dkhoh* and imitation. The study was conducted in 5 selected villages of South Meghalaya. The choice of hunting technique depends on the habits of the bird species. From conservation perspectives, active hunting techniques (*Suh Sim* and *Suh Sim Um*) have the greatest impact on the local bird diversity. Additional studies concerning bird hunting activities are desirable in order to regulate bird hunting in the region, with the objective of promoting sustainable use of bird resources for welfare of the local human communities.

Keywords: Traditional Ecological Knowledge, Bird catching, *War Khasi*, South Meghalaya

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Thousands of ethnic groups across the globe possess indigenous knowledge (IK) closely associated with human development¹. Meghalaya situated in the Himalayan region is the treasure house of IK on various disciplines including flora and fauna²⁻³. The traditional knowledge of the people in the Himalayan region has been reported on healthcare⁴⁻⁶, fish harvesting⁷⁻⁸, forest management⁹⁻¹⁰, pest management,¹¹ etc. Huge treasure of such knowledge still remain unreported or very little has been recorded and hence are on the verge of being lost. There is a realization that to achieve the objective of conservation of biodiversity, one should have sound understanding of the techniques and practices used by local people in utilization of wild bioresources¹². Recent years have seen a tendency towards over-exploitation of wildlife especially in the tropical countries¹³⁻¹⁴. In conjunction with intense habitat transformation, this over-exploitation represents one of the main worldwide threats to tropical biodiversity and to people who depend on wildlife for their survival and subsistence^{13, 15}.

Bird has been an important part of human food especially for rural people since time immemorial¹⁶. Rural people have historically used wildlife primarily for subsistence, religious and commercial purposes¹³. In rural Central and South America, 30-50% of the animal proteins in the diets of the rural populations come from wild animals¹⁷⁻¹⁸. In the *War* area of Meghalaya, the Art and Science of bird hunting have been evolved by the local communities and passed on from generation to generation. *War Khasi* community possesses a wealth of knowledge related to bird hunting. There are relatively few studies conducted in Meghalaya regarding the wild faunal resource population especially on birds: their extraction rate, season of availability and social demand. In an effort to understand better the importance of birds at the local level, it is documented and analyzed: local hunting techniques, season of availability, tools used in hunting and purpose of hunting. We also analyzed the findings whether they are sustainable or affect the bird population in the region and suggest some measures to conserve the wild birds. In the face of the need to develop environmental conservation strategies suited

*Corresponding author

to the socioeconomic and ecological realities of human activities in the *War* area, the present study describes the techniques and strategies used for hunting birds in these areas. These results would be useful for regulating bird hunting while permitting sustainable use of the wild bird resources of this region.

Study Area

The study was conducted in South Meghalaya, India (25°7'-25°18' N latitude and 91°-92° E longitude) covering an area of about 1,350 sq km. Five surveyed villages were: Nongkwai, Latitude-25°20' N and Longitude-91°54' E; Mawriang, Latitude-25°12' N and Longitude-91°85' E; Umkrem, Latitude-25°14' N and Longitude-91°55' E; Nolikata, Latitude-25°15' N and Longitude-91°13' E, and Ranikor, Latitude-25°15' N and Longitude-91°11' E. (Fig. 1). Cherrapunjee-Mawsynram Plateau which receives highest rainfall in the world is located in this region⁶. The altitude of the study area ranged from 10 -1200 m asl. The mean annual maximum and minimum temperature is 23°C and 13°C, respectively. The mean annual rainfall is 11565 mm. The soil of the area is generally fertile and rich in humus. The important soil types are red and yellow, red loamy and alluvial. The slope of the land varies between 10° -40°. The area has a large numbers of rivers and rivulets, which drain into the plains of Bangladesh. At times, narrow and deep river valleys separate one range from the other. The population is sparse, with the people predominantly employed in plantations and forestry related activities. Agriculture is limited to some small valleys where mainly tuber crops are grown. Areca nut, orange, betel leaf, jack fruit, bayleaf, honey and broom grass are the principal produce of the region. South Meghalaya is inhabited by *War Khasi* people, a tribal community having long

tradition of forest conservation¹⁹. People of this area are skilled in land based livelihood activities, viz. Agriculture, Horticulture, Forestry and Fisheries. They collect, process and market large variety of non-timber forest products (NTFPs) and medicinal and aromatic plants (MAPs) such as *Cinnamomum tamala*, *Piper peepuloides*, *Phrynium capitatum*, bamboo, honey, mushrooms, nuts, tubers, edible worms, insects and leafy vegetables from the forests²⁰.

Methodology

Various participatory research tools such as group discussions, semi-structured interviews, key informants survey and on-site observations were used to acquire insight into the bird hunting technique practices followed by the community. Attendance of the bird hunting sites allowed us to observe directly the construction of structures and procedures followed in catching of the birds. During the interviews, the hunters answered questions about each of the bird species they hunted, their hunting techniques and reason for hunting the bird species, etc. Prior informed consent was obtained from all interviewee. The plants used in bird catching were collected and identified with the help of Flora of Assam²¹. The birds were identified by local people and recorded in their local language and then verified their zoological name by comparing with the preserved bird specimens available in the Zoological Survey of India, Shillong.

Objective of study

The objective of this study was to document the traditional ecological knowledge associated with bird hunting techniques and examine the interrelations of conservation with usage pattern of the bird species by *War Khasi* community of Meghalaya.

Results

A total of 150 bird hunters of various age groups ranging from 20 - 60 yrs old from the studied villages were interviewed. It has been found out that only men were involved in bird hunting, whereas women also are fond of eating the meat of birds in this area in contrast to the women in Northeastern Brazil where 1.88% of them involved in bird hunting¹⁶. The most hunted bird species, techniques involved in their capture and purpose of capturing is given in Table 1. The techniques and practices are described below.

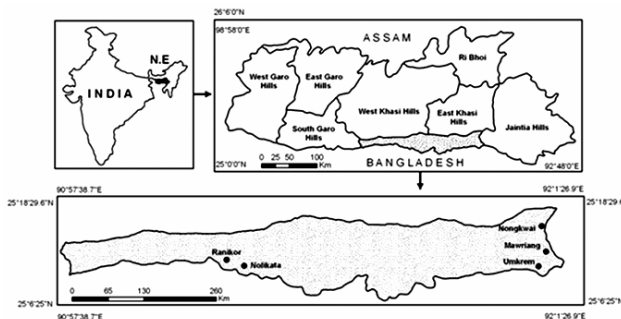


Fig. 1—Location of study area

Table 1—Birds species, common name, local name, trapping technique and uses of birds by *War Khasi* community, Meghalaya

Bird species	English name	Local name	Hunting technique	Purpose of hunting
<i>Alcippe vinipectus</i> (Hodgson)	White-Browed Fulvetta	<i>Ruria</i>	1, 2, 4 and 5	Food
<i>Alophoixus</i> sp.	-	<i>Sim Ad</i>	1 and 2	Food
<i>Aprosmictus erythropterus</i> (Gmelin)	Red-Winged Parrot	<i>Khlung</i>	3 and 6	Food, Pet, Sale
<i>Arachnothera longirostra</i> (Latham)	Little Spiderhunter	<i>Jiriak Padung</i>	1, 4 and 5	Food
<i>Arachnothera magna</i> (Hodgson)	Streaked Spiderhunter	<i>Jiriak Padung</i>	1, 4 and 5	Food
<i>Athene noctua</i> (Scopoli)	Little Owl	<i>Dkhoh Rit</i>	1, 2 and 5	Food, Pet
<i>Blythipicus pyrrhotis</i> (Hodgson)	Bay Woodpecker	<i>Kumpiat</i>	1	Food
<i>Cettia flavolivacea</i> (Blyth)	Aberrant Bush-Warbler	<i>Sim Um</i>	1, 2 and 4	Food
<i>Chalcophaps</i> sp.	-	<i>Lyngtliew</i>	1 and 2	Food
<i>Chloropsis cochinchinensis</i> (Gmelin)	Blue-Winged Leafbird	<i>Sim Jalaait</i>	1 and 5	Food, Pet
<i>Chloropsis hardwickii</i> (Jardine & Selby)	Long-Tailed Minivet	<i>Jala Eit</i>	1 and 5	Food, Pet
<i>Dicrurus leucophaeus</i> (Vieillot)	Ashy Drongo	<i>Shyrrwat</i>	1 and 2	Food
<i>Dicrurus</i> sp.	Racket-Tailed Drongo	<i>Risei</i>	1 and 2	Food
<i>Lonchura punctulata</i> (Linnaeus)	Scaly-Breasted Munia	<i>Pdit</i>	6	Food, Pet
<i>Macropygia</i> sp.	-	<i>Shiir</i>	1 and 2	Food
<i>Megalaima asiatica</i> (Latham)	Blue-Throated Barbet	<i>Pohrong</i>	1 and 6	Food
<i>Megalaima virens</i> (Boddaert)	Great Barbet	<i>Jyllup</i>	1 and 6	Food
<i>Niltava sundara</i> (Hodgson)	Rufous-Bellied	<i>Thabalong</i>	1, 2 and 4	Food
<i>Otus sunia</i> (Hodgson)	Oriental Scops-Owl	<i>Dkhoh Heh</i>	1	Food
<i>Pericrocotus ethologus</i> (Bangs & Phillips)	Long-Tailed Minivet	<i>Jaraitsiaw Stem</i>	1	Food
<i>Pericrocotus</i> sp.	-	<i>Jaraitsiaw Saw</i>	1	Food
<i>Picus canus</i> (Gmelin)	Grey-Faced Woodpecker	<i>Kynjar</i>	1	Food
<i>Psarisomus dalhousiae</i> (Jameson)	Long-Tailed Broadbill	<i>Lakadia</i>	1 and 2	Food
<i>Psittacula columboides</i> (Vigors)	Malabar Parakeet	<i>Kyrkhiah</i>	3 and 6	Food, Pet
<i>Psittacula himalayana</i> (Lesson)	Slaty-Headed Parakeet	<i>Shynrang</i>	3 and 6	Food, Pet, Sale
<i>Pycnonotus leucotis</i> (Gould)	White-Eared Bulbul	<i>Pait Puraw</i>	1, 2, 3 and 4	Food
<i>Pycnonotus melanicterus</i> (Gmelin)	Black-Crested Bulbul	<i>Sim Klong</i>	1, 2, 3 and 4	Food
<i>Seicercus</i> sp.	-	<i>Sim Rit</i>	1, 2, 3 and 4	Food
<i>Treron apicauda</i> (Blyth)	Pin-Tailed Green Pigeon	<i>Kuwo</i>	1 and 6	Food
Unidentified1	-	<i>Sim Kdait</i>	1, 2, 4 and 5	Food
Unidentified2	-	<i>Sim Iong</i>	1, 2, 3 and 4	Food
Unidentified3	-	<i>Phreit</i>	6	Pet

1= *Suh Sim*, 2= *Suh Sim Um*, 3= *Suh Lynglit*, 4= *Riam Shynroh*, 5= *Owl Trap* and 6= *Imitation*

Preparation of glue (*Ka Pnah*) and glue sticks (*Diengthriang*)

The hunting techniques of *War* people start with the preparation of a glue substance locally known as *Ka Pnah*. The bark of *Ficus benjavina* L. var. *comosa* Kurtz, is cut in many places for its latex to ooze out, and is left for about a week to naturally coagulate. The hardened latex is then collected in a bamboo basket which is then cut into pieces and cooked in a pot, in which the mouth of the pot is tightened nicely and a stone is placed on the top of the lid so that it will not catch fire. Latex is highly inflammable, so cooking is usually done in the open, away from peoples' houses. It takes about an hour for the latex to be completely liquefied in a strong fire. If the fire is not strong, the quality of the glue (*Pnah*) will not be

good. After the latex becomes liquefied, fresh latex in its liquid state is mixed by pouring it into the pot so that liquefied latex get hardened. This glue is very sticky. It is then applied on a very thin bamboo (*Bambusa tulda*) sticks known as *Diengthriang* which is made for this purpose. *Diengthriang* is about 45 cm in length and about 1.5-2 mm in thickness. One third of *Diengthriang* is covered with the glue, and the other end which is made sharpened is left without glue so that the hunter can hold it from that end (Fig. 3). This is kept in a bamboo container (*Bambusa vulgaris*) locally known as *Tyndong* in order to keep it away from dust and other particles (Fig. 4). Usually a *Tyndong* consists of 124 *Diengthriang* which make a set (locally known as *shi pen*). This process is known as '*Shet Pnah*'. This

is a specialized job of older men, while youngster (<20 yrs in age) has to just buy if they need them @Rs.100-150/shi pen. The glue are now ready for use in different bird hunting techniques by the *War Khasi* community which are as below:

1. Suh Sim Um

During the months of December-March, when the seasonal streams get dried out and most perennial streams have also subsided, the birds prefer to take bath and drink water from a particular stream, at a particular point, mostly from the source. Usually birds prefer to take bath and drink water at noon and evening time before they go to sleep. Spotting this, the hunters come and clean that area and place few tree branches without their leaves around the water source. After one week, people come in the morning and insert the glued sticks (*diengthriang*) on these tree branches. Most of the birds, when they come for bathing and drinking water first sit on these branches and are trapped on the glue of the *Diengthriang* (Fig. 5). In this technique, mainly young person (<20 yrs old) and older men (>60 yrs old) are involved. According to hunters, the birds captured by using this technique ranged from 1 - 2 kg per hunting (15-20 small birds). The bird species captured using this technique, are listed in Table 1.

2. Suh Sim

In this technique, people first survey the ripe fruit trees in the forest where birds come and feed upon their fruits. After identification of the fruit trees, early in the next morning when it is still dark and the birds are still sleeping, people climb up that particular tree with the help of a torch light. The *diengthriang* are inserted in all the branches of that tree in an inclined position at an angle of 35⁰-45⁰. Based on the size of birds that come to feed upon these fruits, the angles of inclination of *diengthriang* are adjusted accordingly. This technique is used during the months of November-February when most wild fruits ripen. As soon as birds wake up in the morning, they start searching for food. Usually before eating the fruits, the birds relax and play with each other on the branches of the trees. Some of them sit on the branches underneath the *diengthriang* and the glue gets stucked on to their feathers. So they cannot fly anymore and fall down on the ground where people come and collect them. This technique is followed mainly by men between the age group 20-40 yrs as this requires climbing tall trees. The quantity of birds

captured using this technique ranges from 1-5 kg per hunting. Important fruit tree species in which birds feed are listed in Table 2

3. Suh Lynglit

This was a special technique for catching *Aprosmictus erythropterus*, *Psittacula himalayana* and *Psittacula columboides*. These are the migrating birds which come to visit *War* area every year during the months of March-June. The domesticated specimens of this bird are used as a trapping tool locally known as song birds, as they call and scream for the wild individuals. In this technique, people insert *diengthriang* on the top of the tree branches in which they have already cleared the leaves. Then they keep the domesticated bird near the cleared branches of the trapped tree. When the wild bird fly around that area, the domesticated bird calls up with a high pitched screeching and very melodious chattering; these wild individuals come and perch on the branches of this tree and get trapped (Fig. 6). These birds usually come in flocks of 10-20 during the non-breeding season. This type of bird hunting is usually done at about 7.00-9.30 am in the morning and 2.30-5.30 pm in the evening. In this technique men of age ranges from 15-35 yrs are usually involved since they have to climb up the tree. The species of *Aprosmictus erythropterus*, *Psittacula himalayana* and *Psittacula columboides* caught by this technique are kept alive for sale and only few of them are killed for food. The bird species kept alive are used as song birds. These song birds are also sold in the market @Rs.100-250 depending on the quality of their songs. The one which can sing sweetly, loudly and clearly fetches more price in the market. Many hunters involved in this technique admitted that they hunt these bird species for their leisure and sport, where they compete each other to see whose song birds can sing more melodiously so as to attract the wild species come to their trap.

4. Riam Shynroh

In this technique, the glue is pasted around a bamboo stick (*Bambusa tulda*) of about 1 m length and the stick is about 2 cm in diameter. In the middle of this bamboo stick, a small hole is made where a very small bamboo piece is inserted at an inclination angle of about 40⁰. On this inclined bamboo piece, 3-4 termites (*Reticulitermes* sp.) are placed as bait (Fig. 2). Some birds are very fond of termites, so when they see these termites stirring their wings, they

Table 2—Plant names, part of the plant used and bird species which feed upon them

Plant species	Local name	Plant parts feed by bird	Bird species
<i>Aeschyanthus superva</i> Clarke.	Tiew Iap Kmie	Nectar	<i>Arachnothera longirostra</i> (Latham), <i>Arachnothera magna</i> (Hodgson).
<i>Antidesma khasianum</i> Hk.f.	Diengsaw	Fruit	<i>Pycnonotus melanicterus</i> (Gmelin), Sim Kdait (K), <i>Megalaima asiatica</i> (Latham) <i>Pycnonotus leucotis</i> (Gould).
<i>Bischofia javanica</i> Blume.	Lymbuh	Fruit	<i>Pycnonotus melanicterus</i> (Gmelin), Sim Kdait (K), <i>Megalaima asiatica</i> (Latham), <i>Alophoixus</i> sp., <i>Blythipicus pyrrhotis</i> (Hodgson), <i>Pycnonotus leucotis</i> (Gould) <i>Pycnonotus melanicterus</i> (Gmelin) <i>Treron apicauda</i> (Blyth).
<i>Bombax malabaricum</i> DC.	Diengsong	Nectar	<i>Megalaima asiatica</i> (Latham), <i>Chloropsis hardwickii</i> (Jardine & Selby), <i>Chloropsis cochinchinensis</i> (Gmelin), <i>Arachnothera longirostra</i> (Latham), <i>Aprosmictus erythropterus</i> (Gmelin).
<i>Breynia retusa</i> (Dennst) Alst.	Sohthiang	Fruit	<i>Alcippe vinipectus</i> (Hodgson), <i>Cettia flavolivacea</i> (Blyth) and <i>Niltava sundara</i> (Hodgson),
<i>Bridelia montana</i> Willd.	Diengsyiar	Fruit	<i>Treron apicauda</i> (Blyth) and <i>Alophoixus</i> sp.
<i>Calicarpa vestica</i> Roxb.	Lakhiat	Fruit & bark	<i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin), Sim Kdait (K) and <i>Aprosmictus erythropterus</i> (Gmelin)
<i>Croton caudatus</i> Geisel.	Diengsoh	Fruit	<i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin), Sim Kdait (K), <i>Dicrurus leucophaeus</i> (Vieillot), <i>Pericrocotus ethologus</i> (Bangs & Phillips) and <i>Psarisomus dalhousiae</i> (Jameson).
<i>Duabanga grandiflora</i> (Roxb. Ex DC.) Walp.	Diengbai	nectar	<i>Arachnothera longirostra</i> (Latham) and <i>Arachnothera magna</i> (Hodgson).
<i>Ehretia acuminata</i> Br.	Bsier	nectar	<i>Arachnothera longirostra</i> (Latham), <i>Arachnothera magna</i> (Hodgson), <i>Chloropsis cochinchinensis</i> (Gmelin), <i>Chloropsis hardwickii</i> (Jardine & Selby) and <i>Megalaima asiatica</i> (Latham).
<i>Ficus faveolata</i> Wall.	Sohjri	Fruit	<i>Megalaima asiatica</i> (Latham), <i>Megalaima virens</i> (Boddaert), <i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin), <i>Treron apicauda</i> (Blyth) and Sim Iong (K).
<i>Ficus glomerata</i> Roxb.	Sohjrisim	Fruit	<i>Megalaima asiatica</i> (Latham), <i>Megalaima virens</i> (Boddaert), <i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin), <i>Treron apicauda</i> (Blyth) and Sim Iong (K).
<i>Glochidion khasicum</i> Hk.f.	Diengjyrtieng	Fruit	<i>Dicrurus leucophaeus</i> (Vieillot), <i>Pericrocotus ethologus</i> (Bangs & Phillips), <i>Pericrocotus</i> sp., <i>Pycnonotus leucotis</i> (Gould) and <i>Pycnonotus melanicterus</i> (Gmelin).
Grasses	Phlang	Seed	Phreit (K), <i>Seicercus</i> sp. and <i>Lonchura punctulata</i> (Linnaeus)
<i>Leea umbraculifera</i> C.B.Clarke.	Shynriang	Fruit	<i>Alophoixus</i> sp., <i>Blythipicus pyrrhotis</i> (Hodgson), <i>Cettia flavolivacea</i> (Blyth), <i>Macropygia</i> sp., <i>Megalaima asiatica</i> (Latham), <i>Megalaima virens</i> (Boddaert), <i>Pycnonotus leucotis</i> (Gould) and <i>Pycnonotus melanicterus</i> (Gmelin).
<i>Ligustrum robustum</i> (Roxb.)Blume.	Sohlyngshieng	Fruit	<i>Alophoixus</i> sp., <i>Macropygia</i> sp., <i>Megalaima asiatica</i> (Latham), <i>Megalaima virens</i> (Boddaert), <i>Picus canus</i> (Gmelin), <i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin) and Sim Iong(K).
<i>Litsea leiantha</i> (Kurz) Hk.f.	Sohjyllup	Fruit	<i>Blythipicus pyrrhotis</i> (Hodgson), <i>Dicrurus leucophaeus</i> (Vieillot), <i>Megalaima asiatica</i> (Latham), <i>Megalaima virens</i> (Boddaert), <i>Picus canus</i> (Gmelin), <i>Pycnonotus leucotis</i> (Gould) and <i>Pycnonotus melanicterus</i> (Gmelin).
<i>Macaranga denticulata</i> Muell. Arg.	Lakhar	Fruit	<i>Chalcophaps</i> sp., <i>Dicrurus leucophaeus</i> (Vieillot), <i>Macropygia</i> sp., <i>Niltava sundara</i> (Hodgson), <i>Psarisomus dalhousiae</i> (Jameson), <i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin), <i>Seicercus</i> sp. Sim Kdait (K) and Sim Iong (K).
<i>Macaranga peltata</i> (Roxb.) Muell.Arg.	Lakharong	Fruit	<i>Chalcophaps</i> sp., <i>Dicrurus leucophaeus</i> (Vieillot), <i>Macropygia</i> sp., <i>Niltava sundara</i> (Hodgson), <i>Psarisomus dalhousiae</i> (Jameson), <i>Pycnonotus leucotis</i> (Gould), <i>Pycnonotus melanicterus</i> (Gmelin), <i>Seicercus</i> sp. Sim Kdait (K) and Sim Iong (K).

Contd.

Table 2—Plant names, part of the plant used and bird species which feed upon them—*Contd.*

Plant species	Local name	Plant parts feed by bird	Bird species
<i>Machilus khasyana</i> Meissn.	<i>Diengjali</i>	Fruit	<i>Alophoixus</i> sp., <i>Megalaima asiatica</i> (Latham), <i>Megalaima virens</i> (Boddaert), <i>Pycnonotus leucotis</i> (Gould) and <i>Pycnonotus melanicterus</i> (Gmelin).
<i>Melastoma malabathricum</i> L.	<i>Sohthut</i>	Fruit	<i>Psittacula himalayana</i> (Lesson) and <i>Aprosmitcus erythropterus</i> (Gmelin)
<i>Musa paradisiaca</i> L.	<i>Kait Khlaw</i>	Nectar	<i>Arachnothera longirostra</i> and (Latham) and <i>Arachnothera magna</i> (Hodgson).
<i>Plogacanthus parviflorius</i> Ham.	<i>Sohthiang</i>	Nectar	<i>Chloropsis cochinchinensis</i> (Gmelin) and <i>Chloropsis hardwickii</i> (Jardine & Selby)
<i>Saprosma ternatum</i> Hk.f.	<i>Pungkhnai</i>	Fruit	<i>Macropygia</i> sp., <i>Megalaima asiatica</i> (Latham) and <i>Megalaima virens</i> (Boddaert).
<i>Travesia palmata</i> (Roxb.) Vis.	<i>Pyrthew</i>	Fruit	<i>Megalaima virens</i> (Boddaert) and <i>Megalaima asiatica</i> (Latham).
<i>Trema polytoria</i> Planch.	<i>Lyngta</i>	Fruit	<i>Pericrocotus ethologus</i> (Bangs & Phillips), <i>Pericrocotus</i> sp. and <i>Treron apicauda</i> (Blyth).
<i>Villebrunea intigrifolia</i> Gaud.	<i>Kyrwoh</i>	Fruit	<i>Alcippe vinipectus</i> (Hodgson), <i>Cettia flavolivacea</i> (Blyth), <i>Niltava sundara</i> (Hodgson), <i>Pycnonotus leucotis</i> (Gould) and <i>Pycnonotus melanicterus</i> (Gmelin).

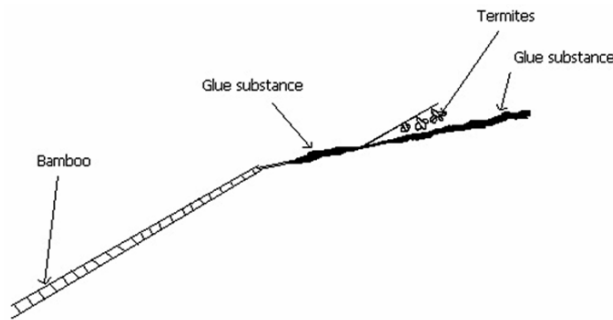


Fig. 2—A single *Diengthriang*

come and land on bamboo stick and get stuck on the glue. After every one hour, the termites are replaced by live ones because if the termites are dead, birds can not recognize them from far distances. This technique is usually practised in the months of September-October, when termites are available in plenty. In this technique also men whose age <20 yrs and older men >60 yrs are involved. The bird species caught in this technique is given in Table 1.

5. Riam Dkhoh (Owl Trap)

In this technique, the young ones of *Athene noctua* (little owl) are kept on the tree along with the glue sticks. Other birds become inquisitive and hence would come and gather around these little owls while they dance and shake their little tail. This was how

others birds' species got caught up on the glue already placed on the branches of the tree. This technique was usually practiced only by youths of ages ranging between 20-40 yrs since they have to climb up high trees. The bird species caught in this technique is given in Table 1.

6. Imitation

In this technique, the hunter calls the birds by imitating their songs by whistling using their fingers. This hunting technique is usually practiced by hunters during the mating period of the birds every year during the months of July-September. In this technique, the hunters go to a particular place where they spot the presence of these birds. These hunters are also able to distinguish between the males and females, since to attract a male the hunter has to imitate the female and vice versa. According to these hunters, the birds are attracted to them when the opposite sex is imitated; where they come they get trapped on the glue put on the tree branches by the hunter. The bird species mostly hunted using these techniques are *Treron apicauda*, *Lonchura punctulata*, *Megalaima asiatica*, *Megalaima virens*, *Psittacula columboides* and *Psittacula himalayana*. This technique was also reported to be employed by local people living in North-eastern Brazil¹⁶. Imitation of bird's voice can be done by few gifted hunters



Fig. 3—Tyndong and Diengthriang of glue-substance; Fig. 4—Suh Sim Um; Fig. 5—Suh Lynglit; Fig. 6—Riam shynroh

hence only few people who can practice this technique. The number of such people usually ranged from 10-15 men/village. The bird species caught in this technique is given in Table 1.

Discussion

The informants shared their knowledge on the effects of forest disturbance on avian diversity that is similar to conventional studies conducted by researchers working in other regions of the world. For instance, studies from Gabon to Peru also indicate that disturbed areas and secondary forests harbour fewer species of birds than primary forests in the same locations^{22, 23}. More recent studies have found that not only does the primary forest support more species of birds, but also more specialist species than secondary growth²⁴. In our opinion, it is this congruence between IK and traditional western studies of avian diversity that can form the basis of a dialogue between conservationist and indigenous people. The findings in this study throw light on the wealth of IK of War Khasi in hunting bird species. The study also gives an insight that such knowledge of other ethnic groups of the Himalayan region should be recognized and documented on priority. The IK of all ethnic communities may serve as valuable data for developing the conservation strategies because their livelihoods bring them in close link with the environment. The practice of bird hunting is very common in the surveyed villages and the people use them mainly as food and pet and very few species are sold in the market mainly as song bird. Capturing song birds is one of the preferred activities of children and adolescents which indicate that bird hunting begins at childhood. Besides hunting for food, many hunters admit that hunting is for leisure and sport (especially in technique *Suh Lynglit*). The results are in agreement with previous authors who have shown that hunting activities involve socioeconomic factors and knowledge of these practices is transmitted on through generation¹. From a conservation perspective, bird hunting techniques in War area of Meghalaya is very unsustainable as hunting of most birds species takes place during their breeding season. These hunting techniques have great impacts on the local bird diversity where many birds get killed. Studies on traditional uses of faunistic resources should be carried in order to develop sustainable management to natural resources involving these societies²⁵. It must be emphasized that many factors that affect animal populations and direct consumption of bird species is only part of the problem. Most hunters however, feel that non-sustainable activities in these areas such as slash and burn

agriculture and conversion of natural forests into agroforests result in loss of habitat for many wild species which results in loss of fruit trees providing food for these bird species are principal causes of loss of avian diversity.

Conclusion

This study explains the wealth of Indigenous Knowledge of *War Khasi* in hunting bird species. It also revealed that from a conservation point of view, traditional bird hunting in south Meghalaya is very unsustainable as hunting was mostly carried out during the breeding season. Besides bird hunting, non-sustainable activities practiced by local people viz., shifting cultivation and conversion of natural forests into agroforests also have negative impact on local bird diversity. We conclude that further research needs to be carried out, on traditional uses of faunistic resources to develop a more sustainable management approach to various natural resources of these societies.

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