

Iban Knowledge of Wild Birds in a Habitat Mosaic

Yumi Aihara¹, Kuniyasu Momose¹, Miyako Koizumi²

¹*Faculty of Agriculture, Ehime University*

²*The Kyoto University Museum*

Introduction

Birds play important roles in people's culture. Birds often have symbolic meanings and are related to traditional culture and belief systems (e.g., Feld 1988; Hagiwara 1996). In Borneo, people practice bird augury, and it affects people's activities (e.g., Hose and McDougall 1901; Richards 1971; Jensen 1974; Sather 1984). Birds also economically contribute to people's life. Bird's nests and hornbill's casques, for example, have been traded by local people of Borneo to Chinese traders (Freeman 1999).

Birds contribute to people's culture and economy and at the same time use habitats created by human activities. Traditional coffee agroforests have proved to create a complex habitat and support a rich avifauna. (Moguel and Toledo 1999). Different human management of lands results in different compositions of birds even under the same area (Kataoka, Iwata, and Prawiradilaga 2006).

This paper reports on the importance of birds to the Iban living near Lambir Hills National Park, Sarawak, Malaysia. Primary and secondary environments in the area are analyzed for the number of bird species and individuals having cultural importance to the Iban. The objective of the study is to show how the Iban recognize the importance of birds in a habitat mosaic created by their subsistence and economic activities.

Methods

Fieldwork was conducted in Lambir Hills National Park, Sarawak, Malaysia (4°12' N, 114°02' E at the headquarters) and Rumah Chabu, an Iban village (4°10' N, 114°01' E at the longhouse), from April to July and from September to October 2005 and from September to October 2006. The main vegetation type of Lambir Hills National Park is lowland mixed dipterocarp forest (Yumoto and Nakashizuka 2005). Rumah Chabu is situated 4 km from an edge of the national park and has a population of about 400. Around the village, swidden fields, swidden fallows, wet rice fields, rubber gardens, orchards, fragmented primary forests, and some other environments were found.

The plot census method (Yui 1997) was used to estimate composition of wild bird species in different habitats. Thirty-two 10 × 100 m plots in seven vegetation types were used. In primary forest of Lambir Hills National Park, five plots were located on the forest floor and two plots were located along a walkway at a height of 20 m. In and around Rumah Chabu, nine plots were in fragmented primary forests, five plots were in rubber gardens, five plots were in old fallows (more than 20 years after abandonment), three plots were in middle-aged fallows (about 7 years), two plots were in young fallows (about 3 years), and one plot was in a village open space. The fragmented primary forests were protected by the villagers as timber reserves and spiritual places. The rubber gardens were not used for tapping rubber during the study period, and fruit trees and herbs were also abundant. In the old fallows, small and large trees were found. In the middle-aged fallows, there were small trees, but herbaceous plants were still abundant. The young fallows were covered

by herbaceous plants and shrubs. The village open space was almost bare, but some herbaceous plants were found. Each plot was surveyed three (or two) times between 0700 and 1200 hours, and birds seen or heard were counted. (Detailed information concerning these vegetation types is reported by Momose et al. and Kaga et al., and detailed ecological results of this census are included in Itioka et al. in this report.)

To collect ethnoornithological information, birds were observed in various habitats in and around the Lambir Hills National Park and Rumah Chabu with an Iban informant (key informant), who was a man about 60 years old. For observed wild birds, the informant was asked for Iban names, uses, and other information. Additional information was collected from five informants (the key informant and four other men above 50 years old) by showing pictures in a field guide to birds of Borneo (Francis 1984) They were selected as informants because of several dozens of villagers interviewed, they were the only people who were knowledgeable about birds. Uses of birds were also observed in the study village.

For analysis of cultural importance of birds to the Iban, importance categories shown in Tables 1 and 2 and Fig. 1 were distinguished. They include not only practical importance but also spiritual importance. Furthermore, pests were considered to be culturally “important” in the sense that they had negative roles in people’s lives.

For analysis of names, primary and secondary names were distinguished. A primary name is a single expression, even if composed of more than one constituent (e.g., **Tandok-ulat** [lit. ‘antenna of caterpillar’] for Common Iora, *Aegithina tiphia*), and a secondary name is a name formed from a primary name by adding a modifier (Martin 1995, 210). In terminal rank, some species were labeled by primary names and others by secondary names. Primary and secondary names in terminal rank are called terminal names in this paper. The number of species that were labeled by a terminal name was also analyzed. The number was judged from the present study, and thus the number of species that were distinguished to the species level by Iban names can be an overestimate.

Results

(1) Cultural importance of birds to the Iban

A total of 150 species were observed during the study. Among them, 126 species appeared in the plot census, but 24 species were observed only in other occasions. According to the ethnoornithological information, 85 species (57%) were culturally important to the Iban, and 65 species (43%) were not (Table 1). Three species had two kinds of importance to the Iban, while the rest of the culturally important species had one.

Thirty-nine species were related to the Iban belief system and stories. According to informants, for example, if people hear the song of **Bubut** (Greater Coucal, *Centropus sinensis*), someone would die at their longhouse. **Jerruit** (tailorbirds, *Orthotomus* spp.) is **udok antu** (spirit dog) of **Antu Gerasi** (giant spirit that hunts humans), and people would not be able to return home and would die if they followed the song of **Jerruit** in forest. If people hear the song of **Beragai** (Scarlet-rumped Trogon, *Harpactes duvaucelii*) when they are in forest for hunting, they hunt bearded pigs. At **Gawai** (Iban ceremony or festival), two men sang about **Lang sengalang** or **Lang laut** (Brahminy Kite, *Haliastur indus*), a spirit of a war chief, and other six bird species, which were said to be sons-in-law of **Lang sengalang** (a lot of literature [e.g., Jensen 1974] has reported seven sons-in-law of **Lang sengalang**, but we recorded only the six). These birds were **Ketupung**

(Rufous Piculet, *Sasia abnormis*), **Beragai** (Scarlet-rumped Trogon), **Papau** (Diard's Trogon, *Harpactes diardii*), **Nandak** (White-rumped Shama, *Copsychus malabaricus*), **Panguas** (a woodpecker species), and **Bejampong** (Crested Jay, *Platylophus galericulatus*). In a ceremony of constructing a new house in September 2006, eight packages of rice in leaves were prepared for the seven birds and **Antu Petara** (favorable spirit). Ten sticks of trees called **Paung burong** were also buried at the base of pillars after blood of a chicken and a pig was poured to the ground. To prepare **Paung burong**, the key informant went to forest before dawn on the ceremony day and waited until **Nandak** started to sing at dawn. He then pulled out saplings about 30 cm in height by his right hand on hearing the song (any species of tree can be used). According to the key informant, **Paung burong** is used to avoid **Antu Gerasi** coming to the house, avoid bad dreams, cure disease, get a lot of money, and so on.

According to informants, all but the seven species related to the ceremonies above may be eaten, but **Empulu** (bulbuls, *Pycnonotus* spp.) and **Puna** (Pigeons, *Treron* spp.) are usually eaten. We included 34 species, the reported species and some others that were observed to be eaten during the study, in the category of food. Birds were caught by birdlime, net, and gun. Birdlime was most often used to hunt smaller birds during agricultural activities. Birdlime was made from the latex of *Artocarpus elasticus* Blume and attached to the top of a wooden stick about 30 cm long. The stick would be put near a small stream or pool in the forest to hunt birds coming for bathing. The technique was said to be effective when it had not rained for three or more days. Birds were usually baked and eaten in the field. **Engkeruak** (White-breasted Waterhen, *Amaurornis phoenicurus*) was often found at ridges between wet rice fields. According to informants, villagers mimic the call of the bird to attract them and then hunt. The birds are usually eaten by whoever hunted them, but can be sold at a market near the village at a price of 10 Malaysian Ringgit (RM).

Two species were used for decoration. A hat decorated with plume of **Ruai** (Great Argus, *Argusianus argus*) was observed on the last day of **Gawai** held in July 2005. In the night after dinner, one villager wearing the hat danced around a pillar decorated with banana leaves and fruits and sweets and finally cut off one of the fruits or sweets. He handed the hat to another man, and then the same performance was repeated again and again. Great Argus is a protected species (Appendix II of CITES), but the longhouse was keeping the plume so that it could be used in the future. The hat was stored as soon as the ceremony was finished. For another example, villagers put plumes of **Bruie** (Black Hornbill, *Anthracoseros malayanus*) in frames and vases.

Entalik (Blue-crowned Hanging Parrot, *Loriculus galgulus*) and **Bayan** (Long-tailed Parakeet, *Psittacula longicauda*) can be sold. These species are favored as pets because they have beautiful colors and an interesting habit of hanging upside down from a twig. The villagers have not been catching them in recent years, but they used to be caught in September and sold at the price of 20 RM and 10 RM, respectively.

Eleven species were recognized as pests by villagers. Flocks of **Pipit** (munias, *Lonchura* spp.) were observed at rice fields, though the damage was not serious. When a flock of **Tiong batu** (Hill Myna, *Gracula religiosa*) was eating the fruit of **Kemayau** (*Canarium* sp.), villagers made fire to drive them away by the smoke. **Manual** (hawks) eat chickens that villagers keep, and villagers sometimes shoot **Manual** so that they would not come. As far as the key informant knew, villagers shoot about 10 individuals a year. **Banggau** (egrets of white colors, two species of *Egretta*) can be both pests and beneficial birds. They eat fish in ponds.

Villagers threw rocks when they saw the birds in ponds. They, however, also eat pest insects in swidden and wet rice fields. The key informant said that he was waiting for **Banggau** to come. The birds usually come to the study area in September. Although **Achang** (Domestic Pigeon, *Columba livia*) was not included in the study, villagers did not like the birds because they lived in the longhouse and soiled it.

(2) Iban names of birds (classification of birds)

Among 150 species studied, 139 species (93%) had Iban names and 11 species (7%) did not (Table 1). Informants said that they did not know the 11 bird species without an Iban name. The 139 species were labeled by 94 different names in terminal rank (65 primary names in initial rank). We distinguish four types of Iban names of birds by the number of species included in a terminal name (one or more species) and the structure of the name (primary or secondary name) (Table 1). First, some species were distinguished to species by a primary name (e.g., **Bubut** for Greater Coucal, *Centropus sinensis*; **Entekop** for Lesser Coucal, *C. bengalensis*). Percentages of bird species labeled in this way were 35% for culturally important species (for detailed categories, 44% for species related to Iban belief system and stories, 21% for food species, etc.) and only 12% for culturally unimportant species.

Second, some species were distinguished to species by a secondary name (e.g., **Puna bedidi** for Large Green Pigeon, *Treron capelli*; **Puna bagau** for Thick-billed Pigeon, *T. curvirostra*; **Engkechong lilin** for Chestnut-winged Babbler, *Stachyris erythroptera*; **Engkechong kubok** for Black-throated Babbler, *S. nigricollis*). Among the birds studied, 55% of culturally important species were distinguished to species either by primary or secondary names, while 31% of culturally unimportant species were distinguished to species.

Third, some species were labeled only by primary names and not distinguished to species (e.g., **Banggau** for Chinese Egret, *Egretta eulophotes* and Little Egret, *E. garzetta*). Names that were included in this name type usually included two or three species. Exceptions were **Engkechong**, which included 12 species of babblers (culturally unimportant species; but some abundant babblers were distinguished by secondary names, and their names were included in the second type), **Tagerih**, which included 5 species of woodpeckers (culturally unimportant species), and **Kangan**, which included 4 species of flycatchers (food species). Twenty-six species or 40% of culturally unimportant birds had this type of name.

Lastly, some species were labeled by secondary names, but not distinguished to species (e.g., **Puna mayang** for Little Green Pigeon, *Treron olax* and Pink-necked Pigeon, *T. vernans*; **Empulu betul** for Olive-winged Bulbul, *Pycnonotus plumosus*, Red-eyed Bulbul, *P. brunneus*, and Cream-vented Bulbul, *P. simplex*).

(3) Habitat types and cultural importance of birds to the Iban

The birds were not evenly observed among different habitats. In the village open space and the young fallows, fewer species were observed than in forested habitats (Table 2). The number of individuals, however, generally declined as the succession progressed (Fig. 1A). In the rubber garden, both the number of species and the number of individuals were high.

In the rubber gardens, culturally important birds were also rich in the number of species and number of individuals (Table 2, Fig. 1A). The number of culturally important birds was largest in the village open space

and second largest in the young fallows (Fig. 1A), though they include a limited number of species (Table 2). This is because some culturally important species were abundant in these habitats. The smallest number of individuals of culturally important birds was observed in the primary forest (Fig. 1A). In the primary forest, five species that appeared in the plot census did not have an Iban name (Table 3). A total of 11 species observed during the whole study period did not have an Iban name, and seven of them were found only in primary forest of Lambir Hills National Park. The rubber gardens were richest in the number of species, but all the species had Iban names (Table 3).

The number of species related to the Iban belief system and stories was largest in the rubber gardens (Table 2). Among forested habitats, the number was smallest in the primary forest. The primary forest also had the smallest number of individuals in this category (Fig. 1B). The number of individuals was largest in the village open place. The most often observed species of the category in the village open place was Chinese Egret (*Egretta eulophotes*; 3.64 individuals/0.1 ha, 5 h).

Regarding birds for food, the number of species was similar among forested habitats, though the number was somewhat smaller in the middle-aged fallows (Table 2). The number of individuals of food species was more abundant in the young fallows and the rubber gardens than in other habitats (Fig. 1B). Villagers often hunted birds in orchards and rubber gardens during the study period.

Rhinoceros Hornbill (*Buceros rhinoceros*) has an important symbolic meaning in the Iban culture and is used for decoration (Hose and McDougall 1901; Freeman 1999), but the species was not observed during the study. According to the key informant, recently the species is rarely seen, even in Lambir Hills National Park. He said this was because trees of their favorite fruits were disappearing. Plumes of other hornbills are also used for decoration by the Iban (Freeman 1999), but only Black Hornbill was observed in the study. The birds came out from primary forest in the morning and used various habitats during daytime. Great Argus, another species for decoration, was observed in various forested habitats.

Among the two species for pets, a small flock of Blue-crowned Hanging Parrot was observed only once in the canopy of primary forest (but not in the plot census). The people used to catch the birds in fragmented primary forests, but they ceased to catch and sell them because the species were rare and small and thus difficult to catch. Flocks of the other species, Long-tailed Parakeet, were often observed in rubber gardens.

More pest species were found in the rubber gardens than other habitats (Table 2). The number of individuals of pest species was largest in the village open space, followed by the young fallows and the rubber gardens (Fig. 1B). The most common pest species in the village open space and the young fallows were Philippine Glossy Starling (*Aplonis panayensis*; 10.8 individuals/0.1 ha, 5 h) and Dusky Munia (*Lonchura fuscans*; 4.75 individuals/0.1 ha, 5 h), respectively.

Discussion

Importance of birds in the Iban belief system has been reported in many studies (e.g., Richards 1971; Jensen 1974; Sather 1984). The results of the present study further supported this importance. The number of bird species included in the category of belief and story was larger than other cultural importance categories, and nearly half of the bird species in the category were named to species by a primary name. Religious practices related to birds were often observed during the study. Birds also had some importance as food. Villagers

hunted birds during agricultural activities and ate them as snacks, though they were not for main meals.

Some birds were recognized as pests. However, they were not causing serious damage to the Iban life, and the people dealt with pest birds, except for hawks, in simple ways such as making smoke and throwing rocks. Furthermore, people knew that some pest species help agriculture by eating pest insects.

Different vegetations had different importance to the Iban in their avifauna. The primary forest was less rich than other types of forest in the number of culturally important species. It is difficult to observe birds in primary forest because of limited sight and the height of the canopy. Furthermore, the Iban do not usually enter primary forest (Kaga et al. in this report). They only have very limited chances to observe bird species that are mostly found in the canopy. The relationship between the Iban and birds in primary forest is not so strong. Some species, especially hornbills, however, have special importance to the Iban culture.

Fragmented primary forests and primary forest around Lambir Hills National Park have similar vegetation structure (Momose et al. in this report), but the composition of bird species was different. Birds observed in the former habitat were usually using a habitat mosaic, while about a half of bird species observed in the latter habitat were found only in primary forest. The fragmented primary forests were somewhat richer than the primary forest in the number of species and number of individuals of birds related to the Iban belief system and stories. The result in the old fallows was similar to that of the fragmented primary forest. In the middle-aged fallows fewer species and more individuals were observed than in the old fallows, but the proportion of bird species and individuals of each importance category was similar.

The rubber gardens were richest in the number of species having cultural importance. Individuals of culturally important birds were also relatively abundant. Rubber was not being collected during the study period because of the low price. Villagers, however, were growing fruit trees, collecting wild vegetables, and hunting birds there. Rubber gardens had a mixed vegetation of trees and herbs. Fruit orchards are probably playing a similar role for birds to rubber gardens; birds hunted by villagers in orchards were similar to those hunted in rubber gardens.

Most of the birds seen in the village open space and the young fallows had some importance to the Iban, though only limited species were coming to these habitats. Birds can easily be observed in these habitats, and people often pass these habitats. This may help people to develop cultural recognition of the birds there. Pests were abundant in these habitats and rubber gardens. They are probably attracted to the habitats made by human activities.

Conclusions

Secondary environments were important both for the Iban culture and for the biodiversity of birds. Many bird species and individuals were utilizing habitats or a habitat mosaic made by human activities, and the Iban readily recognized the birds in their living places and the birds that were important to Iban culture and life. On the other hand, primary forest was generally less important for the Iban culture related to birds, though there were some culturally important species there.

A relatively large area of primary forest around the study site is protected as Lambir Hills National Park. Land use of secondary vegetations, however, changes according to social circumstances and people's decisions. A plantation company was inviting the study village to make oil palm plantations in the village

land. Leaders of households were discussing the invitation. The land use pattern of oil palm plantation is different from that of orchards and rubber gardens in its monocropping over a large area. If the land use changes the avifauna, it will also affect the Iban culture.

Furthermore, the key informant worried most that present young people did not want to go to the forest and that they could not learn about birds. The young generation is attracted to city life, and only some old people in the study village knew birds well. Social change itself is affecting the Iban culture.

Acknowledgements

We thank Ms. Lucy Chong (Sarawak Forestry Corporation), Mr. J. Kendawang (Forest Department Sarawak), and Mr. Oswald Braken Tisen (Forest Department Sarawak) for giving research permission and supporting the study. Dr. Michiko Nakagawa and Dr. Sota Tanaka generously provided useful data, and Tamaki Kamoi kindly helped identification of birds. We also thank Ikuo Ninomiya, Miwa Kataoka, and Goro Hasegawa for their help and valuable comments on the study. We thank Mr. Jugok and the people of Rumah Chabu for their warmest support for the study. Research funding was provided by RIHN Research Project 2-2 and the Ministry of Environment (Global Environment Research Fund, S-2).

References

- Feld S (1988) *Tori ni natta shoonen* (Sound and sentiment: Birds, weeping, poetics, and song in Kaluli expression), trans. Yamaguchi O, Yamada Y, Shimeda T, Fujita T. Heibonsha, Tokyo.
- Freeman JD (1999) A note on the Gawai Kenyalang, or Hornbill Ritual of the Iban of Sarawak. In: *Birds of Borneo*, by Smythies BE. Natural history publications (Borneo), Kota Kinabalu, pp 123–127
- Francis CM (compiler) (1984) *Pocket guide to the birds of Borneo*, based on 3rd edn, by Smythies BE. The Sabah Society and WWF Malaysia, Kota Kinabalu.
- Hose C, McDougall W (1901) The relations between men and animals in Sarawak. *The Journal of the Anthropological Institute of Great Britain and Ireland* 31:173–213.
- Hagiwara H (1996) *Ine to tori to taiyou no michi* (A road of rice, birds, and the sun). Taishukan-shoten, Tokyo.
- Jensen E (1974) *The Iban and their religion*. Oxford University Press, Oxford.
- Kataoka M, Iwata A, Prawiradilaga DM (2006) Relationship between the bird community and human activities in a mountainous area adjacent to Gunung Halimun-Salak National Park, West Java, Indonesia. In: McNeely JA, McCarthy TM, Smith A, Olsvig-Whittaker L, Wikramanayake ED (eds) *Conservation biology in Asia*. Society for Conservation Biology Asia Section and Resources Himalaya Foundation, Kathmandu, pp 173–182
- Martin GJ (1995) *Ethnobotany: A method manual*. Chapman & Hall, London
- Moguel P, Toledo VM (1999) Biodiversity conservation in traditional coffee systems of Mexico. *Cons Biol* 13:11–21
- Richards A (1971) Iban Augury. *The Sarawak Museum Journal* 20:63–82.
- Sather C (1984) Iban agricultural augury. *The Sarawak Museum Journal* 34:1–36.
- Smythies BE (1999) *Birds of Borneo*. Natural history publications (Borneo), Kota Kinabalu
- Yui M (1997) *Chourui no kotai-suu no shirabe-kata* (How to survey bird numbers). In: Yamagishi S (ed) *Chourui seitai-gaku nyuumon: Kansatsu to kenkyuu no shikata* (An introduction to bird ecology: Observation and research methods). Tsukiji-shokan, Tokyo, pp 63–73
- Yumoto T, Nakashizuka T (2005) The canopy biology program in Sarawak: Scope, method, and merit. In: Roubik DW, Sakai S, Hamid AA (eds) *Pollination ecology and rain forest Sarawak studies*. Springer, New York, pp 13–21

Table 1 Cultural importance of birds to the Iban and their Iban names

Importance	Number of species					Total
	Named to species		Not named to species			
	By primary name	By secondary name	By primary name	By secondary name	No name (not known)	
<i>Culturally important</i>						
Belief and story	17	7 ^b	9 ^c	6	0	39 ^{bc}
Food	7	6	14 ^c	7	0	34 ^c
Decoration	2	0	0	0	0	2
Pet (sold)	2 ^a	0	0	0	0	2 ^a
Pest	3 ^a	5 ^b	2	1	0	11 ^{ab}
Subtotal	30	17	24	14	0	85
<i>Culturally unimportant</i>						
	8	12	26	8	11	65
Total	38	29	50	22	11	150

Note: Data are compiled from the plot census and other observations during the study.

For the total and subtotal, a species included in more than one category is counted as one.

^a One species is included in the categories of “pet (sold)” and “pest.”

^b One species is included in the categories of “belief and story” and “pest.”

^c One species is included in the categories of “belief and story” and “food.”

Table 2 Habitat types and bird species having different cultural importance to the Iban

Importance	Number of species						
	Primary forest	Fragmented primary forest	Rubber garden	Old fallow	Middle-aged fallow	Young fallow	Village open space
Belief and story	14 ^a	23 ^{ac}	29 ^{ac}	21 ^{ac}	18 ^a	6 ^{ac}	8 ^c
Food	20	18 ^c	22 ^c	19 ^c	15	8 ^c	5 ^c
Decoration	2	2	2	2	2	0	0
Pet (sold)	1 ^b	1 ^b	1 ^b	0	0	0	0
Pest	2 ^{ab}	4 ^{ab}	9 ^{ab}	4 ^a	4 ^a	4 ^a	3
Not used	27	27	28	24	18	4	1
Not known	5	2	0	1	0	0	0
Total	69	74	88	69	56	20	16

Note: Data are compiled from the plot census. For the total, a species included in more than one category is counted as one.

^a One species is included in the categories of “belief and story” and “pest.”

^b One species is included in the categories of “pet (sold)” and “pest.”

^c One species is included in the categories of “belief and story” and “food.”

Table 3 Habitat types and the Iban names of birds

Name type	Number of species						
	Primary forest	Fragmented primary forest	Rubber garden	Old fallow	Middle-aged fallow	Young fallow	Village open space
<i>Named to species</i>							
By primary name	17	23	27	19	18	1	6
By secondary name	15	20	23	17	16	7	4
<i>Not named to species</i>							
By primary name	22	17	22	20	14	6	5
By secondary name	10	12	16	12	8	6	1
<i>No name (not known)</i>							
	5	2	0	1	0	0	0
Total	69	74	88	69	56	20	16

Note: Data are compiled from the plot census.

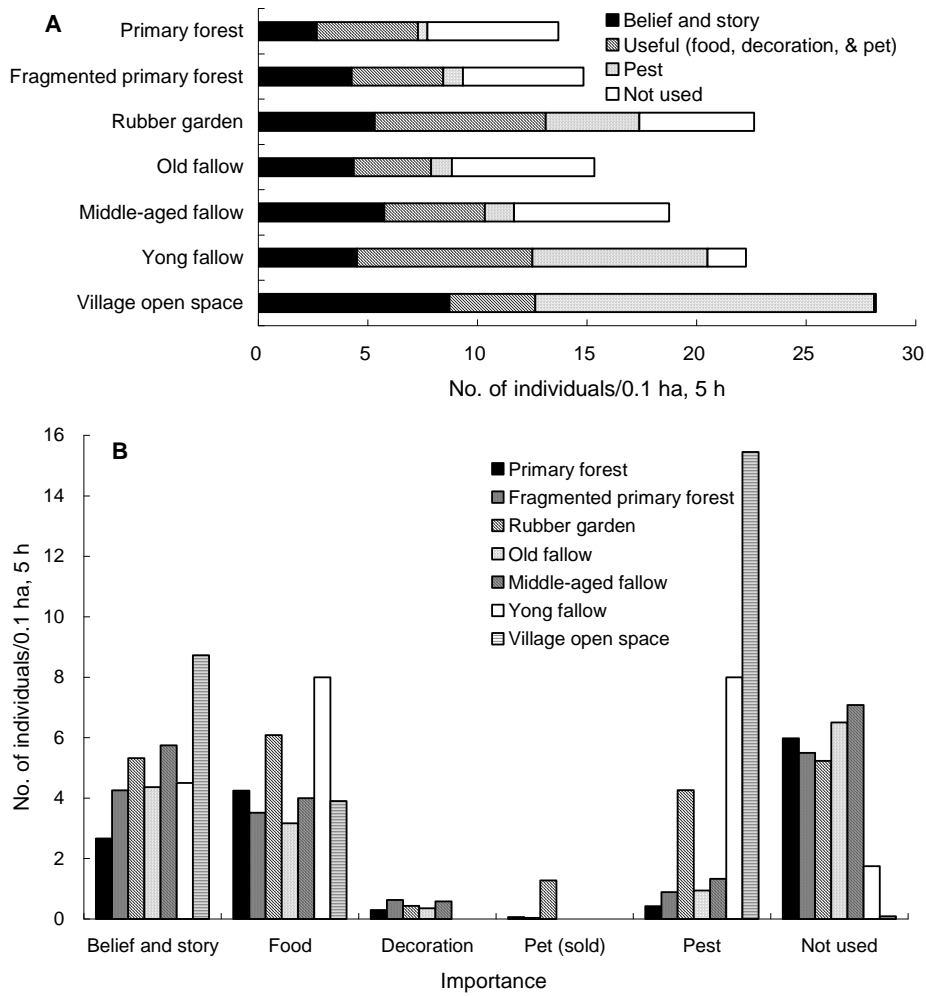


Fig. 1 Habitat types and abundance of birds having different cultural importance to the Iban, sorted by (A) habitat types and (B) cultural importance categories.