

THE STATUS AND SEASONALITY OF BIRDS IN NAKHON SAWAN PROVINCE, THAILAND

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ABSTRACT

Nakhon Sawan Province is part of the Central Plains of Thailand. Its physical features, climate and habitats for birds are briefly described. Both resident and migratory species of birds are enumerated. The apparent movements in and out of the province of birds listed as resident in Thailand are discussed along with the arrival and departure dates of certain migrants. Comment is also made on the present state of bird conservation in the province.

INTRODUCTION

Recent regional studies of birds in Thailand have concentrated on the north and north-western parts of the country (DEIGNAN, 1945; ROUND, 1983; ROUND 1984), the south-west (WILES, 1979), the south (EVE & GUIGUE, 1982; ROUND *et al.* 1982) and the south-east (OGLE, 1972). Since HERBERT (1924) made a survey of the breeding birds of the central plains including Nakhon Sawan Province, little detailed study of the birds of this region has been undertaken. KOPKATE (1984), made a study of the birds of Bueng Boraphet and MCCLURE (1974) discussed the work done by MAPS (Migratory Animal Pathological Survey) on Barn Swallows (*Hirundo rustica*) also at Bueng Boraphet. This paper is an attempt to give a more detailed picture of both the resident and migratory birds of Nakhon Sawan Province as they occur according to the seasons and their present status and abundance.

PHYSICAL FEATURES AND CLIMATE

Nakhon Sawan (herein abbreviated NS) Province lies between latitude 15° and 16°N and longitude 99° and 101°E (Figure 1). It is the northernmost province of the central plains of Thailand and covers an area of 9,645 sq. km. Generally speaking, the province consists of a plain which slopes gently from north to south and is drained by the Ping River flowing out of Kamphaengphet Province to the north-west and the Nan River from Pichit to the north-east. These two rivers converge in the town of NS and become the Chao Phraya, at an elevation of 29 m above sea level. Numerous streams flow from the east and west to join this main river system. Those from the west emanate

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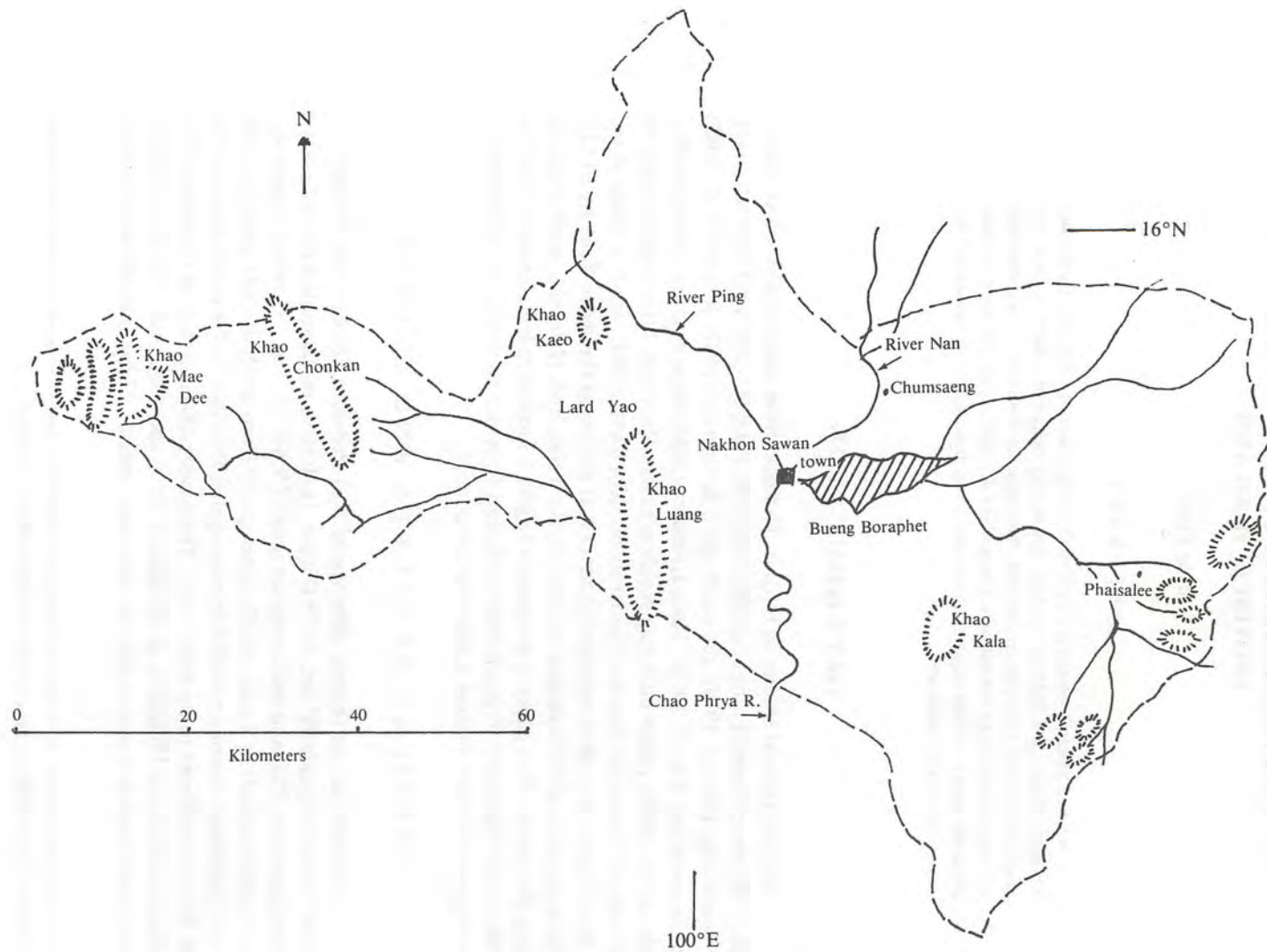


Figure 1. Map of Nakhon Sawan Province

from the Khao Mae Dee Range on the border of Uthai Thani Province. This range contains the highest points in the province (up to 1,700 m). To the east, small streams begin in the hilly region around Paisalee District. Many of the rivers from this area and from the eastern half of the province as a whole, flow into a large marsh and freshwater lake known as Bueng Boraphet. This shallow lake is 20 km long and 8 km wide but rarely reaches a depth of more than 3 m. It is a habitat of major international importance for wintering wildfowl and many other water birds, both resident and migrant, as well as for a great variety of smaller birds. Apart from the mountains already mentioned, there are several limestone outcrops on the flood plains of the rivers. The highest of these is Khao Luang (772 m) which is 20 km long. Another range of the same length but not so high is Khao Chon Kan (400 m). Two others are Khao Kala (495 m) and Khao Kaeo (341 m).

Climatically, NS is one of the hottest and driest provinces in Thailand. The mean annual temperature is 28.3°C and the mean annual rainfall is 1113 mm 86% of which falls during the southwest monsoon from May to October. The other two seasons are the cool season (November-January) and the hot season (February-April).

LAND USE AND HABITATS FOR BIRDS

In 1985, 71% of the total land area of the province was under cultivation and only 5% was covered with forest. Deforestation of the province has been rapid (Table 1) and what little remains is on the higher slopes of the mountains in Lard Yao District in the west. Of the cultivated land, nearly half (43%) is given over to both single and double crop rice planted on the alluvial and clay soils of the river floodplains. In the more acidic and drier regions of the south-east, another 25% of the area under cultivation is planted with sugarcane, maize, sorghum and other crops.

The province supports a population of just over one million people (108 per km²) most of which is concentrated in the provincial and district towns. There is also a wide scattering of villages.

The area can be divided into five main habitats for birds, as described below.

Wet Cultivated Land

This habitat consists mainly of rice fields flooded for most or part of the year. Few birds can be found when the rice is growing but many are present in the stubble after harvest. Typical species associated with this type of habitat are Pond Herons (*Ardeola* spp.), Zitting Cisticola (*Cisticola juncidis*), Tawny-flanked Prinia (*Prinia subflava*) and munia species (*Lonchura* spp.). As the fields begin to dry out in February and March, waders like the Wood Sandpiper (*Tringa glareola*) and Oriental Pratincole (*Glareola maldivarum*) appear along with Bluethroats (*Erithacus svecicus*) and Red-throated pipits (*Anthus cervinus*).

Table 1. Percentage of land area covered by forest in Nakhon Sawan Province.

Year	Percentage of land covered by forest
1961	30.75
1973	15.30
1976	12.33
1978	11.90
1982	10.80
1985	5.00

Source : The Religious, Social and Education Plan for 1987 in Nakhon Sawan Province (in Thai), published by the Provincial Offices.

Dry Cultivated Land

Away from the rivers and streams, land cultivated with maize and sugar cane constitutes a drier habitat offering important roosting sites for thousands of weaver birds (*Ploceus* spp.) and munias. Red-whiskered Bulbuls (*Pycnonotus jocosus*) can also be found here.

Open Areas, Scrub and Woodland

The secondary vegetation and bamboo that cover the lower slopes of limestone outcrops and other high ground make up the bulk of this type of habitat. It supports about 40% of the resident species and also many of the migrants. Typical local species include Black-naped Monarch (*Hypothymis azurea*) and Puff-throated Babbler (*Pellorneum ruficeps*) in the wooded areas and migrants include the Forest Wagtail (*Dendronanthus indicus*) and the Yellow-rumped flycatcher (*Ficedula zanthopygia*). In the lowland scrub areas, typical resident species include Lesser Coucal (*Centropus bengalensis*), Rufous-winged Bushlark (*Mirafra assamica*) and Yellow-eyed Babbler (*Chrysomma sinense*). Among the winter visitors Dusky Warbler (*Phylloscopus fuscatus*) and Siberian Rubythroat (*Erithacus calliope*) are typical.

Wetlands

Wetlands include rivers, ponds and lakes, of which Bueng Boraphet harbours the majority of species. Many species, like the Pheasant-tailed Jacana (*Hydrophasianus chirurgus*) and the Purple Swamphen (*Porphyrio porphyrio*) are resident here because they are able to utilise the floating vegetation of Bueng Boraphet but herons (*Ardea* spp.) and egrets (*Egretta* spp.) which require tall reedbeds or swamp woodland in which to nest are only migrant. The River Ping had its water level raised by the Bhumipol Dam



Figure 2. Dry cultivated land (sugar cane); roosting site for weavers (*Ploceus* spp.) and munias (*Lonchura* spp.).



Figure 3. Scrub and secondary growth on limestone outcrops, Khao Luang; Home of Puff-throated Babbler (*Pellorneum ruficeps*), White-rumped Shama (*Copsychus malabaricus*) and Tickell's Blue Flycatcher (*Cyornis tickelliae*).



Figure 4. Wet cultivated land (rice). Zitting Cisticola (*Cisticola juncidis*) and Tawny-flanked Prinia (*Prinia subflava*) frequent this type of habitat.



Figure 5. Wetland; floating vegetation on Bueng Boraphet. Both Purple Swamphen (*Porphyrio porphyrio*) and Ruddy-breasted Crake (*Porzana fusca*) can be found here.

in Tak Province and is attractive to birds like the Common Greenshank (*Tringa nebularia*) and Kentish Plover (*Charadrius alexandrinus*) when sandbanks appear in December and sometimes in April.

Gardens and Built-up Areas

Apart from the common resident species usually associated with man such as the Magpie Robin (*Copsychus saularis*) and Common Tailorbird (*Orthotomus sutorius*), the gardens of the municipality and many private gardens support a surprising number of migrants such as the Red-throated Flycatcher (*Ficedula parva*), the Inornate Warbler (*Phylloscopus inornatus*) and the Blue Rock Thrush (*Monticola solitarius*).

DISCUSSION OF SPECIES AND THEIR STATUS

The names and order of the species in this paper follow KING et al. (1975). The full list of the birds found in the province is given in Table 2 along with their relative abundance. Proof of breeding is based on the finding of nests or young birds and records of parent birds carrying nesting material and/or food.

Hérons and Asian openbill

Of the 15 species of heron, egret and bittern occurring in the province, three can be considered year round residents: The Purple Heron (*Ardea purpurea*), Cinnamon Bittern (*Ixobrychus cinnamomeus*) and Yellow Bittern (*Ixobrychus sinensis*). The last two species are common breeders on Bueng Boraphet but there is no evidence of breeding for the much scarcer Purple Heron. There are no known nesting colonies of the larger species of heron in the province so all can be considered passage migrants or overwintering species. The Little Egret (*Egretta gargetta*) prefers the rice fields and is absent when these fields are dry. Single birds have been found at ponds in May. The numbers of Little Egret are never great at any time. The Cattle Egret (*Bubulcus ibis*) and the Little Heron (*Butorides striatus*) seem to be passage migrants with a few birds appearing in October, and again in March/April. The Great Egret (*Egretta alba*), Plumed Egret (*Egretta intermedia*) and Pond-Hérons (*Ardeola* spp.) have been recorded in most months except between May and August when they presumably breed elsewhere. It is quite possible that they are visitors from the north. Most of the Pond-Hérons are believed to be Chinese Pond-Hérons (*A. bacchus*), judging by the large numbers of birds in summer plumage in the fields before they leave. Only a few Javan Pond-Hérons (*Ardeola speciosa*) have been seen on these occasions. Pond-Hérons use Bueng Boraphet as a roosting site in the winter and at one count in December, 1985; 450 were present. The Grey Heron (*Ardea cinerea*) is found in winter but in far smaller numbers than the Purple Heron. The Black Bittern (*Dupetor flavicollis*) is a typical rainy season bird arriving in May and staying until October. It probably nests because the onset of the monsoon is said to trigger breeding in this species (HANCOCK

& KUSHLAN, 1984). There is a record of 2 Great Bitterns (*Botaurus stellaris*) in February, 1984 (P. GOFFARD et al., in litt.), and one record of Schrenck's Bittern (*Ixobrychus eurhythmus*). The Black-crowned Night Heron (*Nycticorax nycticorax*) is probably more common than records show. Four is the most recorded together; single birds have been tallied between October and April.

A colony of 100 Asian Openbills (*Anastomus oscitans*) is present in Chumsaeng District in the east of NS in the winter months but there is no proof of breeding.

Waterfowl

Bueng Boraphet is almost certainly the most important wintering site for waterfowl in Thailand, often holding up to 40,000 Lesser Treeduck (*Dendrocygna javanica*), 10,000 Garganey (*Anas querquedula*) and 3,000 Common Pintail (*Anas acuta*). Tufted Duck (*Aythya fuligula*), White-eyed Pochard (*Aythya nyroca*), Common Teal (*Anas crecca*) Eurasian Wigeon (*Anas penelope*), occur in smaller numbers. A flock of 112 Baer's Pochard (*Aythya baeri*) was recorded in February, 1983 (ROUND, 1985) and D.A. SCOTT et al. (in litt.) saw 200 in March, 1986.

The birds spend the day roosting on the lake after flying in from all directions from their feeding grounds in the morning and leave to feed well after sunset. Apart from the Cotton Pygmy Goose (*Nettapus coromandelianus*) and the Lesser Tree Duck, a few of which possibly stay to breed, all the duck species are exclusively migrant. The majority of birds tend to arrive in December and their numbers peak in January. The Cotton Pygmy Goose is resident on Bueng Boraphet although like the other species, there are more birds present in the winter probably due to local migration (MCCLURE, 1974). Four hundred Cotton Pygmy Goose were noted in February, 1985. Two Comb Ducks (*Sarkidiornis melanotos*) were reported in January, 1985 (S. NICOLLE, in litt.).

Some smaller bodies of water in NS are also suitable for waterfowl. An artificial pond in the grounds of the Provincial Agricultural College, for example, held several hundred Lesser Treeducks and Common Pintails in March, 1985.

Birds of prey

The central plains area of Thailand, in spite of the absence of high mountains and forests, is nevertheless an important route for migrating raptors. The floodplains of the Chao Phraya River system have seen the regular passage of Osprey (*Pandion haliaetus*), Black Kite (*Milvus migrans*) and various species of Sparrowhawk (*Accipiter* spp.). The Black Kite often migrates down this route in flocks of up to 60 birds. They are best seen in November—later than other species—and in NS pass over at midday or in the afternoon. Eastern Marsh Harriers (*Circus spilonotus*) and the Eurasian Kestrel (*Falco tinnunculus*) are also sometimes seen. The latter is a passage migrant which except for a single record in January 1986, has not been seen overwintering. The Eastern

Marsh Harrier overwinters in considerable numbers and many can be seen over rice fields in Chumsaeng District in November. In October 1982, 29 Ospreys were observed flying south and in October of other years, sparrowhawk species in flocks of 30-40 birds have been seen. The Pied Harrier (*Circus melanoleucos*) winters in smaller numbers than the Eastern Marsh Harrier. Black Bazas (*Aviceda leuphotes*) and the Grey-faced Buzzard (*Butastur indicus*) so typical of the raptor migrations in southern Thailand, are rarely seen in NS.

The Oriental Hobby (*Falco severus*) has appeared in October in gardens on the outskirts of NS so is possibly a passage migrant. There are two records of the Greater Spotted Eagle (*Aquila clanga*). The Common Buzzard (*Buteo buteo*) can be seen in the limestone hill regions, especially around Khao Luang and Khao Kaeo. Of the resident species, the Black-shouldered Kite (*Elanus caeruleus*) is the commonest in open spaces while the Shikra (*Accipiter badius*) is found in built-up areas and gardens. Young Shikras have been seen taking bats at the limestone caves on Khao Kaeo, where a pair of Peregrine Falcons (*Falco peregrinus*) have also been recorded in July and August. The peregrines show plumage characteristics similar to those of the race *F. p. ernesti* of Borneo. They have also been found at limestone outcrops in north-east and southern Thailand (ROUND, in litt.). An old record of 2 Grey-headed Fish Eagles (*Ichthyophaga ichthyaetus*) taken in NS in 1932 is mentioned by RILEY (1938). More recently, a young White-tailed Eagle (*Haliaeetus albicilla*) raised in captivity in Bangkok was said to have been caught in NS in the winter of 1983-84.

Crakes and allies

The existence of many areas of standing water with reed fringes and marshes makes NS ideal for several species of crake and their allies. The commonest crake is the White-browed Crake (*Porzana cinerea*) once thought to be confined in Thailand to the peninsula (LEGAKUL & CRONIN, 1974; KING et al., 1975). It predominates in the open areas of water in the lake but other species are probably commoner in the marshy margins. This crake also breeds in the province and young have been observed between April and August. Baillon's Crake (*Porzana pusilla*) is a regular winter visitor, often preferring the drier regions of Bueng Boraphet. The Ruddy-breasted Crake (*Porzana fusca*), though listed as resident by LEGAKUL & CRONIN (1974), has not been noted at Bueng Boraphet between June and January and therefore may be mainly a winter visitor.

Some water birds show a definite increase in numbers from November and December onwards with a climax just before the rains in April/May when breeding starts. This trend is particularly noticeable for Purple Swamphen, Common Moorhen (*Gallinula chloropus*) and Pheasant-tailed Jacana. The Common Moorhen is a migrant into the region but both Purple Swamphen and Pheasant-tailed Jacana breed locally. The latter species can have as many as 150 individuals present in April and May. The Bronze-winged Jacana (*Metopidius indicus*) has shown signs of increasing

at Bueng Boraphet. Through most of 1984, the species was noted only in the breeding months of August and September but in 1985 and 1986, it was recorded in nearly every month. Young birds have been seen in September. The Common Coot (*Fulica atra*) stays the shortest time, usually only in January and February, when flocks of up to 50 birds are present.

Waders

Waders in NS are mostly passage migrants. Only the Wood Sandpiper and the Little Ringed Plover (*Charadrius dubius*) overwinter in any numbers. The Red-wattled Lapwing (*Vanellus indicus*) is resident. The first migrants to arrive are usually Common Redshanks (*Tringa totanus*) in July. The Greater Painted Snipe (*Rostratula benghalensis*) is also an early arrival. Many waders, which appear in July and October when there is still water in the fields, often rest on the floating vegetation in Bueng Boraphet; examples include Common Sandpiper (*Actitis hypoleucos*), Long-toed Stint (*Calidris subminuta*) and Mongolian Plover (*Charadrius mongolus*). In December, the water level in the Ping River is artificially lowered to facilitate the harvesting of rice in irrigated fields, creating sandbanks along the river which make ideal grounds for waders and other species. Temminck's Stint (*Calidris temminckii*) and Common Greenshank (*Tringa nebularia*) in particular favour this type of habitat. Other species of wader are seen on the return migration. Scarce species such as Black-tailed Godwit (*Limosa limosa*) may appear as early as February. In March and April, Black-winged Stilts (*Himantopus himantopus*) and Pacific Golden Plovers (*Pluvialis fulva*), known as Lesser Golden Plovers (*Pluvialis dominica*) in KING et al. (1975) but now considered a separate species (HAYMAN et al., 1986) can be observed albeit in small numbers feeding in the rice fields before the new planting. Pacific Golden Plovers in full summer plumage remain until the second week of May.

Oriental Pratincoles (*Glareola maldivarum*), appearing first in March, frequent the drying fields until April when they begin nesting. Large gatherings of this species over Bueng Boraphet in June are probably young birds preparing to disperse. Moulting adults and migrants moving south are found on Bueng Boraphet in October. This species is absent between November and February.

Owls and nightjars

Of the commoner owls present in NS Province, the Asian Barred Owlet (*Glaucidium cuculoides*), the Spotted Owlet (*Athene brama*) and the Barn Owl (*Tyto alba*) are known to breed. The Barn Owl starts displaying in January and young birds are in evidence by late February and early March. In 1983, one pair nesting in a Tamarind tree (*Pithecellobium dulce*, Leguminosae) raised 6 young all of which fledged. Both parents hunted for mice including Ryukyu Mice (*Mus caroli*) on the eastern side of the Ping River and brought them over to the nest on the western side.

The Asian Barred Owlet, probably the commonest of the owls, calls throughout the year. It nests in March and April.

The Spotted Owlet is also present throughout the year but calls most in October and April. This is also true of the Collared Scops Owl (*Otus bakkamoena*). The Brown Hawk Owl (*Ninox scutulata*) is a true passage migrant, arriving in October and returning in April and May, when it calls every night.

There are two resident nightjars. A nest of the Large-tailed Nightjar (*Caprimulgus macrurus*) containing two eggs was found in a small copse in February, when dead leaves cover the ground. It is possible that Large-tailed Nightjars enter the area from elsewhere in August and September, when they start calling after a 3 month silence. Once they have established territories, they fall silent until November when calling restarts to find mates.

The Savanna Nightjar (*Caprimulgus affinis*) prefers stony hillsides and nests in colonies. It begins calling in October and continues to do so right through the cool season and into the hot, in April. About a dozen birds can be heard at sunset in a hilly region just south of NS town in January. A nestling was found in March, 1986.

The Indian Nightjar (*Caprimulgus asiaticus*) is scarce but has been heard between August and December. There is only one record of the Grey Nightjar (*Caprimulgus indicus*), in September 1981.

Kingfishers, bee-eaters and barbets

The onset of the autumn migration in October each year brings an influx of Black-capped Kingfishers (*Halcyon pileata*) a few of which overwinter. They can be found in scrub areas well away from water. The Common Kingfisher (*Alcedo atthis*) is present from August to April but the White-throated Kingfisher (*Halcyon smyrnensis*) is a common resident and although no nests have been found, the calls of breeding birds have been heard in March. This kingfisher frequents the dry rice fields in the hot season and is present in the area around Bueng Boraphet the whole year.

Blue-tailed Bee-eaters (*Merops philippinus*) are particularly evident in NS in the evenings and early mornings when many birds are involved in roost movements (north to north-east in the evenings and the opposite direction in the mornings). One roost is behind Temple Island on Bueng Boraphet where some 50 to 100 birds settle with the starlings and herons. During the day, small parties of up to a dozen birds feed together, often perching on TV aerials in town or on exposed branches. Some birds perch on the ground and fly after insects from there. There are very few records of Blue-tailed Bee-eaters between March and May, when villagers say that they breed, nesting in holes in the ground in the dry rice fields. Green Bee-eaters (*Merops orientalis*) are less common but flocks of about 20 birds have been observed in April flying in an easterly direction. The Chestnut-headed Bee-eater (*Merops leschenaulti*), a bird of wooded areas and forest edge, is resident on the lower slopes of Khao Luang. In May, it is found away from its normal habitat in the middle of Bueng Boraphet, feeding from posts and old fish traps in the absence of the Blue-tailed Bee-eater. The Blue-bearded Bee-eater

(*Nyctyornis athertoni*) is confined to the forests of the new nature reserve at Mae Lay Mae Wong in Lard Yao District.

Only two species of barbet are found in the province, perhaps reflecting the extent of deforestation. The Lineated Barbet (*Megalaima lineata*) keeps to secondary growth on the remoter hill slopes, but the Coppersmith Barbet (*Megalaima haemacephala*) is a common town and country dweller, often perching on TV aerials. There is a big increase in numbers in October and November and up to 100 birds have been seen perched together. During this time flocks of Coppersmith Barbets apparently move south, and often stop to feed on Figs of Banyan trees (*Ficus bengalensis*).

Swallows and martins

In the mid 1960s the MAPS team ringed over 100,000 Barn Swallows in Thailand and many of these were caught at Bueng Boraphet (MCCLURE, 1974). That area still houses a major roost of Barn Swallows with tens of thousands of birds flying in from all directions after sunset, especially in November. Barn Swallows can be found in every month of the year in NS and those that oversummer tend to concentrate in the vicinity of the town rubbish dump and Bueng Boraphet. Few birds are present in June but they gradually build up to a peak in November/December. The return migration of birds in March and April does not seem to involve such high numbers.

The Red-rumped Swallow (*Hirundo daurica*) is a transient in NS (MCCLURE, 1974) but a few birds can be seen in every month between October and March. Most birds appear in December and in that month, flocks have been seen drifting in an easterly direction in the early mornings.

The White-eyed River Martin (*Pseudochelidon sirintarae*) is known only from NS Province. It was first discovered in 1968 (THONGLONGYA, 1968) when 9 individuals were trapped along with some Barn Swallows. The first wild sighting by an ornithologist was in 1977 (KING & KANWANICH, 1978). The present author saw 4 birds in January, 1980. They were flying after insects with some Barn Swallows in the vicinity of Temple Island on Bueng Boraphet and like the swallows sometimes perched on the top branches of a tree. Since then, there have been regular reports from villagers about this bird but many people confuse the river martin with the Red-rumped Swallow. However, some of the reports do refer to genuine river martins judging from the descriptions given. As recently as January, 1986 one villager claimed to have caught a White-eyed River Martin which later died in a cage. Nothing has been added to our knowledge of this bird in the last 10 years and it is still a mystery as to where and when it breeds (SOPHASAN & DOBIAS, 1984). No reports of nesting in the province have been received so it is almost certain that the bird is just a winter visitor to NS and may be close to extinction.

The Sand Martin (*Riparia riparia*) is an annual visitor in small numbers. The Asian House Martin (*Delichon dasypus*) is fairly common.

Bulbuls and babblers

The seven species of *Pycnonotus* bulbul found in NS reflect the types of habitat available. On the wooded slopes of the mountains, three bulbuls can be found: the Black-headed Bulbul (*Pycnonotus atriceps*), the Black-crested Bulbul (*Pycnonotus melanicterus*) and the Stripe-throated Bulbul (*Pycnonotus finlaysoni*). Khao Luang and Khao Kaeo are the best places to see these. The Stripe-throated Bulbul is the least common bulbul and although it probably occurs in other woodland areas, there are only a few records from Khao Luang. Two other bulbuls are found on lower, more level places: the Red-whiskered Bulbul (*Pycnonotus jocosus*) and the Yellow-vented Bulbul (*Pycnonotus goiavier*). The Red-whiskered is rapidly becoming a popular cage bird and could become scarce in the future. The Yellow-vented Bulbul is never far from water and has been seen carrying food and/or nesting material in June. In southern Thailand FRITH (1981), found this species nesting in the two months before and the two months after June. NS Province may be the farthest inland that the Yellow-vented Bulbul has been recorded in Thailand.

The two commonest species of bulbul are the Sooty-headed Bulbul (*Pycnonotus aurigaster*) and the Streak-eared Bulbul (*Pycnonotus blanfordi*). The Sooty-headed is a communal species seen in flocks of 5 or 6 birds but sometimes as many as 15 – 20. It is found in many different kinds of habitat and can often be seen in gardens close to humans. Birds have been seen feeding fledglings in May and June and on the nest again in July. The Streak-eared Bulbul is a common resident of towns and gardens and seems to raise two broods a year. The greatest numbers are present in May.

Two species of babbler are found in the open scrub and grasslands of the plains: the Yellow-eyed Babbler (*Chrysomma sinensis*), a common species which moves around in loose flocks of 5 or 6 birds, and the Chestnut-capped Babbler (*Timalia pileata*). In more wooded areas, especially the scrub and woodland on limestone hills, the Striped Tit-Babbler (*Macronus gularis*) and the Puff-throated Babbler (*Pellorneum ruficeps*) are common. Higher up the slopes, the White-crested Laughing Thrush (*Garrulax leucolophus*) occurs in fairly good numbers although the species is heavily trapped for the pet trade. On April 2, 1983, one bird thought to be a Limestone Wren-Babbler (*Napothera crispifrons*) was seen on Khao Luang although there have been no subsequent sightings.

Robins and chats

Both the Siberian Rubythroat and the Bluethroat overwinter in large numbers in NS although the Bluethroat is less obvious at the beginning of the winter. It is more common in the drying fields in March when possibly on return migration. The Siberian Rubythroat frequents dense scrub and can be heard in many areas of uncultivated land on the outskirts of the town, especially along the sides of the road leading to Chumsaeng District. Both species stay until the end of April.

The Magpie Robin is common throughout the province and occurs in many kinds of habitat. It breeds in April and again in July but some birds begin displaying in December in some years. The Magpie Robin has a liking for old nest sites and under the eaves of one house, three nests of three successive seasons were built in a line touching each other. The White-rumped Shama (*Copsychus malabaricus*) is resident on Khao Luang and probably occurs on other mountains too.

The Stonechat (*Saxicola torquata*) is a winter visitor, very common between September and April but making a sudden disappearance in late April. A male Jerdon's Bushchat (*Saxicola jerdoni*) was recorded on four occasions between August 1984 and January 1985, feeding amongst the reeds by the side of a khlong leading into Bueng Boraphet. These are the only records in the central plains of Thailand for a species hitherto known only from Chiang Mai and Chiang Rai Provinces in the far north (ROUND, 1983).

The Blue Rock Thrush is a regular winter visitor. It is quite at home in the town of NS, keeping to the taller buildings. It is also found in its more natural habitat on the limestone rocks of Khao Kaew. In March, 1982 a single representative of the subspecies *M.s. philippensis* appeared in the town. The Blue Rock Thrush defends a winter territory. In January 1980, one bird chased another from its tree, singing vigorously as it did so.

Warblers and flycatchers

There are six *Phylloscopus* warblers on the list of NS birds, four which are mainly passage migrants. The first of these is the Arctic Warbler (*Phylloscopus borealis*) which arrives early in the season and leaves late. The Sulfur-breasted Warbler (*Phylloscopus ricketti*) is a bird of evergreen hill slopes usually above 800 m (ROUND, 1984) but in October of 1980 and again in 1985, this warbler was identified in a copse just outside NS town. It probably passes through annually. The Inornate Warbler is the commonest arboreal leaf-warbler and overwinters in great numbers in all wooded habitats including town gardens. In the more open and marshy areas of the province, the Dusky Warbler (*Phylloscopus fuscatus*) is extremely common.

The Thick-billed Reed Warbler (*Phragmaticola aedon*) is also found in marshes and also overwinters, although it is most numerous at the start of the winter. The Great Reed (*Acrocephalus arundinaceus*), Black-browed (*Acrocephalus bistrigiceps*) and the Blunt-winged (*Acrocephalus concinens*) Warblers all stay for the winter. The Blunt-winged Warbler is not common but the other two species can be heard calling all through the season in any patch of wet, reedy, uncultivated land. These areas may also include one of the two *Locustella* warblers occurring in the province. The Pallas's Warbler (*Locustella certhiola*) is more restricted to wet reed swamps than is the Lanceolated Warbler (*Locustella lanceolata*), which occurs in a greater variety of habitats including

dry grassland and scrub. The Spotted Bush Warbler (*Bradypterus thoracicus*) is very difficult to locate because it spends most of its time running along the ground in thick vegetation, but its call usually gives it away. It can be heard in scrub and reeds near the Fishery Department headquarters. One bird was trapped and ringed in January, 1986. The Striated Warbler (*Megalurus palustris*) is a very common resident species on Bueng Boraphet and surrounding area. Some species of flycatcher are also passage migrants. The first one to arrive is usually the Yellow-rumped Flycatcher (*Ficedula zanthopygia*) which appears in the first week of September every year. Some birds are seen again in April on the return migration. The Asian Brown Flycatcher (*Muscicapa latirostris*) can also appear in September but the most common species is the Red-throated Flycatcher which also overwinters. One bird was trapped and ringed in January, 1985 and retrapped at the same spot two months later.

There are single records each for the Brown-streaked Flycatcher (*Muscicapa williamsoni*), the Verditer Flycatcher (*Muscicapa thalassina*) and the Grey-headed Flycatcher (*Culicicapa ceylonensis*), all in October. The last species is a common resident of forests in other parts of the country but seems to be a migrant in NS.

Of the resident species of flycatcher, Tickell's Blue Flycatcher (*Cyornis tickelli*) is confined to the wooded and scrub-covered slopes of the limestone outcrops while the Black-naped Monarch (*Hyphymis azurea*) prefers bamboo areas. The latter also ventures into town gardens. The Pied Fantail (*Rhipidura javanica*) is a bird of lowland, wet scrub along sides of the Asian Highway and on the banks of streams. The Asian Paradise Flycatcher (*Terpsiphone paradisi*) has occurred in gardens in NS town in the month of January in at least two years and there are 12 recorded sightings of the rare Japanese Paradise Flycatcher (*Terpsiphone atrocaudata*), probably all of the same single male, in December 1979 and January 1980.

Wagtails and pipits

All the wagtail species recorded in the province are migrants and they are well distributed through the different types of habitat. The White Wagtail (*Motacilla alba*) is the commonest, occurring in the town and in villages at rain pools and by the sides of the roads. It also likes the roofs of tall buildings. The Yellow Wagtail (*Motacilla flava*) feeds in the rice fields after the water level recedes and hundreds of these birds roost in the reeds around Bueng Boraphet. A single Grey Wagtail (*Motacilla cinerea*) seen in the town constitutes the only record for this species. It probably occurs annually in the more mountainous west of the province. It is probably the earliest of all the arriving migrants as in some places it comes in mid-July. There is only one record of the Yellow-hooded Wagtail (*Motacilla citreola*) and as this was associating with Yellow Wagtails, it has probably been overlooked in the past. The Forest Wagtail (*Dendranthus indicus*) is another passage migrant which keeps to the drier areas of woodland and scrub.

Richard's Pipit (*Anthus novaeseelandiae*) is represented in the province by both resident and migrant races. The resident race is very common in dry, bushy uncultivated land near the provincial scout camp and almost certainly breeds there. The slightly larger migrant race usually arrives in early October. Red-throated Pipits (*Anthus cervinus*) frequent the marshy fields with Yellow Wagtails and roost in the reeds around Bueng Boraphet. In March and April, they can be seen in their summer plumage prior to their departure. The Olive Tree-Pipit (*Anthus hodgsoni*) is a less conspicuous visitor and prefers the gardens and orchards just south of town.

Starling and mynas

Starlings and mynas characteristically begin building up in numbers in the northern hemisphere autumn which corresponds to the cool season in Thailand. This trend begins with post-breeding aggregations including both adults and young of the White-vented Myna (*Acridotheres javanicus*) and Asian Pied Starling (*Sturnus contra*). In September, the White-shouldered Starling (*Sturnus sinensis*) begins its migration into the province from countries north of Thailand. All three species roost in the hundreds in the area behind Temple Island on Bueng Boraphet. In winter months, White-shouldered Starling can be observed feeding in flocks of up to 20 birds passing from tree to tree both in and out of town. The Asian Pied Starling nests in May, and can be seen in trees by the side of the road leading to Lard Yao District. The White-vented Myna swells in numbers in October but is less evident in the rainy season before that. This species is very common by the sides of the road feeding on the carcasses of animals killed by traffic and on food thrown from cars. The Common Myna (*Acridotheres tristis*) is a common resident of the town and around human habitation everywhere throughout the year. The Black-collared Starling (*Sturnus nigricollis*) is not often noted in the vicinity of the town but prefers secondary growth in the uncultivated land outside. A nest of this species has been found in June. There is a single record of a Chestnut-tailed Starling (*Sturnus malabaricus*), also in disturbed secondary growth in Lard Yao District. The Purple-backed Starling (*Sturnus sturninus*) is a passage migrant seen in September and April each year.

Sparrows, weavers and munias

The Eurasian Tree Sparrow (*Passer montanus*) is the common sparrow of town and village and can often be seen in flocks of 50 birds and more. Nesting takes place at many times of the year but May and September seem to be the most favoured months in NS. The nests are usually on buildings and sometimes inside if there is permanent access. Where possible the Eurasian Tree Sparrow nests colonially and one colony of 7 or 8 nests was found in a pile of drying twigs (*Sida rhombifolia*, Malvaceae) used for making brooms. More than 100 birds were colour-ringed at one site in 1983-84 and 10% of these were retrapped at the same site up to 15 months later. There is a gradual decline in the numbers of Eurasian Tree Sparrows between October and January. MCCLURE (1961) found a similar drop in numbers in Malaysian birds at that time of year. It is

possible that the birds disperse to rice fields where rice threshing is taking place. The Plain-backed Sparrow (*Passer flaveolus*) is most in evidence during November to February. Though much less common than the Eurasian Tree Sparrow, flocks of 10–15 birds and sometimes encountered in rural areas. The House Sparrow (*Passer domesticus*) is one of the latest additions to the Thai list. This species was noted breeding in Tak Province to the north-west of NS in 1984 where it appears to be fairly numerous around the town of Mae Sot (D. TIDWELL, in litt.). A male House Sparrow was bought at the live bird market in NS in March, 1986; it had been caught locally with some weaver birds. This may perhaps represent the beginning of the colonisation of the Central Plains.

Thousands of weaver birds of three species roost in the reed beds in the vicinity of Bueng Boraphet with the Streaked Weaver (*Ploceus manyar*) probably being the most plentiful. A colony of 7 nests of the Streaked Weaver was found in June, 1985, in a reed bed on Bueng Boraphet and a colony of 9 Baya Weaver (*Ploceus philippinus*) was found in an oil palm tree in August, 1986. Individuals of the Asian Golden Weaver (*Ploceus hypoxanthus*) have been tallied at a variety of sites in the province.

Of the three species of munia in NS, the Chestnut Munia (*Lonchura malacca*) is the least common and is confined to marshy areas around Bueng Boraphet. The Scaly-breasted Munia (*Lonchura punctulata*) and the White-rumped Munia (*Lonchura striata*) are both common in the rough scrubland on the outskirts of the town and in the rice fields all over near harvest time. In October, hundreds of Scaly-breasted Munias can be seen flying in a south-westerly direction in the evenings in roost movement. Many of these flocks seem to consist entirely of juveniles.

CONSERVATION AND THE ILLEGAL BIRD TRADE

Although there is no longer any large scale trapping of swallows and other species on Bueng Boraphet as in the past, there is still considerable illegal trapping of birds elsewhere in the province.

Birds are caught mainly for sale as pets or for release in Buddhist merit-making ceremonies. This trade is carried on both in established pet shops and by villagers at the week-end market outside the army camp. Birds intended for release are sold in the temple grounds or by hawkers along the streets. Sophisticated traps using one bird as a lure are used to catch White-crested Laughing Thrushes on Khao Luang. It was said these birds were for export. Mist nets are readily available in the shops and are used by many farmers to keep birds off their rice fields. The birds (mainly weavers and munias) are also caught at their roosts in maize and sugar cane fields and sold as food. Some villagers use mist nets to catch other pet species including Red-whiskered Bulbuls and Peaceful Doves (*Geopelia striata*). Many other methods are used to trap or kill birds, including electric shocking devices, bird lime and poisoned bait.

Table 2. Abundance of birds in Nakhon Sawan Province by month. Abbreviations: 0 = rare; X = scarce/occasional; XX = fairly common; XXX = abundant; arr. = arrival date; dep. = departure date. A dotted line (...) indicates species is believed to be present but there are no records for that month.

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Little Grebe	<i>Tachybaptus ruficollis</i>	XXX	XXX	XXX	XX	X	X	X	XX	XX	X	X	XX	breeds Aug four, Jan 85
Spot-billed Pelican	<i>Pelecanus philippensis</i>	0												two, Jan 86
Little Cormorant	<i>Phalacrocorax niger</i>	0												
Grey Heron	<i>Ardea cinerea</i>	X	X	XX							X			
Purple Heron	<i>Ardea purpurea</i>	X	X	XX	X	X	X	...	...	...	X	...	X	
Little Heron	<i>Butorides striatus</i>					X					X			annual passage
Chinese Pond-Heron*	<i>Ardeola bacchus</i>	XX	XXX	XXX	XXX	X				XX	XXX	XXX	XXX	
Javan Pond-Heron*	<i>Ardeola speciosa</i>					X								
Cattle Egret	<i>Bubulcus ibis</i>	X	X	X	X						X	X		
Great Egret	<i>Egretta alba</i>	X	X	XX						X	...	XX	X	
Plumed Egret	<i>Egretta intermedia</i>	XX	X	X	X		X		X	XX	XX	X	X	one, Jun & Aug 86
Little Egret	<i>Egretta garzetta</i>					X				X	X	X		
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	X			X	X					X	X	X	
Yellow Bittern	<i>Ixobrychus sinensis</i>	XXX	XXX	X	X	XX	X	...	X	X	...	...	X	
Schrenck's Bittern	<i>Ixobrychus eurhythmus</i>									0				One, 20 Sep 86
Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i>	XXX	XXX	XXX	X	X	XX	XX	XX	X	X	X	X	breeds Jun/Jul
Black Bittern	<i>Dupetor flavicollis</i>					X	X	...	...	...	X			
Great Bittern	<i>Botaurus stellaris</i>		0											two, Feb 84
Asian Openbill	<i>Anastomus oscitans</i>				X			X			XX	XX		
Greater Adjutant	<i>Leptoptilos dubius</i>	0						0						three, 7 Jul 84
Black-headed Ibis	<i>Threskiornis melanocephala</i>									0				one, 31 Oct 85
Lesser Tree Duck	<i>Dendrocygna javanica</i>	XXX	XXX	XXX	XXX	XX	XX	XX	X	...	X	...	XXX	
Common Pintail	<i>Anas acuta</i>	XXX	XXX	...	...								XXX	

*birds in non-breeding plumage cannot be specifically identified (see text)

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Common Teal	<i>Anas crecca</i>		0											
Eurasian Wigeon	<i>Anas penelope</i>	X	X											
Garganey	<i>Anas querquedula</i>	XXX	XX	XX								XXX		
White-eyed Pochard	<i>Aythya nyroca</i>		X	X										
Baer's Pochard	<i>Aythya baeri</i>	X	X											
Tufted Duck	<i>Aythya fuligula</i>	X												thirteen, 12 Jan
Cotton Pygmy Goose	<i>Nettapus coromandelianus</i>	XXX	XXX	XXX	XXX	XXX	XXX	XX	XX	X	X	X	X	
Comb Duck	<i>Sarkidiornis melanotos</i>	0												one, Jan 85
Osprey	<i>Pandion haliaetus</i>	X	X								X			twenty-nine, Oct
Black Baza	<i>Aviceda leuphotes</i>										X			four, Oct 85
Eurasian Honey Buzzard	<i>Pernis apivorus</i>											X		
Black-shouldered Kite	<i>Elanus caeruleus</i>	XX	X	X	X	X	X	XX	X	X	X	X	X	
Black Kite	<i>Milvus migrans</i>	XX	XX	...							XXX	XX	XX	
White-tailed Eagle	<i>Haliaeetus albicilla</i>												0	winter 83/84
Grey-headed Fish Eagle	<i>Ichthyophaga ichthyaeetus</i>						0					0		two, Jun 82
Crested Serpent Eagle	<i>Spilornis cheela</i>	0												one, Jan 83
Eastern Marsh Harrier	<i>Circus spilonotus</i>	XX	XX	X							XX	X	X	
Pied Harrier	<i>Circus melanoleucos</i>	X	X	X								X	...	
Japanese Sparrowhawk	<i>Accipiter gularis</i>	XX									X	...	...
Shikra	<i>Accipiter badius</i>	X	X	...	...	X	X	X	X	X	XX	X	X	
Rufous-winged Buzzard	<i>Butastur liventer</i>										0			one, Oct 83
Grey-faced Buzzard	<i>Butastur indicus</i>										X	...		
Common Buzzard	<i>Buteo buteo</i>										...	...	X	
Greater Spotted Eagle	<i>Aquila clanga</i>										0			two, 26-27 Oct 82
Eurasian Kestrel	<i>Falco tinnunculus</i>	X									X	X		annual passage
Oriental Hobby	<i>Falco severus</i>										X			one, 24 Oct 83 & 27 Oct 84

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Common Redshank	<i>Tringa totanus</i>							X		X				earliest arr 20 Jul 85
Common Greenshank	<i>Tringa nebularia</i>	X											X	
Wood Sandpiper	<i>Tringa glareola</i>	XX	X	XX	XX							X	X	
Common Sandpiper	<i>Actitis hypoleucos</i>				X				X	X				
Pintail Snipe	<i>Gallinago stenura</i>	X	X	XX								...	...
Common Snipe	<i>Gallinago gallinago</i>	XX	XX	XX								...	...
Rufous-necked Stint	<i>Calidris ruficollis</i>	...	...							X	...	...	...
Temminck's Stint	<i>Calidris temminckii</i>	...	...	X								...	XX	
Long-toed Stint	<i>Calidris subminuta</i>	...	...	XX							...	X		
Black-winged Stilt	<i>Himantopus himantopus</i>				X									annual passage
Oriental Pratincole	<i>Glareola maldivarum</i>	XX	X	X	XX	XX			XX					breeds April/May
Small Pratincole	<i>Glareola lactea</i>											0	0	one, Nov 79 six, Dec 85
Common Black-headed Gull	<i>Larus ridibundus</i>	X								...	X	X		
Brown-headed Gull	<i>Larus brunnicephalus</i>										X	X	X	
Herring Gull	<i>Larus argentatus</i>										X			one (Kopkate, 1984)
White-winged Tern	<i>Chlidonias leucopterus</i>									X				
Gull-billed Tern	<i>Gelochelidon nilotica</i>									0				three, 30 Sep 83
Little Tern	<i>Sterna albifrons</i>										0			one, 3 Oct 82
Orange-breasted Pigeon	<i>Treron bicincta</i>											0		two, 19 Nov 83
Rock Pigeon	<i>Columba livia</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Barred Cuckoo Dove	<i>Macropygia unchall</i>					0								one, 15 May 85
Red Turtle Dove	<i>Streptopelia tranquebarica</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	breeds Jan
Spotted Dove	<i>Streptopelia chinensis</i>	...	...	...	...	X	...	...	...	...	...	X	...	
Peaceful Dove	<i>Geopelia striata</i>	X	X	X	X	X	X	X	X	X	X	X	XX	
Blossom-headed Parakeet	<i>Psittacula roseata</i>	X				X								
Vernal Hanging Parrot	<i>Loriculus vernalis</i>											X		one, 26, Nov 85

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Indian Roller	<i>Coracias benghalensis</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Hoopoe	<i>Upupa epops</i>	X	...	X	X	...	X	X	...	...	...	...	...	breeds Jun/Jul
Lineated Barbet	<i>Megalaima lineata</i>	X	X	X	X	X	X	...	...	...	...	...	X	
Coppersmith Barbet	<i>Megalaima haemacephala</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XX	
Eurasian Wryneck	<i>Jynx torquilla</i>										X	X		
Common Goldenback	<i>Dinopium javanense</i>	X	...	...	...	...	...	...	...	...	...	...	...
Fulvous-breasted Woodpecker	<i>Picoides macei</i>	...	...	...	...	...	X	...	...	...	...	...	...
Hooded Pitta	<i>Pitta sordida</i>										0			one, 19 Oct 81
Singing Bushlark	<i>Miraфра javanica</i>		X											2-3, 28 Feb 83
Rufous-winged Bushlark	<i>Miraфра assamica</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Oriental Skylark	<i>Alauda gulgula</i>		X											one, 28 Feb 83
White-eyed River Martin	<i>Pseudochelidon sirintarae</i>	0	0									0	...	
Sand Martin	<i>Riparia riparia</i>	X	XX	X	X						X	X	X	
Barn Swallow	<i>Hirundo rustica</i>	XXX	XXX	XXX	XXX	XX	XX	XX	XX	XXX	XXX	XXX	XXX	
Red-rumped Swallow	<i>Hirundo daurica</i>	X	X	X		X					X	X	XX	
Asian House Martin	<i>Delichon dasypus</i>					X					XX	XX		
Ashy Minivet	<i>Pericrocotus divaricatus</i>	X	X	X	X						X	...	X	
Common Iora	<i>Aegithinia tiphia</i>			X	X	X	X	X	X	X	X	X	X	
Black-headed Bulbul	<i>Pycnonotus atriceps</i>	X	...	...	...	...	X	X	...	X	...	X	XX	
Black-crested Bulbul	<i>Pycnonotus melanicterus</i>	X	...	...	X	...	X	...	...	...	...	X	XX	
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	X	X	...	...	...	X	...	...	...	...	X	...	
Sooty-headed Bulbul	<i>Pycnonotus aurigaster</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	breeds May to Jul
Stripe-throated Bulbul	<i>Pycnonotus finlaysoni</i>	...	...	...	...	...	...	X	...	...	...	...	XX	
Yellow-vented Bulbul	<i>Pycnonotus goiavier</i>	X	X	...	...	X	X	...	...	...	...	...	X	breeds Jun
Streak-eared Bulbul	<i>Pycnonotus blanfordi</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	breeds Apr to Jul
Black Drongo	<i>Dicrurus macrocercus</i>	XX	XX	XXX	XX	X	X	X	X	X	XXX	XXX	XXX	breeds Jun
Ashy Drongo	<i>Dicrurus leucophaeus</i>	...									X	...	X	

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Bronzed Drongo	<i>Dicrurus aeneus</i>	...	...	...	...	...	...	X	X	...	...	...	...
Spangled Drongo	<i>Dicrurus hottentottus</i>	X	...	...	...	...	...	X	X	...	...	...	X	
Greater Racket-tailed Drongo	<i>Dicrurus paradiseus</i>	XX	...	...	...	...	...	XX	XX	...	...	...	XX	
Black-naped Oriole	<i>Oriolus chinensis</i>		X			X				X	X			
Black-hooded Oriole	<i>Oriolus xanthornus</i>	X	...	...	...	...	...	...	...	...	...	...	...	one, 14-22 Feb 81
Green Magpie	<i>Cissa chinensis</i>		0											
Rufous Treepie	<i>Dendrocitta vagabunda</i>	X									X			
Racket-tailed Treepie	<i>Crypsirina temia</i>	...	...	...	...	...	...	X	...	...	...	...	X	
Large-billed Crow	<i>Corvus macrorhynchos</i>	...	X	XX	X	...	X	...	...	...	X	...	...
Velvet-fronted Nuthatch	<i>Sitta frontalis</i>	X	...	...	...	...	...	...	...	...	...	...	...
Puff-throated Babbler	<i>Pellorneum ruficeps</i>	XX	...	...	...	...	...	XX	...	...	...	...	...
Limestone Wren- Babbler	<i>Napothera crispifrons</i>				0									one, 2 Apr 83
Striped Tit-Babbler	<i>Macronous gularis</i>	XX	...	...	XX	...	...	XX	...	...	...	XX	XX	
Chestnut-capped Babbler	<i>Timalia pileata</i>	XX	XX	...	...	...	...	XX	XX	...	...	...	XX	
Yellow-eyed Babbler	<i>Chrysomma sinense</i>	XX	XX	...	...	...	XX	XX	...	...	XX	...	...
White-crested Laughing Thrush	<i>Garrulax leucolophus</i>	...	...	...	...	...	...	...	...	XX	XX	...	...
Siberian Rubythroat	<i>Erithacus calliope</i>	XX	XX	XX	X						XX	XX	XX	
Bluethroat	<i>Erithacus svecicus</i>	XX	XX	XX	X						...	XX	XX	
Magpie Robin	<i>Copsychus saularis</i>	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	breeds Apr to Jul
White-rumped Shama	<i>Copsychus malabaricus</i>	...	...	...	...	...	...	XX	...	...	...	...	XX	
Stonechat	<i>Saxicola torquata</i>	XX	XX	XX	X				X	X	XXX	XXX	XX	
Jerdon's Bushchat	<i>Saxicola jerdoni</i>	0							0	0			0	single male, 4 records
Blue Rock Thrush	<i>Monticola solitarius</i>	X	X	X	X				X	X	X	X		earliest arr. 27 Sep 83 latest dep. 17 Apr 80
Blue Whistling Thrush	<i>Myophonus caeruleus</i>	X	...	...	...	...	...	X	...	...	...	X	X	
Orange-headed Thrush	<i>Zoothera citrina</i>				0									one, 19 Apr 81
Golden-spectacled Warbler	<i>Seicercus burkii</i>											0		one, Oct 86
Dusky Warbler	<i>Phylloscopus fuscatus</i>	XXX	XXX	XXX	XX	X					X	XXX	XXX	earliest arr. 2 Oct 83 latest dep. 13 May 85

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Radde's Warbler	<i>Phylloscopus schwarzi</i>	X	X	X	X	X							X	
Inornate Warbler	<i>Phylloscopus inornatus</i>	XXX	XX	X							XX	XXX	XXX	earliest arr. 1 Oct 83
Arctic Warbler	<i>Phylloscopus borealis</i>					X					X			earliest arr 4 Sep 85 latest dep. 6 May 86
Pale-legged Leaf Warbler	<i>Phylloscopus tenellipes</i>			X								X		
Sulfur-breasted Warbler	<i>Phylloscopus ricketti</i>											X		annual
Thick-billed Warbler	<i>Phragmaticola aedon</i>	XX	XX	...	X	X					XX	XX	XX	earliest arr 8 Oct 83 latest dep 1 Jun 80
Great Reed Warbler	<i>Acrocephalus arundinaceus</i>	XXX	XXX	XXX	XXX	XX			X	XX	XXX	XXX		earliest arr 21 Sep 85 latest dep 25 May 86
Black-browed Reed Warbler	<i>Acrocephalus bistrigiceps</i>	XXX	XXX	XXX	XXX	...					...	...	XXX	
Blunt-winged Warbler	<i>Acrocephalus concinens</i>	XX	XX	XX								...	X	latest dep 6 Mar
Pallas's Warbler	<i>Locustella certhiola</i>	XX	XX	...	X							...	XX	latest dep 19 Apr 86
Lanceolated Warbler	<i>Locustella lanceolata</i>	XX	XX	X	...						X	...	XX	
Striated Warbler	<i>Megalurus palustris</i>	XX	XX	XX	XX	...	XX	XX	...	...	XX	XXX	XX	breeds in Jun
Common Tailorbird	<i>Orthotomus sutorius</i>	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	breeds Apr to Jul
Dark-necked Tailorbird	<i>Orthotomus atrogularis</i>	X	...	...	...	...	...	X	...	...	...	...	...
Grey-breasted Prinia	<i>Prinia hodgsonii</i>	...	...	...	...	XX	...	XX	XX	XX	XX	XX	XX	breeds Sep/Oct
Rufescent Prinia	<i>Prinia rufescens</i>							0						two, 29 Aug 81
Tawny-flanked Prinia	<i>Prinia subflava</i>	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	breeds Jul
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Zitting Cisticola	<i>Cisticola juncidis</i>	XX	XX	XXX	X	...	X	X	X	...	...	X	X	
Bright-capped Cisticola	<i>Cisticola exilis</i>	XX	XX	XX			X	XX	X	...				
Spotted Bush Warbler	<i>Bradypterus thoracicus</i>	XX	XX	XX									...	
Asian Brown Flycatcher	<i>Muscipapa latirostris</i>	X	X	X	X						X	XX	...	earliest arr 23 Sep 86 latest dep. 22 Apr 83
Brown-streaked Flycatcher	<i>Muscipapa williamsoni</i>										0			one, 13-15 Oct 84
Verditer Flycatcher	<i>Muscipapa thalassina</i>										0			one, 24 Oct 81
Yellow-rumped Flycatcher	<i>icedula zanthopygia</i>				X					X	X			earliest arr 7 Sep 85

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Red-throated Flycatcher	<i>Ficedula parva</i>	XX	XX	X						X	XX	XX	XX	earliest arr 27 Sep 81 latest dep 23 Mar 83
Tickell's Blue Flycatcher	<i>Cyornis tickelliae</i>	...	...	...	...	...	...	X	X	...	...	...	X	
Grey-headed Flycatcher	<i>Culicicapæ ceylonensis</i>										0			one, 25 Oct 80
Pied Fantail	<i>Rhipidura javanica</i>	X	XX	XX	XX	...	XX	X	XX	XX	XX	...	XX	breeds Aug
Black-naped Monarch	<i>Hypothymis azurea</i>	...	...	...	...	...	...	...	...	...	XX	XX	XX	
Japanese Paradise Flycatcher	<i>Terpsiphone atrocaudata</i>	0											0	one, Dec 79 - Jan 80
Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	...	...	...	...	...	...	...	...	...	...	X	X	
White Wagtail	<i>Motacilla alba</i>	XX	XX	XX	X					XX	XX	XX	XX	earliest arr 31 Jul 80 latest dep 3 Apr 81
Grey Wagtail	<i>Motacilla cinerea</i>			0										one, 7 Mar 86
Yellow Wagtail	<i>Motacilla flava</i>	XXX	XXX	XX							X	XX	XXX	earliest arr 2 Oct 85 one, 28 Dec 85
Yellow-hooded Wagtail	<i>Motacilla citreola</i>												0	
Forest Wagtail	<i>Dendronanthus indicus</i>					X				X	X			earliest arr 7 Oct 83 latest dep 1 May 86
Olive Tree-Pipit	<i>Anthus hodgsoni</i>	X	...								...	...	...
Richard's Pipit	<i>Anthus novaeseelandiae</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	
Red-throated Pipit	<i>Anthus cervinus</i>	XX	...	XX	XX							...	...
Ashy Wood-Swallow	<i>Artamus fuscus</i>	XX	XX	X	X	X	X	XX	XX	X	X	X	X	
Brown Shrike	<i>Lanius cristatus</i>	XXX	XXX	XXX	XX	X			X	XX	XXX	XXX	XXX	earliest arr 31 Aug 85 latest dep 6 May 80
Grey-backed Shrike	<i>Lanius tephronotus</i>	0												
Long-tailed Shrike	<i>Lanius schach</i>	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	XX	breeds in Jun one, Jan 83
Chestnut-tailed Starling	<i>Sturnus malabaricus</i>	X												
Purple-backed Starling	<i>Sturnus sturninus</i>				X				X					annual passage
White-shouldered Starling	<i>Sturnus sinensis</i>	X							XXX	XXX	XXX	XXX		earliest arr 10 Sep 85 latest dep 19 Jan 86

Table 2 (continued)

Common name	Scientific name	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Notes
Asian Pied Starling	<i>Sturnus contra</i>	XX	XX	...	X	XX	...	...	X	XXX	XX	XX	XX	breeds in May
Black-collared Starling	<i>Sturnus nigricollis</i>	XX	XX	XX	...	X	...	...	...	...	XX	...	...	breeds in Jun
Common Myna	<i>Acridotheres tristis</i>	XX	XX	XX	XXX	XXX	XX	XX	XX	XX	XX	XX	XX	
White-vented Myna	<i>Acridotheres javanicus</i>	XX	XX	XX	XX	XX	XX	...	XX	XXX	XXX	XXX	XX	
Brown-throated Sunbird	<i>Anthreptes malacensis</i>					X	X	X		X				breeds May to Jul
Olive-backed Sunbird	<i>Nectarinia jugularis</i>	...	...	XX	XX	XX	XX	XX	...	...	XX	...	...
Purple Sunbird	<i>Nectarinia asiatica</i>	...	...	...	...	...	...	...	...	...	...	...	X	
Scarlet-backed Flowerpecker	<i>Dicaeum cruentatum</i>	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	breeds Apr to Aug
Oriental White-eye	<i>Zosterops palpebrosa</i>	...	...	...	...	...	...	...	...	...	...	X	...	
Eurasian Tree Sparrow	<i>Passer montanus</i>	XX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XX	XX	XX	breeds May to Sep
Plain-backed Sparrow	<i>Passer flaveolus</i>	XX	XX	X	X	X	X	X	X	X	X	XX	XX	breeds Feb
House Sparrow	<i>Passer domesticus</i>			0										one Mar 86
Baya Weaver	<i>Ploceus philippinus</i>	...	X	...	X	...	X	...	XX	...	...	...	...	breeds in Aug
Streaked Weaver	<i>Ploceus manyar</i>	X	...	...	...	...	X	X	X	...	...	...	...	breeds in Jun
Asian Golden Weaver	<i>Ploceus hypoxanthus</i>	X	X	XX	X	...	X	...	...	...	...	...	...
White-rumped Munia	<i>Lonchura striata</i>	XX	XX	XX	XX	XX	XX	XX	XXX	XXX	XXX	XX	XX	breeds in Apr
Scaly-breasted Munia	<i>Lonchura punctulata</i>	XXX	XX	XX	XXX	XX	XX	XX	XX	XXX	XXX	XX	XX	breeds in Sep
Chestnut Munia	<i>Lonchura malacca</i>	XX	XX	...	X	...	...	...	...	XX	XX	...	...	breeds in Sep
Yellow-breasted Bunting	<i>Emberiza aureola</i>	X	XX	XX	...									

Forestry Department officials carry out periodic raids on the outlets of the illegal bird trade but a certain amount of leniency is shown towards poor villagers who catch birds to supplement their earnings. Perhaps only a rise in the standard of living and a control on the sale of mist nets will help reduce these practices.

Few other positive measures are being taken to protect birds. Bueng Boraphet has been set up as a non-hunting area and Mae Lay Mae Wong as a nature reserve, and the birds in these two places are now reasonably well protected. Little action is taken, however, to prevent habitat destruction. Within the non-hunting area, trees are felled and reeds are burned with impunity. The fact that the larger herons do not breed on Bueng Boraphet now is probably a result of reduction in the extent of the reed beds and swamp woodland. Bueng Boraphet could become more attractive for birds if, for example, a suitable part of the marshes were set aside to encourage waders to feed, or if more trees were planted to encourage herons and other species to roost.

The birds of Nakhon Sawan Province are numerous and varied. Better conservation of their habitat and of the birds themselves would guarantee their continued presence.

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