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## SUMMARY OF DIURNAL MIGRANTS AT KHAO DINSOR AUTUMN 2016

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For seven consecutive years, the Flyway Foundation has carried out the count during autumn migration at Khao Dinsor located in Bangson Subdistrict, Pathiu District, Chumphon Province. Initiated by Chukiat Nualsri in 2008, Khao Dinsor has become one of the world's best migratory raptor observation sites. The complete annual counts have been conducted since autumn 2010. In 2016, the total number of migratory raptors ([Table 1](#)) has significantly increased due to the increased capacity of both interns and volunteers who participated in the count, as well as the improved equipment sponsored by Nikon Sales (Thailand).

The official count for autumn 2016 covered 10 hours (0700–1700hr) daily from 1 Sep to 15 Nov similarly to the previous year. This was made possible due to the effort of 2 Field Count Managers (Wichyanan Limparungpatthanakij between 1–30 Sep and Ayuwat Jearwattanakanok between 1 Oct–15 Nov) in supplement of 4 interns (Somkiat Pakapinyo, Tracy Maffett Briones Prado, Patricia Kaye T. Dumandan, and Anisha Pokharel) and volunteers coming from all over the world. The count was made at two fixed observatory stations located approximately 600m apart; the Seaside Station and the Eagle Cliff Station. Weather variables consisting of temperature, wind speed, wind direction, barometric pressure, and cloud cover were also collected at the beginning of every hour.

Summary tables of species counted in autumn 2016 are on the following pages, including migratory diurnal raptors ([Table 2](#)), resident diurnal raptors ([Table 3](#)), and non-raptor diurnal migrants ([Table 4](#)). The total number of presumed migratory raptors counted during this season is 791,227 individuals. Note that *Buteo* buzzards, which apparently compose of multiple taxa, are grouped together due to unresolved taxonomic and identification issues. Due to heavy rain and strong wind, the count couldn't be carried out properly between 31 Oct–1 Nov.

### Raptors

The total number of migratory raptors counted in autumn 2016 nearly doubled 2015 which ended up with over a hundred thousand individuals than the previous highest ([Table 1](#)). All of the commoner species from Chinese Sparrowhawk to Crested Serpent Eagle had excessively higher totals than ever recorded, with Grey-faced Buzzard being the only exception as the number was lower than in 2015 despite surpassing over all the other previous years. Most of the less common raptor species appeared to be stable. The notable increase in numbers of all sparrowhawk species, including Besra, was partially due to the provision of DSLR cameras with telephoto lenses sponsored by Nikon Sales (Thailand) and the better understanding in identification, resulting in over four thousand lower unidentified *Accipiter* than in 2015.



Image 1. Chinese Sparrowhawk *Accipiter soloensis* was the most numerous migratory raptor.  
Photo by Ayuwat Jearwattakanok

Both Japanese and Chinese Sparrowhawks peaked significantly earlier than last year, while most other species showed similar peak dates and time frames (Table 2). A few species were recorded much earlier than last year including Crested Serpent Eagle and Eurasian Kestrel which were observed regularly from 1 Oct and 23 Sep (versus 15 and 16 Oct in 2015) respectively. The first Black Baza turned up on 19 Sep, which was an exceptionally early date. However, the species was not seen again until its usual time frame in 15 Oct. A sharp decline was noted in Rufous-winged Buzzard whose last year's major influx may be a result of prey scarcity caused by drought in the north. Species missing this year were Steppe Eagle, Bonelli's Eagle, and Amur Falcon.

New raptor species for the site were raptors presumed sedentary in the Thai-Malay Peninsula, including Blyth's Hawk Eagle, Rufous-bellied Eagle, and Oriental Hobby (Table 3). The presence of a single Crested Serpent Eagle on 6 Sep implied that resident population may reside in the area. It was observed lingering in the area before heading north-west, presumably belonging to the resident race *malayensis* because of its smallish size. The Changeable Hawk Eagle was absent for the first year despite being somewhat regularly seen throughout the season in 2015, but there was an unidentified *Nisaetus* hawk eagle on 1 Oct too far away to identify with certainty.

Same as in autumn 2015, the peak hour that most raptors appeared was between 10 to 11 am (Figure 3). The slowest duration was the first hour of the count (7–8 am). Numbers of raptors ascended significantly in the morning, before falling slowly after 11 am when most non-raptor migrants started to pass through in very high numbers.



Image 2. An adult Blyth's Hawk Eagle *Nisaetus alboniger* photographed on 15 Oct 2016  
Photo by Ayuwat Jearwattanakanok

### Non-raptors

Total numbers of presumed diurnal non-raptor migrants are shown in [Table 5](#). All Asian Openbills *Anastomus oscitans* were counted (15,362 individuals) as well as the directions in which they were heading, although this might be the result of population rise and range expansion rather than regular seasonal movement. Gregarious egrets flying low, usually in early morning and late afternoon, were not counted as identification could not be made in most cases.

Two IUCN's globally threatened species and one globally near-threatened species were recorded namely Yellow-breasted Bunting *Emberiza aureola* (Endangered), Pale-capped Pigeon *Columba punicea* (Vulnerable), and Oriental Darter *Anhinga melanogaster* (Near-threatened). A pair of Yellow-breasted Buntings *Emberiza aureola* was first seen on 2 Oct and followed by a group of 4 birds on 19 Oct. This indicates that a small population of this globally endangered species still winter in the Thai-Malay Peninsula. A group of 7 Pale-capped Pigeons *Columba punicea* was seen on 22 Sep marking the highest number of this globally endangered species counted at Khao Dinsor. In total, 4 Oriental Darters *Anhinga melanogaster* were recorded throughout 2016 autumn count consisting of a single bird seen on 24 Sep and a group of 3 birds on 6 Nov.

The total number of Common Swift *Apus apus* recorded throughout the count is exceptionally higher than any previous years (19; 2 Oct–2 Nov) partly due to the increased awareness among counters, as well as DSLR equipment that could provide photographic evidence. Despite the increasing records, Khao Dinsor remains the only place in South-East Asia where this long-distance migrant has been recorded.



Image 3. A Common Swift *Apus apus* photographed on 2 Nov 2016. Photo by Ayuwat Jearwattananok

A single Blyth's Pipit *Anthus godlewskii* was found on 5 Oct. The bird was observed while calling in flight by 2 observers with photographic evidence. This is the first record of this species in southern Thailand, second for Peninsula Malaysia, and only the fourth record nationwide. Other notable first-records of migratory species for Khao Dinsor include a single Yellow-legged Buttonquail *Turnix tanki* seen on 22 Oct, a group of 3 Brown-rumped Minivets *Pericrocotus cantonensis* on 28 Oct, two Rosy Minivets *Pericrocotus roseus* on 8 Nov and a Grey Nightjar *Caprimulgus jotaka* on 6 Nov.

Other species of uncertain seasonal status, likely involving local dispersants, include Little Cormorant *Microcarbo niger* (7; 26 Oct), Wreathed Hornbill *Rhyticeros undulatus* (6 individuals; 22 Sep–15 Oct), Pin-tailed Parrotfinch *Erythrura prasina* (1; 14 Sep), Paddyfield Pipit *Anthus rufulus* (1; 9 Nov), unidentified *Treron* pigeon (44; 4–11 Nov), Pink-necked Green Pigeon (11; 10 Nov), and Thick-billed Green Pigeon (3; 29 Sep–11 Nov).

Most of the presumed nocturnal migrants were detected sparsely during daytime. These include unidentified *Tringa* sandpipers (13 Sep), unidentified *Calidris* sandpipers (11 Nov), unidentified *Gallinago* snipes (13 Sep), Brown Shrike *Lanius cristatus* (18 Sep–3 Oct), Crow-billed Drongo *Dicrurus annectans* (15 Sep–5 Oct), Black-naped Monarch *Hypothymis azurea* (8 Sep), Amur Paradise-flycatcher *Terpsiphone incei* (17 Sep–25 Oct), Arctic Warbler *Phylloscopus borealis* (21 Sep), Sakhalin Leaf Warbler *P. borealoides* (23 Sep–25 Oct), Pale-legged Leaf Warbler *P. tenellipes* (22–29 Sep), Eastern Crowned Warbler *P. coronatus* (11–27 Sep), Dark-sided Flycatcher *Muscicapa sibirica* (12 Sep–15 Oct), Asian Brown Flycatcher *M. latirostris* (9 Sep–9

Nov), Yellow-rumped Flycatcher *Ficedula zanthopygia* (11–22 Sep), and Taiga Flycatcher *F. albicilla* (28 Oct).



Image 4. First record of Blyth's Pipit *Anthus godlewskii* at Khao Dinsor photographed on 5 Oct 2016  
Photo by Ayuwat Jearwattanakanok

Counters consisted of Somkiat Pakapinyo, Tracey Maffett Briones Prado, Patricia Kaye T. Dumandan, Anisha Pokharel, Chuenchom Hansasuta, Chukiatt Nualsri, Jacky Soh, Nattapon Pornnumpa, Henrietta Woo, Cheong Shu Min, Alyce Ang, Wong Yian Hah, Han Yong Kwong, Nae Tanpradit, Daniel Hinckley, Attapon Chana, Warut Chaleekarn, Chanon Chirachitmicchai, Juan José González Magro, Pattaraporn Vangtal, Yuwaree Kamolsawat, Pakhawan Petchrattanon, Vatcharavee Sriprasertsil, Jack Ashton-Booth, Wichyanan Limparungpatthanakij and Ayuwat Jearwattanakanok. This year's effort would not be as successful without help from visitors assisting in pointing out and photographing birds, as well as invaluable support from various other people and organisations.

For more information, visit the Flyway Foundation's [official website](#) and [facebook page](#).

Summarised by Ayuwat Jearwattanakanok & Wichyanan Limparungpatthanakij



## Migratory raptor species

Species	2016	2015	2014	2012	2011	2010
Western Osprey	81	76	47	51	50	57
Oriental Honey-buzzard	136,683	65,899	42,358	33,835	15,541	32,870
Jerdon's Baza	288	286	111	192	78	20
Black Baza	177,169	100,500	154,716	119,324	39,113	74,033
Crested Serpent Eagle	890	357	286	393	127	126
Short-toed Snake Eagle	1	8	-	3	1	<10
Greater Spotted Eagle	12	16	11	20	20	21
Booted Eagle	97	121	129	74	70	71
Steppe Eagle	-	2	-	-	-	-
Bonelli's Eagle	-	-	2	1	-	-
Rufous-winged Buzzard	2	40	2	9	4	1
Grey-faced Buzzard	20,773	24,007	12,016	10,159	5,589	14,434
Eastern Marsh Harrier	197	155	119	107	171	173
Pied Harrier	31	53	18	39	53	65
Shikra	13,768	10,962	2,179	6,086	1,970	2,772
Chinese Sparrowhawk	410,721	170,925	61,845	83,168	93,406	83,308
Japanese Sparrowhawk	28,254	17,855	10,405	11,907	12,047	5,452
Besra	123	50	9	9	3	<15
Eurasian Sparrowhawk	14	13	7	3	-	<10
Black-eared Kite	266	185	154	172	173	168
<i>Circus</i> spp.	8	-	N/A	N/A	N/A	N/A
<i>Accipiter</i> spp.	1,343	5,645	2,845	N/A	N/A	N/A
<i>Buteo</i> spp.	54	46	24	36	47	83
Eurasian Kestrel	26	24	6	26	11	12
Amur Falcon	-	6	-	4	4	1
Eurasian Hobby	7	5	1	3	4	7
Peregrine Falcon	32	43	36	30	42	30
other unidentified	389	6	60	4,193	N/A	N/A
<b>Total</b>	<b>791,228</b>	<b>397,329</b>	<b>287,386</b>	<b>269,844</b>	<b>168,524</b>	<b>213,704</b>

**Table 1.** Total numbers of presumed migratory diurnal raptors species counted in autumn 2010–2016. Note that data in 2013 is lacking.

### Migratory raptor species

Species	Total counted	Peak daily count	Time frame
Western Osprey	81	6 (10 Oct)	25 Sep–14 Nov
Oriental Honey-buzzard	136,683	27,439 (10 Oct)	31 Aug–15 Nov
Jerdon's Baza	288	54 (25 Oct)	12 Oct–15 Nov
Black Baza	177,169	68,848 (24 Oct)	19 Sep, 15 Oct–15 Nov
Crested Serpent Eagle	890	402 (17 Oct)	1 Oct–15 Nov
Short-toed Snake Eagle	1	1	6 Nov
Greater Spotted Eagle	12	2 (11–12 Oct)	11 Oct–7 Nov
Booted Eagle	97	10 (16, 18 Oct)	1 Oct–14 Nov
Rufous-winged Buzzard	2	1	17 Oct–8 Nov
Grey-faced Buzzard	20,773	3,167 (24 Oct)	8 Oct–15 Nov
Eastern Marsh Harrier	197	13 (28 Sep)	17 Sep–15 Nov
Pied Harrier	31	3 (4 Oct)	22 Sep–12 Nov
Shikra	13,768	2,385 (25 Oct)	1 Sep–15 Nov
Chinese Sparrowhawk	410,721	45,800 (25 Sep)	6 Sep–15 Nov
Japanese Sparrowhawk	28,254	2,927 (12 Sep)	31 Aug–15 Nov
Besra	123	10 (11 Oct)	26 Sep–15 Nov
Eurasian Sparrowhawk	14	2 (1, 18 Oct, 5, 11 Nov)	1 Oct–14 Nov
Black-eared Kite	266	29 (11 Oct)	16 Sep–15 Nov
<i>Circus</i> sp.	8	2 (19 Oct)	
<i>Accipiter</i> sp.	1,343	130 (18 Sep)	
<i>Buteo</i> sp.	54	12 (12 Oct)	4 Oct–15 Nov
Eurasian Kestrel	26	2 (2, 11, 19, 23, 25 Oct, 8 Nov)	23 Sep–15 Nov
Eurasian Hobby	7	2 (15 Nov)	15 Oct–15 Nov
Peregrine Falcon	32	2 (26, 29–30 Sep, 7, 9, 12, 21 Oct, 6, 14 Nov)	16 Sep–14 Nov
other unidentified	389	376 (17 Oct)	
<b>Total</b>	<b>791,227</b>	<b>77,073 (24 Oct)</b>	<b>31 Aug–15 Nov</b>

**Table 2.** Total numbers of presumed migratory diurnal raptors species counted in autumn 2016. Crested Serpent Eagle and Peregrine Falcon appeared to be resident are excluded from this table. A small portion of Shikra included here was resident.

### Presumed resident raptor species

Species	Peak daily count	Time frame
Black-winged Kite	1	2 Oct–3 Nov
Crested Serpent Eagle ( <i>malayensis</i> )	1	6 Sep
Blyth's Hawk Eagle	1	23 Sep–13 Nov
<i>Nisaetus</i> sp.	1	1 Oct
Rufous-bellied Eagle	1	7 Oct
Black Eagle	1	25 Sep–6 Nov
Crested Goshawk	3	31 Aug–15 Nov
Brahminy Kite	5	1 Sep–15 Nov
White-bellied Sea Eagle	2	3 Sep–10 Nov
Oriental Hobby	1	24 Sep
Peregrine Falcon ( <i>ernesti</i> )	1	2–13 Sep

**Table 3.** Total numbers of presumed resident diurnal raptors species counted in autumn 2016.

### Non-raptor diurnal migratory species

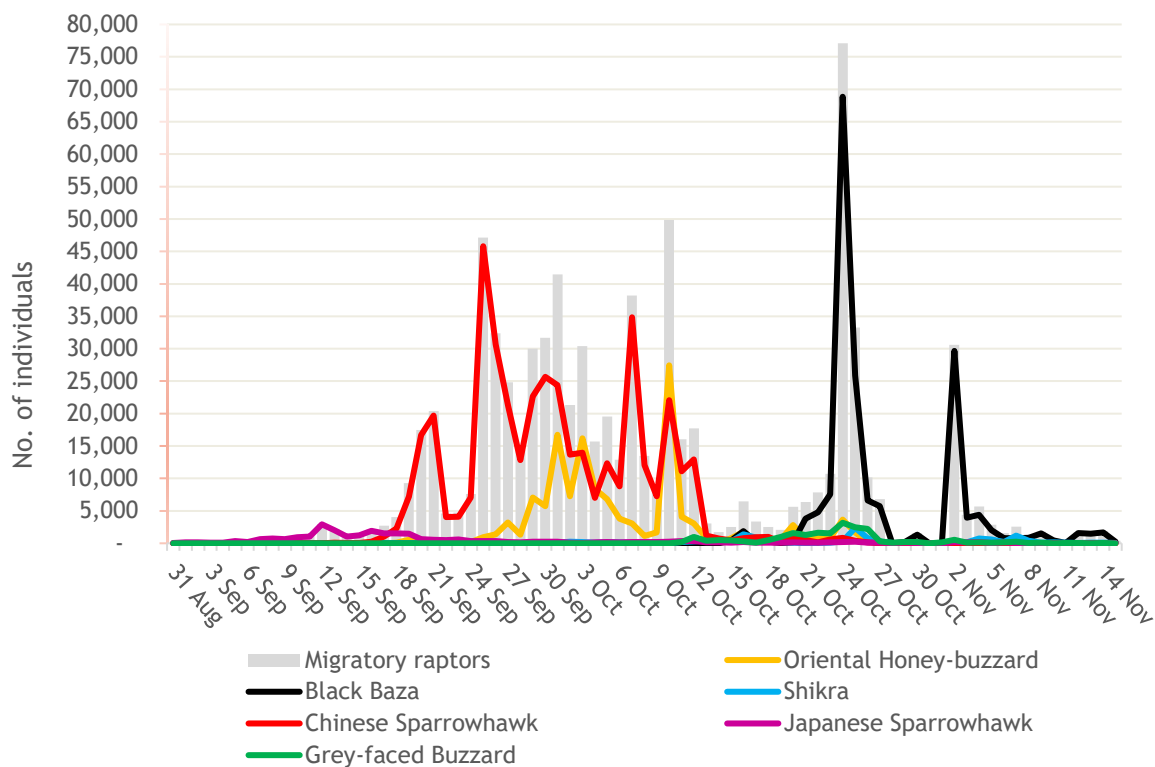
Species	Total counted	Peak daily count	Time frame
Asian Openbill	15,362	2,495 (24 Oct)	31 Aug–15 Nov
Little Cormorant	7	7	26 Oct
Great Cormorant	3	2 (4 Oct)	12 Sep–4 Oct
unidentified cormorant	3	3	29 Oct
Oriental Darter	4	3 (6 Nov)	24 Sep–6 Nov
Grey Heron	1	1	1 Nov
Purple Heron	1	1	28 Oct
Eastern Cattle Egret	2	2	15 Oct
Chinese Pond Heron	19	13 (11 Oct)	20 Sep–11 Oct
Pacific Golden Plover	37	17 (22 Sep)	22–27 Sep
Oriental Pratincole	220	130 (2 Nov)	1–13 Nov
Pale-capped Pigeon	7	7	22 Sep
White-throated Needletail	2,890	469 (20 Oct)	10 Sep–15 Nov
Silver-backed Needletail	56	22 (7 Nov)	22 Oct–15 Nov
Brown-backed Needletail	380	63 (6 Nov)	2 Sep–15 Nov
unidentified needletail	903	170 (9 Nov)	
Common Swift	19	4 (3 Oct)	2 Oct–2 Nov
Pacific Swift	25,118	2,388 (28 Sep)	31 Aug–15 Nov
Wreathed Hornbill	6	3 (9 Oct)	22 Sep–15 Oct
Chestnut-headed Bee-eater	358	47 (7 Nov)	12 Oct–15 Nov
Blue-throated Bee-eater	3,237	522 (17 Sep)	31 Aug–14 Nov
Blue-tailed Bee-eater	57,074	4,200 (22 Oct)	31 Aug–15 Nov
unidentified bee-eater	14	8 (2 Oct)	
Oriental Dollarbird	308	107 (6 Nov)	2 Oct–7 Nov
Rosy Minivet	2	2	8 Nov
Brown-rumped Minivet	3	3	28 Oct
Ashy Minivet	4,752	731 (29 Oct)	6 Oct–15 Nov
Black-winged Cuckooshrike	10	2 (2, 4, 26 Oct)	2–26 Oct
Black-naped Oriole	330	45 (20 Oct)	27 Sep–14 Nov
Black Drongo	2,119	556 (1 Nov)	25 Sep–14 Nov
Ashy Drongo	210	20 (17 Oct)	1 Oct–10 Nov
Hair-crested Drongo	1	1	4 Nov
Common Sand Martin	63	17 (10 Oct)	5 Oct–13 Nov
Barn Swallow	83,339	11,054 (20 Sep)	31 Aug–15 Nov
Red-rumped Swallow	27,175	7,150 (10 Oct)	19 Sep–13 Nov
Asian House Martin	2,044	790 (6 Nov)	13 Sep–15 Nov
unidentified swallow	3	3 (3 Nov)	
Chestnut-flanked White-eye	1	1	14 Nov
Purple-backed Starling	30	25 (22 Sep)	22 Sep–19 Oct
Blue Rock-thrush	1	1	5 Oct
Forest Wagtail	80	22 (4 Sep)	4 Sep–26 Oct
Eastern Yellow Wagtail	40	14 (13 Sep)	6–26 Sep
Grey Wagtail	60	11 (17 Sep)	4 Sep–2 Oct
unidentified wagtail	4	1	
Richard's Pipit	13	3 (15 Nov)	10 Oct–15 Nov
Blyth's Pipit	1	1	5 Oct
Olive-backed Pipit	1	1	13 Oct
Yellow-breasted Bunting	6	4 (19 Oct)	2–19 Oct

**Table 4.** Total numbers of diurnal migratory non-raptor species counted in autumn 2016.

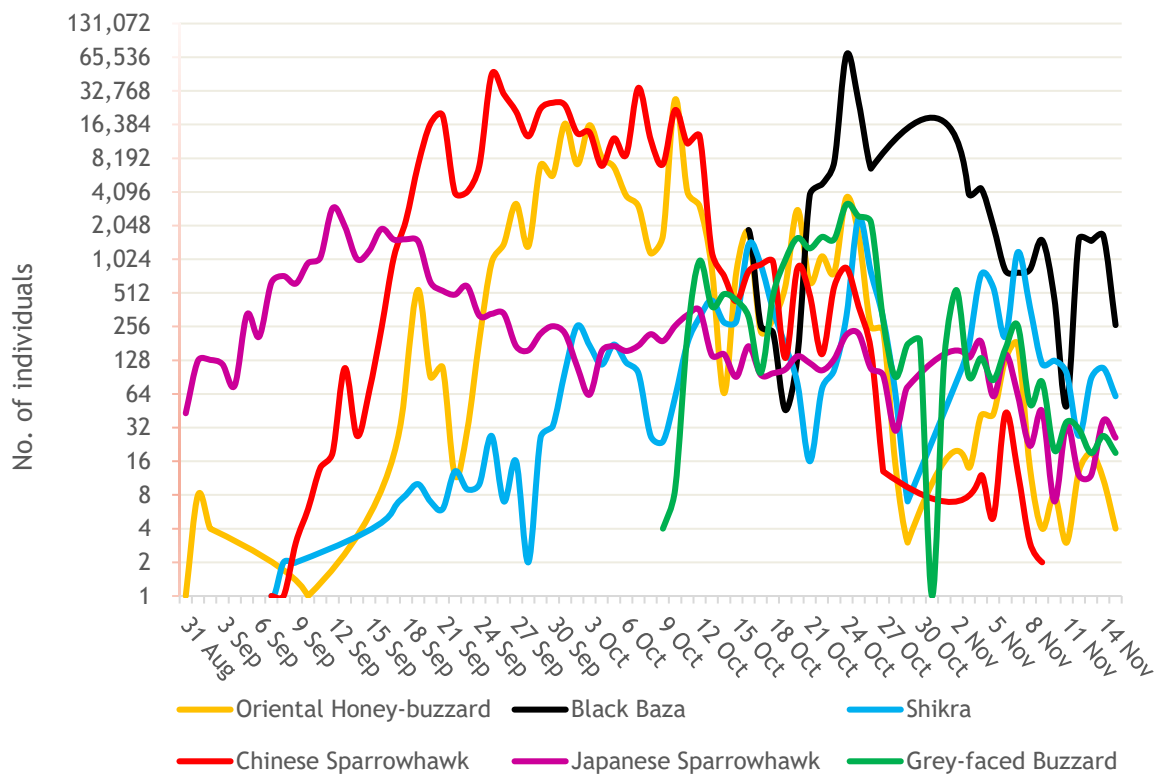


Species	2016	2015	2014	2012	2011
Asian Openbill	15,362	21,713	2,612	1,321	49
Painted Stork	-	1	-	-	-
Christmas Island Frigatebird	-	-	1	-	-
Little Cormorant	7	4	N/A	N/A	N/A
Great Cormorant	3	-	N/A	N/A	N/A
Oriental Darter	4	16	5	N/A	N/A
Grey Heron	1	15	-	-	-
Purple Heron	1	5	-	-	-
Great Egret	-	1	-	7	4
Intermediate Egret	-	11	-	-	-
Eastern Cattle Egret	2	-	-	-	-
Little Egret	-	24	26	854	1,027
Chinese Pond Heron	19	2	-	-	-
Black-headed Ibis	-	10	-	18	-
Pacific Golden Plover	37	-	N/A	N/A	N/A
Oriental Pratincole	220	720	27	143	153
Whiskered Tern	-	1	-	-	-
Pale-capped Pigeon	7	4	5	3	N/A
White-throated Needletail	2,890	1,663	203	724	745
Silver-backed Needletail	56	156	-	17	53
Brown-backed Needletail	380	553	25	37	121
unidentified needletail	903	2,153	78	N/A	N/A
Common Swift	19	3	1	-	-
Pacific Swift	25,118	20,350	11,858	20,666	22,816
Wreathed Hornbill	6	-	N/A	N/A	N/A
Plain-pouched Hornbill	-	-	1	-	-
Chestnut-headed Bee-eater	358	355	103	144	68
Blue-throated Bee-eater	3,237	1,676	788	1,863	2,265
Blue-tailed Bee-eater	57,074	46,887	14,944	26,888	24,869
Oriental Dollarbird	308	237	8	53	33
Rosy Minivet	2	-	-	-	-
Brown-rumped Minivet	3	-	-	-	-
Ashy Minivet	4,752	8,819	2,428	3,303	3,146
Black-winged Cuckooshrike	10	2	-	-	-
Black-naped Oriole	330	256	101	141	160
Black Drongo	2,119	1,812	253	2,012	1,514
Ashy Drongo	210	138	8	16	16
Hair-crested Drongo	1	4	-	2	-
Common Sand Martin	63	55	3	10	-
Barn Swallow	83,339	88,733	15,771	68,744	84,005
Red-rumped Swallow	27,175	4,802	2,119	2,849	2,834
Asian House Martin	2,044	1,839	107	272	207
Chestnut-flanked White-eye	1	35	-	-	-
Purple-backed Starling	30	-	-	-	-
Blue Rock-thrush	1	4	-	2	-
Forest Wagtail	80	135	3	4	N/A
Eastern Yellow Wagtail	40	76	12	N/A	N/A
Grey Wagtail	60	36	-	52	N/A
Richard's Pipit	13	1	-	1	-
Blyth's Pipit	1	-	-	-	-
Olive-backed Pipit	1	2	-	-	-
Yellow-breasted Bunting	6	-	-	-	-

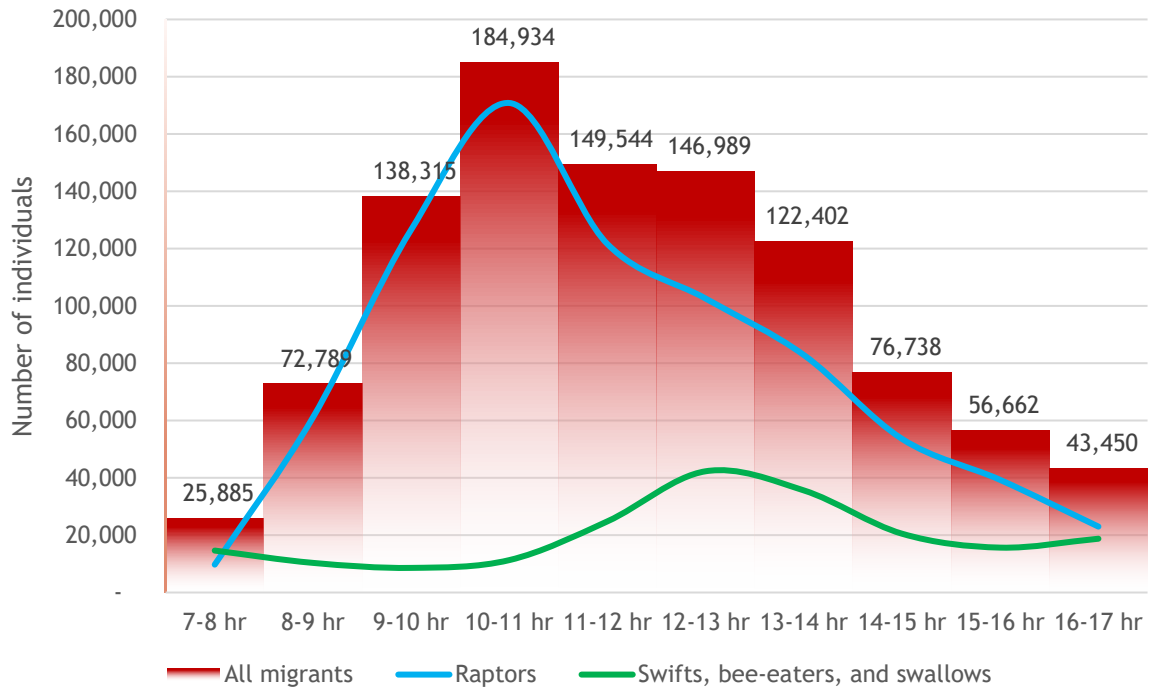
**Table 5.** Total numbers of important diurnal migratory non-raptor species counted in autumn 2011–2016. Note that data in 2010 and 2013 are lacking.



**Figure 1.** Numbers of raptors with highest counts throughout the season. Bar chart represents daily total numbers of migratory raptors for comparison.



**Figure 2.** Numbers of raptors with highest counts throughout the season. Logarithmic scale is applied for the ease in comparison of species trends.



**Figure 3.** Pattern of migration through the day (number of birds per hour) at Khao Dinsor: 1 Sep–15 Nov 2016.