

BIRDWATCHERS IN ACTION

Raptor migration in Thailand

ROBERT DECANDIDO, CHAIYAN KASORNDORKBUA, CHUKIAT NUALSRI, CHAIWAT CHINUPARAWAT & DEBORAH ALLEN

Thailand serves as a crucial land-bridge for soaring migrants, connecting raptors breeding in the northern hemisphere including eastern Russia, China, Mongolia, Nepal and Japan with overwintering areas in Malaysia, Singapore, Sumatra, Bali and the outlying islands of Indonesia to the far east (Higuchi *et al.* 2005, Shiu *et al.* 2006). Twenty-three diurnal raptor species (of the 55 recorded in Thailand) are known to migrate in the country, although some species rarely travel beyond the Isthmus of Kra in southern Thailand. In the last decade, birdwatching and bird photography in Thailand have grown exponentially, particularly in and around Bangkok. And in just the last five years, raptor-watch sites have been established in south-central Thailand near the cities of Prachuap Khiri Khan and Chumphon. At these two locations Thai birders and photographers have been sharing the same sky with colleagues from all parts of the globe—and new



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Plate 1. Watching raptors, Promsri Hill, Chumphon, Thailand, March 2007.

Plate 2. Chumphon watch site, Chumphon, Thailand, March 2007.



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Plate 3. Highway sign, Chumphon, Thailand, October 2003.



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Plate 4. Black Bazas *Aviceda leuphotes*, Chumphon, Thailand, March 2008.



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discoveries about raptor migration have been made. We profile both watch sites below.

Radar Hill (10°59'N 99° 21'E) is located 400 km south of Bangkok near Prachuap Khiri Khan along Phetkasem Road just beyond km 433, and approximately 15 km from the east coast. Atop the hill (elevation 195 m) that serves as a station for a series of communication towers, hawk counters have an uninterrupted 180° panoramic view to the north, east and west to look for approaching

Plate 5. Black Baza *Aviceda leuphotes*, Chumphon, Thailand, March 2008.



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Plate 6. Jerdon's Baza *Aviceda jerdoni*, Chumphon, Thailand, March 2007.



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raptors. Throughout the day, southbound migrants are usually seen at or near eye-level, and it is not unusual to observe raptors passing below the watch site as well. Late in the day, the nearby palm and rubber tree plantations play host to raptors arriving to roost. The following morning, it is an impressive spectacle to watch birds of prey slowly rising up to continue their migration together. This combination of superb views and good numbers of raptors makes Radar Hill the best spot in Thailand to observe and photograph birds of prey in migration.

Since 2005, the Thai Raptor Group (www.thairaptorgroup.com) has conducted Radar Hill's raptor watch every Saturday and Sunday from mid-September to mid-November. Data have been collected for 21 species of raptor migrants. The commonest species in descending order are: Black Baza *Aviceda leuphotes*, Chinese Sparrowhawk *Accipiter soloensis*, Oriental Honey-buzzard *Pernis ptilorhynchus*, Grey-faced Buzzard *Butastur indicus* and Japanese Sparrowhawk *Accipiter gularis*. Recorded rarities are Osprey *Pandion haliaetus*, Jerdon's Baza *Aviceda jerdoni*, Short-toed Snake-eagle *Circaetus gallicus*, Northern Sparrowhawk *Accipiter nisus*, Steppe Buzzard *Buteo buteo vulpinus*, Greater Spotted Eagle *Aquila clanga*, Imperial Eagle *Aquila heliaca*, Booted Eagle *Hieraetus pennatus*, Amur Falcon *Falco amurensis*, Northern Hobby *Falco subbuteo* and Common Kestrel *Falco tinnunculus*. Migration counts at Radar Hill have also added to our knowledge of raptor biology: three new species were recorded and photographed as southbound migrants for the first time in Asia: Crested Serpent Eagle *Spilornis cheela*, Jerdon's Baza and Shikra *Accipiter badius* (Thai Raptor Group 2008).

Biologists at Radar Hill have also noted important patterns in the migration of the raptors. For example, the Booted Eagle is a regular migrant at Radar Hill each autumn, and its dark morph is more frequent than the pale morph. This contrasts with observations in western Asia where the pale morph is much commoner (Kasorndorkbua & Chinuparawat 2008). Also, migration counts from 2005–2007 at Radar Hill suggest that the ratio of Chinese Sparrowhawks to Japanese Sparrowhawks is approx. 4:1 during southbound migration on mainland South-East Asia (Lorsunyaluck *et al.* 2008). Observations by raptor watchers at Radar Hill have also confirmed what birders have long suspected: Japanese Sparrowhawks migrate primarily as singles, though a few will gain enough altitude to travel with large flocks of Chinese Sparrowhawks (Lorsunyaluck *et al.* 2008).

Chumphon is the premier site in Thailand for seeing the greatest number of migrating migrants. It is the first city in Thailand to promote raptor

conservation via highway signs, posters and T-shirts. Located along the country's east coast, about 475 km south of Bangkok, the official site to view autumn migration is a few kilometres beyond town (10°28'N 99°13'E). However, so many raptors pass across the region that it is possible to see migrants from the roof of any tall hotel in Chumphon. Although the southbound migration begins in

earnest in late August and continues at least through mid-December, the peak time for both numbers of hawks and diversity of species is late September through early November. Every October since 2002, there has been a raptor-watch festival. Education is the primary goal of the local government that wants to make locals, almost all of whom are new to birding, aware of the



DEBORAH ALLEN

Plate 7. Grey-faced Buzzard *Butastur indicus*, Chumphon, Thailand, March 2008.

Plate 9. Grey-faced Buzzard *Butastur indicus*, subadult, Chumphon, Thailand, March 2008.



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Plate 8. Grey-faced Buzzard *Butastur indicus*, Chumphon, Thailand, March 2008.

Plate 10. Grey-faced Buzzard *Butastur indicus*, juvenile, Radar Hill, Prachuap Khiri Khan, Thailand, October 2007.



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Plate 11. Oriental Honey-buzzard *Pernis ptilorhynchus*, male light morph, Chumphon, Thailand, March 2008.

Plate 13. Oriental Honey-buzzard *Pernis ptilorhynchus*, male, dark morph, Chumphon, Thailand, March 2007.



Plate 12. Oriental Honey-buzzard *Pernis ptilorhynchus*, adult male, light morph, Chumphon, Thailand, March 2008.

Plate 14. Oriental Honey-buzzard *Pernis ptilorhynchus*, female dark morph, Chumphon, Thailand, March 2008.

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Plate 15. Blue-tailed Bee-eater *Merops philippinus*, Chumphon, Thailand, March 2008.

importance of Thailand and the Chumphon area for raptors (DeCandido & Allen 2007).

In a six-week survey from late September through early November 2003, more than 170,000 migrants of 17 species were counted from one location near Chumphon (DeCandido *et al.* 2004). Probably at least 500,000 raptors pass through the region each autumn, making Chumphon a watch site of global significance. In spring 2007 and 2008, the first intensive spring survey of northbound raptors was conducted from Promsri Hill (10°30'N 99°04'E), 15 km west of Chumphon. More than 50,000 raptors of 15 species were tallied in each year with the peak time being from mid-March through early April. On both spring and autumn

Plate 16. Japanese Sparrowhawk *Accipiter gularis*, male, Radar Hill, Prachuap Khiri Khan, Thailand, October 2007.



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migration four raptor species comprise more than 90% of the flight: Black Baza, Chinese Sparrowhawk, Grey-faced Buzzard and Oriental Honey-buzzard. In addition there are other diurnal migrants that use the same coastal route each year such as Blue-tailed Bee-eater *Merops philippinus*, Blue-throated Bee-eater *M. viridis*, Black Drongo *Dicrurus macrocercus* and Oriental Pratincole *Glareola maldivarum* as well as several species of swifts, swallows and waterbirds including herons and cormorants. The spring counts of the two bee-eater species are the highest totals for any site in Asia (see also DeCandido *et al.* 2004).

As with other raptor-watch sites throughout the world, many more individuals of a greater number of species are counted in southbound migration at Chumphon than head north in spring—but important exceptions do exist. The Black Baza was the commonest raptor counted in autumn 2003 (68,219) and spring 2007 and 2008 (22,000 on average). On the other hand, Chinese Sparrowhawk (57,667 in autumn 2003) averaged only 9,000 per year in the springs of 2007 and 2008. The difference results from the great altitude at which most flocks of Chinese Sparrowhawks travel in spring, especially during the middle of the day. By comparison, more migrating Grey-faced Buzzards were counted in northbound migration (18,200 on average) than in autumn 2003 (14,962). In Taiwan, a similar pattern for greater numbers of Grey-faced Buzzards counted in spring *vs* autumn has also been reported (Lin 2004). The Oriental Honey-buzzard was the fourth most common migrant in autumn 2003 (15,972) and spring (3,750 on average). Finally, Japanese Sparrowhawks totalled 5,811 in autumn 2003, but only 365 on average

Plate 17. Japanese Sparrowhawk *Accipiter gularis*, female, Radar Hill, Prachuap Khiri Khan, Thailand, October 2007.



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were seen in March–April 2007 and 2008. In spring, the peak time of migration for this species is in February, almost a month before intensive counts began, and this probably accounts for the low numbers seen in 2007–2008.

Migration counts at Chumphon have also added to our knowledge of raptor biology: two new species were recorded as migrants for the first time in Asia in spring: Crested Serpent-eagle and Jerdon's Baza. Both have also been seen in southbound migration here. Shikra is a common resident near Chumphon, and also a very rare autumn migrant, photographed in 2003.

In stark contrast to the Americas where an estimated 3.5 million raptors migrate annually through Costa Rica, with Turkey Vulture *Cathartes aura* being the most common migrant, not a single vulture has yet been observed on migration at either Chumphon or Radar Hill. Ospreys are common migrants in the Americas, but uncommon on passage in the Middle East. In Thailand, Ospreys are rare migrants (approx. 25/season) in spring and autumn. Overall, compared to western Asia where three million raptors of 30 species are estimated to migrate through the Middle East each year (Yosef 1995), we estimate that up to half-a-million individuals of at least 21 species annually pass the watch areas at Chumphon and Radar Hill. The only other hawk watch in South-East Asia with comparable numbers to Chumphon is located on the Indonesian island of Sangihe, where it is estimated that up to 400,000 raptors of at least six species migrate each autumn into Wallacea (<http://www.natural-research.org/projects/sangihe.htm>). Chinese Sparrowhawks make up 98% of the flight there.

At Chumphon, most of the southbound raptor migration occurs on days when winds are from the west to north-west. From late June through mid-November, these winds are generated daily by a high pressure system, centred over the Andaman Sea to the west as the ITCZ passes N–S through Thailand (Khedari *et al.* 2002). Raptors drift towards the east coast from August through about early November on the heels of these westerly winds. If rain or overcast conditions prevail inland, the number of raptors counted on migration along the coast can be prodigious. For example, on 23 October 2003, observers at Chumphon counted 56,101 migrants with overcast skies and light westerly winds. By late November this high pressure system weakens and winds from the north-east low-pressure monsoon combine with a sea-breeze from the nearby Gulf of Thailand (Khedari *et al.* 2002). As a result in spring, the migration shifts several kilometres inland to the west of Chumphon, depending upon the intensity



Plate 18. Chinese Sparrowhawk *Accipiter soloensis*, juvenile, Radar Hill, Prachuap Khiri Khan, Thailand, October 2007.

Plate 19. Chinese Sparrowhawk *Accipiter soloensis*, adult female, Radar Hill, Prachuap Khiri Khan, Thailand, October 2007.



of the wind. Raptors are not concentrated in a dense corridor overhead as they are in autumn.

The best time of the day to observe migrants in both spring and autumn is before 11h00 and again after 15h00. Early in the morning we have seen Grey-faced Buzzards engage in courtship flights in the area of Promsri Hill. In the middle of the day, raptors are usually “into the pins” and appear as tiny dots in the sky, if one is lucky enough to find a flock flying together. In late afternoons during March, raptors of several species will descend to roost near the watch site at Promsri Hill, including Chinese Sparrowhawk, Black Baza and Oriental Honey-buzzard.

In our travels through Thailand, we have learned that raptor-watch sites such as Radar Hill and Chumphon are more than important places to collect data about migrating birds of prey. In the big picture, the sight of so many large birds soaring overhead inspires a sense of wonder, particularly in people new to birdwatching. Our mission is to channel this fascination into a long-term commitment to protect raptors, and conserve the environment all of us share together.

Those interested in weekend raptor migration counts at Radar Hill at Prachuap Khiri Khan should contact Chaiyan Kasorndorkbua (fvetchk@ku.ac.th); for more information about the autumn raptor-watch festival at Chumphon, contact Chukiat Nualsri (bnternstar@gmail.com). For past years' count data see the website of the Asian Raptor Research and Conservation Network <http://www5b.biglobe.ne.jp/~raptor/> and the website of the Thai Raptor Group <http://thairaptorgroup.com/TRG/modules.php?name=raptorcount>

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Robert DeCandido Ph.D.

1831 Fowler Avenue, The Bronx, New York 10462

Email: rdcny@earthlink.net

Chaiyan Kasorndorkbua D.V.M., Ph.D.

Thai Raptor Group, Faculty of Veterinary Medicine,

Kasetsart University, Bangkok, 10900 Thailand

Email: fvetchk@ku.ac.th

Chukiat Nualsri

Nathung Administrative Organization,

99 Mu3 Nathung sub-District,

Muang Chumphon, 86000 Thailand

Email: bnternstar@gmail.com

Chaiwat Chinuparawat

71/37 Soi Teera 2 Bangborn,

Bangkhuntiaen Bangkok, 10150 Thailand

Email: pakadidainum@gmail.com

Deborah Allen

1831 Fowler Avenue, The Bronx, New York 10462

Email: DAllenyc@earthlink.net